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De-SPAC Performance Under Better Aligned Sponsor Contracts

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Yao-Min Chiang
National Taiwan University
Woojin Kim
Seoul National University and ECGI
Bokyung Park
National Taiwan University
Tae Jun Yoon
Samsung Global Research

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Abstract

We examine the implications of special purpose acquisition companies (SPACs) in Korea, where sponsor contracts are better aligned than in the U.S. Unlike the large redemption rate and negative long-run performance observed in the U.S., we find a relatively low redemption rate and positive average buy-and-hold returns in Korean post-merger SPAC targets (de-SPACs). Firms less likely to meet listing requirements are more likely to use SPAC mergers, and de-SPACs increase financing and investment more than traditional IPO firms. Overall, our results suggest SPACs certify private firms with information asymmetry, enabling them to access the public equity market to finance investments.

Keywords: Special Purpose Acquisition Company (SPAC), Initial Public Offering (IPO), Going Public

Yao-Min Chiang
Professor
National Taiwan University
Building II, College of Management 1004
Taipei City 10, Taiwan
e-mail: yaominchiang@ntu.edu.tw

Woojin Kim*
Professor of Finance
Seoul National University, Business School
1 Gwanak-ro, Gwanak-gu
Seoul, 08826, Republic of Korea
phone: +822-880-5831
e-mail: woojinkim@snu.ac.kr

Bokyung Park
Assistant Professor
National Taiwan University
Building II, College of Management 1002
Taipei , Taiwan
phone:
e-mail: bokyungp@ntu.edu.tw

Tae Jun Yoon
Research Fellow
Samsung Global Research
Seoul, South Korea
e-mail: mastavdelk@gmail.com

*Corresponding Author

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Yao-Min Chiang[1], Woojin Kim[2], Bokyung Park[3], and Tae Jun Yoon[4]

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We examine the implications of special purpose acquisition companies (SPACs) in Korea, where sponsor contracts are better aligned than in the U.S. Unlike the large redemption rate and negative long-run performance observed in the U.S., we find a relatively low redemption rate and positive average buy-and-hold returns in Korean post-merger SPAC targets (de-SPACs). Firms less likely to meet listing requirements are more likely to use SPAC mergers, and de-SPACs increase financing and investment more than traditional IPO firms. Overall, our results suggest SPACs certify private firms with information asymmetry, enabling them to access the public equity market to finance investments.

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[1] National Taiwan University. Email: yaominchiang@ntu.edu.tw
[2] Seoul National University. Email: woojinkim@snu.ac.kr
[3] National Taiwan University. Email: bokyungp@ntu.edu.tw
[4] Samsung Global Research. Email: mastavdelk@gmail.com

1. Introduction

Special purpose acquisition companies (SPACs), also known as a type of blank check company, go public through an initial public offering (IPO) for the sole purpose of raising funds to purchase private companies at a later date. Private firms then become listed after being acquired by SPACs. Listing via SPAC mergers provides private firms with advantages such as being less sensitive to market conditions[5] and avoiding strict listing requirements for traditional initial public offerings (IPOs) (e.g., Cumming, Haß, and Schweizer 2014; Kolb and Tykvová 2016).

SPAC sponsors are considered experts in distinguishing bad- and good-quality private firms because they are usually financial professionals with backgrounds such as private equity (PE), venture capital (VC), hedge funds, or are entrepreneurs or experienced investors (Bai, Ma, and Zheng 2023; Feng, Nohel, Tian, Wang, and Wu 2024). Bai et al. (2023) argue that the expertise of SPAC sponsors can serve as a certification function in mitigating asymmetric information between targeted firms and investors.

Despite the potential benefits of SPAC acquisitions from the certification effect provided by sponsors, SPACs have received much criticism from academics and regulators because of the poor performance of targets after the merger. The poor post-listing performance of de-SPACs, a term used to refer to post-merger SPAC targets, has mostly been attributed to SPAC sponsors' misaligned incentive structures (Kolb and Tykvová, 2016; Dimitrova, 2017; Bai et al., 2023; Feng et al. 2024).

[5] IPO volume is sensitive to market conditions and public investor sentiment at the time of the offering (e.g., Ritter and Welch, 2002; Altı, 2005; Ljungqvist et al., 2006). However, deal valuation in SPAC mergers is less responsive to market conditions as it involves private negotiations rather than a public offering.

The key misalignment is that SPAC sponsors are provided with a "*promote*," the 20% founder shares following SPAC IPOs for a relatively small fixed dollar amount, typically $25,000 (Cumming et al., 2014; Klausner et al., 2022). Given that a typical SPAC issues around 30 million shares on average, the price paid per share is close to zero[6]. Compared to the $10 offer price that public investors pay in a typical SPAC IPO, this extreme discount provides SPAC sponsors with an almost guaranteed profit once they locate a merger target, regardless of their fundamental value. As such, U.S. SPAC sponsors allegedly pursue bad acquisitions and unprofitable deals (e.g., Dimitrova 2017; Feng et al. 2022; Luo et al. 2022). However, Bai et al. (2023) suggest that SPAC acquisitions may provide benefits for targeted firms and cater to yield-seeking investors as long as the sponsors' incentives are aligned with long-term firm value.

In this study, we investigate how SPAC acquisitions may affect de-SPACs' financing and investment when the misaligned incentives of SPAC sponsors are much less severe. Incentive alignment between sponsors and investors is not a sufficient condition for post-merger financing and investment activities, but is rather a necessary condition. If the SPAC target has no value-enhancing investment opportunity, as is likely the case in the U.S., we would not observe any post-merger financing or investment activity in the first place. Specifically, we first explore the long-run performance of de-SPACs in Korea and check whether it is as bad as those reported for U.S. de-SPACs. We then compare the changes in the pre-listing characteristics and post-listing activities of the targeted private firms against those of traditional IPOs. Our analyses are based on a sample of 110 SPAC mergers and 623 conventional IPOs in Korea between 2010 and 2021.

[6] https://www.warren.senate.gov/imo/media/doc/SPACS.pdf

There are several advantages to using Korean data to explore the various implications of SPACs. First, SPAC sponsors in Korea do not pay a fixed *amount* as in the U.S., but rather a fixed discounted *price per share*. The discount rate is typically 50% relative to the public offer price. For example, if the SPAC IPO offer price is $10 as in the U.S., then Korean sponsors pay $5 per share, which is still much more favorable than SPAC investors but much higher than what U.S. sponsors pay[7]. Therefore, Korean sponsors must seek targets whose fundamental value will generate a post-merger price of at least $5. This institutional difference allows us to examine the effects of SPACs when the sponsors' incentives are less distorted.

Second, Korean SPACs establish a sponsor syndicate that includes several asset management companies and sophisticated individual investors, with at least one investment bank serving as the sponsor. The presence of at least one investment bank in the sponsor syndicate is mandatory to safeguard SPAC investors during the formation of sponsors. Acting as a lead sponsor, an investment bank plays a crucial role in SPAC IPO underwriting and offering deal advisory services during the de-SPAC process, such as due diligence, valuations of potential targets, and disclosures.

Third, unlike in the U.S., where financial information for private firms is generally unavailable, some private firms in Korea are required to file financial statements audited by external auditors.[8] Thus, pre-listing firm characteristics are available for both SPAC targets and traditional IPO firms. This allows us to test the impact of SPACs on corporate financing more effectively, using a difference-in-differences (DID) framework.

[7] U.S. sponsors pay less than a cent per share ($25,000/(30 mil *0.2)) in a typical SPAC.
[8] Private firms must have external auditing if more than two of the following four conditions are met: total assets of KRW 12 billion or more, liabilities of KRW 7 billion or more, sales of KRW 10 billion or more, and employees of 100 or more.

Specifically, we compare the private target's financing and investment behavior before and after the merger and how such changes, if any, differ from those of traditional IPOs.

We first examine the redemption rate of Korean SPAC investors as well as their buy-and-hold returns (BHARs) and compare them with those reported for U.S. SPACs. SPAC redemption occurs when SPAC investors do not agree with the target valuation or merger ratio. If investors believe that the SPAC target is overvalued, then they are more likely to redeem. Under a better incentive alignment, we expect redemption rates to be lower and BHARs to be higher than those reported for U.S. de-SPACs.

We find that the mean and median redemption rates in Korean SPACs are 7.3% and 0%, respectively, much less than the corresponding average of 39% reported for U.S. SPACs (Gahng, Ritter, and Zhang 2023). Additionally, the average BHAR for Korean de-SPACs is positive, while the corresponding returns for Korean IPOs are negative. This result is in strict contrast to findings in the U.S., where de-SPACs exhibit negative BHARs and worse performance than traditional IPOs (e.g., Kolb and Tykvova 2016; Dimitrova, 2017; Gahng et al. 2023). These findings confirm that the misalignment in SPAC sponsor contracts is less severe in Korea, which may facilitate the certification role of SPAC sponsors, as Bai et al. (2023) argue.

Having established the existence of better alignment, we examine what pre-listing characteristics determine the choice between a SPAC merger and a traditional IPO for private firms when going public.[9] To be listed on a stock exchange in Korea via traditional IPOs, private firms must satisfy strict listing requirements, such as minimum sales or EBIT

[9] A third option, namely reverse mergers, has almost disappeared in Korea since 2011, when a due diligence process similar to a conventional IPO was adopted for reverse mergers.

above a certain threshold[10]. Thus, a SPAC merger can be a viable alternative to a conventional IPO for private firms that cannot be listed otherwise. Some studies compare the characteristics of SPAC merger targets and traditional IPO firms, but they resort to *post*-listing characteristics only because *pre*-merger or *pre*-IPO data are unavailable (Kolb and Tykvováb 2016).

We find that firm characteristics differ substantially between SPAC targets and IPO firms. Smaller or less-profitable firms are more likely to use SPAC mergers than traditional IPOs. Our findings suggest that when private firms have a higher level of asymmetric information and are less likely to meet listing standards, they prefer SPAC mergers over conventional IPO. This is consistent with Bai et al. (2023), who show that SPAC targets tend to be smaller than those of IPO firms. They interpret that SPAC sponsors may reduce information asymmetry between SPAC targets and public investors by playing a certification role similar to that of underwriters in traditional IPOs and contributing to segmented going public markets.

Next, we compare the changes in the financing activities of de-SPACs with those of IPO firms, before and after listing. One purpose of SPAC acquisitions is to facilitate corporate financing for small and medium-sized firms by providing them with an alternative route to the public market. However, it is challenging to analyze whether de-SPACs can raise more capital after being listed on the stock market, given the severe agency friction of U.S. SPAC sponsors, who have an incentive to search for targets regardless of true growth potential. By contrast, based on our evidence of the positive average long-run stock performance of Korean de-SPACs, which potentially reflects better

[10] Appendix C provides the detailed listing requirements in Korea.

alignment, we may be able to capture meaningful changes in the external financing of de-SPACs.

Using a DID approach, we find that, while de-SPACs finance less than IPO firms when both are unlisted, the increase in financing activities by de-SPACs following listing is larger than that by traditional IPO firms. After the merger, de-SPACs primarily raise funds through sales of new equity. Our findings suggest that SPAC sponsors may mitigate the information asymmetry of de-SPACs, allowing the firm to increase its external financing.

Finally, we examine the changes in investments before and after the listing of de-SPACs. If de-SPACs are financially constrained and SPAC acquisitions relieve their financial constraints, then we expect de-SPACs to increase investments following listing. Based on a similar DID method, we find that the pre-listing investments made by de-SPACs are smaller than those in traditional IPO firms. However, the incremental investment in de-SPACs after listing is much greater than that in IPO firms.

These post-listing activities contrast starkly with those reported for conventional IPO firms. For example, Pagano, Panetta, and Zingales (1998) find that Italian firms do not go public to finance future investments and growth, but rather to rebalance their accounts after high investments, which Smith and Chun (2003) verify for a sample of Korean IPO firms. Kim and Weisbach (2008) document that a substantial portion of the proceeds raised from IPOs is kept as cash rather than spent on capital expenditure or R&D. Furthermore, we find that incremental investments are more pronounced among de-SPACs with better investment opportunities. This finding suggests that the incremental investments made by

de-SPACs are less likely to reflect overinvestment. Rather, they may stimulate capital growth and investment in risky but value-creating firms, as s Bai et al. (2023) suggest.

To evaluate the parallel trend assumption required for a valid diff-in-diff analysis, we create a fake treatment group that is matched with SPAC targets based on propensity score but still remains private. We then conduct a placebo test by repeating the DID test using a fake treatment group of private and traditional IPO firms. The results of the placebo test show that the fake group does not exhibit an increase in financing and investment as the de-SPACs follow the quasi-listing year, validating our parallel trend assumption. As a final robustness check, we match de-SPACs and IPO firms to other private firms using a propensity score matching approach. We then construct the matched-firm-adjusted investment and financing activities of non-SPACs and IPO firms, respectively. Based on this triple-difference approach, we find that the impact of SPAC mergers on financing and investment remains greater than that of traditional IPOs.

Our empirical design is similar to that employed by Lee, Qu, and Shen (2019), who compare the pre- and post-listing performance of reverse mergers against traditional IPOs in China. While both reverse and SPAC mergers provide alternative ways of going public, they are fundamentally different in the following ways. Public firms in reverse mergers are (almost always) shell companies without financial experts or cash to inject into private firms. On the other hand, SPACs are not only backed by sponsors and professional managers but also by a substantial amount of cash ready for capital infusion into the merger target. As such, the initiative is usually taken by potential targets in reverse mergers who actively seek potential shell companies. However, the direction is reversed in SPACs. SPAC sponsors take the initiative and actively seek potential targets for SPAC mergers.

Therefore, SPAC sponsors and managers may significantly reduce the information asymmetry of potential private targets when going public, which is not the case in reverse mergers. Moreover, because SPACs raise a substantial amount of proceeds from SPAC IPOs, de-SPACs may use them for new investments and operations expansion after the merger.

This study contributes to existing literature in several ways. First, we extend the literature on de-SPACs' performance. Prior studies concentrate mainly on stock returns, operating performance, and survival rate after SPAC targets go public and most document the negative performance of U.S. de-SPACs. (e.g., Cumming et al. 2014; Kolb and Tykvová 2016; Vulanovic 2017; Lin, Lu, Michaely, and Qin 2021). Dimitrova (2017) shows that a deep discount in common shares for U.S. sponsors causes them to make any acquisition better than no acquisition, and attributes the worse performance of U.S. de-SPACs to the misaligned incentive structure of sponsors. However, common shares for sponsors in Korea are much less discounted than those in the U.S., providing a better alignment of interest between sponsors and investors. We document a positive, or at least non-negative, performance of Korean de-SPACs, which is consistent with a better-aligned incentive structure.

Second, our study compares the financing and investment of de-SPACs with those of IPO firms, both before and after listing. In addition, by showing that de-SPACs increase both financing and investment after listing compared to IPO firms, we document the potential differential effect of SPAC mergers against those of IPOs.[11] Our findings also

[11] Kim, Ko, Jun, and Song (2021) and Park (2022) analyze the determinants of firm characteristics on the choice of a SPAC merger over a traditional IPO in Korea, but do not explore the subsequent investment and financing activities.

support Bai et al.'s (2023) prediction that SPAC sponsors provide certification effects and positive post-merger outcomes that are likely to be affected by the degree of interest alignment between the sponsors and investors.

Finally, our study contributes to the literature on the likelihood of SPAC acquisition relative to traditional IPOs. Kolb and Tykvová (2016) and Bai et al. (2023) report that when markets are volatile and firms exhibit smaller size, higher leverage, and higher revenue growth, they are more likely to use SPAC acquisitions relative to IPOs. Both studies exploit the first annual report following listing as a proxy for *pre*-listing variables because of the unavailability of *pre*-listing data in the U.S. We document how *pre*-listing firm characteristics and market conditions affect the probability of choosing a SPAC merger over a conventional IPO by directly observing genuine *pre*-listing characteristics.

The remainder of this paper is organized as follows. Section 2 describes the institutional background of SPACs in Korea. Section 3 discusses data and sample construction. Sections 4 and 5 present our empirical results. Section 6 reports the additional robustness tests. Finally, Section 7 provides a brief conclusion.

2. Institutional background

2.1 SPACs in Korea

In Korea, SPACs are initially established by sponsors such as securities companies, asset management companies, private equity firms, venture capitalists, or wealthy investors through the private placement of common stocks and convertible bonds[12]. The SPAC

[12] The law of separation of banking and commerce bans financial companies from owning more than 5% of non-financial company stocks. However, sponsoring investment banks must hold more than 5% of SPAC shares for accountability. To resolve this conflict, the sponsoring investment banks purchase convertible bonds issued by SPACs.

sponsor group comprises a couple of sponsors, but should have at least one authorized dealer with more than KRW 100 billion (roughly USD 83 million) in paid-in capital. Only well-known and large securities firms meet this requirement; therefore, all SPACs in Korea include at least one securities company as a sponsor. Additionally, SPAC managers in Korea must be managers of financial investment companies. These conditions aim to protect SPAC investors by enhancing their expertise and responsibilities.

For sponsors, the offer price of common stocks in a private placement is commonly KRW 1,000 (roughly USD 0.8)[13], a 50% discount price relative to the public offering price of KRW 2,000 in a SPAC IPO. This structure in Korea aligns the incentives of SPAC sponsors more with those of public investors relative to the U.S., where sponsors receive 20% of SPAC shares at a per share price close to zero.

Korean SPAC sponsors subscribe to convertible bonds issued by SPAC and converted into one share of a merged entity at KRW 1,000, which is the same price that the sponsors paid for the initial SPAC shares. Sponsors are subject to a 6-month or one-year lock-up following the merger so that any stock sale or bond conversion by sponsors may occur only after this lock-up period. Sponsors use the initial capital they raise to cover the operating expenses of SPACs.

A SPAC goes public through an IPO. The IPO process for a SPAC is relatively simple because it is a blank check company with no business operations. Accordingly, SPAC investors depend on the SPAC IPO prospectus, which includes the experiences and backgrounds of SPAC management, sponsors, and targeted industry sectors. Korean SPACs issue only common stocks to public investors in SPAC IPOs because Korean

[13] Here, we assume a conversion rate of USD 1 = KRW 1,200.

regulations do not allow naked warrants[14]. Meanwhile, U.S. SPAC IPOs offer units that consist of one common share and a fraction of a warrant (such as half or a third) to buy one common stock. At least 90% of proceeds from SPAC IPOs should be deposited in a trust account until the SPAC is merged with a target firm[15].

SPACs are required to complete all de-SPAC processes within 36 months of an IPO, whereas the corresponding requirement for U.S. SPACs is 24 months. If SPACs fail to complete a business combination within 36 months, they are liquidated, and deposited proceeds from IPOs with interest are distributed to the SPAC shareholders.

Once a SPAC locates a potential target, it sends a letter of intent; if the SPAC and target reach an agreement, the SPAC seeks approval from its shareholders. If shareholders do not favor the target, they have the right to redeem their shares before or after shareholder meetings. However, sponsors cannot vote for or redeem shares even though they own SPAC shares. Once the de-SPAC is consummated, it ceases and the merged target becomes a publicly traded firm.

2.2 Misalignment of interests between SPAC sponsors and public investors in Korea and the U.S.

In this section, we illustrate that the lower price SPAC sponsors pay to purchase promote shares leads to greater misalignment between SPAC sponsors and investors, incentivizing sponsors to pursue low-value targets.

[14] This regulation partly reflects the government's concern that the controlling families of chaebols may misuse warrants to pass corporate control to the next generation without paying legitimate taxes.
[15] Kang and Byun (2022) document that practically 100% of the proceeds raised in all Korean SPAC IPOs were deposited in the escrow account except for seven SPAC IPOs in 2010. According to Gahng et al. (2023), only around 85% of U.S. SPAC IPO proceeds were deposited into the trust account before 2004 due to the high up-front underwriting fee. The high fees were gradually reduced so that all proceeds have been deposited since 2010.

We make the following assumptions: (A1) The sponsor's objective is to acquire a target firm that can generate a positive profit. (A2) Each SPAC issues shares to SPAC sponsors $q_{sponsor}$ at price $P_{sponsor}$ in the pre-IPO period and to public investors q_{public} at offer price P_{public} in the IPO. (A3) α is the proportion of the price paid by sponsors to acquire SPAC shares. There are two types of sponsor: one acquires SPAC shares at a higher price, $\alpha_{high}P_{public}$, and the other acquires shares at a lower price, $\alpha_{low}P_{public}$. (A4) For simplicity, assume operating cost is equal to $\alpha P_{public}Q_{sponsor}$. (A5) $k = \frac{P^N_{target}}{P_{public}}$ is the merger exchange ratio, where P^N_{target} is the target's negotiated price (A6) $\bar{P}_{target}$ is the intrinsic value per share of the target firm and is revealed after the combination.

The following conditions show when a sponsor can make a profit: $P_{combined}$ is the share price of the combined entity between a SPAC and the target.

$$P_{combined} = \frac{\alpha P_{public}Q_{sponsor} + P_{public}Q_{public} + \bar{P}_{target}Q_{target}}{Q_{SPAC} + Q_{target} * k} \geq \alpha P_{public} ,$$

Assuming the operating cost is equal to $\alpha P_{public}Q_{sponsor}$, we have the break-even profitable condition for the sponsor:

$$\frac{P_{public}Q_{public} + \bar{P}_{target}Q_{target}}{Q_{SPAC} + Q_{target} * k} = \alpha P_{public} ,$$

Let $\bar{P}_{target}$ be the value of the target firm that makes SPAC sponsors break even when α equals 1, which implies the following equation.

$$\frac{P_{public}Q_{public} + \bar{P}_{target}Q_{target}}{Q_{SPAC} + Q_{target} * k} = P_{public}$$

Similarly, let $\bar{P}^{High}_{target}$ be the value of the target firm that makes SPAC sponsors break even when α equals α_{high}

$$\frac{P_{public}Q_{public}+\bar{P}_{target}^{High}Q_{target}}{Q_{SPAC}+Q_{target}*k}=\alpha_{high}P_{public}$$

We can also define $\bar{P}_{target}^{Low}$ similarly.

$$\frac{P_{public}Q_{public}+\bar{P}_{target}^{Low}Q_{target}}{Q_{SPAC}+Q_{target}*k}=\alpha_{low}P_{public}$$

Since $\alpha_{low}<\alpha_{high}<1$, $\bar{P}_{target}^{Low}<\bar{P}_{target}^{High}<\bar{P}_{target}$.

As the above inequality suggests, $\bar{P}_{target}^{Low}$ is more likely to deviate from $\bar{P}_{target}$ than $\bar{P}_{target}^{High}$. Sponsors who acquire promotional shares at a lower price have an incentive to proceed with the business combination, even if the target firm has a lower valuation.

We illustrate this argument using a numerical example that highlights the four types of costs incurred by SPAC sponsors when purchasing promoted shares differently. We have that P_{public} is \$10, Q_{public} is 160 shares, Q_{spac} is 200 shares, Q_{target} is 400 shares, P_{target}^{N} is \$20, and k is 2. Figure 1 depicts the expected payoffs under various cost scenarios. Specifically, when α equals 1 and sponsors pay the full price, the breakpoint for the target share price is \$21. As α decreases to 0.5, the breakpoint reduces to \$8.5, and when α further decreases to 0.2, the breakpoint decreases significantly to \$1. Corresponding to changes in the breakpoints, the share price of the combines entity is \$10, \$5, \$2, and \$1.6. In other words, a higher payment for promotional shares induces the SPAC sponsor to pursue better acquisition. This result indicates that, as the misalignment intensifies between SPAC sponsors and SPAC public investors, sponsors are strongly motivated to acquire targets with lower valuations. α_{low} and α_{high} are applied to Korean and the U.S. SPAC sponsors, respectively. In our empirical analyses, we argue that this "better" alignment, or less severe misalignment, between the SPAC sponsors and SPAC public investors in Korea, is at least

a necessary condition for the post-merger target to engage in further financing and investment.

[Insert Figure 1]

3. Sample construction

Our sample period begins in 2010 when the first SPAC IPO occurred in Korea. Korea has two public stock markets: the KOSPI, the main bourse, similar to the NYSE, and the KOSDAQ, the tech bourse, similar to the NASDAQ. This study focuses on the KOSDAQ market because all but four Korean SPACs are listed on the KOSDAQ[16]. Our sample includes 110 SPAC mergers and 623 traditional IPOs listed on the KOSDAQ from 2010 to 2021[17]. We manually obtain detailed information on SPACs and IPOs, such as offer prices, total proceeds, listing dates, SPAC targets (ultimately, de-SPACs), SPAC merger dates, and venture capital involvement in private firms from the Securities Issue Reports filed at the Financial Supervisory Service (FSS), a regulatory organization similar to the U.S. Securities and Exchange Commission (SEC).

All accounting information for public and private firms, stock prices, and KOSDAQ indices are extracted from *Dataguide*, an electronic data platform similar to *CRSP* and *Compustat*. Because private firms that exceed a certain size threshold are also required to file audited financial statements in Korea, we can exploit the pre-listing

[16] All three SPACs listed on the KOSPI market in 2010 failed to complete a deal, and the fourth SPAC on the KOSPI occurred in 2021.

[17] Some listings are transfers from the KONEX to the KOSDAQ (22 of 110 SPAC mergers and 57 of 623 traditional IPOs). The KONEX (Korea New Exchange) is a securities market designed specifically for small and medium-sized enterprises (SMEs) and venture capital-backed firms before they are listed on KOSDAQ. While KONEX was established with the aim of assisting SMEs in raising funds or attracting investments, actual trading is highly inactive with very low liquidity. Nevertheless, we repeat our main analyses after excluding transferred listings from KONEX, and find that all results remain consistent.

financial accounting information of private firms. We manually collected equity issuance data from Securities Issue Reports filed with the FSS.

Table 1 presents the number and status of SPACs listed on the KOSDAQ until 2021. Panel A of Table 1 reports that Korea has 217 SPACs listed on the KOSDAQ since its first SPAC in 2010. Of the 217 SPACs, 110 completed business combinations, 9 SPAC mergers are in progress, 46 SPACs are still searching for targets, and 52 SPACs are liquidated. Compared to the 12% liquidation rate of U.S. SPACs (Gahng et al., 2023)[18], the liquidation rate of Korean SPACs is relatively high. This suggests that U.S. SPAC sponsors may have more incentives to complete business combinations than Korean SPAC sponsors.

[Insert Panels A and B of Table 1]

Panel B of Table 1 displays the distribution of the number and proceeds from SPAC IPOs for each year. In 2010, the first year of the SPAC IPO, 18 SPACs went public. From 2011 to 2013, the SPAC IPO market was silent; however, since 2014, on average, approximately 25 SPACs have gone public per year[19]. The average total proceeds from SPAC IPOs are approximately KRW 10.73 billion (approximately USD 9 million). A SPAC cannot withdraw the deposited proceeds from the IPO until it completes a merger with the target firm.

When a SPAC and private target complete a merger, the target's existing shareholders receive shares in proportion to the merger ratio. According to the Korean Capital Markets Act, the merger ratio is determined by the listed SPAC's market value and

[18] According to Gahng et al. (2023), out of 151 SPACs that IPOs over January 2010 and December 2018, 18 SPACs were liquidated.
[19]Unlike in the U.S., where SPACs have dramatically decreased since 2021, Korean SPAC IPOs amounts rose to 50 and 24 in 2022, and 2023, respectively.

the unlisted firm's negotiated value based on its assets and profitability. The raised proceeds simply determine the SPAC value because SPACs are blank check companies.

Private firms go public through either a SPAC merger or a traditional IPO. Table 2 reports the number, the average redemption ratio, average proceeds, and gross proceeds of SPAC mergers, and the number, average proceeds, and gross proceeds of traditional IPOs by year. From 2010 to 2021, 110 private firms were listed via SPAC mergers, whereas 623 private firms were listed via traditional IPOs[20]. Only 11 private firms became public through SPAC mergers in the first five years after the first SPAC IPO in 2010. Subsequently, on average, roughly 14 private firms are listed on the KOSDAQ exchange via SPAC mergers every year. The number of listed firms operating through traditional IPOs increased steadily, except in 2012.

[Insert Table 2]

The average redemption ratio of SPACs is 7.33%, which is much lower than the 39% redemption rate in the U.S. (Gahng et al., 2023). This suggests that the proportion of public investors dissatisfied with the target and/or merger ratio is much smaller in Korea than in the U.S. This is consistent with our argument that the alignment of interests in SPAC sponsor contracts is much stronger in Korea than in the U.S.

The total proceeds of SPAC mergers are those raised by SPAC IPOs after adjusting for the redemption ratio. The total proceeds from a SPAC IPO deposited in a trust account are available only to SPAC target firms after a complete business combination. Thus, these proceeds are comparable to the proceeds that SPAC target firms would have raised had they gone through traditional IPO. While the average injected proceeds to SPAC target

[20] Appendix B provides detailed information on the 110 SPACs with a successful combination.

firms is about KRW 10.17 billion (approximately $ 8.5 million)[21], the average proceeds raised from traditional IPOs is KRW 33.43 billion (roughly $ 28 million), three times as much as those from the SPAC mergers. Since 2016, the average proceeds of SPACs have been less than a quarter of traditional IPO proceeds every year, except in 2018.

4. Long-run performance of de-SPACs and IPO firms

In this section, we report the BHARs of de-SPACs and IPO firms and compare them with the results reported for U.S. de-SPACs. BHAR is calculated by subtracting the market buy-and-hold return from the buy-and-hold return of de-SPACs or IPO firms:

$$BHAR_i = \prod_{t=5}^{T}(1 + R_{i,t}) - \prod_{t=5}^{T}(1 + R_{m,t}), \qquad (4)$$

where $R_{i,t}$ is the daily return of de-SPACs or IPO firm i on day t, and $R_{m,t}$ is the market index's daily return on day t. The KOSDAQ index is used as the benchmark index because all de-SPACs and IPO firms in our sample are listed on the KOSDAQ. T indicates the time interval and includes 3, 6, 12, 18, and 24 months[22].

The initial stock price movement can be highly volatile immediately after IPOs. This implies that the BHAR calculation results may be sensitive to the start date. To account for this possibility, we calculate three different types of BHARs, where the starting dates are the first, third, and fifth days after de-SPAC mergers and IPOs.

The results reported in Table 3 indicate that de-SPACs exhibit positive average BHARs over different horizons and tend to perform better over longer periods, whereas

[21] The average and gross proceeds in SPAC mergers are proceeds from SPAC IPOs deposited in the trust accounts after adjusting for the redemption ratio.
[22] Our sample period for stock prices ends on November 27, 2023. Therefore, as some firms do not have sufficient data for a 24-month BHAR, we reduce the number of observations for the 24-month BHAR.

IPO firms underperform over longer periods. The results are largely similar across Panels A, B, and C, in which we use different starting dates to calculate the BHARs, suggesting that our results are not sensitive to how we set our starting dates.

While the median BHARs of de-SPACs are negative, they decline less than the median BHAR of IPO firms. This evidence contrasts with findings in the U.S., where de-SPACs underperform IPO firms, and the long-run performance of de-SPACs is, on average, negative and deteriorates over time (e.g., Kolb and Tykvova, 2016; Dimitrova 2017; Kiesel, Klingelhöfer, Schiereck, and Vismara 2022; Gahng et al. 2023). The positive average long-run returns of SPAC mergers are consistent with the low redemption rate for SPACs, as reported in Table 2, providing further evidence of better alignment of interest in Korean SPAC sponsor contracts.

[Insert Table 3]

Overall, these findings suggest that a better alignment between SPAC sponsors and SPAC investors in contracts in Korea may reduce the incentive for SPAC sponsors to acquire even bad targets to complete the business combination, which is attributed to the poor performance of de-SPACs in the U.S.

5. Determinants of SPAC mergers and traditional IPOs

We hypothesize that firms with more asymmetric information prefer SPAC mergers to traditional IPOs. In this section, we compare the pre-listing characteristics of SPAC targets with those of traditional IPO firms. We first conduct univariate analyses to examine whether the pre-listing characteristics of SPAC targets differed from those of traditional

IPO firms. We then use logistic regression to estimate the probability of going public via SPAC mergers relative to traditional IPOs by exploiting the pre-listing characteristics of private firms.

5.1 Pre-listing firm characteristics

To capture the asymmetric information on private firms, we consider firm age, intangible assets, and an indicator variable for whether firms belong to the technology industry[23]. It is widely accepted in the literature that young firms tend to have higher information asymmetry. Gu and Wang (2005) show that because intangible assets or technology are associated with value uncertainty, the degree of asymmetric information is high in firms with intangible assets or in the technology industry. We also examine EBIT and sales, both of which must meet the minimum levels for KOSDAQ listings.

We assess whether financial constraints influence the choice between SPAC mergers and traditional IPOs. To measure the level of financial constraints, we consider standard measures such as firm size, leverage, cash, and operating cash flows (Carpenter and Petersen 2002; Khurana et al. 2006; Hovakimian 2009).

A conventional measure of investment opportunities is the market-to-book ratio; however, the market value of equity is not available for private firms. We measure sales growth as a proxy for investment opportunities in SPAC targets and traditional IPO firms

[23] Following the classification of high-technology industry by Fama and French (2004), the technology industry includes Korean Standard Industry Codes starting with the first three digits being 261 (Manufacture of semiconductor), 262 (Manufacture of electronic components), 263 (Manufacture of computers and peripheral equipment), 264 (Manufacture of communication and broadcasting apparatuses), 272 (Manufacture of measuring, testing, navigating and control equipment; except optical instruments), 612 (Telecommunications), 620 (Computer programming, consultancy and related activities), 631 (Data processing, hosting and related activities; web portals), or 639 (Other information service activities).

(Lehn and Poulsen 1989; Shin and Stulz 1998; Acharya, Almeida, and Campello 2007; Asker, Farre-Mensa, and Ljungqvist 2015).

Venture capital involvement in private firms may also affect how these firms go public. Venture capital firms may use IPOs or mergers and acquisitions as exit strategies (Ball, Chiu, and Smith 2011; Bayar and Chemmanur, 2011). Kolb and Tykvováb (2016) note that, while SPACs have the advantage of immediately cashing out VCs, they may prefer traditional IPOs to retain the reputation of exiting through successful IPOs.

KOSDAQ market returns and volatilities are used to control for market timing and volatility considerations related to IPO activities (Lowry 2003; Schill 2004; Busaba, Li, and Yang 2015). Thus, market conditions can affect the likelihood of SPAC mergers as alternatives to traditional IPOs.

Table 4 presents mean and median pre-listing firm characteristics for SPAC targets and traditional IPO firms. We measure all firm characteristics in Table 4 as of the fiscal year immediately before the listing. Appendix A provides their definitions. The KOSDAQ exchange provides a special listing track for private firms which do not meet conventional listing requirements, but have outstanding technology and growth potential (herein, tech special listing). Since these firms have different characteristics from private firms that go through a regular listing route, we distinguish these tech special listing firms from regular listing firms in our analyses.

[Insert Table 4]

Columns (1), (2), and (3) include all SPAC targets, SPAC targets that go through technology listings[24], and SPAC targets excluding tech special listings, respectively.

[24] When de-SPAC targets have negative earnings prior to the merger, we classify them as a technology listing.

Similarly, columns (4), (5), and (6) contain all traditional IPO firms, IPO firms that go through tech special listings, and IPO firms excluding tech special listings, respectively. Column (7) presents the differences in the mean and median characteristics between SPAC targets and traditional IPO firms with relevant p-values. Column (8) reports the differences between SPAC targets and traditional IPO firms based only on regular, non-tech, and special listing firms.

The mean *Total Assets* of SPAC targets and traditional IPO firms are KRW 37 billion (approximately $31 million) and KRW 58 billion (about $48 million), respectively, the difference between which is statistically significant at the 5% level. The difference in the median *Total Assets* is even more statistically significant at the 1% level. Furthermore, when we exclude tech special listing firms from our sample, the differences in the mean and median *Total Assets* between the two groups, as well as the statistical significance, become larger and stronger. We observe similar patterns in *EBIT* and *Sales,* which constitute part of the listing requirements for traditional IPOs. SPAC targets have significantly lower *EBIT* and *Sales* than traditional IPOs before they are listed. These results imply that private firms that do not satisfy listing requirements are more likely to choose SPAC mergers as an alternative to access the public market.

In addition to *Total Assets*, *EBIT*, and *Sales*, we find no statistically significant differences between the two groups in *Sales growth, Cash_TA, Leverage, OCF_TA, Intan_TA,* and *Firm Age*. Moreover, *Tech Ind* is significantly larger in the IPO group, indicating that private firms in the technology industry are more likely to choose a traditional IPO than a SPAC merger. This finding is inconsistent with that of Gryglewicz, Hartman-Glaser, and Mayer (2021), who show that technology firms prefer SPAC

financing to traditional PE-backed IPO financing because of adverse selection problems. We conjecture that firms in the technology industry may have greater public exposure, which enables them to go through traditional IPOs. Overall, Table 4 suggests that firms that do not meet the traditional IPOs requirements tend to choose SPAC mergers.

5.2 Logit regressions results

Table 5 reports logit regression results where the dependent variable equals 1 if private firms became public through SPAC mergers and 0 if they became public through traditional IPOs. Explanatory variables include pre-listing characteristics reported in Table 4: *lnTA, Sales, EBIT, Cash, Leverage, Sales Growth, OCF_TA, Intan_TA, Tech Ind, Firm Age, VC Ownership, Market Return,* and *Market Volatility*. We measure all firm characteristics as of the fiscal year immediately before the listing and are explained in Appendix A. Industry and year fixed effects are included, and standard errors are clustered at the industry level.

[Insert Table 5]

Columns (1) to (3) report the results for all listings, including tech special listings, and columns (4) to (6) exclude tech special listings. Because *lnTA*, *Sales*, and *EBIT* are strongly correlated[25], we include these variables so that only *lnTA* is included in columns (1) and (4), only *Sales* in columns (2) and (5), and only *EBIT* in columns (3) and (6).

In columns (1) to (3), the coefficients of *lnTA*, *Sales*, and *EBIT* are all statistically significant at the 1% level, consistent with the univariate results reported in Table 4, even after controlling for other firm characteristics. A one standard deviation decrease in *Sales*

[25] The correlations are unreported but available upon request.

and *EBIT* leads to a 2.45% and 2.02% higher probabilities of SPAC mergers, respectively. In columns (4) to (6), which include only regular listing firms, the coefficients of *lnTA*, *Sales*, and *EBIT* become even larger and more statistically significant. A standard deviation decrease in *Sales* and *EBIT* leads to a 3.16% and 3.35% higher probabilities of SPAC mergers, respectively. In addition, private firms in the technology industry are more likely to choose traditional IPOs over SPAC mergers, which is consistent with the univariate results in Table 4. In addition to these four variables, we do not observe statistical significance for any other firm characteristic.

6. Pre- and post-listing financing and investments

In this section, we investigate the pre- and post-listing financing and investment activities of de-SPACs and traditional IPOs. These analyses clarify the potential benefits of private companies going public via SPAC mergers, such as the alleviation of information asymmetry by SPAC sponsors, as Bai et al. (2023) argue.

We use a DID analysis to investigate whether de-SPACs engage in more financing and investment than IPO firms, before and after listing. Specifically, we estimate the following equation, where *Y* indicates the various financing and investment activities:

$$Y_{i,t} = \beta_0 + \beta_1 SPAC_i + \beta_2 SPAC_i \times After_{i,t} + \Omega X_{i,t-1} + \eta_{i\in ind} + \eta_t + \varepsilon_{i,t}. \quad (1)$$

SPAC is an indicator variable equal to 1 for private firms listed on the stock exchange via SPAC mergers and 0 via traditional IPOs. We use five years from *T-2* to *T+2* for de-SPACs and traditional IPO firms, where *T* is the listing year. *After* is an indicator variable that equals 1 for firm-year observations corresponding to *T+1* and *T+2* years, and

0 otherwise. Our regression analyses include *SPAC* and the interaction between *SPAC* and *After*. $X_{i,t-1}$is a set of firm characteristics including firm size, firm age, sales growth, and cash as control variables for firm *i* measured at year *t*-1, $\eta_{i\in ind}$is the industry fixed effect, and η_t is year fixed effect. The interaction term between *SPAC* and *After* captures the DID relative to traditional IPOs.

6.1 Financing activities

Table 6 presents the results of the DID analysis for financing activities. The dependent variable is net cash flows from financing activities divided by total assets (*FinCF_TA)* in columns (1) and (2) and cash inflows from financing activities divided by total assets (*FinIn_TA)* in columns (3) and (4) in Panel A. In Panel A of Table 6, the coefficients of *SPAC* in all columns are statistically significant and negative at the 1% level. By contrast, the coefficient of interaction term of *SPAC* with *After* is statistically significant and positive at the 1% level. These results suggest that de-SPACs raise less financing than IPO firms before going public, but raise more funds than IPO firms after listing. These results remain consistent even after controlling for firm size, age, sales growth, and cash.

[Insert Panel A of Table 6]

Next, we explore whether private firms going public prefer equity or debt financing. In Panel B of Table 6, the dependent variables are *Equity Issues/TA, ln(Equity Issues), Debt Issue/TA,* and *ln(Debt Issue)* in columns (1) to (4), respectively. The results indicate that the coefficients for both *SPAC* and the interaction term are significant only in columns (1) and (2). This finding implies that the incremental financing activities of de-SPACs reported in Panel A of Table 6 are mostly driven by equity rather than debt issuances.

[Insert Panel B of Table 6]

Taken together, these results suggest that at least one reason de-SPACs go public is to raise additional equity in the capital market. Our results contrast those reported by Pagano et al. (1998), who show that IPO firms tend to go public not to raise additional capital but to rebalance their existing capital structures.

6.2 Investment activities

In Table 7, we examine whether changes in the pre-listing and post-listing investments of de-SPACs differ from those of traditional IPO firms. The dependent variable is net cash flows (i.e., outflows minus inflows) from investment activities to total assets (*InvCF_TA)* in columns (1) and (2), cash outflows from investment activities to total assets (*InvOut_TA*) in columns (3) and (4), and cash inflows from investment activities to total assets (*InvIn_TA*) in columns (5) and (6). *SPAC* and the intersection term of *SPAC* with *After* are the main explanatory variables in columns (1) to (6), and the other control variables are included in columns (2), (4), and (6).

[Insert Table 7]

In columns (1) to (4), the coefficients of *SPAC* are negative and significant at the 1% level, whereas those of the interaction term between *SPAC* and *After* are positive and statistically significant. These results imply that de-SPACs spend less on investments than traditional IPO firms before listings, but once they become public firms, de-SPACs invest more than traditional IPO firms. These patterns for investment activities are similar to those found for financing activities in Table 6, in that the impact of listing on both financing and investment is stronger for de-SPACs than for traditional IPOs.

In columns (5) and (6), the positive coefficient of *SPAC* indicates that de-SPACs had higher capital inflows from investment activities before listing. Thus, de-SPACs sell

more assets than traditional IPO firms as private firms do. The coefficient of the interaction term *SPAC*After* in column (5) is positive and significant. However, after controlling for *Sales Growth* and *Cash_TA*, the coefficient becomes insignificant in column (6). Thus, de-SPACs have no significant difference in cash inflows from investments compared to traditional IPO firms following listing.

Overall, Table 7 suggests that increasing investments is one motivation for de-SPACs to be listed through SPAC mergers. By accessing the public market and raising funds, as Table 6 shows, de-SPACs can increase their investments.

In Table 8, we investigate whether the increase in investment in Table 7 reflects overinvestment. To do so, we consider a triple interaction term in which *SPAC*After* is further interacted with a proxy for investment opportunities. We argue that this is less likely to be driven by overinvestment if we find more investment in firms with more opportunities. The market-to-book ratio or Tobin's Q is typically used to capture investment opportunities, but the market value of equity does not exist for private firms. Alternatively, we use sales growth as a proxy for investment opportunities. We classify the top 50% and bottom 50% based on average sales growth for the previous two years before listing. *High Sales Growth* equals 1 for the top 50% of firms and 0 for the bottom 50% of firms. We repeat the analyses in Table 6 after including *High Sales Growth*, the interaction between *High Sales Growth* and *After*, the intersection between *High Sales Growth* and *SPAC*, and the triple interaction of *High Sales Growth*, *After,* and *SPAC* as independent variables. The coefficient of the triple interaction term indicates whether de-SPACs with high sales growth before the listing change their investments after the listing.

[Insert Table 8]

The coefficient of the triple interaction term has a statistically significant positive value in columns (1) and (2), where the dependent variable is *InvCF_TA*. These results are driven mainly by a decrease in cash inflows from investment activities rather than an increase in cash outflows from investment activities, as seen in columns (3) to (6). Overall, Table 8 suggests that de-SPACs with high investment opportunities before listing increase their investments more after listing.

7. Robustness tests

As Tables 4 and 5 report, SPAC targets exhibit relatively smaller firm sizes, sales, and EBIT than traditional IPO firms. Based on this observation, one may argue that our main findings are largely driven by inherent differences in firm characteristics between SPAC targets and IPO firms, rather than by SPAC mergers *per se*. To address this concern, we perform a placebo test and the triple-difference analysis with additional matching. The placebo test may also validate the parallel trend assumption, which is a prerequisite for the DID approach.

7.1 Placebo test

In this test, we match SPAC targets to similar private firms that remain private or do not go public through either SPAC mergers or IPOs. We then compare the activities of the matched private firms with those of traditional IPO firms before and after listing using the DID approach. We conjecture that the DID estimator is insignificant for these matched private firms, because they are not targeted by SPACs.

We first calculate the propensity scores using logistic regression, given a set of observed covariates: *lnTA, lnSales, Firm_Age, Cash_TA,* and 3-digit industry code. The

second step is to match SPAC targets to private firms, along with a 1:1 nearest-neighbor matching within a caliper with 0.25 standard deviation based on a 1-digit industry code and the same year immediately before going public through SPAC mergers. Panel A of Table 9 reports the means and medians of the pre-listing firm characteristics for SPAC targets and matched private firms with nearest-neighbor matching as well as the differences in the means and medians between the two groups. The mean and median differences between the two groups are insignificant in all cases, implying that the matched sample is largely similar to the SPAC targets.

Panel B of Table 9 replicates the analyses in Panel A of Table 6, and Panel C of Table 9 replicates those in Table 7. *SPAC_Matched* is a dummy variable equal to 1 for private firms comparable to SPAC targets, and 0 for traditional IPO firms. *After* is an indicator that equals 1 after quasi-listing, and 0 otherwise. The quasi-listing years for the matched private firms follow the listing years for the corresponding SPAC targets. The results in Panel B indicate that *SPAC_Matched* has a negative and statistically significant coefficient in all the columns. This finding suggests that matched private firms comparable to SPAC targets invest and finance less than IPO firms before listing, similar to SPAC targets.

However, in strict contrast to our main results, the coefficient of the interaction term *SPAC_Matched*After* is statistically insignificant in all columns. This result implies that our matched private firms do not increase their investment and financing activities relative to the IPO firms after their quasi-listing years. In summary, the increase in financing and investment after the listing of SPAC targets is not driven by SPAC targets' inherently different characteristics of SPAC targets compared to IPO firms.

[Insert Table 9]

7.2 Matching adjustment: Triple difference

As a final robustness test, we implement a triple-difference analysis, in which we further compare both SPAC targets and IPO firms with their respective peers. Specifically, we repeat the DID analysis in Tables 6 and 7, in which the dependent variables are matched with firm-adjusted financing and investment activities. First, we match SPAC targets and IPO firms with other private firms using a propensity score matching approach. The matched firm-adjusted values are calculated by subtracting the matched firms' values from those of the SPAC targets and IPO firms. We select the matched firms from private firms through a 1:1 nearest-neighbor matching process, identical to the analysis performed in Section 7.1.

Panel A of Table 10 reports the matching results for traditional IPO firms. The results indicate no significant differences between the IPO firms and their matched private firms.[26]

[Insert Panel A of Table 10]

Next, we subtract the financing and investment activities of the matched firms from those of the SPAC targets and IPO firms. The difference in *FinCF_TA* between the SPAC targets (IPO firms) and their matched firms is *d_FinCF_TA*. Similarly, *d_FinIn_TA, d_InvCF_TA, d_InvOut_TA*, and *d_InvIn_TA* refer to the differences in *FinIn_TA, InvCF_TA, InvOut_TA,* and *InvIn_TA* between the SPAC firms (IPO firms) and their matched firms.

[26] As the matched firms for the SPAC targets are already selected in the previous section, and we provide their differences in Panel A of Table 9, we do not repeat them here.

In Panels B and C of Table 10, all the dependent variables match firm-adjusted financing and investment activities. The DID estimator, the coefficient of *SPAC*After*, effectively captures the triple-difference effect. The results indicate that this interaction term is significantly positive even after adjusting for the financing and investment activities of the matched firms, which is consistent with the results in Tables 6 and 7. Overall, these results support our main finding that the increase in investment and financing for SPAC targets is much larger than that for IPO firms after listing.

[Insert Panels B and C of Table 10]

8. Conclusions

In this study, we investigate the impact of SPAC mergers on the post-listing performance and activities of de-SPACs by exploiting Korean SPAC mergers and traditional IPOs data. According to SPAC-related regulations in Korea, the promote share of sponsors in Korean SPACs is much less discounted than in U.S. SPACs. That is, SPAC sponsors in Korea, who pay half the public offer price for a SPAC share, are much more aligned with SPAC public investors than U.S. SPAC sponsors, who pay less than a cent for a share. Thus, SPAC sponsors in Korea have more incentives to distinguish the good type of target firms from the bad type to maximize their profits, which is a necessary condition for a more efficient allocation of capital to de-SPACs.

First, we find that unlike U.S. de-SPACs, which exhibit negative performance following listings, Korean de-SPACs show positive or at least non-negative BHARs for public investors. The redemption rates for public investors around mergers are much lower in Korea than they are in the U.S. These findings suggest that incentive alignment in Korea is better than in the U.S.

Next, we find that private firms with smaller sizes, lower sales, or lower profits are more likely to use SPAC mergers than traditional IPOs for their listing. This evidence suggests that SPACs may help private firms with information asymmetry access the public market, consistent with Bai et al. (2023), who theoretically show that SPAC sponsors can play a pivotal role in filling the gap between the lax requirements for SPAC mergers and the stricter listing requirements for IPOs. More importantly, we find that de-SPACs increase subsequent financing and net investment more than IPO companies after going public. This contrasts with some earlier studies on IPOs that report that IPO firms do not increase investment and financing after going public (e.g., Pagano et al., 1998)

The incentive structures of Korean SPAC sponsors, together with the empirical findings of this study, have some policy implications for SPACs in other countries. The current discussion on U.S. regulatory reform focuses on mitigating information asymmetry between SPAC sponsors and public investors. This perspective is based on the observation that although public investors may redeem their shares in SPAC if they think the target is unfit or overvalued, they fail to do so mostly because of limited information. As such, detailed policy suggestions are evolving around more disclosure requirements and responsibilities for underwriters. While this approach may be valid to some extent, leaving SPAC sponsors incentive structure as-is may still result in bad mergers.

In the private equity market, general partners (GPs) traditionally put up at least 1 to 2% of the total proceeds to commit alignment of interest with investors or limited partners (LPs). According to a recent survey, this commitment reached 4.8% in 2021.[27] However, for U.S. SPAC sponsors, the corresponding percentage is virtually zero. If you pay half of

[27] https://www.institutionalinvestor.com/article/b1yf41mbr7j4f4/Private-Equity-Investors-Want-GPs-to-Put-More-Skin-in-The-Game-GPs-Might-Have-to-Get-Creative-to-Afford-It

the offer price for 20% of shares, as Korean SPAC sponsors do, the commitment rises up to 11% of the total funds. How SPACs facilitate corporate financing under different incentive structures is an interesting area for future research.

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Figure 1. Breakeven analysis for different incentive alignments.
α is the proportion of the price paid by sponsors to acquire SPAC shares.

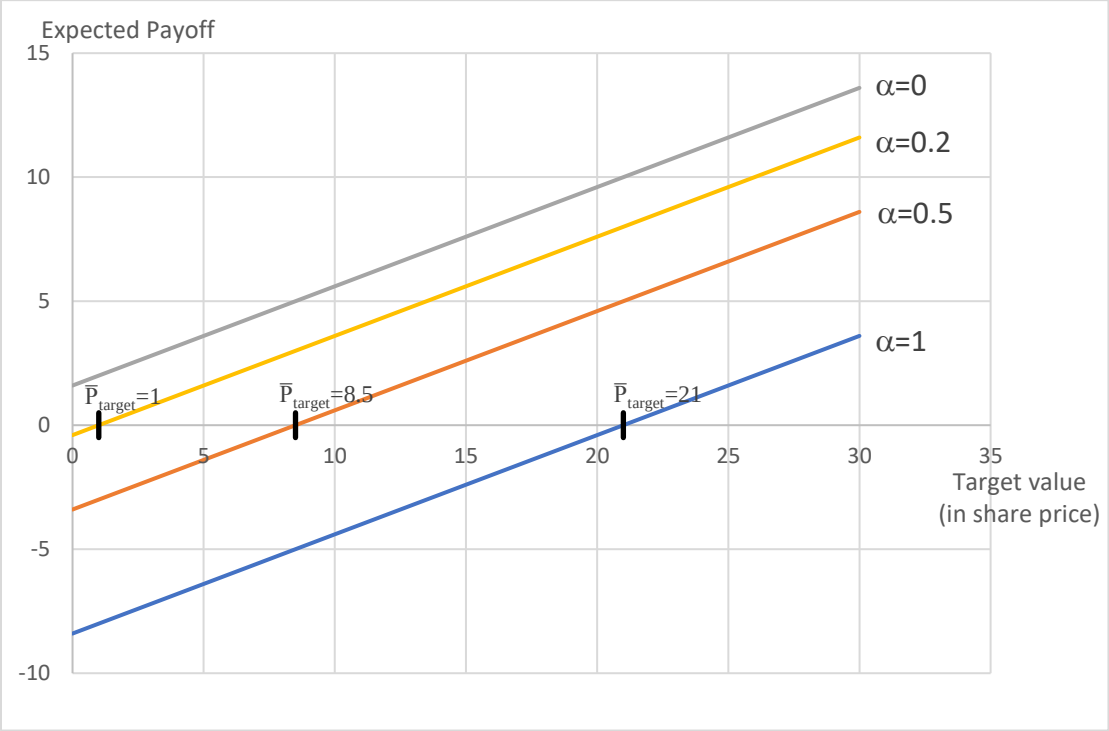


Table 1. Distribution of SPAC IPOs

This table shows the number, proceeds, and statuses of SPACs listed on the KOSDAQ from 2010 to 2021. Panel A reports the status of SPACs at the end of 2021 and Panel B presents the average, median, and aggregate gross proceeds of the 217 SPAC IPOs on the KOSDAQ. All proceeds are expressed in KRW billion. Data source: Financial Supervisory Service.

Panel A. Status of SPACs as of the Year 2021

Completed Mergers	Mergers in progress	Active SPACs	Liquidated SPACs	Total SPACs
110	9	46	52	217

Panel B. Number and proceeds of SPAC IPOs by Year

Year	Obs.	Mean	Median	Gross
2010	18	22.18	20.00	399.16
2011	1	20.00	20.00	20.00
2012	0	0.00	0.00	0.00
2013	2	13.00	13.00	26.00
2014	26	11.05	10.00	287.22
2015	45	10.80	10.00	486.04
2016	12	10.86	10.00	130.30
2017	20	7.77	8.00	155.38
2018	20	7.76	7.75	155.20
2019	30	8.88	8.00	266.35
2020	19	8.63	8.40	164.00
2021	24	9.95	8.00	238.69
Total	217	10.73	9.00	2328.35

Table 2. Proceeds for de-SPACs and traditional IPO firms

This table reports the redemption ratio, number, average proceeds, and gross proceeds of de-SPAC and IPO firms by year. The de-SPAC proceeds are from the proceeds raised by acquiring SPACs, which are deposited into a trust account after adjusting for the redemption rate. All proceeds are expressed in KRW billion. Data source: Financial Supervisory Service.

	de-SPACs				IPO firms	
Year	Obs.	Average Redemption Ratio	Average Proceeds	Gross Proceeds	Obs.	Average Proceeds	Gross Proceeds
2010	-	-	-	-	51	14.8	754.86
2011	2	0.11%	21.61	43.21	55	23.00	1264.93
2012	4	21.52%	18.49	73.98	20	13.58	271.69
2013	3	4.55%	21.42	64.27	35	17.78	622.23
2014	2	2.33%	16.93	33.87	40	24.49	832.78
2015	13	0.37%	11.92	155.00	57	31.39	1538.29
2016	12	5.02%	8.89	106.69	47	40.49	1578.92
2017	20	9.66%	9.90	198.01	53	66.66	3266.31
2018	11	10.01%	8.33	91.59	65	29.06	1685.38
2019	11	7.37%	8.46	93.09	63	36.03	2089.64
2020	17	13.14%	7.45	126.57	65	39.11	2189.97
2021	15	1.91%	8.81	132.13	72	45.61	2827.96
Total	110	7.33%	10.17	1118.41	623	33.43	18922.95

Table 3. Long-run stock performance of de-SPACs and IPO firms

This table shows the long-run stock performance results for de-SPACs and IPO firms listed on the KOSDAQ from 2010 to 2020. Buy-and-hold abnormal returns (BHARs) are calculated for the post-listing periods of 3, 6, 12, 18, and 24 months by exploiting the KOSDAQ index as the benchmark. The starting days for calculating BHARs are the first (*t=1*), third (*t=3*), and fifth day (*t=5*) following the listing of de-SPACs and traditional IPO firms in Panels A, B, and C, respectively. The results of *p*-value of the differences in the means and medians between de-SPACs and IPO firms are reported.

Panel A. 1st day listing date (*t=1*)

BHAR	De-SPACs				IPO firms				Difference			
(months)	N	Mean	Median	Std.	N	Mean	Median	Std.	Mean	*p*-value	Median	*p*-value
3 months	110	0.005	-0.062	0.315	623	-0.021	-0.140	0.532	0.026	0.624	0.078	0.021
6 months	110	0.033	-0.126	0.489	623	-0.007	-0.155	0.655	0.040	0.537	0.029	0.059
12 months	110	0.064	-0.157	0.656	623	-0.029	-0.207	0.804	0.093	0.249	0.05	0.031
18 months	110	0.113	-0.106	0.734	623	-0.072	-0.224	0.715	0.185	0.013	0.118	0.001
24 months	105	0.218	-0.134	1.359	621	-0.080	-0.270	0.762	0.298	0.001	0.136	0.002

Panel B. 3rd day after listing (*t=3*)

BHAR	De-SPACs				IPO firms				Difference			
(months)	N	Mean	Median	Std.	N	Mean	Median	Std.	Mean	*p*-value	Median	*p*-value
3 months	110	-0.006	-0.084	0.307	623	-0.015	-0.117	0.463	0.009	0.844	0.033	0.14
6 months	110	0.019	-0.144	0.494	623	-0.001	-0.148	0.589	0.021	0.729	0.004	0.321
12 months	110	0.069	-0.142	0.681	623	-0.023	-0.192	0.775	0.092	0.242	0.05	0.051
18 months	110	0.101	-0.129	0.719	623	-0.063	-0.216	0.713	0.164	0.027	0.087	0.004
24 months	105	0.203	-0.145	1.306	621	-0.071	-0.257	0.759	0.274	0.003	0.112	0.008

Panel C. 5th day after listing (*t=5*)

BHAR	De-SPACs				IPO firms				Difference			
(months)	N	Mean	Median	Std.	N	Mean	Median	Std.	Mean	*p*-value	Median	*p*-value
3 months	110	0.003	-0.070	0.311	623	-0.004	-0.115	0.463	0.007	0.876	0.045	0.137
6 months	110	0.033	-0.137	0.516	623	0.009	-0.132	0.592	0.024	0.694	-0.006	0.297
12 months	110	0.080	-0.110	0.682	623	-0.017	-0.185	0.770	0.097	0.216	0.075	0.041
18 months	110	0.119	-0.090	0.739	623	-0.054	-0.222	0.712	0.173	0.020	0.132	0.002
24 months	105	0.212	-0.120	1.313	620	-0.061	-0.259	0.761	0.273	0.003	0.139	0.005

Table 4. Pre-listing firm characteristics between SPAC target firms and traditional IPO firms

This table presents the mean and median pre-listing firm characteristics for SPAC targets and traditional IPO firms, and the results of the mean and median difference tests. Pre-listing firm characteristics were measured in the years prior to going public. Columns (1), (2), and (3) include all SPAC targets, SPAC targets with special tech listings (Tech_List), and SPAC targets excluding special tech listings (Non-Tech_List). Similarly, columns (4), (5), and (6) contain all traditional firms, traditional IPO firms with tech special listings (Tech_List), and traditional IPO firms excluding tech special listings (Non-Tech_List), respectively. Column (7) presents the difference between SPAC targets and traditional IPO firms through the mean and median values for each characteristic, with the p-value indicating the statistical significance of the difference. Column (8) presents the difference between SPAC targets and traditional IPO firms, except for tech special listings, through mean and median values for each characteristic with the p-value for the statistical significance of the difference. All variables are defined in Appendix A. Data source: *DataGuide* and Financial Supervisory Service.

	SPAC targets			IPO firms			(7) = Diff ((1)-(4))		(8) = Diff ((3)-(6))	
	Total	Tech_List	Non-Tech_List	Total	Tech_List	Non-Tech_List				
	(1)	(2)	(3)	(4)	(5)	(6)	Mean	P-value	Mean	P-value
	(N=110)	(N=6)	(N=104)	(N=623)	(N=134)	(N=489)	Median	P-value	Median	P-value
Total Assets	37.169	12.798	38.575	58.778	22.956	68.716	-21.609	0.066	-30.141	0.026
	[27.109]	[12.46]	[28.292]	[35.753]	[18.119]	[41.265]	[-8.644]	[.002]	[-12.973]	[0.000]
lnTA	1.048	0.142	1.101	1.305	0.594	1.502	-0.256	0.003	-0.401	0.000
	[.997]	[.176]	[1.04]	[1.274]	[.594]	[1.417]	[-.277]	[0.002]	[-.377]	[0.000]
EBIT	4.72	-0.884	5.043	6.645	-1.928	8.994	-1.925	0.099	-3.951	0.001
	[3.901]	[0.324]	[4.067]	[4.926]	[-2.223]	[6.072]	[-1.025]	[0.055]	[-2.005]	[0.000]
Sales	39.395	12.32	40.957	54.985	12.378	66.661	-15.59	0.041	-25.704	0.002
	[28.929]	[7.705]	[29.287]	[35.406]	[5.076]	[44.386]	[-6.477]	[0.155]	[-15.099]	[0.000]
Sales Growth	42.677	-3.128	45.014	55.684	82.554	48.703	-13.007	0.234	-3.689	0.700
	[18.809]	[-11.406]	[18.887]	[22.85]	[26.014]	[22.797]	[-4.041]	[0.077]	[-3.91]	[0.169]
Cash_TA	16.786	22.435	16.46	16.497	22.366	14.889	0.289	0.849	1.571	0.276
	[11.549]	[9.46]	[11.717]	[12.951]	[15.938]	[11.695]	[-1.402]	[0.597]	[0.022]	[0.756]
Leverage	46.172	49.846	45.96	48.333	64.274	43.965	-2.161	0.435	1.995	0.352
	[45.709]	[51.246]	[45.709]	[44.898]	[56.125]	[44.001]	[0.811]	[0.956]	[1.708]	[0.409]
OCF_TA	13.911	-1.616	14.852	12.443	-14.012	19.752	1.469	0.589	-4.899	0.032
	[10.41]	[2.667]	[11.124]	[12.198]	[-10.367]	[16.314]	[-1.788]	[0.558]	[-5.19]	[0.003]
Intan_TA	3.95	8.215	3.691	4.763	6.251	4.346	-0.813	0.298	-0.655	0.383
	[1.285]	[2.318]	[1.172]	[1.706]	[2.074]	[1.588]	[-.421]	[0.112]	[-.416]	[0.150]
Tech Ind	0.118	0.167	0.115	0.209	0.112	0.235	-0.09	0.027	-0.120	0.007
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.027]	[0.000]	[0.007]
Firm Age	14.518	15.833	14.442	13.865	11.978	14.382	0.653	0.422	0.060	0.946
	[15]	[17]	[15]	[13]	[11]	[13]	[2]	[0.020]	[2]	[0.126]
VC Ownership	7.949	5.543	8.088	7.259	10.664	6.325	0.69	0.539	1.762	0.133
	[0.000]	[0.000]	[0.000]	[0.000]	[8.695]	[0.000]	[0.000]	[0.864]	[0.000]	[0.168]
VC Dummy	0.455	0.333	0.462	0.467	0.701	0.403	-0.013	0.808	0.059	0.271
	[0]	[0]	[0]	[0]	[1]	[0]	[0]	[0.808]	[0]	[0.270]
Market Return	0.043	-0.01	0.046	0.03	0.047	0.026	0.013	0.210	0.020	0.045
	[0.026]	[-.016]	[0.029]	[0.017]	[0.046]	[0.012]	[0.009]	[0.295]	[0.017]	[0.102]
Market Volatility	1.298	1.31	1.297	1.303	1.44	1.266	-0.005	0.898	0.031	0.471
	[1.232]	[1.189]	[1.232]	[1.215]	[1.423]	[1.148]	[0.017]	[0.956]	[0.084]	[0.264]

Table 5. Determinants of SPAC mergers and traditional IPOs

Marginal effects (dF/dx) for the explanatory variables are reported from logit regressions and evaluated using mean values. The dependent variable is one for SPAC merged firms and zero for traditional IPO firms. Columns (1) to (3) include all companies that became public between 2010 and 2021. Tech special listings are excluded in columns (4) to (6). Numbers in parentheses are clustered standard errors at the two-digit industry level. All continuous variables are winsorized at the 1st and 99th percentiles. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. All variables are defined in Appendix A. Data source: *DataGuide* and Financial Supervisory Service.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLE	Including tech special listing			Excluding tech special listing		
lnTA	-0.027***			-0.034***		
	(0.006)			(0.005)		
Sales		-0.033***			-0.044***	
		(0.012)			(0.016)	
EBIT			-0.183**			-0.282***
			(0.080)			(0.089)
Sales Growth	-0.005	-0.005	-0.005	0.001	0.001	0.001
	(0.006)	(0.006)	(0.006)	(0.008)	(0.008)	(0.008)
Cash_TA	-0.056*	-0.033	-0.023	-0.007	0.017	0.026
	(0.032)	(0.031)	(0.032)	(0.032)	(0.033)	(0.036)
Leverage	-0.012	-0.008	-0.018	0.016	0.018	0.001
	(0.014)	(0.014)	(0.014)	(0.023)	(0.021)	(0.020)
OCF_TA	0.047	0.038	0.054	-0.027	-0.036	-0.017
	(0.031)	(0.031)	(0.036)	(0.030)	(0.031)	(0.039)
Intan_TA	-0.058	-0.057	-0.057	-0.063	-0.071	-0.076
	(0.057)	(0.050)	(0.055)	(0.053)	(0.050)	(0.055)
Tech Ind	-0.063***	-0.064***	-0.064***	-0.053***	-0.059***	-0.058***
	(0.011)	(0.011)	(0.013)	(0.006)	(0.009)	(0.007)
Firm Age	0.001	0.000	0.000	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
VC Ownership	0.036	0.032	0.041	0.038	0.029	0.039
	(0.045)	(0.041)	(0.045)	(0.032)	(0.031)	(0.036)
Market Return	-0.012	-0.012	-0.008	0.008	0.006	0.020
	(0.064)	(0.063)	(0.058)	(0.056)	(0.059)	(0.057)
Market Volatility	-0.021	-0.017	-0.015	-0.012	-0.011	-0.007
	(0.022)	(0.021)	(0.021)	(0.019)	(0.020)	(0.021)
Constant	-1.254***	-1.286***	-1.308***	-0.555***	-0.574***	-0.595***
	(0.197)	(0.159)	(0.168)	(0.078)	(0.091)	(0.075)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	692	692	692	563	563	563
Pseudo R-squared	0.153	0.141	0.139	0.209	0.186	0.186

Table 6. Comparison of financing activities between de-SPACs and traditional IPO firms around going public

This table compares the financing activities of de-SPAC and traditional IPO firms before and after going public. This table presents the results of the panel regression.

$$Y_{i,t} = \beta_0 + \beta_1 SPAC_i + \beta_2 SPAC_i \times After_{i,t} + \Omega X_{i,t-1} + \eta_{i\in ind} + \eta_t + \varepsilon_{i,t}$$

$Y_{i,t}$ represents the financing activities in year *t* for firm *i,* and $SPAC_i$ equals one if firm *i* is de-SPAC and zero if firm *i* is a traditional IPO. $After_{i,t}$ equals one for the years after listing and zero otherwise. $X_{i,t-1}$ is a set of control variables for firm *i* measured at year *t-1*, $\eta_{i\in ind}$is industry fixed effect, and η_t is year fixed effect. The sample consists of de-SPACs and traditional IPO firms and includes five-year observations from *T-2* to *T+2* for each firm, where *T* indicates the listing year. Panel A reports the regression analysis results using net cash flows from investment activities, *FinCF_TA,* and cash inflows from investment activities, *FinIn_TA,* as dependent variables. Panel B presents the regression results for equity and debt financing activities. The other variables are defined in Appendix A. All variables are winsorized at the 1st and 99th percentiles. The numbers in parentheses are clustered standard errors at the firm level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Data source: *DataGuide* and Financial Supervisory Service.

Panel A. Total financing activities

	(1)	(2)	(3)	(4)
VARIABLE	*FinCF_TA*	*FinCF_TA*	*FinIn_TA*	*FinIn_TA*
SPAC	-21.070***	-27.659***	-18.668***	-24.360***
	(2.435)	(2.642)	(3.517)	(3.792)
*SPAC*After*	17.946***	23.254***	10.748**	16.626***
	(3.676)	(3.981)	(4.163)	(4.489)
lnTA	-0.300***	-0.145*	-0.366**	-0.215
	(0.109)	(0.084)	(0.183)	(0.164)
Firm Age	-10.177***	-11.641***	-8.677***	-9.777***
	(1.367)	(1.385)	(1.932)	(2.238)
Sales Growth		0.097***		0.132***
		(0.023)		(0.026)
Cash_TA		0.130		-0.230**
		(0.091)		(0.110)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Obs.	2568	1970	2568	1970
Adj R-squared	0.097	0.148	0.047	0.085

Panel B. Equity and debt financing

VARIABLE	(1) *Equity Issue/TA*	(2) *ln(Equity Issue)*	(3) *Debt Issue/TA*	(4) *ln(Debt Issue)*
SPAC	-30.083***	-6.468***	0.348	0.593
	(3.804)	(0.398)	(2.935)	(0.633)
*SPAC*After*	15.614***	2.879***	4.644	0.160
	(2.935)	(0.637)	(3.294)	(0.793)
lnTA	-11.801***	-1.701***	0.645	1.168***
	(2.394)	(0.220)	(1.717)	(0.330)
Firm Age	0.119***	0.015***	0.036***	0.002
	(0.045)	(0.003)	(0.013)	(0.002)
Sales Growth	0.378**	-0.040***	-0.429***	-0.131***
	(0.175)	(0.012)	(0.063)	(0.016)
Cash_TA	-0.033	-0.004	-0.139	0.027
	(0.108)	(0.016)	(0.129)	(0.029)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Obs.	1,957	1,957	1,970	1,970
Adj R-squared	0.126	0.111	0.073	0.181

Table 7. Comparison of investing activities: de-SPACs versus traditional IPO firms around going public

This table compares the investment activities of de-SPAC and traditional IPO firms, before and after going public. This table presents the results of a panel regression in the following form:

$$Y_{i,t} = \beta_0 + \beta_1 SPAC_i + \beta_2 SPAC_i \times After_{i,t} + \Omega X_{i,t-1} + \eta_{i\in ind} + \eta_t + \varepsilon_{i,t}$$

$Y_{i,t}$ is net cash flow from investment activities, *InvCF_TA,* cash outflow from investment activities, *InvOut_TA*, cash inflow from investment activities, *InvIn_TA,* for firm *i* in year *t*. $SPAC_i$ equals one if firm *i* is a de-SPAC firm and zero if firm *i* is a traditional IPO firm. $After_{i,t}$ equals one for the years after listing and zero otherwise. $X_{i,t-1}$ is a set of control variables for firm *i* measured at year *t-1*, $\eta_{i\in ind}$ is industry fixed effect, and η_t is year fixed effect. The sample consists of de-SPACs and traditional IPO firms and includes five-year observations from *T-2* to *T+2* for each firm, where *T* is the listing year. The other variables are defined in Appendix A. All variables are winsorized at the 1st and 99th percentiles. The numbers in parentheses are clustered standard errors at the firm level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Data source: *DataGuide* and Financial Supervisory Service.

VARIABLE	(1) *InvCF_TA*	(2) *InvCF_TA*	(3) *InvOut_TA*	(4) *InvOut_TA*	(5) *InvIn_TA*	(6) *InvIn_TA*
SPAC	-19.271***	-22.690***	-19.434***	-16.266***	5.418*	8.102**
	(1.861)	(2.211)	(6.083)	(5.372)	(2.814)	(3.599)
*SPAC*After*	17.763***	21.946***	33.080***	29.579***	8.772**	2.969
	(3.230)	(3.556)	(7.205)	(6.593)	(4.334)	(4.428)
lnTA	-7.704***	-7.216***	-13.386***	-10.674***	-0.507	-2.585*
	(0.974)	(0.975)	(4.524)	(2.284)	(1.143)	(1.467)
Firm Age	-0.305***	-0.160**	-0.584***	-0.520**	-0.175	-0.277**
	(0.093)	(0.077)	(0.195)	(0.207)	(0.111)	(0.127)
Sales Growth		0.077***		0.097**		-0.021*
		(0.014)		(0.038)		(0.013)
Cash_TA		0.394***		0.387**		-0.095
		(0.067)		(0.159)		(0.085)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	2,568	1,970	2,568	1,970	2,568	1,970
Adj R-squared	0.099	0.159	0.067	0.109	0.056	0.065

Table 8. The effect of sales growth on the relation between SPAC merger and investment

This table presents the effect of sales growth on the relationship between SPAC mergers and investments using a triple difference estimation. The sample consists of de-SPACs and traditional IPO firms and includes five-year observations from *T-2* to *T+2* for each firm, where *T* is the listing year. $SPAC_i$ equals 1 if firm *i* is a de-SPAC and 0 if a firm *i* is a traditional IPO. $After_{i,t}$ equals one for the years after listing and zero otherwise. *High Sales Growth* is an indicator variable with a value of 1 if the average sales growth rate for the two years before the listing is greater than the median value in the sample and 0 otherwise. The other variables are defined in Appendix A. All variables are winsorized at the 1st and 99th percentiles. The numbers in parentheses are clustered standard errors at the firm level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Data source: *DataGuide* and Financial Supervisory Service.

VARIABLE	(1) *InvCF_TA*	(2) *InvCF_TA*	(3) *InvOut_TA*	(4) *InvOut_TA*	(5) *InvIn_TA*	(6) *InvIn_TA*
SPAC	-12.335***	-13.573***	-7.754	-2.371	5.799	9.073
	(2.130)	(2.609)	(6.767)	(8.404)	(4.262)	(5.604)
High Sales Growth	14.235***	14.316***	14.465***	9.987**	-4.337*	-5.371*
	(1.779)	(2.219)	(4.726)	(4.599)	(2.530)	(2.976)
*SPAC*After*	13.671***	15.381***	41.453***	34.913***	15.971**	9.719
	(4.556)	(4.869)	(13.375)	(11.988)	(6.358)	(6.429)
After High Sales Growth*	-12.894***	-14.921***	-0.648	-1.310	14.514***	14.060***
	(2.034)	(2.304)	(4.021)	(4.158)	(2.411)	(2.616)
SPAC High Sales Growth*	-16.205***	-22.725***	-22.164**	-27.580***	2.817	2.682
	(3.437)	(4.098)	(9.884)	(10.205)	(5.512)	(6.882)
*SPAC*After*High Sales Growth*	17.048***	23.867***	-13.093	-5.072	-23.767***	-22.036**
	(6.554)	(7.182)	(16.442)	(14.981)	(9.078)	(9.072)
lnTA	-5.885***	-5.532***	-12.868***	-10.442***	-2.230*	-4.188***
	(0.927)	(0.985)	(4.369)	(2.439)	(1.225)	(1.562)
Firm Age	-0.172*	-0.096	-0.403*	-0.435**	-0.163	-0.246*
	(0.089)	(0.079)	(0.211)	(0.221)	(0.117)	(0.134)
Sales Growth		0.051***		0.088**		-0.004
		(0.015)		(0.042)		(0.014)
Cash_TA		0.418***		0.388**		-0.124
		(0.067)		(0.158)		(0.084)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	2,568	1,970	2,568	1,970	2,568	1,970
Adj R-squared	0.129	0.187	0.075	0.116	0.071	0.078

Table 9. Placebo test using matched private firms

This table reports the results of placebo tests using private firms matched with SPAC targets. To match private firms with SPAC targets, we use 1:1 nearest-neighbor matching by *lnTA, lnSales, Firm_Age, Cash_TA*, and a one-digit industry code measured in the fiscal year immediately before the SPAC targets go public. Panel A reports the pre-listing firm characteristics for SPAC targets and matched private firms, and the difference in the mean and median of firm characteristics between the two groups. Panel B repeats the analyses in Panel A of Table 5, and Panel C repeats the analyses in Table 6 using private firms matched on the pre-listing characteristics of SPAC targets in Panel A. The sample consists of SPAC-matched private firms and traditional IPO firms, and includes five-year observations from *T-2* to *T+2* for each firm, where *T* indicates the listing year. *SPAC_Matched* is an indicator variable indicating whether the firms are PAC-matched private firms or traditional IPO firms. *After* is a dummy variable that equals 1 after the SPAC targets (private firms) go public and 0 otherwise for SPAC-matched firms (traditional IPO firms). The other variables are defined in Appendix A. All variables are winsorized at the 1st and 99th percentiles. The numbers in parentheses are clustered standard errors at the firm level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Data source: *DataGuide* and Financial Supervisory Service.

Panel A. Comparison of pre-listing characteristics between SPAC merger firms and matched private firms

Matching Criteria: *lnTA, lnSales, Firm_Age, Cash_TA*, and one-digit Industry Code

	SPAC targets		SPAC-matched private firms		Difference (SPAC-Matched)			
	Mean	Median	Mean	Median	Mean	p-value	Median	p-value
lnTA	1.063	1.008	1.178	0.949	-0.115	0.300	0.059	0.756
lnSales	1.182	1.092	1.247	1.072	-0.065	0.554	0.020	0.875
Firm Age	14.532	15.000	14.898	15.000	-0.366	0.668	0.000	0.995
Cash_TA	16.954	11.170	15.799	9.815	1.155	0.588	1.355	0.413

Panel B. Placebo tests: Financing activities of matched private firms and traditional IPO firms around going public

VARIABLE	(1) *FinCF_TA*	(2) *FinCF_TA*	(3) *FinIn_TA*	(4) *FinIn_TA*
SPAC_Matched	-10.769***	-8.151***	-8.813**	-6.037
	(2.074)	(2.802)	(3.556)	(4.223)
*SPAC_Matched *After*	-0.261	-3.253	-0.788	-3.747
	(2.324)	(3.263)	(3.343)	(3.819)
lnTA	3.909***	3.248***	6.423***	6.273***
	(1.093)	(1.048)	(1.668)	(1.884)
Firm Age	-0.527***	-0.321***	-0.654***	-0.485***
	(0.093)	(0.078)	(0.157)	(0.143)
Sales Growth		0.107***		0.153***
		(0.023)		(0.026)
Cash_TA		0.055		-0.145**
		(0.046)		(0.057)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Obs.	2,589	1,994	2,589	1,994
Adj R-squared	0.077	0.119	0.062	0.098

Panel C. Placebo tests: Investing activities of matched private firms and traditional IPO firms around going public

VARIABLE	(1) *InvCF_TA*	(2) *InvCF_TA*	(3) *InvOut_TA*	(4) *InvOut_TA*	(5) *InvIn_TA*	(6) *InvIn_TA*
SPAC_Matched	-9.340***	-5.468*	-14.219***	-10.585**	-4.608*	-5.768*
	(1.855)	(2.807)	(3.439)	(4.903)	(2.606)	(3.476)
*SPAC_Matched*After*	0.590	-2.295	-1.232	-5.733	-1.872	-3.063
	(2.138)	(3.152)	(3.726)	(4.982)	(2.603)	(3.190)
lnTA	2.042**	2.033**	2.937*	2.564	0.205	-0.287
	(0.877)	(0.871)	(1.680)	(1.800)	(1.098)	(1.277)
Firm Age	-0.465***	-0.247***	-0.669***	-0.501***	-0.133	-0.221**
	(0.076)	(0.060)	(0.140)	(0.143)	(0.098)	(0.111)
Sales Growth		0.070***		0.050**		-0.029***
		(0.015)		(0.024)		(0.011)
Cash_TA		0.211***		0.232***		-0.010
		(0.037)		(0.065)		(0.041)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	2589	1994	2589	1994	2589	1994
Adj R-squared	0.074	0.137	0.088	0.112	0.050	0.057

Table 10. Effects of listing on financing and investment: de-SPACs versus traditional IPOs using a matching-based approach

This table tests whether the effects of listings on financing and investment differ between SPAC and traditional IPO firms. Panel A compares the pre-listing firm characteristics of traditional and matched IPO firms. Each IPO firm was matched with a private firm using an *lnTA. lnSales, Firm_Age, Cash_TA, Sales Growth,* and one-digit industry code in the year immediately before a firm goes public through 1:1 nearest-neighbor matching. Panel B reports the regression results where *d_FinCF_TA* and *d_FinIn_TA* are the dependent variables. *d_FinCF_TA,* and *d_FinIn_TA* are the differences in *FinCF_TA* and *FinIn_TA*, respectively, between a SPAC target (or traditional IPO firm) and its matched firm. Panel C reports the results of the regression analysis, where *d_InvCF_TA, d_InvOut_TA*, and *d_InvIn_TA* are the dependent variables. *d_InvCF_TA, d_InvOut_TA*, and *d_InvIn_TA* are the difference in *InvCF_TA, InvOut_TA,* and *InvIn_TA* between a SPAC target (or traditional IPO firm) and its matched firm, respectively. In Panels B and C, *SPAC* is an indicator variable that equals 1 for de-SPACs and 0 for traditional IPO firms. is an indicator variable with a value of 1 after firms go public and 0 otherwise. The other variables are defined in Appendix A. All variables are winsorized at the 1st and 99th percentiles. The numbers in parentheses are clustered standard errors at the firm level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Data source: *DataGuide* and Financial Supervisory Service.

Panel A. Comparison of pre-listing firm characteristics between traditional and matched IPO firms

Matching Criteria: *lnTA, lnSale, Firm_Age, Cash_TA*, 3-digit Industry Code

	Traditional IPO Firms		IPO matched Private firms		Difference (IPO-Matched)			
	Mean	Median	Mean	Median	Mean	p-value	Median	p-value
lnTA	1.353	1.307	1.345	1.308	0.008	0.882	-0.001	0.840
LnSales	1.114	1.347	1.150	1.335	-0.036	0.663	0.012	0.963
Firm Age	13.881	13.000	13.964	13.000	-0.083	0.854	0.000	0.608
Cash_TA	17.743	13.540	17.450	13.210	0.293	0.749	0.330	0.508

Panel B. Comparison of listing effects on financing between SPACs and traditional IPOs

	(1)	(2)	(3)	(4)
VARIABLE	*d_FinCF_TA*	*d_FinCF_TA*	*d_FinIn_TA*	*d_FinIn_TA*
SPAC	-19.132***	-22.547***	-18.566***	-20.527***
	(2.622)	(2.857)	(4.415)	(4.744)
*SPAC*After*	17.470***	19.545***	11.534**	13.078***
	(3.971)	(4.241)	(4.762)	(4.849)
lnTA	-10.224***	-11.361***	-9.472***	-9.983***
	(1.279)	(1.566)	(2.004)	(2.405)
Firm Age	-0.065	0.032	-0.196	-0.107
	(0.099)	(0.093)	(0.188)	(0.195)
Sales Growth		0.081***		0.113***
		(0.025)		(0.028)
Cash_TA		0.064		-0.089
		(0.087)		(0.117)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Obs.	2,771	2,235	2,771	2,235
Adj R-squared	0.061	0.086	0.033	0.052

Panel C. Comparison of the effects of listings on investments between SPACs and traditional IPOs

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLE	*d_InvCF_TA*	*d_InvCF_TA*	*d_InvOut_TA*	*d_InvOut_TA*	*d_InvIn_TA*	*d_InvIn_TA*
SPAC	-17.079***	-18.952***	-16.194***	-15.557***	3.140	5.267
	(2.110)	(2.375)	(4.604)	(5.600)	(3.417)	(4.075)
*SPAC*After*	17.094***	19.080***	32.361***	29.547***	10.039**	5.042
	(3.454)	(3.807)	(6.884)	(6.582)	(4.184)	(4.225)
lnTA	-7.101***	-6.820***	-11.447***	-12.845***	-3.125**	-5.372***
	(1.002)	(1.031)	(2.214)	(2.456)	(1.499)	(1.787)
Firm Age	-0.038	0.085	-0.323	-0.199	-0.167	-0.219
	(0.081)	(0.081)	(0.215)	(0.237)	(0.160)	(0.171)
Sales Growth		0.062***		0.079**		-0.022*
		(0.015)		(0.039)		(0.012)
Cash_TA		0.263***		0.307*		-0.057
		(0.068)		(0.165)		(0.102)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	2,771	2,235	2,771	2,235	2,771	2,235
Adj R-squared	0.054	0.079	0.049	0.065	0.030	0.037

Appendices

Appendix A. Variable list

This table presents the definitions of the variables used in this study.

Variable	Definition
Firm Characteristics	
SPAC	Dummy variable equals 1 for SPAC merger firms and 0 for traditional IPO firms.
Total Assets	Total Assets (KRW in billions).
lnTA	Natural logarithm of total assets.
EBIT	Earnings before interest and taxes (KRW in billion).
Sales	Sales Revenue (KRW in billion).
lnSales	Natural logarithm of sales revenue.
Sales Growth	Percentage increase in sales revenue compared to the prior year.
Cash_TA	Sum of the cash, cash equivalents, and marketable securities divided by total assets (%).
Leverage	Total liabilities divided by total assets (%).
OCF_TA	Cash flows from operating activities divided by lagged total assets (%).
Intan_TA	Intangible Assets divided by total assets (%).
Tech Ind	Dummy variable equal to 1 if a firm is operating in technology industry and 0 otherwise. Firm is classified as in the technology industry if the first three digits of the industry codes are 261, 262, 263, 264, 272, 612, 620, 631, or 639.
Firm Age	The difference between the current year and the founding year.
VC Dummy	Dummy variable that equals 1 for VC-backed firms and 0 otherwise.
VC Ownership	Common stock ownership held by VCs.
Financing and Investment	
FinCF_TA	Net cash flows from financing activities divided by total assets (%).
FinIn_TA	Cash inflows from financing activities divided by total assets (%).
Equity Issue_TA	Cash inflows from issuing equity divided by total assets. (%).
ln(Equity Issue)	Natural logarithm of cash inflows from issuing equity.
Debt Issue_TA	Cash inflows from issuing debt divided by total assets. (%).
ln(Debt Issue)	Natural logarithm of cash inflows from issuing debt.
InvCF_TA	Net cash flows from investing activities divided by total assets (%).
InvOut_TA	Cash outflows from investing activities divided by total assets (%).
InvIn_TA	Cash inflows from investing activities divided by total assets. (%).
Other Variables	
Market Return	Average daily return on the KOSDAQ for the past 252 business days.
Market Volatility	Standard deviation of the KOSPI daily return in the last 252 business days.

Appendix B. List of SPACs

This table summarizes the 110 SPACs that completed mergers with unlisted companies from 2010 to 2021. This table contains the following information: the name of the SPAC, the name of the target firm, the establishment and listing date of the SPAC, and the completion date of the merger. In addition, the offer price of one SPAC stock at the time of listing and the total amount raised by SPAC through the IPO are presented. Data source: manual collection from securities issuance reports submitted to the Financial Supervisory Service.

No	SPAC Name	Target Firm's Name	SPAC Establishment Date	SPAC Listing Date	Merger Completion Date	Offer Price	Total Proceeds (in KRW billions)
1	Hyundai DreamTogether SPAC	SAMKEE	2009-12-24	2010-03-19	2012-04-12	6,000	20.0
2	Shinhan 1st SPAC	Seojin Automotive	2010-01-19	2010-05-25	2012-04-19	5,000	37.5
3	Kyobo-KTB SPAC	KOREA FUEL-TECH	2010-02-24	2010-08-27	2012-03-02	4,000	25.0
4	Hana Green SPAC	SundayToz	2010-02-25	2010-11-10	2013-11-05	4,000	20.0
5	Shinyoung HappyTomorrow NO.1 SPAC	Alton Sports	2010-03-25	2010-07-02	2011-08-26	1,000	19.7
6	Kiwoom No.1 SPAC	HANIL VACUUM	2010-03-23	2010-10-05	2013-09-04	2,000	20.0
7	HMC-1 SPAC	HWASHIN PRECISION	2010-04-28	2010-08-31	2011-08-17	2,000	23.6
8	E-Trade SPAC 1	HyVISION SYSTEM	2010-04-08	2010-09-10	2012-02-13	2,000	19.0
9	Hi SPAC	DHP KOREA	2010-07-27	2010-12-03	2013-11-29	4,000	27.0
10	KB Global Star Game & Apps SPAC	Rsupport	2010-07-22	2011-01-05	2014-01-07	2,500	20.0
11	Woori SPAC 2	CUBE ENTERTAINMENT	2013-07-25	2013-11-21	2015-04-09	2,000	13.0
12	Kiwoom NO.2 SPAC	SGA Solutions	2013-09-05	2013-12-20	2015-06-16	2,000	13.0
13	Eugene SPAC 1	NANO	2013-10-18	2014-05-08	2015-04-30	2,000	10.0
14	KB No.2 SPAC	KSIGN	2013-12-26	2014-04-28	2014-11-11	2,000	14.8

15	Hana Must SPAC	WOOSUNG I.B.	2014-02-19	2014-06-10	2015-03-25	2,000	5.0
16	Woori SPAC 3	KOREA CEMENT	2014-04-28	2014-08-13	2017-05-15	2,000	13.0
17	MiraeAsset No.2 SPAC	Kolmar BNH	2014-04-22	2014-07-23	2015-02-03	2,000	13.0
18	Shinhan 2nd SPAC	Dream Security	2014-06-25	2014-10-13	2017-01-20	2,000	10.0
19	KB No.3 SPAC	PROSTEMICS	2014-06-25	2014-09-30	2015-10-05	2,000	20.0
20	Hyundai Dream Together 2nd SPAC	STUDIO SANTA CLAUS ENTERTAINMENT	2014-08-12	2014-12-29	2015-09-15	2,000	13.0
21	IBKS No.2 SPAC	GL Pharm Tech	2014-07-29	2014-11-20	2016-10-05	2,000	8.0
22	Kyobo With SPAC	EXEM	2014-08-21	2014-11-07	2015-06-26	2,000	7.8
23	Hi SPAC II	HUMASIS	2014-08-29	2014-12-01	2017-10-17	2,000	10.0
24	KB No.4 SPAC	Action Square	2014-08-27	2014-11-12	2015-10-05	2,000	20.0
25	Korea No.2 SPAC	Benoholdings	2014-09-19	2014-12-10	2015-12-30	2,000	10.0
26	NH SPAC 2nd	Boditech Med	2014-09-30	2014-12-29	2015-09-11	2,000	8.5
27	Dongbu 2nd SPAC	Mr. Blue	2014-10-10	2014-12-12	2015-11-23	2,000	10.0
28	LIG SPAC 2nd	JUNGDAWN	2014-10-20	2014-12-17	2016-06-29	2,000	5.0
29	KB No.5 SPAC	Jiransecurity	2014-09-30	2014-12-24	2016-09-09	2,000	9.1
30	Hana Must 2nd SPAC	SELVAS Healthcare	2014-10-02	2014-12-17	2016-09-13	2,000	10.0
31	KB No.6 SPAC	Thumbage	2014-10-23	2014-12-29	2016-05-13	2,000	30.0
32	Kyobo 3 SPAC	BIOLOG DEVICE	2014-10-23	2014-12-24	2015-12-08	2,000	10.0
33	KTB SPAC 2	CLASSYS	2015-01-15	2015-04-03	2017-12-28	2,000	10.0
34	KB No.7 SPAC	FSN	2015-01-19	2015-03-25	2016-10-05	2,000	8.0
35	Hanwha Ace SPAC 1st	DRTECH	2015-02-03	2015-04-20	2016-12-05	2,000	8.2

36	Eugene ACPC SPAC 2	Hucentech	2015-02-12	2015-04-28	2018-03-23	2,000	10.0
37	Hana Must 4th SPAC	RoboRobo	2015-02-09	2015-04-22	2017-12-19	2,000	5.5
38	Hanwha MGI SPAC	WOOJUNG BIO	2015-02-25	2015-05-18	2017-04-28	2,000	10.0
39	Daewoo SBI SPAC 1	TOEBOX KOREA	2015-02-24	2015-05-13	2017-04-28	2,000	5.5
40	NH SPAC 5th	INNO INSTRUMENT	2015-03-06	2015-05-08	2017-05-08	2,000	13.0
41	Daishin Balance 1st SPAC	Neptune Company	2015-03-19	2015-06-18	2016-12-14	2,000	10.0
42	Hi SPAC III	RUSSELL	2015-03-26	2015-06-16	2018-05-18	2,000	8.5
43	Ebest SPAC 2	CHEMON	2015-03-26	2015-06-26	2017-03-27	2,000	13.0
44	Hanwha ACPC SPAC	Didim	2015-03-30	2015-06-10	2017-08-31	2,000	13.5
45	Hana Must 5th SPAC	MILAE BIORESOURCES	2015-04-06	2015-06-18	2017-12-28	2,000	7.0
46	NH SPAC 8th	RFHIC	2015-04-14	2015-06-30	2017-09-01	2,000	13.0
47	SK No.2 SPAC	DYD DAEYANG	2015-04-22	2015-07-23	2017-02-08	2,000	12.5
48	LIG-ES SPAC	Chemtros	2015-05-14	2015-07-27	2017-10-11	2,000	5.0
49	KTB SPAC 4	MOM'S TOUCH	2015-05-19	2015-08-28	2016-10-06	2,000	12.5
50	Korea No.3 SPAC	Creative & Innovative System	2015-05-22	2015-09-02	2017-01-20	2,000	13.0
51	MiraeAsset No.4 SPAC	CENOTEC	2015-05-27	2015-08-06	2016-07-25	2,000	6.1
52	Kyobo 4 SPAC	Midas AI	2015-06-08	2015-08-13	2016-04-12	2,000	6.0
53	IBKS No.3 SPAC	KMPHARMACEUTICAL	2015-07-10	2015-10-08	2018-09-28	2,000	8.0
54	NH SPAC 9th	NAT GAMES	2015-07-14	2015-09-25	2017-06-12	2,000	15.5
55	Shinyoung HappyTomorrow No.2 SPAC	Fashion Platform	2015-07-15	2015-10-05	2018-02-13	2,000	10.0
56	HMCIB No.3 SPAC	Bonne	2015-07-28	2015-11-05	2018-10-29	2,000	12.0

57	Hyundai Dream Together 4th SPAC	KH E&T	2015-07-28	2015-10-22	2017-12-18	2,000	10.0
58	Dongbu 3rd SPAC	HANSONGNEOTECH	2015-07-30	2015-10-06	2018-06-05	2,000	8.3
59	Goldenbridge No.4 SPAC	N2TECH	2015-09-04	2015-11-18	2018-11-08	2,000	12.5
60	HANA FINANCIAL 7th SPAC	HFR	2015-10-07	2015-12-16	2018-11-15	2,000	12.9
61	IBKS No.4 SPAC	AIIT ONE	2015-10-22	2016-03-02	2016-12-05	2,000	3.5
62	Daishin Balance 2nd SPAC	YIK	2015-10-22	2015-12-24	2017-04-05	2,000	20.0
63	MIRAE ASSET No.5 SPAC	ZUMinternet	2016-02-12	2016-06-09	2019-06-10	2,000	9.0
64	Kyobo BNK SPAC	NAMU TECH	2016-03-30	2016-09-08	2018-12-11	2,000	12.0
65	Hana Financial 8th SPAC	Mobiis	2016-07-01	2016-09-08	2017-03-21	2,000	12.0
66	KB No.10 SPAC	YeSUN Tech	2016-07-15	2016-09-29	2019-09-11	2,000	10.0
67	IBKSGMB SPAC	SEWHA P&C	2016-08-18	2016-11-02	2017-09-19	2,000	10.0
68	Daishin Balance 3rd SPAC	Neosem	2016-09-05	2018-04-04	2019-01-31	2,000	10.0
69	IBKS No.5 SPAC	XAVIS	2016-09-20	2016-12-02	2019-11-15	2,000	8.0
70	NH SPAC 10th	POINT ENGINEERING	2016-10-13	2017-05-02	2019-07-16	2,000	13.0
71	NH SPAC 11th	BNC Korea	2016-10-14	2016-12-28	2019-12-03	2,000	13.0
72	KB No.11 SPAC	SOFTCAMP	2016-11-01	2017-04-27	2019-12-30	2,000	6.0
73	Hana Financial 9th SPAC	DENTIS	2016-12-01	2017-06-26	2020-07-03	2,000	8.0
74	Shinyoung HappyTomorrow No.3 SPAC	UST	2017-01-23	2017-04-06	2018-03-23	2,000	5.0
75	IBKS No.6 SPAC	Elensys	2017-02-10	2017-06-01	2019-12-20	2,000	8.0
76	Kyobo 7 SPAC	Naintech.	2017-03-22	2017-06-22	2020-04-22	2,000	7.6

77	Hana Financial 10th SPAC	G Enone Energy	2017-04-20	2017-08-22	2020-02-04	2,000	8.0
78	NH SPAC 12th	Wise birds	2017-06-01	2017-08-07	2020-08-05	2,000	13.0
79	IBKS No.8 SPAC	INSAN	2017-07-26	2017-09-29	2018-09-11	2,000	4.0
80	Dongbu 5th SPAC	Lake Materials	2017-09-22	2017-12-12	2020-03-23	2,000	8.0
81	Hana Financial 11th SPAC	KAINOS MEDICINE	2017-11-03	2018-06-08	2020-06-08	2,000	9.0
82	Yuanta 3 SPAC	Jeisys Medical	2017-12-01	2018-05-08	2021-03-31	2,000	7.0
83	Samsung SPAC 2	NP	2018-02-06	2018-09-13	2021-08-20	2,000	13.0
84	IBKS No.9 SPAC	ALOYS	2018-04-26	2018-07-20	2019-10-01	2,000	5.0
85	IBKS No.10 SPAC	WSI	2018-05-11	2018-09-21	2020-12-01	2,000	8.0
86	Daishin Balance 5th SPAC	Zinitix	2018-06-26	2018-08-30	2019-07-26	2,000	7.0
87	DB Finance No.6 SPAC	Neontech	2018-08-24	2018-10-31	2020-02-11	2,000	8.0
88	Shinyoung HappyTomorrow No.4 SPAC	IL SCIENCE	2018-08-31	2018-12-21	2019-12-27	2,000	8.5
89	Kyobo 8 SPAC	Wonbiogen	2018-09-03	2018-12-05	2021-02-09	2,000	6.2
90	Daishin Balance 6th SPAC	KUKJEON PHARMACEUTICAL	2018-09-11	2018-12-19	2020-12-30	2,000	9.0
91	Goldenbridge Ian No.5 SPAC	B2En	2018-09-12	2018-12-12	2021-11-18	2,000	8.5
92	SAMSUNG MUST SPAC 3	OHEIM INT	2018-10-11	2018-12-20	2020-12-24	2,000	7.5
93	MiraeAsset Daewoo SPAC 2	ANIPLUS	2018-10-15	2018-12-21	2020-02-07	2,000	5.5
94	Korea No.8 SPAC	DYC	2018-10-22	2018-12-20	2021-12-14	2,000	6.0
95	Hi SPAC IV	TS Trillion	2019-01-11	2019-04-29	2020-12-30	2,000	8.0
96	NH SPAC 14th	HUYNDAI MOVEX	2019-02-18	2019-05-08	2021-03-12	2,000	16.0
97	Hana Financial 13th SPAC	WINTEC	2019-03-05	2019-09-18	2020-08-06	2,000	6.0

98	Eugene SPAC 4	PRO2000	2019-03-13	2019-05-31	2021-10-27	2,000	6.5
99	DB Finance No.7 SPAC	COPUS KOREA	2019-04-01	2019-05-31	2020-12-28	2,000	8.0
100	Shinhan 5th SPAC	MFM KOREA	2019-04-04	2019-06-19	2020-12-30	2,000	8.0
101	Eugene SPAC 5	FOCUS HNS	2019-07-10	2019-10-02	2021-10-27	2,000	7.0
102	MiraeAsset Daewoo SPAC 4	IL SEUNG	2019-08-07	2019-11-06	2021-05-17	2,000	8.1
103	IBKS No.11 SPAC	VIOL	2019-09-02	2019-12-03	2020-11-26	2,000	9.0
104	NH SPAC 15th	IBKIMYOUNG	2019-10-11	2019-12-24	2020-10-13	2,000	12.0
105	Yuanta 6 SPAC	DAVOLINK	2019-10-17	2019-12-19	2021-08-13	2,000	13.0
106	Hanwha Plus No.1 SPAC	SERIM B&G	2019-10-17	2019-12-27	2021-12-09	2,000	8.0
107	IBKS No.14 SPAC	Solution Advanced Technology	2020-03-06	2020-06-22	2021-12-09	2,000	8.0
108	NH SPAC 16th	Hurum	2020-03-31	2020-06-17	2021-07-27	2,000	7.5
109	NH SPAC 17th	C&R Research	2020-06-18	2020-09-23	2021-12-17	2,000	12.0
110	Daishin Balance 7th SPAC	BLITZWAY	2020-10-20	2020-12-23	2021-12-23	2,000	7.0

Appendix C. Requirements for listing through SPAC mergers and traditional IPO in the KOSDAQ based on profitability and sales

This table presents the requirements that private companies must meet to be listed on the KOSDAQ. Listing through mergers with SPACs have different requirements relative to IPOs. In addition, loose requirements apply to companies that are assessed as having superior technologies.

SPAC Mergers	Traditional IPO	Exceptions for Technology Assessment
(1) At least KRW 2 billion in pre-tax income from continuing operations (2) Positive pre-tax income from continuing operations and at least KRW 10 billion in sales (KRW 5 billion for venture companies)	(1) At least KRW 2 billion in pre-tax income from continuing operations (KRW 1 billion for venture companies) and at least KRW 9 billion in base market capitalization (2) At least KRW 2 billion in pre-tax income from continuing operations (KRW 1 billion for venture companies) and at least KRW 3 billion in equity capital (KRW 1.5 billion for venture companies) (3) Positive pre-tax income from continuing operations and at least KRW 20 billion in base capitalization and at least KRW 10 billion in sales (KRW 5 billion for venture companies) (4) At least KRW 5 billion in pre-tax income from continuing operations	(1) At least KRW 1 billion in equity capital (2) At least KRW 9 billion in base market capitalization

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