Research on the Influencing Factors of Establishing Buyout Fund And Value Creation Benefits

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Abstract. Buyout funds have risen and developed rapidly in China since 2000. In 2011, “Paradise Dakang” set off a countrywide upsurge of establishing “PE + listed companies” buyout funds. Based on the data of buyout funds set up by listed companies and private equity investment institutions during 2011-2017, this paper studies the influence factors of their decision to set up buyout funds. The research finds that enterprise scale, cash holdings, operating performance and operating revenue growth are positively correlated with the possibility of establishing buyout funds, while leverage level and the proportion of the largest shareholders are negatively correlated with the possibility of establishing buyout funds. The establishment of "PE + listed company" model buyout funds can significantly increase shareholders’ wealth in the short term.

Keywords: Buyout fund, Private equity fund, Wealth effect.

1. Introduction
Buyout funds originated from the United States, which is a type of private equity fund that has emerged under the trend of high integration of financial capital and industrial capital. The operation mode of M&A funds is to take mature undervalued enterprises as investment objects, acquire equity and control power of the target enterprise through mergers and acquisitions, and then implement a series of restructuring and transformation on the investment objects for appreciation, and finally sell equity to obtain profits. More than 50% of newly established private equity funds in European and American capital markets are buyout funds.

In China, listed companies have explored the “PE+listed company” model of M&A funds in the context of supply-side reform, capital market financing difficulties, and resources’ insufficiency. This is a kind of funds which established by listed company and private equity investment institution (PE institution). Additionally, it is an investment tool with Chinese characteristics formed under a specific environment that focuses on the development strategy of listed companies. It can effectively solve the problem of financing difficulties, and use the professionalism of PE institutions to greatly improve the efficiency of mergers and acquisitions and reduce the cost of mergers and acquisitions.

According to statistics from the China Investment Research Institute, as of the end of 2017, a total of 736 listed companies announced plans to set up buyout funds, with a total size of over one trillion yuan. Among them, from 2015 to 2017 alone, 410 listed companies participated in the establishment...
of 473 "PE+ listed company" model buyout funds, with a total size of 764.21 billion yuan, which means an average of 13.14 "PE+ listed company" buyout funds were born every month.

This article takes research on the buyout fund established by listed companies and PE institution, and the analyzes the influencing factors of the establishment of the fund with a view to deepening the understanding of the "PE+listed company" localization model. Finally, we will provide valuable reference opinions on the establishment of buyout funds for relevant entities such as listed companies and investors.

2. Literature review

Regarding researches on buyout funds, foreign researches mainly focus on the difference between the average net yield of the funds and the market index, in another word, is the difference between the buyout funds' performance and the market portfolio performance.

Kaplan, Steven N[1] (2005), Phalippou, Ludovic, Oliver Gottschalg[2] (2009) use the data form Venture Economics database and find that the average net return of buyout funds is slightly lower than the S&P500 index, which means the buyout funds underperform the market portfolios. However, the data from the Venture Economics database about buyout funds may have major problems: large number of buyout funds were stopped around 2001, but they are still kept in the database, and the net asset values are constantly being simulated forward, which leads to the data from Venture Economics database has a serious deviation in the performance of buyout funds.

Robert, Steven N., Tim[3] (2014), Robinson, David, Berk Sensoy[4] (2016) used data from the Buegiss database to find that the average net return of buyout funds is slightly higher than the market index. After risk-adjusted research by Jean, Rossitsa, Kathryn et al.[5] (2016), the returns of buyout funds seems to be similar to market portfolios.

The researches of Chinese scholars mostly focus on analyzing the impact of establishing buyout funds on the wealth of shareholders of listed companies. He Xiaoxing, Ye Zhan, Chen Ying et al.[6] (2016) found that the establishment of buyout funds has a positive impact in the short term using short-term event research Wealth. Pang Jiaren[7] (2018) researched on the positive long-term wealth effect of buyout funds in further and found that most of the funds have not carried out substantial investment activities since their establishment, that is, the proliferation of "zombie funds" in the Chinese market will damage shareholders' interests in the long run. From the perspective of signal effects, Wang Yongyan, Xiao Yue, Tong Yan[8] (2018) find that listed companies set up buyout funds in order to send a positive signal to the market and produce a significantly positive market response during the window period.

According to the influencing factors of fund performance, Kaplan, Steven N., Per Stromberg[9] (2009) deemed that the level of corporate leverage is inversely related to the performance of buyout funds, while Li Shamin and Zhu Tao[10] (2006) researched that the cash holdings of listed companies have a significant impact on the performance of buyout funds.

Overall, we realize that foreign scholars have more comprehensive research on buyout funds, and there has been extensive studies on the value creation benefit of buyout funds. Many studies have found that the performance of buyout funds is roughly equivalent to market index returns. Due to the lack of sample data, domestic scholars have little empirical research on my country's buyout funds, mainly focusing on the use of event research to study the value creation effect of buyout funds.

this paper creatively combines the influencing factors of fund performance and its own characteristics, quantitatively analyzes the influencing factors of listed companies setting up buyout funds on the basics of predecessors.

3. Data and variate

The data of the listed company is derived from the Ruisi database and the Guotaian database. We use the A-share listed companies that announced to establish the “PE+Listed Company” fund as an sample, and the sample period is 2011-2017. We exclude financial companies and companies with negative net assets. Considering the existence of a company participating in the establishment of the buyout funds,
From the perspective of the company, whether a listed company establishes an buyout fund or not, the key is whether the buyout fund can bring positive effects to the company. Combined with the characteristics of the buyout fund, the following speculations are made regarding the influencing factors of whether the listed company establishes an buyout fund:

1) Size:
   Generally, small size enterprises are in the growth stage and have strong willingness to expand. Nowadays SMEs universally have financing difficulties, and the establishment of buyout funds can not only effectively solve the problem of shortage of funds for buyout, but also use PE institutions’ professional experience to improve M&A efficiency and reduce risks. Nevertheless, small-scale enterprises may have difficulty to find suitable PE institutions as partners due to their own limitations.

2) Cash holdings:
   For companies with low cash holdings, the establishment of buyout funds can better promote their leverage and financing advantages, which leads to stronger motivation to establish buyout funds. On the other hand, companies with sufficient cash holdings may have the willingness and ability to expand, so companies with high cash holdings also have a strong tendency to establish buyout funds.

3) Leverage level:
   Kaplan, Steven N., Per Stromberg[1] (2009) research shows that the leverage level of listed companies is inversely related to the performance of buyout funds. Also, due to the increase in agency costs and financial risks of the establishment of buyout foundations, companies with high levels of leverage may be reluctant to establish buyout funds. However, companies with high leverage levels are also more likely to have financing difficulties, so they might be eager to carry out financing for mergers and acquisitions to obtain sustained income with the help of PE institutions.

4) Operating performance:
   Generally, companies with the better performance and the stronger profitability have stronger capital strength and tendency to establish buyout funds to expand market share to consolidate its industry position. However, companies with poor operating performance always be in business difficulties, therefore, they hope to complete industrial transformation through mergers and acquisitions and get rid of the difficulties.

5) Increase in operating income:
   The increase in operating income can reflect the development prospects and operating conditions of the enterprise to a certain extent. The impact on companies' willingness to establish buyout funds is similar to operating performance.

6) Proportion of shares held by the largest shareholder:
   Generally speaking, the higher the concentration of equity, the more active the company's investment and financing tendency.

Table 1 and table 2 presents the Summary statistics across sample years.
Table 1. Variate

| Variate | Definition |
|---------|------------|
| Buyout  | If the company has established a “PE+ listed companies” buyout fund in a certain year, it is taken as 1, otherwise it is taken as 0. |
| Size    | Logarithm of total assets. |
| Cash    | Monetary funds plus trading financial assets divided by total assets. |
| Lev     | Debts divided by assets. |
| ROA     | Return on total assets. |
| Sale-grow | Operating income growth rate relative to the previous year’s operating income. |
| Share1  | Proportion of shares of the listed company held by the largest shareholder. |
| Year    | Dummy variate, there are 6 annual dummy variables. |
| Industry| Dummy variate, there are 15 annual dummy variables. |

Table 2. Summary Statistics

| Variate | Average | \(\sigma\) | P25 | P50 | P75 |
|---------|---------|-------------|-----|-----|-----|
| Buyout  | 0.1759  | 0.3908      | 0   | 0   | 0   |
| Size    | 21.8722 | 1.1547      | 21.0063 | 21.7070 | 22.4829 |
| Cash    | 0.1978  | 0.1354      | 0.1027 | 0.1626 | 0.2548 |
| Lev     | 0.4046  | 0.2041      | 0.2412 | 0.3910 | 0.5549 |
| ROA     | 0.0395  | 0.0867      | 0.0147 | 0.0366 | 0.0696 |
| Sale-grow | 0.2215 | 0.5697      | -0.0124 | 0.1305 | 0.3250 |
| Share1  | 0.3170  | 0.1387      | 0.3110 | 0.2995 | 0.4078 |

Table 2 depicts the summary statistics of the factors influencing the establishment of “PE+ listed companies” buyout fund by listed companies. We note that only 17.59% of the A-share listed company samples have set up “PE+ listed company” M&A funds, which is lower than the European and American markets. In addition, the quantile and standard deviation of the variables show that there is a large difference between the sample companies, and verified that buyout funds can increase shareholder wealth in the short term.

4. Regression Analysis

4.1. Influencing factors research

Since the dependent variable Buyout is a 0,1 variable, we use two regression models, probit and logit, to analyze the influencing factors of the establishment of buyout funds. Considering the reverse causal effect, all independent variables lag one period. The regression results are as follows:

Table 3. Influencing factors

| Variate | Probit | Standardized | Logit   | Standardized |
|---------|--------|--------------|---------|--------------|
| Size    | 0.3182*** (7.7871) | 0.9402 | 0.5402*** (7.6245) | 1.5961 |
| Cash    | 1.4639*** (4.0387) | 0.5072 | 2.55631*** (3.8611) | 0.8857 |
| Lev     | -1.1786*** (-4.5435) | -0.6155 | -2.0500*** (-4.4129) | -1.0706 |
| ROA     | 3.2434*** (5.2296) | 0.7196 | 5.6175*** (5.2065) | 1.2463 |
| Sale-gr | 0.1395** (2.4336) | 0.2034 | 0.2267** (2.1611) | 0.3305 |
| Share1  | -1.1135*** (-3.8889) | -0.3952 | -1.9898*** (-3.8894) | -0.7062 |

The standardized coefficient is the \(\beta\) coefficient, which means that each time the standard deviation of the independent variable increases by one standard deviation, the dependent variable is the amount
of change in the standard deviation of whether the listed company establishes a buyout fund. The independent variables are placed in the same position, which can better reflect the influence of each independent variable on the establishment of buyout fund by a listed company, which is convenient for comparative analysis between independent variables. Data in parentheses is z statistics; *, **, ***Indicates significant at 10%, 5%, and 1% significance levels, respectively.

From the above table, the regression results of the probit model and the logit model are relatively consistent:

1) The regression coefficients of enterprise size are 0.3182 and 0.5402 respectively, both of which are significant at the 1% significance level. This shows that although small-scale enterprises have a strong tendency to set up a "PE + listed company"buyout funds. From the point of view of standardized coefficients, compared with other independent variables, the size of enterprises has the greatest impact on whether listed companies participate in the establishment of buyout funds.

2) The regression coefficients of cash holdings are significantly positive, in another word, listed companies with more cash holdings are more likely to establish buyout funds. This is probably because the fact that most Chinese companies use cash to pay for mergers and acquisitions. Therefore, companies with large cash holdings have the strength to set up merger and acquisition funds for mergers and acquisitions. In addition, companies with abundant cash reserves also have a desire to convert cash into investment.

3) The regression coefficient of the leverage level is -1.1786, which is significantly negative at the level of 1%, indicating that companies with higher leverage levels are less willing to set up M&A funds. The high leverage itself leads to greater financial risks. In addition to the existence of agency costs, companies with high leverage levels lack the willingness to establish buyout funds.

4) The regression coefficient of operating performance is 3.2434, which is significant at a 1% significance level, and the standardized coefficient is 0.7196, which is higher than the standardized coefficients of other independent variables. This shows that companies with better performance seem to have stronger financial strength and better development prospects. Which leads to a stronger ability and willingness to establish industrial mergers and acquisitions funds to merge upstream and downstream enterprises to consolidate its industry position or achieve rapid expansion. What’s more, the operating performance has a greater impact on whether the company establishes a buyout fund.

5) Similar to the operating performance, the regression coefficient of the company’s operating income growth rate is significantly positive at the 5% significance level. At the same time, the standardized coefficient of operating income growth rate is 0.2034. Compared with other independent variables, the increase in operating income has a smaller effect on listed companies’ decision about buyout fund.

6) The regression coefficient of the shareholding ratio of the largest shareholder is significantly negative at the level of 1%, and the company with the lower concentration of equity has a greater probability of establishing a “PE+listed companies” fund. This may be caused by excessive “zombie funds” in the Chinese market and poor long-term performance of the funds. Additionally, companies with low equity concentration are more likely to have conflicts and agency problems among the major shareholders, so they are more likely to establish buyout funds.

4.2. Short-term value creation benefits

The establishment of a buyout fund by a listed company and a PE institution may produce both positive and negative value creation effects.

We use the event analysis method to study the value creation effect of the buyout fund of the listed company’s establishment of the "PE + listed company" model. This paper selects the announcement day of the listed company's first announcement to establish a "PE+listed company" model fund as the event day, and the third trading day before the announcement day to the third trading day after the announcement day as the event window. At the same time, the estimated window period is from the 105th trading day before the announcement day to the 6th trading day before the event day. In order to avoid interference with other major announcements other than the establishment of “PE+listed
companies” funds, based on the above influencing factors analysis, we exclude the three days before and after the announcement of the establishment (event window period) regarding equity incentives, dividends, non-public offerings, directly issue additional shares, issue stocks to purchase assets, and appoint and dismiss senior executives. After sorting and screening, a total of 374 listed companies were obtained for analysis.

Table 4. Short-term value creation

| window   | AAR (%)  | CAR (%)  | T-statistics |
|----------|----------|----------|--------------|
| [-3, -3] | -0.1092  | -0.1092  | -0.3212      |
| [-3, -2] | -0.1580  | -0.2672  | 0.9073       |
| [-3, -1] | 0.1459   | -0.1213  | -0.4029      |
| [-3, 0]  | 1.0085   | 0.8872***| 2.7191       |
| [-3, 1]  | 0.5903   | 1.4775** | 3.5594       |
| [-3, 2]  | -0.1558  | 1.3217*  | 2.8678       |
| [-3, 3]  | -0.2539  | 1.0678   | 2.4732       |

According to the data in Table 4 the listed company announced the establishment of the “PE+Listed Company” model of the cumulative excess return rate of 1.0678% during the event window period [-3,3]. It is significant in the economic sense, assuming that the average market value of listed companies that set up buyout funds with PE institutions is 15 billion yuan, the result signifies that the establishment of buyout funds to increase the listed company’s wealth of 1601.7 million yuan during the event window period, significantly increase shareholder wealth in the short-term.

Figure 1. CAR tendency

From the CAR trend chart, it can be seen that the cumulative excess return rate(CAR) of the sample fluctuated from -0.1092% to -0.1213% in the first three days after the announcement of the buyout fund’s establishment. The overall change is relatively stable and at a low level, which indicates that there is no information leakage or insider dealing. The cumulative excess return rate on the day of the establishing announcement of the buyout fund quickly increased to 0.8872%. And then, it reached the maximum of 1.4775% on the first day after the announcement. However, in table 4 we realize that although the cumulative excess return rate(CAR) was still significantly positive for the following two days, the accumulated excess returns have declined significantly, and the average excess return rates(AAR) are all negative. Without showing a unilateral upward trend, it seems that the market's response to listed companies' establishment of M&A funds is not very optimistic.
The phenomenon may be due to the current "asset shortage" in China's capital market. Buyout funds have difficulty to invest abroad or find high-quality M&A projects, which leads to the proliferation of "zombie funds". The establishment of buyout funds cannot bring about substantial changes to listed companies. It can only send a positive signal to the market and attract irrational investors to raise stock prices in the short term, and increase shareholder wealth. With investors' understanding of this model of buyout funds, this signal can attract fewer and less irrational investors, that is, the market's response is no longer so positive.

5. Conclusion
WE found that the larger the enterprise size, the more sufficient cash holdings, the better the operating performance, the higher the operating income growth rate, the more capable it is. He is willing to set up a "PE + listed company" buyout fund to consolidate its industry position or achieve rapid expansion. Enterprises with high leverage and high shareholding ratio of the largest shareholder are relatively conservative, and the possibility of establishing a “PE+listed company” buyout fund is relatively small. In addition, we also verified that the establishment of buyout funds can significantly increase shareholder wealth in the short term, but the actual market reaction is not positive. We speculate that the proliferation of "zombie funds" is the main reason for this phenomenon.

This paper believes that encouraging listed companies to set up buyout funds is of great significance for accelerating the transformation and upgrading of my country's economic structure. However, listed companies should make rational decisions in light of their own actual situation, and cannot blindly establish buyout funds. In addition, there are still many shortcomings and deficiencies in China's buyout funds, which has led to the proliferation of "zombie funds". How to ensure the quality of investment targets and the abundance of M&A projects while the number and scale of funds have surged is the future "PE + listed company" model Key issues for the healthy development of buyout funds.

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