The Impact of Introducing Strategic Investors by Private Placement on Enterprise Innovation

Peiwen Fu

Construction Bank, Hubei Branch, Wuhan, Hubei, 430000, China

peiwen_fu@foxmail.com

Keywords: Private placement; Strategic investors; Financial investors; Enterprise innovation

Abstract: In this paper, targets of the private placement are classified into three categories, namely strategic investors, financial investors, and other investors, according to the criteria of whether the investors are involved in the management of enterprises. The fixed effect model is applied to test the impact of introducing strategic investors on the innovation of listed enterprises in China from 2006 to 2016. The results show that (1) the introduction of strategic investors in the private placement is beneficial to the improvement of enterprise innovation ability, especially in the quality of enterprise innovation; (2) the introduction of financial investors in the private placement harms the quality of enterprise innovation, and other investors introduced in it have no significant impact on enterprise innovation ability; (3) different targets of private placement have different effects, and its impact on enterprise innovation ability is limited, that is, the short-term impact within one year is more significant.

1. Introduction

1.1 Research Background

Since May 8, 2005, the China Securities Regulatory Commission promulgated and implemented Order No. 30, *Administrative Measures for the Issuance of Securities by Listed Companies*, listed companies in China began to adopt the financing by way of non-public issuance of shares to specific minority investors, i.e., introducing investors by private placement. Then, many scholars classify private placement targets according to different standards, including the introduction of institutional investors (Wang Xiaoliang, 2010) [1], related party investors (Wruck, Wu, 2009 [2]; Zhang Weidong 2008 [3]), strategic investors (Zhou Meifang, 2014 [4]; Wang Chang, Jiao Juan, 2009 [5]; Xu Liping, Huang Xiaoqi 2009 [6]). Regarding the impact of private placement on enterprises, domestic academic research mainly focuses on the short-term announcement effect, earnings management motivation, benefits transfer, corporate performance, and stock price (Zou Chengrui, 2011 [7]). There are few research results related to the innovation ability of enterprises.

1.2 Research Objectives and Significance

1.2.1 Research Objectives

According to the standard of whether investors have business activities and business contacts with private placement enterprises, this paper will divide the targeted investors into three categories: strategic investors, financial investors, and other investors, to achieve the following objectives: (1) to explore whether the introduction of strategic investors through private placement is more conducive to the improvement of innovation capabilities than financial investors and other investors; (2) to explore the differences of the effect of the private placement on enterprise innovation capability in different periods within three years.

1.2.2 Research Significance

The theoretical significance of this paper lies in the following two aspects. Firstly, it enriches the theories related to the economic consequences of the private placement. The current research results mainly focus on the external market effect and the internal financial effect of private placement

  DOI: 10.25236/eiemss.2022.007

(Zhang Weidong, 2005). And this paper can empirically test the impact of private placement on enterprise innovation by studying the changes in the indicators related to the innovation ability of enterprises within three years after the private placement. Secondly, the scope of existing research on introducing strategic investors into enterprises is extended. Relevant research results on strategic investors mainly focus on the economic consequences of introducing foreign strategic investors into enterprises (Wang Chang, Jiao Juanni, 2009; Lu Nengfang, 2010 [8]; Lin Tong, 2011 [9]) and the economic consequences of introducing strategic investors into the banking and financial industries (Zhang Zhiwei, 2014 [10]; Zhang Chengchuan, 2014 [11]; Li Jiali, 2014 [12]), this paper will explore the introduction of private placement in all listed companies except finance and insurance industry in China. Then, the practical significance of this paper lies in improving the efficiency of enterprise innovation. Because analyzing the impact of different private placement targets on the indicators of enterprise innovation capability helps enterprises analyze the private placement's specific role in the quality and quantity of innovation.

2. Theoretical Analysis and Research Hypothesis

Some scholars conducted research that shows that through the introduction of overseas strategies, Chinese banks' capital base, innovation ability, and operating efficiency have significantly improved (Zhu Yingying, Li Ping, Zeng Yong, 2010 [13]). At the same time, according to the adequate monitoring hypothesis, strategic investors are willing and able to pay attention to and supervise the management of enterprises. Megginson and Netter (2001) [14] proved that these investors would positively affect the company's profitability and governance capabilities by studying the changes in company performance and financial indicators before and after the private placement. Suzanne (2005) [15] used the case analysis method to study many listed companies that introduced overseas strategic investors and found that corporate governance capabilities and business performance have improved. Lv Nengfang (2010) used empirical research methods to examine the relationship between the company's introduction of overseas strategic investors and its performance afterward and found that it is conducive to optimizing the corporate governance structure and mechanism. Michael, James (2002) [16] studied the impact of private placement on short-term stock price and long-term performance and found that private placement positively impacts short-term stock price but has no noticeable promotion effect on the company's long-term performance. Zhang Zhiwei (2014) studied the relationship between the introduction strategy of Chinese banks and bank performance through empirical methods and found that the introduction of foreign strategic investors by banks has a certain degree of promotion to performance in the short term. Still, the long-term positive effect is not significant. Furthermore, it shows that the foreign strategic investors introduced by the bank acted more as financial investors than real strategic investors.

Based on the above discussion, the following hypothesis is proposed: compared with introducing financial investors, the introduction of strategic investors in the private placement is more conducive to enterprise innovation.

3. Data and Methods

3.1 Sample Selection

This paper selects the data of all A-share listed companies from 2006 to 2016 as the initial sample, which is screened and processed as following steps. (1) According to the industry classification standard of *The Guidelines for the Industrial Classification of Listed Companies*, issued by the China Securities Regulatory Commission in 2001, the sample of companies in the financial and insurance industries is excluded from the research. (2) The sample of insolvent companies is excluded, that is, the sample of companies with an asset-liability ratio greater than 1. (3) To study the impact of different investors in a private placement on the company’s innovation ability after the implementation of the private placement for at least one year, the sample of companies listed for less than one year is excluded. (4) According to the classification of strategic

investors, financial investors, and other investors, three types of private placement targets are marked. Private placement targets such as investment, trust, insurance, fund companies, etc., are all classified as financial investors. Stock sales are restricted for 36 months, and entities that are neither financial investors nor the company's original top ten shareholders are classified as strategic investors. And the targets that do not belong to the first two categories, such as the company's original shareholders and individual investors, are classified as other investors. (5) For the sample of listed companies that have conducted multiple private placements in the same year, only one private placement record is kept. (6) The first private placement shall prevail for the same listed company, and the following years shall be marked as "companies that have completed a private placement."

All the data selected in this paper are from the CSMAR database, and the data analysis software is Stata14.

3.2 Variable Definition and Model Design

To test the impact of listed companies' introduction of strategic investors in private placements on enterprise innovation and compare them with other types of investors introduced in private placements, we set the regression model to be tested as

$$y = \alpha + \beta_1 \times stra + \beta_2 \times insti + \beta_3 \times other + \beta_i' \times controls_{it} + \varepsilon_{it} \quad (1)$$

The explained variable y represents the innovation ability of the enterprise, which is measured by the innovation output of the enterprise; that is, the number of patent applications (the number of authorizations in the year).

The names and definitions of variables in the model are shown in Table 1. To avoid the adverse effects of data outliers on the regression results, this paper winsorizes all continuous variables by 1 %. At the same time, considering the time companies take to have actual innovation output, in this paper, the other independent variables except for return rate (ROA) and company listing age (listyear) of the regression model were lagged by 1 period, 2 periods, and 3 periods, respectively, to test the impact of the introduction of strategic investors on the enterprise innovation capabilities after 1 year, 2 years, and 3 years. The fixed utility model is finally selected for empirical analysis through the F value test and Hausman test results. In addition, considering the impact of the macro environment on enterprise innovation, the industry variables and year variables are controlled in the model.

4. Results and Analysis

4.1 Descriptive Statistical Characteristics

Table 2 provides detailed descriptive statistics on a series of variables involved in the model of this paper. As shown in the result, the average value of the three dummy variables of strategic investors, financial investors, and other investors in the private placement of sample companies are 0.083, 0.165, and 0.202, respectively, indicating that financial investors and other investors are the main targets of the private placement. The average value of SOE is 0.434, indicating that more than half of the actual controllers of the company are non-state-owned listed companies. The mean value of the dummy variable, dual, is 0.258, which shows that most listed companies' CEO and chairman of the board of directors are separated. The variable, patent, measures the overall innovation capability of listed companies, and its mean, median, and standard deviation are 27.77, 7, and 184.9; patent1 measures the innovation quality of listed companies, and its mean, median, and standard deviation are 9.565, 1, and 84.54; patent23 measures the innovation quantity of listed companies, and its mean, median, and standard deviation are 28.2, 4, and 133.5, respectively. The above data show significant differences in the overall level, quality, and quantity of innovation output of listed companies, and the overall innovation ability of listed companies needs to be urgently improved.

Table 2 Descriptive Statistical Characteristics.

Variable	Mean	P50	SD	Min	Max	N
patent	37.77	7.00	184.90	0.00	7400.00	16914
patent1	9.57	1.00	84.54	0.00	3677.00	16914
patent23	28.20	4.00	133.50	0.00	6692.00	16914
Lnpatent	2.06	2.08	1.62	0.00	8.91	16914
Lnpatent1	0.93	0.69	1.20	0.00	8.21	16914
Lnpatent23	1.78	1.61	1.62	0.00	8.81	16914
stra	0.08	0.00	0.28	0.00	1.00	16914
insti	0.17	0.00	0.37	0.00	1.00	16914
other	0.20	0.00	0.40	0.00	1.00	16914
size	21.92	21.75	1.24	19.50	25.75	16914
lev	0.44	0.44	0.21	0.05	0.91	16914
ROA	0.04	0.04	0.05	-0.20	0.20	16914
tan	0.24	0.21	0.16	0.00	0.75	16914
growth	0.21	0.12	0.56	-0.64	4.50	16914
indratio	0.37	0.33	0.05	0.27	0.57	16914
SOE	0.43	0.00	0.50	0.00	1.00	16914
dual	0.26	0.00	0.44	0.00	1.00	16914
Lage	10.06	9.00	6.05	1.00	27.00	16914

4.2 Analysis of Empirical Results

Table 3 Introduction of Strategic Investors and Enterprise Innovation in Private Placement.

	Lnpatent	Lnpatent1	Lnpatent23	stra	insti	other	size	lev
Lnpatent	1							
Lnpatent1	0.714***	1						
Lnpatent23	0.951***	0.543***	1					
stra	0.081***	0.040***	0.089***	1				
insti	0.088***	-0.00300	0.108***	0.508***	1			
other	0.132***	0.043***	0.148***	0.151***	0.142***	1		
size	0.305***	0.265***	0.308***	0.207***	0.240***	0.225***	1	
lev	0.027***	0.049***	0.047***	0.071***	0.040***	0.055***	0.438***	1
ROA	0.100***	0.107***	0.069***	-0.008**	-0.031***	-0.024***	0.006**	-0.372***
tan	-0.075***	-0.037***	-0.079***	0.00200	-0.026***	-0.007**	0.109***	0.158***
growth	-0.009**	-0.010**	-0.007**	0.069***	0.099***	0.060***	0.048***	0.041***
indratio	0.050***	0.036***	0.059***	-0.017**	-0.013**	0.033***	0.031***	-0.033***
SOE	-0.027***	0.058***	-0.030***	0.040***	0.018**	-0.036***	0.321***	0.344***
dual	0.037***	0.012**	0.031***	-0.037***	0.00100	0.021***	-0.131***	-0.142***
lnLage	-0.069***	-0.055***	-0.041***	0.140***	0.156***	0.152***	0.331***	0.403***
	lev	ROA	tan	growth	indratio	SOE	dual	lnLage
lev	1							
ROA	-0.372***	1						
tan	0.158***	-0.183***	1					
growth	0.041***	0.195***	-0.086***	1				
indratio	-0.033***	-0.018**	-0.070***	0.006**	1			
SOE	0.344***	-0.139***	0.189***	-0.054***	-0.065***	1		
dual	-0.142***	0.039***	-0.108***	0.028***	0.098***	-0.281***	1	
lnLage	0.403***	-0.183***	0.106***	-0.014**	-0.034***	0.436***	-0.208***	1

Note: * * *, * *, * indicates significance levels of 1 %, 5 % and 10 % respectively.

Table 3 lists the regression test results of enterprise innovation capabilities and strategic investors introduced by private placements in each period within three years after private placements. The R2 of the first two groups of regressions are all within the acceptable range of goodness of fit. Using

the fixed effect regression model, by processing the data of a series of independent variables except for ROA and enterprise listing age with a lag of 1 period, 2 periods, and 3 periods, the regressions analysis results of 1 year, 2 years, and 3 years after the private placement have respectively obtained. As shown in Table 3, in the first year, strategic investors have a significant positive effect on the overall innovation capability and innovation quality of enterprises at a statistical level of 5 % and have a positive impact on the quantity of enterprise innovations at a statistical level of 10 %. In the second year, the influence of strategic investors on the innovation capability of enterprises is weakened, which has a significant positive impact on the overall innovation ability of enterprises at the statistical level of 10 %, a significant positive impact on the innovation quality of enterprises at the statistical level of 5 %, and no significant impact on the innovation quantity of enterprises. In the third year, strategic investors have no significant effect on the enterprise's innovation capability.

Then, adding the other two types of investors to the original model, namely financial investors (insti) and other investors (other), the regression results are shown in Table 4. Compared with strategic investors, financial investors have a weaker impact on enterprise innovation and only harm enterprise innovation quality in the first year; at the statistical level of 10%, financial investors harm corporate innovation quality.

Table 4 Introduction of Various Investors and Enterprise Innovation in Private Placement.

	1 year after the private placement			2 years after the private placement			3 years after the private placement		
	Lnpatent	Lnpatent1	Lnpatent23	Lnpatent	Lnpatent1	Lnpatent23	Lnpatent	Lnpatent1	Lnpatent23
stra	0.147**	0.117**	0.115*	0.157*	0.143**	0.124	0.109	0.0814	0.0848
	(0.038)	(0.030)	(0.093)	(0.065)	(0.042)	(0.132)	(0.266)	(0.368)	(0.344)
size	0.241***	0.123***	0.255***	0.192***	0.0902***	0.199***	0.0954**	0.0177	0.106**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.024)	(0.554)	(0.011)
lnLage	0.275**	0.0650	0.365***	0.283*	-0.0468	0.484***	0.182	-0.0633	0.425*
	(0.014)	(0.437)	(0.001)	(0.072)	(0.700)	(0.002)	(0.410)	(0.717)	(0.054)
SOE	0.0635	0.0728	0.0539	-0.0440	0.0331	-0.0471	0.0441	0.0668	0.0479
	(0.533)	(0.263)	(0.587)	(0.659)	(0.618)	(0.628)	(0.672)	(0.346)	(0.635)
dual	-0.00795	0.0537*	-0.00485	0.0148	0.0400	0.0230	0.00515	-0.0199	0.0137
	(0.839)	(0.071)	(0.901)	(0.716)	(0.239)	(0.567)	(0.907)	(0.588)	(0.749)
lev	-0.262**	-0.226***	-0.203	-0.162	-0.270***	-0.106	0.0954	-0.166	0.144
	(0.041)	(0.009)	(0.116)	(0.210)	(0.005)	(0.416)	(0.477)	(0.114)	(0.276)
ROA	0.448*	0.503***	0.402	0.416	0.615***	0.287	0.383	0.636***	0.230
	(0.082)	(0.006)	(0.109)	(0.124)	(0.001)	(0.280)	(0.181)	(0.002)	(0.416)
growth	-0.0146	0.00178	-0.0177	0.00430	-0.00177	0.00737	0.000437	0.0168	-0.00170
	(0.433)	(0.886)	(0.359)	(0.810)	(0.888)	(0.679)	(0.981)	(0.233)	(0.919)
indratio	0.0763	0.0828	0.0733	0.126	0.392	0.0336	0.622*	0.343	0.562
	(0.798)	(0.713)	(0.811)	(0.704)	(0.116)	(0.920)	(0.098)	(0.227)	(0.124)
tan	0.0742	0.0530	0.113	0.171	0.212*	0.0887	0.0105	0.0631	-0.0816
	(0.634)	(0.600)	(0.457)	(0.318)	(0.058)	(0.589)	(0.954)	(0.614)	(0.639)
industry	YES	YES	YES	YES	YES	YES	YES	YES	YES
year	YES	YES	YES	YES	YES	YES	YES	YES	YES
cons	-4.232***	-2.125***	-5.016***	-3.228***	-1.304**	-4.047***	-0.745	-0.168	-1.632
	(0.000)	(0.000)	(0.000)	(0.000)	(0.032)	(0.000)	(0.477)	(0.826)	(0.116)
N	14706	14706	14706	13014	13014	13014	10950	10950	10950
r2	0.119	0.267	0.144	0.112	0.272	0.136	0.0830	0.271	0.107
F	30.32	115.7	35.31	25.72	106.5	29.99	18.17	96.27	21.65

Note: * * *, * *, * indicates significance levels of 1 %, 5 % and 10 % respectively.

5. Conclusion

In this paper, the data of A-share listed companies from 2006 to 2016 is selected as a sample to study and verify the impact of listed companies introducing different types of investors in private placement on enterprise innovation. The findings validated the following hypothesis:

Compared with the introduction of financial investors, strategic investors in private placement are more conducive to enterprise innovation.

At the same time, the empirical results show that the impact posted on enterprise innovation capability by introduced investors in the private placement is limited to the scope and time; that is, the impact is mainly on the quality of enterprise innovation and the first year of the private

placement.

In addition, the introduction of financial investors in private placement harms the quality of corporate innovation. The main reason may be that many institutional investors have weak long-term investment concepts and irrational investment behaviors. Therefore, their participation in corporate governance is limited.

Due to the limitation of professional knowledge and research time, the deficiency of this paper is that the selected fixed effect model belongs to a one-way causal relationship empirical analysis. If we need to get more explanatory and more convincing test results, we need to optimize the regression model further to study the interaction between the two.

References

[1] Wang Xiaoliang. Research on the long-term stock price performance of private placement of listed companies in China [D]. Shanghai: Fudan University, 2010.

[2] Wruck K H, Wu Y L. Relationships, corporate governance, and performance: Evidence from private placements of common stock[J]. Journal of Corporate Finance, 2009, 15(1):30-47.

[3] Zhang Weidong. Empirical research on private placement of new shares, investor categories, and short-term performance of company stock prices [J]. Management World, 2008 (04): 179-180.

[4] Zhou Meifang. Research on the Influence of Introducing Overseas Strategic Investors on the Corporate Governance and Performance of Commercial Banks in China [D]. Guangzhou: Jinan University, 2014.

[5] Wang Chang, Jiao Juanni. Evaluation and empirical research on the impact of the introduction of international strategic investors on the performance of state-owned enterprises [J]. Nankai Management Review, 2009,12(02):11-19.

[6] Xu Liping, Huang Xiaoqi. Research on the Behavior of Listed Companies Introducing Strategic Investors [J]. Statistics and Decision Making, 2009(12): 144-146.

[7] Zou Chengrui. Research on private placement, investor types, and company profitability [D]. Guangzhou: Jinan University, 2011.

[8] Lv Nengfang. Research on the Influence of Overseas Strategic Investors on Company Performance [D]. Hefei: Anhui University, 2010.

[9] Lin Tong. The Theoretical Basis of Introducing Overseas Strategic Investors in the Chinese Capital Market [J]. Journal of Heihe University, 2011, 2(06): 48-52.

[10] Zhang Zhiwei. Research on foreign equity participation and comprehensive value creation ability of Chinese banks [D]. Beijing: Beijing Jiaotong University, 2014.

[11] Zhang Changchun. Research the Necessity and Impact of Bank A's Introduction of Overseas Strategic Investors [D]. Guangzhou: South China University of Technology, 2014.

[12] Li Jiali. Research on the Influence of Introducing Overseas Strategic Investors on the Financial Risks of Commercial Banks in China [D]. Chengdu: Southwestern University of Finance and Economics, 2014.

[13] Zhu Yingying, Li Ping, Zeng Yong, et al. Attracting capital, intelligence and guidance: An empirical study on Chinese banks' introduction of overseas strategic investors [J]. China Soft Science, 2010(8):70-80.

[14] Megginson W L, Netter J M. From State to Market: A Survey of Empirical Studies on Privatization [J]. Journal of Economic Literature, 2001, 39(2):321-389.

[15] Suzanne M. A4 vision adds additional high-profile strategic investors[J]. Biometric Technology Today,2005(13):1-2.

[16] Michael L, Michael H, James S, et al. Long-run performance following private equity placements [J]. Journal of Finance, 2002(57):2595-2617

Table 1 Researched Variables and Definition Tables.

Variable Name	Variable Symbol	Variable Definition
Enterprise Innovation	lnpatent	Natural logarithm of the number of patent applications (granted in the same year as launching private placement) plus 1
Enterprise Innovation Quality	lnpatent1	Natural logarithm of the number of invention patent applications (granted in the same year as launching private placement) plus 1
Enterprise Innovation Quantity	lnpatent23	Natural logarithm of the number of applications for utility model patents and design patents (non-invention ones) (granted in the same year as launching private placement) plus 1
Introduction of Strategic Investors by Private Placement	stra	Dummy variable, 0 before the introduction of strategic investors, 1 after the introduction of strategic investors
Introduction of Financial Investors by Private Placement	insti	Dummy variable, 0 before the introduction of financial investors, 1 after the introduction of financial investors
Introduction of Other Investors by Private Placement	other	Dummy variable, 0 before the introduction of other investors, 1 after the introduction of other investors
Size of Enterprise	size	The natural logarithm of the company's total assets
Assets-liability Ratio	lev	End-of-period total liabilities/End-of-period total assets
Return on Assets	ROA	Company's net profit / total assets, measuring profitability
Fixed Assets Ratio	tan	Net fixed assets / ending total assets
Enterprise Development Ability	growth	Operating income growth rate for the year of launching the private placement
The proportion of Independent Directors	indratio	Number of independent directors / total number of board of directors
The attribute of State Property	SOE	Dummy variable, 1 when the actual controller of the enterprise is state-owned, otherwise 0
The Integration of Two Positions	dual	Dummy variable, 1 for CEO also serves as chairman and 0 for non-duality
Enterprise Listing Age	lnLage	Natural logarithm of the current year plus 1 minus the year the company was listed plus 1