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SPAC管理團隊參與度與目標公司績效

SPAC Engagement of Management Team and

Performance of Acquired Companies

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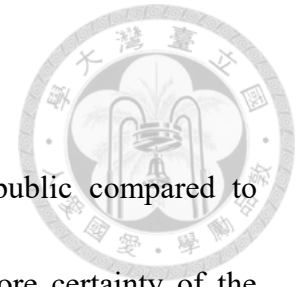
摘要

SPAC 相較於傳統 IPO，提供私有公司另一上市管道。透過 SPAC 上市提供了幾項優勢，包括對於私有公司而言，募資金額擁有更高的確定性、更快速的上市渠道，以及來自 SPAC 團隊的管理技能和資源。

根據過去的研究，通過 SPAC 上市的公司股票表現方面不如通過傳統 IPO 上市的公司。然而，當 SPAC 團隊成員更積極地參與被收購公司經營時，表現較差的情形有所減緩。在本文中，我想研究 SPAC 團隊成員在被收購公司中的積極參與是否能提高公司績效。研究結果顯示，當 SPAC 團隊成員之一被任命為被收購公司的董事長時，以及當被收購公司董事會成員有更高比例來自於 SPAC 團隊時，這些公司通常有更好的會計表現、更低的投資支出、更低的股票報酬波動度以及更低的短期債務比率；而較高比例的股票獎勵則對這些指標有負面影響。本文提供 SPAC 經營團隊參與程度如何影響被收購公司的全面觀點。

關鍵詞：SPACs、SPAC 表現、SPAC 團隊參與、CEO-董事長雙重身份、薪酬結構

English Abstract



SPAC is an alternative way for private companies to go public compared to traditional IPOs. SPACs provide several advantages, including more certainty of the proceeds that private companies receive when going public, a faster listing process, and the management skills and resources from the initial SPAC team.

According to previous studies, firms going public via SPAC tend to perform worse in terms of stock performance compared to firms going public via traditional IPOs. However, when SPAC team members engage more with the acquired company, the negative stock performance is mitigated. In this paper, I investigate whether the engagement of SPAC team members in the acquired company can improve firm performance. I find that when one of the SPAC team members is assigned to be the chairman of the acquired company, firms tend to have better accounting performance, lower investment spending, lower stock return volatility, and a lower short-term debt ratio, while a higher portion of stock awards tends to have a negative effect on these measurements. This paper provides an overall view of the influence that SPAC engagement has on acquired companies.

Keywords: SPACs, SPAC performance, SPAC team engagement, CEO-chairman duality, compensation structure

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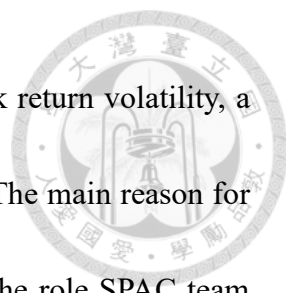
1. Introduction

Special Purpose Acquisition Companies (SPACs) provide an alternative channel for private firms to become public. The number of SPAC IPOs reached a historic high in 2021, with the total reaching 613 and proceeds exceeding 160 billion USD, surpassing the sum of the past twenty years. This indicates that SPACs have become an increasingly important vehicle for private firms to go public.

Previous studies have extensively researched the role of PE/VC investors in the companies they invest in (Krishnan et al. 2011). PE/VC investors tend to improve firm performance when they engage more actively in the board of directors of the invested companies. Similarly, Gahng et al (2023) specifies that SPAC team members play a role similar to that of PE/VC investors. Whether a more aggressive engagement of SPAC team members in the acquired companies also improves firm performance has become an important issue.

In this paper, I aim to investigate how the engagement of initial SPAC team members affects the performance of the acquired companies. This research question provides an overall view of the impacts that SPAC management teams have on the acquired companies. I investigate several performance measurements, including accounting performance, investment spending, stock return volatility, and liquidity.

I hypothesize that firms with more engagement from SPAC team members are more



likely to have better ROAn, lower investment spending, lower stock return volatility, a higher cash ratio, lower long-term debt, and lower short-term debt. The main reason for better accounting performance and lower stock return volatility is the role SPAC team members play as consultants to the acquired companies, providing management skills and human resources.

On the other hand, the assumptions of lower investment spending, higher cash ratio, and lower short-term debt stem from the characteristic that SPAC team members typically have a lockup period on their share holdings. This may motivate them to apply a relatively conservative strategy when they engage on the board of directors, at least in the short term.

The data on board members and their compensation structure is manually collected from the Boardroom Alpha database from 2019 to 2023. The data on SPAC team members is obtained from the SPAC Research database from 2016 to 2023. The summary statistics shows that on average, 22% of the chairman is assigned from SPAC team members. Additionally, 15% of the acquired companies have the characteristics of CEO-chairman duality.

I find that when one of the SPAC team members is appointed as the chairman of the acquired company, these firms tend to have a higher ROA. This evidence implies that SPAC team members act as consultants for the acquired companies, improving their

performance. Additionally, these firms tend to have lower R&D expenses, a lower short-term debt ratio, and a higher long-term debt ratio. This suggests that SPAC team members tend to apply a more conservative firm strategy, reducing investment spending and short-term borrowing.

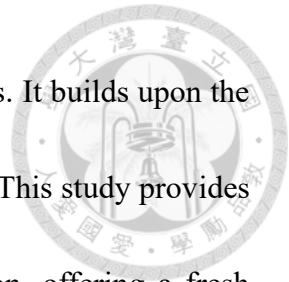
However, firms with a chairman from the SPAC team also have a lower cash ratio, which is inconsistent with my initial assumption. One possibility is that these firms do not have a high demand for short-term cash payments and investments due to their low short-term debt ratio and low R&D expenses.

Finally, I find that firms with CEO-chairman duality tend to have a higher portion of stock awards compensation compared to regular salary. This result is economically intuitive. However, I did not find evidence that CEO-chairman duality is detrimental to firms' performance.

This paper broadens the understanding of the role SPAC team members play in the acquired companies. Dimitrova (2017) shows that, on average, SPACs perform worse than firms going public via traditional IPOs. Additionally, Krishnan et al. (2011) indicate that PE/VC investors play an important role in supporting corporate governance. Building on these studies, I extend the literature by exploring how and in what aspects SPAC team members affect the performance of acquired companies.

This paper investigates the influence of SPAC team member engagement, CEO-

chairman duality, and compensation structure on acquired companies. It builds upon the research conducted by Dimitrova (2017) and Krishnan et al. (2011). This study provides conclusions, background on SPAC vehicles, and economic intuition, offering a fresh perspective on the role SPAC team members play in acquisitions.



2. Institutional Backgrounds of SPACs

A SPAC (Special Purpose Acquisition Company) offers an alternative way for private firms to go public, compared to the traditional IPO. In a traditional IPO structure, private firms need to seek financial services from underwriters, often investment banks that assist through customer due diligence, firm value estimation, book building, and other processes. Due to the complexity of the IPO process, it takes longer for private firms to go public through traditional IPO channels. Additionally, investment banks usually charge a 7% fee (Deloitte, 2021) for providing IPO services. Since IPO investors are usually institutional investors, the IPO price tends to be significantly affected by their preferences and market demand, which might be unfavorable for private firms due to the uncertainty of capital funding.

In terms of SPACs, the process starts with initial sponsors. These sponsors establish a shell company and then proceed with IPO financing after submitting a prospectus to the

SEC (Securities and Exchange Commission). After the IPO financing, SPAC sponsors take advantage of this shell company to find an appropriate merger target, usually a private firm. This provides an alternative method for private firms to go public in the US.

In 2020, there were 248 SPAC IPOs, raising a total of 83.3 billion USD (Deloitte, 2021).

In 2021, the number of SPAC IPOs reached an unprecedented 613, raising a total of 162.5 billion USD (Gahng et al., 2023), surpassing the sum of the past twenty years.

During the SPAC IPO, the price is often set at 10 USD per share. SPAC's initial sponsors are required to find a target for acquisition within a certain period, typically 18 to 24 months. If the SPAC fails to complete an M&A within this timeframe, it must proceed with liquidation. The process for private firms to go public through a SPAC can be further divided into two periods: the SPAC period and the de-SPAC period.

The SPAC period occurs after the SPAC IPO and before the completion of acquisition or liquidation. During this time, SPAC shareholders vote on whether to proceed with the acquisition once a potential target company is identified. Additionally, every shareholder has the option to redeem their shares. This redemption mechanism provides downside protection for SPAC investors. However, if a large number of shareholders choose to redeem, it may result in insufficient funds for the SPAC to acquire the target company. To address this issue, SPACs often bring in PIPE (Private Investment in Public Equity) investors as partners. PIPE investors, typically venture capitalists,

private equity funds, or even SPAC initial sponsors themselves, play a crucial role in filling the funding gap caused by redemptions.



The de-SPAC period follows the successful completion of the acquisition, where the acquired company has gone public. At this stage, the SPAC usually receives a new ticker on the exchange and operates similarly to firms that have gone public through a traditional IPO.

In the process of going public through SPAC, the main stakeholders include SPAC's initial sponsors, SPAC IPO investors, PIPE investors, the target company, and the public market shareholders in the merged company. From 2010 to 2020, SPAC initial sponsors and SPAC IPO investors performed well in the de-SPAC period, while public shareholders in the merged company consistently performed poorly (Gahng et al., 2023).

Going public through a SPAC is often discussed with several advantages. First, SPACs are usually founded by managers with extensive investment and management experience and great reputations. Private firms can benefit not only from SPAC's funding sources and going public process but also from the management resources of SPAC sponsors. SPACs act as advisors, similar to venture capitalists or private equity funds, to improve the operating performance of the acquisition company.

Second, it is often believed that going public through a SPAC takes less time than a traditional IPO. However, according to previous studies, while it takes on average 104

calendar days for a private firm to go public through a traditional IPO (Chaplinsky et al., 2017), it takes approximately 150 calendar days on average through a SPAC (Gahng et al., 2023). Based on these studies, it appears that there is no speed advantage for SPACs, especially for acquisition firms that are required to submit audited financial statements.

Third, going public through a SPAC provides private firms with more certainty about the amount of funding raised. In a traditional IPO, the stock price of a private firm is determined through a roadshow to pitch to institutional investors, and the funding amount is significantly influenced by the interests and preferences of these investors until the last day. In contrast, SPACs negotiate directly with the acquisition firm, leading to a consensus on the amount of funds raised, which is not affected by market demand and preferences. This provides greater certainty for private firms.

3. Literature Review

3.1. de-SPAC Period Performance

According to Dimitrova (2017), on average, companies going public via SPACs perform significantly worse than those going public through traditional IPO channels (Dimitrova, 2017). This holds true when measuring firm performance using both buy-and-hold abnormal return and accounting performance metrics. The research also



indicates that SPAC performance tends to deteriorate when acquisitions are completed close to the acquisition deadline. Given the 18 to 24-month timeframe for SPACs to complete acquisitions, there's a motivation for SPAC initial sponsors and investment banks to expedite target selection rather than risk liquidation, potentially leading to poor acquisitions. Moreover, SPACs are required to allocate 80% of their net assets for acquisitions to avoid liquidation, possibly resulting in premium or overvaluation for the acquired companies.

Additionally, the study highlights that appointing one of the SPAC team members as the chairman of the acquired company can somewhat mitigate negative performance. When the chairman of the acquired company is from the initial SPAC team, there tends to be a positive short-term stock return. However, the study did not explore the potential impact of SPAC engagement on stock return volatility and accounting performance. To extend this research, regression models are established to examine whether the engagement of initial SPAC team members improves the performance of acquired companies. These models analyze firm performance, investment spending tendencies, stock return volatility, and liquidity to provide a comprehensive view of the impact of SPAC team members' engagement.

3.2. Potential Role of SPACs play in the Acquired companies



Numerous previous studies have explored the characteristics of private equity (PE) and venture capital (VC) firms that contribute value to invested firms. According to Krishnan et al. (2011), VCs with better reputations tend to exhibit a significantly positive correlation with firms' post-IPO operating performance. Firms backed by more reputable VCs are expected to demonstrate better industry-adjusted Return on Assets (ROA), long-term abnormal stock returns, and longer survival periods on the exchange.

The improved operating performance attributed to reputable VCs can be attributed to two main factors. Firstly, reputable VCs typically possess superior investment selection abilities compared to other investors. Secondly, they tend to be more actively involved in post-IPO management, including playing a more proactive role in corporate governance (Krishnan et al., 2011). Even when controlling for investment selection ability, the reputation of VCs remains significantly positively correlated with firms' operating performance. This is because VCs play a crucial role in providing advisory and monitoring corporate governance in operating companies, leading to a lower proportion of CEO-founders and CEO-Chairman of the Board (COB), which often mitigates serious agency problems (Krishnan et al., 2011).

Previous studies have identified several indicators for measuring the reputation of VCs. Gompers (1996) employs the age of the VC as a proxy variable, while Gompers and Lerner (1999) further measure VC reputation by considering the scale of capital under

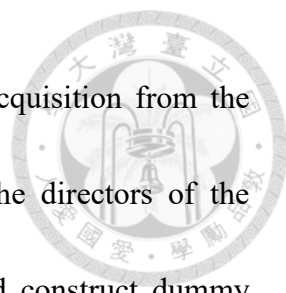
management. Lee and Wahal (2004) not only consider VC age but also the number of successful IPOs of VC-backed operating companies. Nahata (2008) uses the market share of a VC firm as a measure of reputation. Among these measurements, considering the market share of a VC firm as a proxy variable tends to exhibit the most significant positive correlation with the operating performance of companies in the post-IPO stage.

In the process of private firms going public through SPACs, SPACs play a similar role as venture capitalists and private equity funds do. SPACs not only provide their capital to acquire the target company but also provide their management resources. In this paper, I am going to explore whether the degree of proactivity SPACs engage in the corporate governance of operating companies, the CEO-chairman duality, and the compensation structure of the high-level executives of acquired companies would lead to better operating performance in the de-SPAC period.

4. Data Collection, Variables, and Empirical Specifications

4.1. Sample Selection and Data Sources

In this paper, the sample includes SPACs listed in the United States from 2016 to 2022. Firstly, I collect the IPO date, close date, SPAC team members, SPAC name, and target name from the SPAC Research database. Secondly, I manually collect board member data



and director compensation individually for each SPAC after the acquisition from the Boardroom Alpha database. Thirdly, I manually check whether the directors of the acquired companies are from the initial SPAC team members and construct dummy variables. Finally, the measurement of performance includes accounting performance, investment spending tendency, liquidity and safety, and stock return volatility. The accounting data is collected from the Compustat database, and the stock return data is collected from the CRSP database. My final sample includes variables for a total of 104 SPACs and 228 observations.

4.2. Variables

4.2.1. Main Variables

In this paper, I consider the engagement of SPAC team members in the acquired companies after the acquisition to determine whether more aggressive engagement leads to better performance for the acquired companies. Additionally, CEO-Chairman duality is taken into consideration. Previous studies suggest that CEO-Chairman duality tends to have a negative impact on firms' accounting performance and stock return. Finally, I include compensation data of high-end executives as independent variables to assess how the compensation structure affects firms' performance.

Chairman_from_SPAC

This variable is a dummy variable that determines whether the directors of the

acquired companies are from the initial SPAC team. If the chairman is from the SPAC team, the dummy variable is assigned to be 1; otherwise, it is assigned to be 0.

$$Director_from_SPAC_percentage = \frac{Number\ of\ directors\ from\ SPAC}{Number\ of\ total\ directors}$$

I collect the board member data of the acquired companies from the Boardroom Alpha database and the SPAC team member data from the SPAC Research database. After collecting this data, I manually check whether the directors are from the initial SPAC team. The percentage of directors from the SPAC team is calculated by dividing the number of directors from the SPAC by the total number of directors on the board of the acquired companies.

Director_num

The variable measures the number of directors on the board of the acquired companies. The final sample consists of 338 SPACs and their corresponding acquired companies from 2019 to 2023.

CEO-Chairman duality

The variable is a dummy variable that captures whether the chairman and the CEO of the acquired companies are the same individuals. If the chairman and the CEO are the same individual, the dummy variable is assigned to be 1; otherwise, it is assigned to be 0.

$$Log_salary = Log\left(\frac{\sum_{i=1}^N Salary\ of\ executives_i}{N}\right)$$

Log salary measures the basic salary of high-end executives in the acquired company.



$$Log_bonus = Log\left(\frac{\sum_{i=1}^N Bonus\ of\ executives_i}{N}\right)$$

Log bonus measures the irregular bonus that high-end executives in the acquired company receive.

$$Log_stock_awards = Log\left(\frac{\sum_{i=1}^N Stock\ awards\ of\ executives_i}{N}\right)$$

Log stock awards measure the stock awards that high-end executives in the acquired company receive.

$$Log_option_awards = Log\left(\frac{\sum_{i=1}^N Option\ awards\ of\ executives_i}{N}\right)$$

Log option awards measure the option awards that high-end executives in the acquired company receive.

I manually collect the salary, bonus, stock awards, and option awards of each senior executive in the acquired company from the Boardroom Alpha database, including data for CEOs, COOs, CFOs, etc. I calculate the average sum of compensation for each executive and then take the logarithm of the average number to measure the compensation for high-end officers at the company level.

$$Log_total_pay = Log\left(\frac{\sum_{i=1}^N Total\ pay\ of\ executives_i}{N}\right)$$

Total pay includes basic salary, bonus, stock awards, option awards, and other compensation, which encompasses irregular pay or compensation not included in the above four categories. Similarly, I calculate the average of the total pay for each executive and then take the logarithm of the average number to measure the compensation for high-

end officers at the company level. However, due to the high collinearity, the total payment is not included in the regression models.



4.2.2. Measurements of Performance

Dependent variables can be divided into four categories, including measurements of the company's performance, investment spending, risk-taking tendency, and liquidity. The measurement of performance includes ROA and industry-adjusted ROA. Investment spending measurements include the CAPX ratio, industry-adjusted CAPX ratio, R&D expense to asset ratio, and industry-adjusted R&D expense to asset ratio. Risk-taking tendency is measured by the annualized standard deviation of daily stock returns. Liquidity measurements include the cash ratio, industry-adjusted cash ratio, long-term debt ratio, industry-adjusted long-term debt ratio, short-term debt ratio, and industry-adjusted short-term debt ratio.

$$roa = \frac{\text{Operating income before depreciation}_i}{\text{Total asset}_i}$$

I collect the operating income before depreciation and total assets for each acquired company from the Compustat database and winsorize the values at the 1% and 99% levels, respectively. The return on assets is calculated by dividing the operating income before depreciation by the total assets.

$$capx_at = \frac{\text{Capital expenditure}_i}{\text{Total asset}_i}$$

I collect the capital expenditure and total assets for each acquired company from the



Compustat database. In this paper, I use the capital expenditure to asset ratio to measure the investment tendency of each company.

$$xrd_at = \frac{\text{Research and development expense}_i}{\text{Total asset}_i}$$

I collect the R&D expense and total assets for each acquired company each year from the Compustat database. In this paper, I use the R&D expense to asset ratio as one of the measurements to investigate the investment tendency for each acquired company.

$$cash = \frac{\text{Cash equivalents and short term investments}_i}{\text{Total asset}_i}$$

I collect the cash equivalents and short-term investments and total assets for each acquired company each year from the Compustat database. The cash ratio is calculated by dividing the cash equivalents and short-term investments by total assets to measure the liquidity of the companies.

$$ltd_r = \frac{\text{Long term debt}_i}{\text{Long term debt}_i + \text{Short term debt}_i}$$

I collect the long-term debt and short-term debt data for each acquired company from the Compustat database. The long-term debt ratio is calculated by dividing the long-term debt by the sum of the total debt to measure liquidity.

$$std_r = \frac{\text{Short term debt}_i}{\text{Long term debt}_i + \text{Short term debt}_i}$$

I collect the long-term debt and short-term debt data for each acquired company from the Compustat database. The short-term debt ratio is calculated by dividing the short-term debt by the sum of the debt to measure liquidity.



$$\ln at = \text{Log}(\text{Asset})$$

Log assets is included in the model as a control variable to account for firm size in the regression.

$$\text{annuastd} = \text{standard deviation of daily stock return} * \sqrt{252}$$

I collect the daily stock price and stock return for each acquired company from 2019 to 2023 from the CRSP database. The annual standard deviation of the stock return is calculated by taking the standard deviation of the daily stock return for each year and multiplying it by the square root of 252.

4.3 Empirical Specifications

Performance

$$\begin{aligned} &= \alpha + \beta_1 \text{Chairman_from_SPAC} + \beta_2 \text{Director_Num} \\ &+ \beta_3 \text{CEO_Chairman_duality} + \Pi \text{Controls} + \varepsilon \end{aligned}$$

Performance

$$\begin{aligned} &= \alpha + \beta_1 \text{Chairman_from_SPAC} + \beta_2 \text{Director_num} \\ &+ \beta_3 \text{CEO_Chairman_duality} + \beta_4 \text{Log_salary} + \beta_5 \text{Log_bonus} \\ &+ \beta_6 \text{Log_stockawards} + \beta_7 \text{Log_optionawards} + \Pi \text{Controls} + \varepsilon \end{aligned}$$

Performance measurements include (1) firm operating performance, including ROA (2) investment spending tendency, including the CAPX-to-asset ratio and R&D expense-to-asset ratio, (3) risk-taking tendency, including the annualized standard deviation of

daily stock returns, and (4) liquidity, including the cash ratio, long-term debt ratio, and short-term debt ratio as dependent variables. Each dependent variable is also calculated on an industry-adjusted basis to compare the same measurements to peers in the same industry who go public via the traditional IPO channel.

Key independent variables include the *Chairman_from_SPAC* dummy variable, CEO-chairman duality, and compensation structures. The goal is to investigate whether greater engagement of SPAC team members in the acquired companies has a positive impact on firm performance, similar to the impact of PE/VC investors.

Control variables include asset size, year-fixed effect, and industry-fixed effect. All independent variables are lagged by one year relative to the dependent variables. Robust standard errors are also applied. These controls are implemented to address potential endogeneity problems.

5. Descriptive Statistics, Empirical Design, and Regression Results

5.1. Descriptive Statistics

Figure 1 displays the number of SPAC IPOs and the proceeds raised from SPACs from 2013 to 2021. The number of SPAC IPOs grew extremely fast after 2020. There were only 59 SPAC IPOs in 2019, but this number increased rapidly to 248 in 2020. In

2021, the number further increased to 613, and the amount of funds raised was higher than the sum of the previous twenty years. It shows that SPACs have gradually become an important alternative for private firms to become public.



[Insert Figure 1]

Table 1 shows the summary statistics of the board structure and compensation structure of acquired companies. Panel A reveals that the average percentage of directors from the initial SPAC team is only 27%, with the 75th percentile at 38% and the maximum at 100%. This indicates that SPAC team members are not always involved in the board of directors of acquired companies. We aim to determine whether the extent of their engagement might positively affect the acquired companies since SPAC sponsors are typically regarded as external consultants providing management resources and skills, similar to PE/VC investors.

In terms of whether the chairman is from the SPAC, on average, only 25% of the chairmen of the acquired companies are from the initial SPAC team members. Regarding CEO-chairman duality, it is often considered a negative factor for firm performance due to the increased conflicts of interest and reduced supervision when the CEO and chairman are the same individual. In my full sample, 15% of SPACs exhibit CEO-chairman duality.

Panel B shows that, on average, stock awards constitute the largest part of high-level executives' compensation, with option awards being the second largest part. A higher

proportion of stock and option awards is assumed to correlate with a more aggressive operating strategy, higher stock volatility, and increased investment spending plans.



[Insert Table 1]

Table 2 reports the summary statistics of the dependent variables. The 50th percentile of the ROA shows 1%, indicating that slightly more than half of the SPACs have a positive ROA. The CAPX-to-asset ratio shows that, on average, SPACs spend 4.4% of their assets on annual CAPX. The cash-to-asset ratio exhibits significant variation, with the 25th percentile at 8% and the 75th percentile at 53%. In terms of debt ratios, most companies rely on long-term debt, with an average long-term debt ratio of 83% and a short-term debt ratio of 17%.

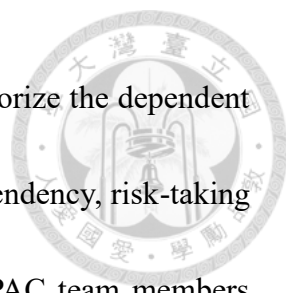
[Insert Table 2]

My full sample includes companies from 8 main industries, identified by the first digit of their SIC code. The industry-adjusted variables are calculated by grouping companies with the same SIC code and subtracting the industry-average value from the original value.

5.2. Regression Analysis

5.2.1. Firm Performance

To assess how the engagement of initial SPAC team members on the board



committees of acquired companies affects firm performance, I categorize the dependent variables into four groups: firm performance, investment spending tendency, risk-taking tendency, and liquidity. To examine whether the engagement of SPAC team members improves firm performance, I established the regression models presented in Table 3.

Table 3 reports the regression results. The coefficients of the *Chairman_from_SPAC* dummy variable are positive and statistically significant, indicating that greater engagement of SPAC team members on the boards of acquired companies tends to improve firm performance. After controlling for asset size, year-fixed effects, and industry-fixed effects, the coefficient remains positive and statistically significant. This result aligns with my initial assumption and supports the hypothesis that SPAC sponsors provide not only a funding channel but also management skills, resources, and professional expertise for acquired companies.

In column (2), the coefficient for stock awards is negative and statistically significant. This result also aligns with my initial assumption that higher irregular compensation might lead to a more aggressive firm strategy, which could be detrimental to acquired companies.

In columns (3) and (4), where the dependent variables are industry-adjusted ROA, the coefficient of the *Chairman_from_SPAC* dummy variable is no longer statistically significant. Since the industry-adjusted variables are calculated based on the entire

industry rather than only companies going public via the SPAC channel, the results suggest that although the engagement of SPAC team members improves firm performance, it does not show significant improvement compared to companies going public through other channels (e.g., traditional IPOs). This finding is consistent with previous studies indicating that SPAC companies do not outperform IPO companies in terms of firm performance.

[Insert Table 3]

5.2.2. Investment Spending

To examine the investment spending tendency of the acquired companies, I established the regression models presented in Table 4. In Panel A, the dependent variables are the CAPX-to-asset ratio and the industry-adjusted CAPX-to-asset ratio. The *Chairman_from_SPAC* dummy variable is not statistically significant in all models. After controlling for asset size, year-fixed effects, and industry-fixed effects, the coefficient remains insignificant.

Regarding regular salary, the coefficient is significantly negative, indicating that a higher portion of regular pay tends to decrease the CAPX tendency. This result aligns with my initial assumption that high-level executives earning a higher portion of regular

pay rather than stock awards or option awards would tend to play it safe and decrease investment spending.



In Panel B, the dependent variables are the R&D expense-to-asset ratio and the industry-adjusted R&D expense-to-asset ratio. The coefficient of the *Chairman_from_SPAC* dummy variable is significantly negative in columns (1) and (2). This suggests that greater engagement of SPAC team members in the board committees of acquired companies is associated with lower R&D expenses.

After controlling for asset size, year-fixed effects, and industry-fixed effects, the coefficient remains statistically significant. This result is consistent with my initial assumption, as SPAC team members' shares in acquired companies typically have a lockup period of six months or more, motivating them to adopt a more conservative and stable firm strategy, at least in the short term.

Regarding stock awards, the coefficient is significantly positive, indicating that a higher portion of stock awards tends to lead to higher R&D expenses for acquired firms. Similarly, a higher portion of irregular pay suggests that executives are motivated to pursue a more aggressive firm strategy, leading to a higher tendency of R&D expense.

[Insert Table 4]

5.2.3. Risk-taking Tendency



To examine the impact on stock return volatility, I established the regression models presented in Table 5, which show the results of the risk-taking tendency of acquired companies, measured by the annualized standard deviation of daily stock return. I assumed that the coefficient of the *Chairman_from_SPAC* dummy variable would be negative, while the coefficients of stock awards or option awards would be positive. However, the regression results did not yield statistically significant findings. Even after controlling for asset size, year-fixed effects, and industry-fixed effects, the coefficients remained insignificant.

An alternative approach to assess the engagement of SPAC team members in the board committees of acquired companies is to consider the percentage of directors from SPAC. A higher percentage of directors from SPAC indicates greater engagement of SPAC team members. It's worth noting that when I replaced the *Chairman_from_SPAC* dummy variable with the percentage of directors from SPAC, the result became statistically significant. The coefficient of the percentage of directors from SPAC was significantly negative. Even after controlling for asset size, year-fixed effects, and industry-fixed effects, the result remained significantly negative (the detailed results are not shown in the table). This outcome aligns with my assumption that higher engagement of SPAC team members in acquired companies is likely to lead to lower stock volatility.

[Insert Table 5]

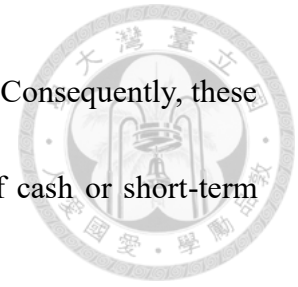


5.2.4. Liquidity

For liquidity analysis, I considered the cash ratio, long-term debt ratio, and short-term debt ratio as the dependent variables, respectively, and presented the regression models in Table 6. In Panel A, the dependent variables were the cash-to-asset ratio and the industry-adjusted cash-to-asset ratio. The coefficient of the *Chairman_from_SPAC* dummy variable was significantly negative. Even after controlling for asset size, year-fixed effects, and industry-fixed effects, the result remained significant. A negative coefficient indicates that greater engagement of SPAC team members tends to result in a lower cash ratio for acquired companies.

This finding differs from my initial assumption. I had predicted a higher cash ratio when SPAC team members engaged on the board committee. One reason for this deviation could be that SPAC team members play a significant role in providing management skills and resources for acquired companies, suggesting that a better liquidity performance would be expected with their assistance. Another reason could be that SPAC team members' shares usually have a lockup period, motivating them to adopt a conservative strategy in the short term, at least. However, one possible explanation for the negative coefficient is that acquired companies with a chairman from the SPAC team

tend to have lower short-term debt ratios and lower R&D expenses. Consequently, these companies may not have a pressing need to hold large amounts of cash or short-term securities for urgent liquidity needs.

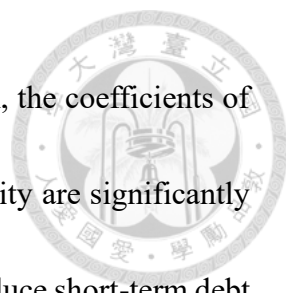


In Panel B, the dependent variables were the long-term debt ratio and the industry-adjusted long-term debt ratio. The coefficients of the *Chairman_from_SPAC* dummy variable and CEO-chairman duality were both significantly positive. This suggests that companies with greater engagement from SPAC team members tend to increase their long-term debt ratio rather than their short-term debt ratio, particularly when the CEO also serves as the chairman.

This result aligns with my initial assumption that SPAC team members, whose shares typically have lockup periods, would be motivated to minimize short-term debt usage and instead increase the utilization of long-term debt shortly after the acquisition. By doing so, liquidity concerns would be mitigated before they exit their investment in the shares of the acquired companies.

Regarding CEO-chairman duality, when the CEO and chairman roles are held by the same individual, they wield more power and influence over the firm's strategy. This consolidation of authority tends to further increase the utilization of long-term debt and depress the short-term debt ratio.

Panel C displays the regression results for the short-term debt ratio and the industry-



adjusted short-term debt ratio. Consistent with my initial assumption, the coefficients of the *Chairman_from_SPAC* dummy variable and CEO-chairman duality are significantly negative. This suggests that SPAC team members are motivated to reduce short-term debt usage for improved liquidity performance, at least in the short term.

This finding aligns with the results observed for the long-term debt ratio, indicating that SPAC team members aim to manage the firm's debt structure to enhance liquidity, particularly in terms of short-term debt.

[Insert Table 6]

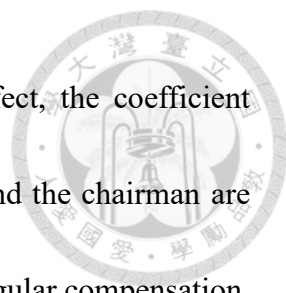
5.2.5. Compensation Structure

Finally, in order to examine the effect of the engagement of SPAC team members on the compensation structure of the acquired companies, I have established the model below:

salary(bonus, stock awards, option awards, total pay)

$$= \alpha + \beta_1 \text{Chairman_from_SPAC} + \beta_2 \text{Director_num} \\ + \beta_3 \text{CEO_Chairman_duality} + \beta_4 \text{Log_asset} + \text{[]Controls} + \varepsilon$$

Table 7 presents the regression results for the compensation variables. In column (3), the coefficient of CEO-chairman duality is significantly positive. This suggests that when the CEO and the chairman are the same individual, stock awards tend to be higher. Even after



controlling for asset size, year-fixed effect, and industry-fixed effect, the coefficient remains positive. This result aligns with intuition: when the CEO and the chairman are the same person, there is a tendency to increase the proportion of irregular compensation. Moreover, this finding is consistent with previous studies indicating that CEO-chairman duality may exacerbate agency problems, potentially leading to a more aggressive firm strategy or overconfidence, which could be detrimental to firm performance.

[Insert Table 7]

5.2.6. Robustness checks

After I exclude the financial industry in my sample and conduct the regression analysis again, my results are consistent with the main results. Results excluding the financial industry are shown in the Appendix.

6. Conclusion

SPACs have emerged as a significant alternative for private firms seeking to go public. The initial SPAC management team typically comprises individuals with backgrounds in PE/VC, investment banking, or M&A. It's widely acknowledged that these team members serve a role similar to PE/VC investors, offering additional management skills, resources, and industry connections to the acquired companies.



This paper reveals that assigning one of the SPAC team members as the chairman of acquired companies correlates with improved ROA. Additionally, higher engagement of SPAC, indicated by a higher percentage of directors from SPAC, corresponds to lower stock return volatility, suggesting enhanced corporate governance positively impacts firm performance. Moreover, increased SPAC engagement is associated with lower investment spending and short-term debt ratios, potentially due to shareholders' lockup periods fostering a conservative firm strategy. Surprisingly, CEO-chairman duality leads to a higher proportion of stock awards compensation but does not appear to adversely affect firm performance.

This paper offers a comprehensive examination of the effects of SPAC engagement on acquired companies. Such insights can aid investors in evaluating the viability of investing in companies going public through SPACs compared to traditional IPOs.

References

- Amini, S., Mohamed, A., Schwienbacher, A., & Wilson, N. (2022). Impact of venture capital holding on firm life cycle: Evidence from IPO firms. *Journal of Corporate Finance*, 74, 102224.
- Bonini, S., & Capizzi, V. (2017). The effects of private equity investors on the governance of companies. In *Handbook of Research on Corporate Governance and Entrepreneurship* (pp. 164-198). Edward Elgar Publishing.
- Campbell II, T. L., & Frye, M. B. (2009). Venture capitalist monitoring: Evidence from governance structures. *The Quarterly Review of Economics and Finance*, 49(2), 265-282.
- Dang, V. A., Karpuz, A., & Mohamed, A. (2023). Venture capital directors and corporate debt structure: An empirical analysis of newly listed companies. *Journal of Banking & Finance*, 157, 107031.
- Dimitrova, L. (2017). Perverse incentives of special purpose acquisition companies, the “poor man's private equity funds”. *Journal of Accounting and Economics*, 63(1), 99-120.
- Gahng, M., Ritter, J. R., & Zhang, D. (2023). SPACs. *The Review of Financial Studies*, 36(9), 3463-3501.
- Krishnan, C. N. V., Ivanov, V. I., Masulis, R. W., & Singh, A. K. (2011). Venture capital reputation, post-IPO performance, and corporate governance. *Journal of Financial and Quantitative Analysis*, 46(5), 1295-1333.
- Meggins, W. L., Meles, A., Sampagnaro, G., & Verdoliva, V. (2019). Financial distress risk in initial public offerings: how much do venture capitalists matter?. *Journal of Corporate Finance*, 59, 10-30.



Figure 1. Number of SPAC IPOs and Proceeds

The figure displays the number of SPAC IPOs and proceeds from 2013 to 2021. The source of the data is Deloitte's *Newsletter Aug 2021* and *SPACs* from Gahng et al. in 2023.

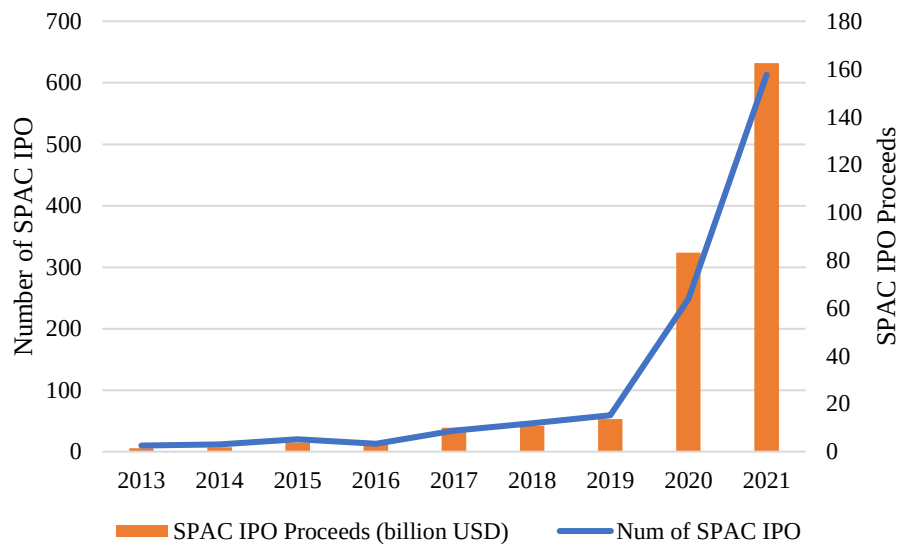


Table 1. Summary Statistics of Main Variables

Table 1 reports the summary statistics of board structure and compensation data for SPACs that completed the acquisition from 2016 to 2022. Panel A reports the percentage of directors and officers engaging in the board of the acquired companies, a dummy variable of whether the chairman is from the initial SPAC team, and CEO-Chairman duality. Panel B reports the compensation structure of high-level executives, including regular salary, bonus, stock awards, option awards, and total pay. The data is manually collected from the SPAC Research database and the Boardroom Alpha database.

Panel A. Board structure of acquired companies

Variable	Mean	Min	P25	P50	P75	Max	N
% of directors from SPAC	0.27	0	0.1	0.22	0.38	1	228
% of officers from SPAC	0.03	0	0	0	0	1	184
number of directors	9.40	4	7	9	11	19	228
A chairman is from the SPAC	0.25	0	N/A	N/A	N/A	1	228
CEO-Chairman duality	0.15	0	N/A	N/A	N/A	1	228

**Panel B. Compensation structure of high-level executives of acquired companies
(in million USD)**

Variable	Mean	Min	P25	P50	P75	Max	N
Salary	0.40	0	0.30	0.39	0.47	2.16	256
Bonus	0.13	0	0	0.01	0.12	1.79	256
Stock awards	2.72	0	0.16	0.76	2.04	145	255
Option awards	0.62	0	0	0	0.34	16	255
Total payment	4.09	0	1.02	2.00	3.57	148	255

Table 2. Summary Statistics of Dependent Variables

Table 2 reports the summary statistics of dependent variables. Dependent variables are divided into four categories, including firm performance, investment spending tendency, risk-taking tendency, and liquidity. The industry-adjusted variables are calculated based on the sic code. Accounting data is collected from the Compustat database and calculated. Stock return data is collected from the CRSP database and calculated.

Dependent Variables	Mean	Min	P25	P50	P75	Max	N
ROA	-0.11	-4.12	-0.24	0.01	0.081	0.4	402
CAPX to asset	0.044	0	0.01	0.019	0.07	0.35	400
R&D to asset	0.07	0	0	0	0.08	1.45	404
Cash ratio	0.33	0	0.08	0.29	0.53	0.98	404
Long-term debt ratio	0.83	0	0.75	0.99	0.99	1	392
Short-term debt ratio	0.17	0	0.017	0.06	0.25	1	392
Annual std of stock return	0.87	0.03	0.55	0.82	1.07	4.89	440
Asset size (million)	1,315.64	5.89	205.66	543.19	1,334	30,074.9	404
Industry-adjusted ROA	0.1	-3.33	-0.03	0.1	0.3	1.22	402
Industry-adjusted CAPX	0.01	-0.12	-0.02	-0.01	0.03	0.31	400
Industry-adjusted R&D	0.01	-0.32	-0.03	0	0	1.15	404
Industry-adjusted Cash ratio	0.098	-0.47	-0.09	0.072	0.27	0.83	404
Industry-adjusted long-term debt ratio	0.1	-0.86	0.03	0.17	0.25	0.5	392
Industry-adjusted short-term debt ratio	-0.09	-0.49	-0.25	-0.17	-0.03	0.86	392

Table 3. Firm Performance

Table 3 reports the results of cross-sectional regression on the performance of acquired companies. The dependent variables of column (1) and column (2) are the return on assets of firms. The dependent variables of column (3) and column (4) are the industry-adjusted return on assets of firms. Both industry-fixed effects and year-fixed effects are included in all columns. Robust t-statistics are reported in parentheses. *, **, and *** indicate the statistical significance level of 10%, 5%, and 1%, respectively.

VARIABLES	(1) ROA	(2) ROA	(3) Industry- adjusted ROA	(4) Industry- adjusted ROA
Chairman from SPAC	0.121** (2.55)	0.170*** (3.09)	0.005 (0.10)	0.038 (0.61)
Number of directors	-0.016 (-1.37)	-0.026 (-1.64)	-0.025** (-2.07)	-0.031* (-1.88)
CEO-Chairman duality	0.058 (1.09)	0.120* (1.96)	0.038 (0.65)	0.090 (1.36)
Log asset	0.131*** (2.75)	0.170** (2.59)	0.090* (1.97)	0.131** (2.06)
Log salary		0.035 (1.41)		0.012 (0.46)
Log bonus		-0.004 (-0.71)		0.004 (0.65)
Log stock awards		-0.015*** (-2.69)		-0.012** (-2.01)
Log option awards		0.003 (0.73)		0.009* (1.89)
Constant	-0.705*** (-2.99)	-1.265** (-2.51)	-0.317 (-1.37)	-0.711 (-1.42)
Observations	228	184	228	184
R-squared	0.291	0.364	0.242	0.291
Year FE	Yes	Yes	Yes	Yes
Ind FE	Yes	Yes	Yes	Yes

Table 4. Investment Spending Tendency

Table 4 reports the results of cross-sectional regression on the investment spending tendency of acquired companies. The dependent variables of column (1) and column (2) in Panel A are the CAPX-to-asset ratio of firms. The dependent variables of column (3) and column (4) in Panel A are the industry-adjusted CAPX-to-asset ratio of firms. The dependent variables of column (1) and column (2) in Panel B are the R&D expense ratio of firms. The dependent variables of column (3) and column (4) in Panel B are the industry-adjusted R&D expense ratio of firms. Both industry-fixed effects and year-fixed effects are included in all columns. Robust t-statistics are reported in parentheses. *, **, and *** indicate the statistical significance level of 10%, 5%, and 1%, respectively.

Panel A. CAPX ratio and industry-adjusted CAPX ratio

VARIABLES	(1) CAPX	(2) CAPX	(3) Industry- adjusted CAPX	(4) Industry- adjusted CAPX
Chairman from SPAC	0.001 (0.09)	0.002 (0.17)	0.002 (0.20)	0.001 (0.08)
Number of directors	-0.001 (-1.21)	-0.001 (-0.90)	-0.002 (-1.23)	-0.002 (-1.38)
CEO-Chairman duality	-0.005 (-0.71)	-0.005 (-0.56)	-0.007 (-0.86)	-0.006 (-0.77)
Log asset	-0.000 (-0.09)	-0.000 (-0.01)	-0.001 (-0.60)	-0.001 (-0.30)
Log salary		-0.005*** (-2.88)		-0.004** (-2.24)
Log bonus		-0.001 (-0.98)		-0.001 (-0.80)
Log stock awards		0.001 (1.15)		0.001 (0.95)
Log option awards		0.001** (2.10)		0.001** (2.02)
Constant	0.067 (1.40)	0.144*** (2.64)	0.039 (0.99)	0.109** (2.29)
Observations	227	183	227	183
R-squared	0.179	0.207	0.112	0.169
Year FE	Yes	Yes	Yes	Yes
Ind FE	Yes	Yes	Yes	Yes

Panel B. R&D expense ratio and industry-adjusted R&D expense ratio

VARIABLES	(1) R&D	(2) R&D	(3) Industry- adjusted R&D	(4) Industry- adjusted R&D
Chairman from SPAC	-0.047** (-2.51)	-0.057*** (-2.65)	-0.012 (-0.73)	-0.011 (-0.58)
Number of directors	0.006 (1.50)	0.009 (1.54)	0.006* (1.69)	0.011* (1.92)
CEO-Chairman duality	-0.028* (-1.78)	-0.044** (-2.44)	-0.025 (-1.42)	-0.039** (-2.08)
Log asset	-0.032* (-1.92)	-0.041* (-1.74)	-0.018 (-1.18)	-0.029 (-1.34)
Log salary		-0.013 (-1.60)		-0.010 (-1.16)
Log bonus		0.002 (0.96)		0.001 (0.51)
Log stock awards		0.004** (2.18)		0.003* (1.84)
Log option awards		0.001 (0.43)		-0.002 (-1.35)
Constant	0.291** (2.10)	0.329* (1.82)	0.121 (1.13)	0.194 (1.11)
Observations	229	185	229	185
R-squared	0.296	0.341	0.169	0.229
Year FE	Yes	Yes	Yes	Yes
Ind FE	Yes	Yes	Yes	Yes

Table 5. Risk-taking Tendency

Table 5 reports the results of cross-sectional regression on the risk-taking tendency of acquired companies. The dependent variables of column (1) and column (2) are the annualized standard deviation of daily stock return. Both industry-fixed effects and year-fixed effects are included in all columns. Robust t-statistics are reported in parentheses. *, **, and *** indicate the statistical significance level of 10%, 5%, and 1%, respectively.

VARIABLES	(1) Annualstd	(2) Annualstd
Chairman from SPAC	-0.016 (-0.34)	-0.081 (-1.18)
Number of directors	0.001 (0.13)	-0.014* (-1.72)
CEO-Chairman duality	0.047 (0.74)	0.012 (0.17)
Log asset	-0.122*** (-8.81)	-0.133*** (-5.22)
Log salary		-0.013 (-1.00)
Log bonus		0.007 (1.32)
Log stock awards		0.004 (0.66)
Log option awards		0.004 (0.92)
Constant	1.477*** (10.26)	1.948*** (6.08)
Observations	347	193
R-squared	0.278	0.325
Year FE	Yes	Yes
Ind FE	Yes	Yes

Table 6. Liquidity

Table 6 reports the results of cross-sectional regression on the liquidity measurement of acquired companies. The dependent variables of column (1) and column (2) in Panel A are the cash-to-asset ratios of firms. The dependent variables of column (3) and column (4) in Panel A are the industry-adjusted cash-to-asset ratios of firms. The dependent variables of column (1) and column (2) in Panel B are the long-term debt ratios of firms. The dependent variables of column (3) and column (4) in Panel B are the industry-adjusted long-term debt ratios of firms. The dependent variables of column (1) and column (2) in Panel C are the short-term debt ratios of firms. The dependent variables of column (3) and column (4) are the industry-adjusted short-term debt ratios of firms. Both industry-fixed effects and year-fixed effects are included in all columns. Robust t-statistics are reported in parentheses. *, **, and *** indicate the statistical significance level of 10%, 5%, and 1%, respectively.

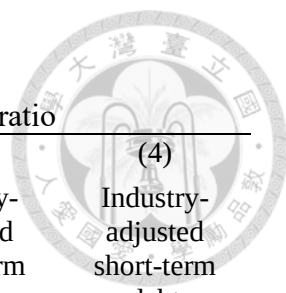
Panel A. Cash ratio and industry-adjusted cash ratio

VARIABLES	(1) Cash	(2) Cash	(3) Industry- adjusted cash	(4) Industry- adjusted cash
Chairman from SPAC	-0.099*** (-2.99)	-0.104*** (-3.01)	-0.039 (-1.45)	-0.033 (-1.13)
Number of directors	-0.004 (-0.56)	-0.007 (-0.96)	-0.000 (-0.07)	-0.003 (-0.37)
CEO-Chairman duality	0.032 (0.92)	0.021 (0.62)	0.038 (1.10)	0.030 (0.88)
Log asset	-0.091*** (-8.17)	-0.074*** (-5.93)	-0.067*** (-6.19)	-0.053*** (-4.12)
Log salary		-0.000 (-0.04)		0.003 (0.27)
Log bonus		0.005 (1.64)		0.003 (1.03)
Log stock awards		0.005 (1.50)		0.003 (0.93)
Log option awards		0.007*** (2.74)		0.003 (1.23)
Constant	0.999*** (6.39)	0.502** (2.44)	0.532*** (3.42)	0.148 (0.73)
Observations	229	185	229	185
R-squared	0.340	0.351	0.329	0.316
Year FE	Yes	Yes	Yes	Yes
Ind FE	Yes	Yes	Yes	Yes

Panel B. Long-term debt ratio and industry-adjusted long-term debt ratio

VARIABLES	(1) Long-term debt	(2) Long-term debt	(3) Industry- adjusted long- term debt	(4) Industry- adjusted long- term debt
Chairman from SPAC	0.042** (2.20)	0.032 (1.54)	0.024 (0.99)	0.017 (0.66)
Number of directors	-0.000 (-0.10)	-0.003 (-0.62)	-0.004 (-0.80)	-0.006 (-1.18)
CEO-Chairman duality	0.035* (1.67)	0.019 (0.90)	0.042* (1.72)	0.020 (0.83)
Log asset	0.071*** (6.28)	0.056*** (3.90)	0.065*** (5.66)	0.049*** (3.44)
Log salary		0.014** (2.56)		0.018* (1.96)
Log bonus		-0.001 (-0.75)		0.001 (0.36)
Log stock awards		-0.001 (-0.70)		0.000 (0.11)
Log option awards		-0.003 (-1.44)		-0.002 (-0.87)
Constant	0.210* (1.70)	0.321** (2.46)	-0.429*** (-3.31)	-0.367** (-2.31)
Observations	224	180	224	180
R-squared	0.359	0.335	0.321	0.311
Year FE	Yes	Yes	Yes	Yes
Ind FE	Yes	Yes	Yes	Yes

Panel C. Short-term debt ratio and industry-adjusted short-term debt ratio



VARIABLES	(1) Short-term debt	(2) Short-term debt	(3) Industry- adjusted short-term debt	(4) Industry- adjusted short-term debt
Chairman from SPAC	-0.042** (-2.20)	-0.032 (-1.54)	-0.024 (-0.99)	-0.017 (-0.66)
Number of directors	0.000 (0.10)	0.003 (0.62)	0.004 (0.80)	0.006 (1.18)
CEO-Chairman duality	-0.035* (-1.67)	-0.019 (-0.90)	-0.042* (-1.72)	-0.020 (-0.83)
Log asset	-0.071*** (-6.28)	-0.056*** (-3.90)	-0.065*** (-5.66)	-0.049*** (-3.44)
Log salary		-0.014** (-2.56)		-0.018* (-1.96)
Log bonus		0.001 (0.75)		-0.001 (-0.36)
Log stock awards		0.001 (0.70)		-0.000 (-0.11)
Log option awards		0.003 (1.44)		0.002 (0.87)
Constant	0.790*** (6.40)	0.679*** (5.21)	0.429*** (3.31)	0.367** (2.31)
Observations	224	180	224	180
R-squared	0.359	0.335	0.321	0.311
Year FE	Yes	Yes	Yes	Yes
Ind FE	Yes	Yes	Yes	Yes

Table 7. Compensation structure

Table 7 reports the results of cross-sectional regression on the compensation structure of acquired companies. The dependent variables in columns (1) to column (4) are regular salary, irregular bonuses, stock awards, and option awards of high-level executives, respectively. The dependent of column (5) is the total pay of high-level executives. Total pay includes regular salary, irregular bonuses, stock awards, option awards, and others. Others include irregular pay or compensations that are not included in the above four categories. Both industry-fixed effects and year-fixed effects are included in all columns. Robust t-statistics are reported in parentheses. *, **, and *** indicate the statistical significance level of 10%, 5%, and 1%, respectively.

VARIABLES	(1) Salary	(2) Bonus	(3) Stock awards	(4) Option awards	(5) Total pay
Chairman from SPAC	-0.344 (-1.34)	-1.296 (-1.33)	-0.031 (-0.03)	-1.060 (-0.94)	-0.128 (-0.84)
Number of directors	0.004 (0.18)	-0.144 (-0.87)	-0.160 (-0.86)	0.017 (0.11)	0.037 (0.93)
CEO-Chairman duality	-0.013 (-0.12)	1.162 (1.30)	1.769** (2.44)	-1.082 (-1.16)	0.301* (1.88)
Log asset	-0.033 (-1.10)	-0.407 (-1.29)	1.003*** (3.75)	-0.550* (-1.77)	0.180*** (3.21)
Constant	12.944*** (43.76)	3.128 (0.69)	0.242 (0.05)	17.496*** (4.09)	12.728*** (17.41)
Observations	222	222	221	221	221
R-squared	0.113	0.097	0.147	0.202	0.133
Year FE	Yes	Yes	Yes	Yes	Yes
Ind FE	Yes	Yes	Yes	Yes	Yes

Appendix

Appendix 1. Firm Performance

Appendix 1 reports the result of cross-sectional regression on the performance of acquired companies. The financial industry is excluded from the sample. The dependent variables of column (1) and column (2) are the return on assets of firms. The dependent variables of column (3) and column (4) are the industry-adjusted return on assets of firms. Both industry-fixed effects and year-fixed effects are included in all columns. Robust t-statistics are reported in parentheses. *, **, and *** indicate the statistical significance level of 10%, 5%, and 1%, respectively.

VARIABLES	(1) ROA	(2) ROA	(3) Industry- adjusted ROA	(4) Industry- adjusted ROA
Chairman from SPAC	0.138** (2.48)	0.185*** (2.99)	-0.010 (-0.15)	0.018 (0.25)
Number of directors	-0.007 (-0.45)	-0.018 (-0.89)	-0.016 (-1.04)	-0.020 (-0.94)
CEO-Chairman duality	0.045 (0.77)	0.083 (1.35)	0.035 (0.53)	0.063 (0.92)
Log asset	0.125** (2.46)	0.158** (2.20)	0.081* (1.66)	0.114 (1.65)
Log salary		0.028 (1.53)		0.001 (0.07)
Log bonus		-0.001 (-0.14)		0.008 (1.15)
Log stock awards		-0.013** (-2.04)		-0.007 (-1.13)
Log option awards		-0.001 (-0.29)		0.006 (1.22)
Constant	-1.045*** (-3.52)	-1.164*** (-2.93)	-0.155 (-0.53)	-0.347 (-0.82)
Observations	177	144	177	144
R-squared	0.334	0.403	0.252	0.301
Year FE	Yes	Yes	Yes	Yes
Ind FE	Yes	Yes	Yes	Yes

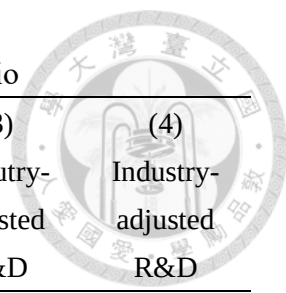
Appendix 2. Investment Spending Tendency

Appendix 2 reports the results of cross-sectional regression on the investment spending tendency of acquired companies. The financial industry is excluded from the sample. The dependent variables of column (1) and column (2) in Panel A are the CAPX-to-asset ratio of firms. The dependent variables of column (3) and column (4) in Panel A are the industry-adjusted CAPX-to-asset ratio of firms. The dependent variables of column (1) and column (2) in Panel B are the R&D expense ratio of firms. The dependent variables of column (3) and column (4) in Panel B are the industry-adjusted R&D expense ratio of firms. Both industry-fixed effects and year-fixed effects are included in all columns. Robust t-statistics are reported in parentheses. *, **, and *** indicate the statistical significance level of 10%, 5%, and 1%, respectively.

Panel A. CAPX ratio and industry-adjusted CAPX ratio

VARIABLES	(1) CAPX	(2) CAPX	(3) Industry- adjusted CAPX	(4) Industry- adjusted CAPX
Chairman from SPAC	0.005 (0.46)	0.009 (0.76)	0.005 (0.52)	0.007 (0.67)
Number of directors	-0.003** (-2.08)	-0.004** (-2.19)	-0.002 (-1.29)	-0.003** (-1.99)
CEO-Chairman duality	0.003 (0.34)	0.008 (0.84)	-0.001 (-0.15)	0.003 (0.32)
Log asset	0.001 (0.24)	0.001 (0.42)	-0.001 (-0.40)	0.000 (0.01)
Log salary		-0.005** (-2.60)		-0.004** (-2.25)
Log bonus		-0.001 (-1.49)		-0.001 (-1.20)
Log stock awards		0.001 (0.72)		0.000 (0.45)
Log option awards		0.002** (2.12)		0.002** (2.49)
Constant	0.081 (1.43)	0.201*** (4.84)	0.042 (0.90)	0.171*** (4.43)
Observations	176	143	176	143
R-squared	0.181	0.257	0.111	0.220
Year FE	Yes	Yes	Yes	Yes
Ind FE	Yes	Yes	Yes	Yes

Panel B. R&D expense ratio and industry-adjusted R&D expense ratio



VARIABLES	(1) R&D	(2) R&D	(3) Industry- adjusted R&D	(4) Industry- adjusted R&D
Chairman from SPAC	-0.055** (-2.34)	-0.065** (-2.45)	-0.010 (-0.49)	-0.006 (-0.24)
Number of directors	0.004 (0.78)	0.008 (1.02)	0.003 (0.57)	0.008 (1.05)
CEO-Chairman duality	-0.024 (-1.29)	-0.036* (-1.96)	-0.019 (-0.92)	-0.033* (-1.67)
Log asset	-0.029 (-1.57)	-0.036 (-1.36)	-0.013 (-0.80)	-0.022 (-0.89)
Log salary		-0.011* (-1.84)		-0.007 (-1.08)
Log bonus		0.001 (0.65)		0.001 (0.26)
Log stock awards		0.005** (1.98)		0.003 (1.38)
Log option awards		0.002 (1.31)		-0.002 (-0.98)
Constant	0.315** (2.14)	0.180 (1.19)	0.148 (1.30)	0.135 (0.91)
Observations	178	145	178	145
R-squared	0.318	0.366	0.161	0.216
Year FE	Yes	Yes	Yes	Yes
Ind FE	Yes	Yes	Yes	Yes

Appendix 3. Risk-taking Tendency

Appendix 3 reports the results of cross-sectional regression on the risk-taking tendency of acquired companies. The financial industry is excluded from the sample. The dependent variables of column (1) and column (2) are the annualized standard deviation of daily stock return. Both industry-fixed effects and year-fixed effects are included in all columns. Robust t-statistics are reported in parentheses. *, **, and *** indicate the statistical significance level of 10%, 5%, and 1%, respectively.

VARIABLES	(1) Annualstd	(2) Annualstd
Chairman from SPAC	0.061 (1.23)	0.060 (0.77)
Number of directors	-0.005 (-0.52)	-0.019* (-1.86)
CEO-Chairman duality	0.073 (0.97)	0.081 (0.98)
Log asset	-0.121*** (-7.58)	-0.149*** (-4.86)
Log salary		-0.010 (-1.01)
Log bonus		0.002 (0.26)
Log stock awards		0.006 (0.85)
Log option awards		0.008 (1.60)
Constant	1.545*** (8.43)	2.298*** (5.18)
Observations	261	141
R-squared	0.308	0.381
Year FE	Yes	Yes
Ind FE	Yes	Yes

Appendix 4. Liquidity

Appendix 4 reports the results of cross-sectional regression on the liquidity measurement of acquired companies. The financial industry is excluded from the sample. The dependent variables of column (1) and column (2) in Panel A are the cash-to-asset ratios of firms. The dependent variables of column (3) and column (4) in Panel A are the industry-adjusted cash-to-asset ratios of firms. The dependent variables of column (1) and column (2) in Panel B are the long-term debt ratios of firms. The dependent variables of column (3) and column (4) in Panel B are the industry-adjusted long-term debt ratios of firms. The dependent variables of column (1) and column (2) in Panel C are the short-term debt ratios of firms. The dependent variables of column (3) and column (4) are the industry-adjusted short-term debt ratios of firms. Both industry-fixed effects and year-fixed effects are included in all columns. Robust t-statistics are reported in parentheses. *, **, and *** indicate the statistical significance level of 10%, 5%, and 1%, respectively.

Panel A. Cash ratio and industry-adjusted cash ratio

VARIABLES	(1) Cash	(2) Cash	(3) Industry- adjusted cash	(4) Industry- adjusted cash
Chairman from SPAC	-0.102** (-2.56)	-0.104** (-2.55)	-0.025 (-0.86)	-0.013 (-0.38)
Number of directors	-0.012 (-1.65)	-0.012 (-1.35)	-0.012** (-2.15)	-0.011 (-1.58)
CEO-Chairman duality	-0.008 (-0.21)	-0.026 (-0.69)	0.007 (0.20)	-0.011 (-0.29)
Log asset	-0.098*** (-7.94)	-0.077*** (-5.38)	-0.070*** (-6.23)	-0.051*** (-3.77)
Log salary		-0.001 (-0.14)		0.005 (0.39)
Log bonus		0.007** (2.09)		0.004 (1.45)
Log stock awards		0.005 (1.41)		0.002 (0.56)
Log option awards		0.010*** (2.95)		0.003 (1.11)
Constant	1.152*** (6.72)	0.350* (1.81)	0.713*** (4.51)	0.194 (0.99)
Observations	178	145	178	145
R-squared	0.381	0.402	0.356	0.325
Year FE	Yes	Yes	Yes	Yes
Ind FE	Yes	Yes	Yes	Yes

Panel B. Long-term debt ratio and industry-adjusted long-term debt ratio

VARIABLES	(1) Long-term debt	(2) Long-term debt	(3) Industry- adjusted long- term debt	(4) Industry- adjusted long-term debt
Chairman from SPAC	0.035 (1.47)	0.018 (0.75)	0.014 (0.47)	0.003 (0.10)
Number of directors	0.005 (0.69)	0.002 (0.29)	0.004 (0.48)	0.003 (0.40)
CEO-Chairman duality	0.026 (0.99)	0.001 (0.04)	0.022 (0.72)	-0.010 (-0.39)
Log asset	0.073*** (6.09)	0.055*** (3.63)	0.067*** (5.38)	0.047*** (3.07)
Log salary		0.013** (2.59)		0.017** (1.99)
Log bonus		-0.000 (-0.11)		0.003 (1.06)
Log stock awards		-0.001 (-0.73)		0.001 (0.36)
Log option awards		-0.005** (-2.29)		-0.003 (-1.26)
Constant	0.223 (1.46)	0.525*** (4.62)	-0.505*** (-2.93)	-0.366** (-2.23)
Observations	173	140	173	140
R-squared	0.387	0.375	0.328	0.306
Year FE	Yes	Yes	Yes	Yes
Ind FE	Yes	Yes	Yes	Yes

Panel C. Short-term debt ratio and industry-adjusted short-term debt ratio

VARIABLES	(1) Short-term debt	(2) Short-term debt	(3) Industry- adjusted short-term debt	(4) Industry- adjusted short-term debt
Chairman from SPAC	-0.035 (-1.47)	-0.018 (-0.75)	-0.014 (-0.47)	-0.003 (-0.10)
Number of directors	-0.005 (-0.69)	-0.002 (-0.29)	-0.004 (-0.48)	-0.003 (-0.40)
CEO-Chairman duality	-0.026 (-0.99)	-0.001 (-0.04)	-0.022 (-0.72)	0.010 (0.39)
Log asset	-0.073*** (-6.09)	-0.055*** (-3.63)	-0.067*** (-5.38)	-0.047*** (-3.07)
Log salary		-0.013** (-2.59)		-0.017** (-1.99)
Log bonus		0.000 (0.11)		-0.003 (-1.06)
Log stock awards		0.001 (0.73)		-0.001 (-0.36)
Log option awards		0.005** (2.29)		0.003 (1.26)
Constant	0.777*** (5.10)	0.475*** (4.18)	0.505*** (2.93)	0.366** (2.23)
Observations	173	140	173	140
R-squared	0.387	0.375	0.328	0.306
Year FE	Yes	Yes	Yes	Yes
Ind FE	Yes	Yes	Yes	Yes

Appendix 5. Compensation structure

Appendix 5 reports the results of cross-sectional regression on the compensation structure of acquired companies. The financial industry is excluded from the sample. The dependent variables in columns (1) to column (4) are regular salary, irregular bonuses, stock awards, and option awards of high-level executives, respectively. The dependent of column (5) is the total pay of high-level executives. Total pay includes regular salary, irregular bonuses, stock awards, option awards, and others. Others include irregular pay or compensations that are not included in the above four categories. Both industry-fixed effects and year-fixed effects are included in all columns. Robust t-statistics are reported in parentheses. *, **, and *** indicate the statistical significance level of 10%, 5%, and 1%, respectively.

VARIABLES	(1) Salary	(2) Bonus	(3) Stock awards	(4) Option awards	(5) Total pay
Chairman from SPAC	-0.431 (-1.19)	-0.732 (-0.65)	-0.229 (-0.22)	-1.944 (-1.50)	-0.090 (-0.49)
Number of directors	-0.002 (-0.09)	-0.267 (-1.33)	-0.311 (-1.51)	0.120 (0.60)	-0.000 (-0.01)
CEO-Chairman duality	0.049 (0.31)	1.338 (1.26)	1.370* (1.67)	-0.880 (-0.81)	0.248 (1.43)
Log asset	-0.053 (-1.38)	-0.532 (-1.54)	0.890*** (3.13)	-0.783** (-2.36)	0.109* (1.78)
Constant	13.282*** (34.77)	7.972 (1.33)	3.662 (0.58)	22.852*** (4.30)	14.219*** (25.04)
Observations	170	170	169	169	169
R-squared	0.119	0.084	0.161	0.258	0.108
Year FE	Yes	Yes	Yes	Yes	Yes
Ind FE	Yes	Yes	Yes	Yes	Yes