Internet Appendix for "SPACs" – January 2023

This Internet Appendix accompanies "SPACs" by Minmo Gahng, Jay R. Ritter, and Donghang Zhang. We provide three detailed examples to help shed further light on the complicated structure of SPACs and the life cycle of a SPAC from its IPO to the deSPAC transaction (merger or liquidation) in Section A1. In Section A2, we provide more background information on the evolution of the SPAC market, including the basic statistics on SPACs from 1990 to 2009 and additional statistics on SPACs after 2010. We also provide a careful discussion of the emerging contractual features in the SPAC market after the recent surge in SPACs in 2020-2021. In Section A3, to complement the discussions on the comparison between going public via a deSPAC merger and a traditional IPO in the paper, we provide additional details on the costs and speed of going public via a SPAC merger. In Section A4, we include results from Fama-French three-factor regressions for the deSPAC period returns. Finally, in Section A5, we provide additional details on the compensation of SPAC sponsors and the use of state-contingent contracts in the negotiations of sponsor compensation during a deSPAC merger.

A1. Understanding SPACs Based on Examples

As the complicated structure of SPACs can be best understood with examples, we provide three cases in this section – Social Capital Hedosophia, which merged with Virgin Galactic Holdings, as a successful SPAC, and Barington/Hilco Acquisition and Allegro Merger, two SPACs that announced business combinations but liquidated in the end, as examples of unsuccessful SPACs.

A1.1. Social Capital Hedosophia (currently Virgin Galactic)

Social Capital Hedosophia Holdings Corp. (SCH), which is now traded as Virgin Galactic, was launched as a partnership between two venture capital firms – Social Capital, which was founded by Chamath Palihapitiya, and Hedosophia, which was founded by Ian Osborne. SCH went public on September 14, 2017, offering 60 million units at the price of $10 per unit, raising $600 million (69 million units and $690 million, including the full exercise of

the underwriter over-allotment option). Credit Suisse was the sole underwriter. SCH set 24 months as a deadline to complete a business combination.

Each unit of SCH consists of one Class A common share, and one-third of one warrant, with each whole warrant allowing the purchase of one Class A common share at $11.50, conditional on the consummation of a business combination and exercisable within five years from the business combination date. Units were scheduled to be traded separately as common shares and warrants on the 52nd day following the IPO, but at the discretion of the underwriter (Credit Suisse), units became unbundled on September 29, 2017.

On July 9, 2019, about 22 months after its IPO, SCH announced a definitive agreement outlining a business combination with Virgin Galactic, Virgin Group's spaceflight company. However, SCH could not close the announced merger before its initial 24 months deadline, which was September 2019. SCH sought a three-month extension of a deadline, giving shareholders an option to redeem their shares if they do not agree with the proposed charter extension. As a result, 3.7 million shares, which is 5.5% of the total shares, were redeemed at $10.37 per share. Upon the business combination, SCH gave shareholders another option to redeem their shares. This time, 12.1 million shares, or 17.5% of the total shares, were redeemed at $10.33. The deal was completed on October 25, 2019, set to start trading as a new entity 'Virgin Galactic Holdings Inc' on the next trading day, October 28, 2019 (Monday).

Sponsors, both Social Capital and Hedosophia, did not forfeit any founder shares or warrants. Instead, Chamath Palihapitiya, the founder of Social Capital and SCH, provided extra capital as a PIPE investor, investing $100 million by purchasing 10 million common shares at $10 per share. SCH also invited Boeing as a second PIPE investor, receiving a $20 million investment by issuing 1,924,402 common shares at a price of $10.40 per share.

Based on the optimal redemption strategy of purchasing units in the IPO and selling or redeeming common shares and derivative securities five trading days prior to the business combination (to avoid settlement complications or inducing a look-ahead bias), a SPAC investor who bought one unit of SCH, consisting of one common share and one-third of one warrant, on the IPO date at $10.00, would cash out at $11.23, earning a 5.72% of annualized return.

The stock price of Virgin Galactic peaked at $33.87 on February 17, 2020, just before the Covid-19 pandemic hit the market. It was traded at $18.29 on October 27, 2020, the last day of

the one-year investment period. Based on our deSPAC period buy-and-hold investment returns, an investor who bought one share of Virgin Galactic at the first trading date price of $11.79 would have earned 55% for the first year, while the value-weighted CRSP return for the same period was 14%, resulting in a 41% abnormal return.

A1.2. Barington/Hilco Acquisition and Allegro Merger (Both Liquidated)

Barington/Hilco Acquisition Corp (BHAC) went public on February 6, 2015, offering 4 million units at a price of $10 per unit, raising $40 million (4.29 million units and $42.9 million, including the partial exercise of the underwriter over-allotment option). EarlyBirdCapital was the lead bookrunner. BHAC set 18 months as an original deadline to consummate a business combination. However, BHAC extended the charter six times total before it finally liquidated on October 31, 2018, almost 45 months after its IPO on February 6, 2015.

BHAC announced two unsuccessful definitive agreements during its life span. The first target was Oomba, an online social networking and tournament gaming platform, announced on May 16, 2017. However, on November 30, 2017, BHAC announced that it has terminated the definitive merger agreement it entered with Oomba, because *'Oomba breached several of its obligations under the Merger Agreement, including, but not limited to, its obligation to deliver to the Company audited financial statements'*.[38] About three months later, BHAC announced that it entered into a letter of intent with Specialty Brands Holdings. Specialty Brands would spinoff its Papa Gino's Pizzeria by merging it with BHAC on February 14, 2018. However, on April 25, 2018, BHAC announced the termination of the agreement because *'the proposed purchase price for the Company was not in its best interest or that of BHAC. . . . the parties were unable to agree upon a revised purchase price. . . '*.[39] BHAC eventually announced its liquidation on October 31, 2018.

Allegro Merger (Allegro) went public on July 3, 2018, offering 13 million units at the price of $10 per unit, raising $130 million (14.95 million units and $149.5 million, including the full exercise of the underwriter over-allotment option). Cantor Fitzgerald was the lead bookrunner. Allegro set 18 months as an original deadline to finish a business combination and extended it once before liquidating on March 31, 2020, about 21 months after its IPO on July 3, 2018.

[38] See https://www.sec.gov/Archives/edgar/data/1622175/000161577417007044/0001615774-17-007044-index.htm
[39] See https://www.sec.gov/Archives/edgar/data/1622175/000161577418002903/0001615774-18-002903-index.htm

Allegro announced a definitive agreement with TGI Fridays (TGIF) on November 8, 2019. The agreement included specific closing conditions such as requiring that Allegro would deliver at least $30 million in cash and assume TGIF's $350 million of net debt. However, as the Covid-19 pandemic hit the market, the deal was cancelled. On March 31, 2020, Allegro and TGIF mutually determined to terminate the deal because of *'extraordinary market conditions and the failure to meet necessary closing conditions, to terminate their previously announced merger agreement'*.[40] Allegro announced its liquidation from the same filing.

Although both BHAC and Allegro failed to complete business combinations and eventually liquidated, SPAC stage investors earned annualized returns of 3.06% and 1.82% from BHAC and Allegro, respectively, based on our optimal redemption strategy. It is noteworthy that Allegro decided to liquidate in late March 2020, when the US stock market suffered a significant drop from the Covid-19 pandemic, and returned the capital to its investors in early April 2020. That is, even though there was a sharp market downturn, Allegro returned the IPO proceeds to investors with interest.

A2. The Evolution of the SPAC Structure

A2.1. 'SPAC 1.0 & 2.0' to the 'SPAC 3.0'

Practitioners frequently refer to the period between 1993 and 1999 as 'SPAC 1.0', and the period between 2000 and 2009 as 'SPAC 2.0', and from 2010 as 'SPAC 3.0', in general.[41] Here, we summarize five key differences between SPACs that went public before 2010 (SPAC 1.0 and 2.0) and in 2010 or later (SPAC 3.0). Note that the below differences are based on the general trend – as each SPAC is entitled to decide its own structure, the comparison may not be true for some SPACs.

First, although there were 185 SPAC IPOs between 1990 and 2009, 100, or 54%, were traded in OTC markets. From 2010−2020, only 15 SPAC IPOs (five in 2010 and ten in 2011) were traded in OTC markets, and since 2012, all have been traded on organized exchanges. As the comparison of Table A2 and Table A1 demonstrates, SPACs that went public in 2009 or before tend to be significantly smaller than SPACs that went public in 2010 or later.

[40] See https://www.sec.gov/Archives/edgar/data/1720025/000121390020008287/0001213900-20-008287-index.htm

[41] There are different versions of the classifications, such as referring to post 2015 as SPAC 3.5 or SPAC 3.0.

— Place Table A1 and Table A2 About Here —

Second, in the SPAC 3.0 period, a typical underwriting commission consists of a 2% up-front fee and a 3.5% deferred fee payable only upon the completion of a business combination. However, it used to be the case that during the SPAC 1.0 and 2.0 periods, underwriter commissions were 7% (up to 10% during SPAC 1.0), with most paid in full at the time of the IPO. With the start of the SPAC 3.0, more prestigious investment banks started to underwrite SPAC IPOs. Panel A of Figure A2 reports that the average quality of SPAC IPO's lead left bookrunners has improved over time.[42] Panel B of Figure A2 shows that three prestigious underwriters, Goldman Sachs, Morgan Stanley, and JP Morgan, started to underwrite SPAC IPOs in 2016, and their market shares increased substantially in 2020 and 2021, before dropping in the first half of 2022. Not shown are other underwriters with large market shares: Citigroup, Credit Suisse, Deutsche Bank, and EarlyBird Capital (a SPAC specialist).

— Place Figure A2 About Here —

Third, SPACs going public in 2010 and later are composed of units with fewer warrants, and the exercise prices are higher. That is, prior to 2010, the exercise price of warrants was at a 15% to 30% discount to the IPO price, but it changed to a 15% premium to the IPO price from 2010 (i.e., $11.50 for a SPAC IPO priced at $10). At the same time, SPACs that went public before 2010 provided warrants that can convert into 1 - 2 shares per unit, but a typical SPAC unit from 2010 provides warrants that can convert into 1/4 - 1 shares. We see a downward trend in recent years, especially in 2020 and 2021, before reversing in the second half of 2021 (See Figure A3).

Fourth, before 2010, SPAC shareholders can either vote to approve a business combination or redeem their shares by rejecting the proposed business combination. In other words, shareholders could not approve a business combination and redeem their shares. From 2010, shareholders can make these two decisions separately, allowing them to approve a deal while still redeeming their shares. Accordingly, while Jenkinson and Sousa (2011) report that 26% (15 out of 58) of the SPACs that went public between August 2003 and June 2008 were liquidated, we find that only 15% (17 out of 114) of the SPACs that went public between January 2010 and May 2018 were liquidated.

[42] For the complete updated list of underwriters and their ranks, refer to Jay Ritter's website "IPO Underwriter Reputation Rankings (1980 – 2020)" (https://site.warrington.ufl.edu/ritter/ipo-data/).

Fifth, partly because of the large up-front underwriting fee, only about 85% of the IPO proceeds were deposited into the trust account prior to 2004, gradually increasing to high-90% by 2008 (See Jenkinson and Sousa (2011) and Lakicevic and Vulanovic (2013)). It is only after 2010 that 100% of SPAC IPO proceeds were deposited into the trust account. In 2022, many SPACs have deposited more than 100% of IPO proceeds in the trust account (e.g., $10.20 per share) to attract SPAC period investors.

The last two changes influenced the economic role of SPAC IPO investors in different ways: one undermining the disciplinary role of the redemption right and the other strengthening it. The separation of voting and redemption rights of public common shareholders, which had previously been bundled together, weakened the disciplinary role of the redemption decision. One reason for this change, as posited by Rodrigues and Stegemoller (2013), is that when these decisions are bundled together, a hedge fund with a large position can hold up the sponsor if the vote to approve a merger is close, demanding a side payment. If there is a liquidation, both sponsor private placement warrants and public investor warrants will be worthless. Thus, public shareholders now have an incentive to approve a bad merger and redeem their shares, whereas previously, they had an incentive to vote down a bad merger so that they could redeem their shares.

On the other hand, sponsors "topping up" the initial trust made the redemption right more effective as a disciplinary tool. This purchase results in the sponsor having more "skin in the game". Furthermore, the higher value of the trust makes redemption slightly more attractive for the public investors, increasing the incentive of the sponsor to propose a good merger. Being able to keep or sell the SPAC warrants in spite of redeeming the shares also increases the incentive to redeem.

A2.2. Recent Evolution of the SPAC Market

In this section, we discuss the possible reasons behind the recent changes in the SPAC market, and why the market started to boom in 2020 and then bust in 2022. As Table A2 documents, SPAC IPO volume increased from 59 IPOs in 2019 to 613 in 2021. The first half of 2022 saw 70 IPOs, an annualized rate of 140. We start by asking 'What should the SPAC period returns be?'

We provide a simple back of the envelope calculation to demonstrate why there has been strong demand for SPAC IPOs in the market, and how sponsors responded.

Assume that a five-year warrant to buy one share at an exercise price of $11.50 that can be called early by the issuer once the market price of a share hits $18 (a typical feature) is worth $2.00 after the merger announcement. A unit with an initial trust value of $10 that is composed of a redeemable share plus a warrant to purchase a full share would, after a merger announcement, be worth the max of [($10 + interest), (the share price after a merger is announced)], plus the value of the warrant. In the low interest rate environment of 2021, $10 + interest might be worth $10.10 at redemption. Assume that the shares, conditional on not being redeemed after the merger agreement is announced, are worth $11.00. Using the average redemption ratio of 37% conditional on a completed merger (see Table 9), the expected value of a share is 0.37×$10.10 + 0.63×$11.00 = $10.67. The units would then have an expected ending value of $10.67 + $2.00 = $12.67. If on average a merger took 2 years to complete, the annualized return from the $10 offer price would be about 12.6% per year. But if the unit included a warrant to buy only 1/4 of a share, the value of the warrant would not be $2.00, but $0.50. Then the units would be worth $10.67 + $0.50 = $11.17, and the annualized return would be just under 5.7%.[43]

An annualized return of 5.7% is still higher than the risk free rate, even though the redemption option results in no downside risk for an investor that holds until liquidation or merger completion. The redemption option, however, is generally not available until a merger announcement, exposing an investor to illiquidity and potential fire sale risk.[44] Thus, equilibrium returns should be higher than the risk free rate, but by only a modest amount, suggesting that warrants to buy a large fraction of a share are excessively generous. At the risk of oversimplifying, the default-free convertible bond by itself is worth approximately $10, and warrants are a free lunch for IPO investors.

[43] If the SPAC IPO contained 20 million units, the warrants, at $2.00 each, which entitle the holder to buy one share per warrant, would be worth $40 million in aggregate. Warrants to buy ¼ of a share would presumably be worth approximately $10 million in aggregate. If, after the merger, there will be 75 million shares owned by legacy operating company shareholders, 20 million public shares, and 5 million sponsor shares, the $30 million reduced value of the warrants should add $0.30 per share to the total of 100 million shares. Our simple back of the envelope calculations do not adjust for the difference in the price per share that would exist if the aggregate value of outstanding warrants was less. We are also ignoring the possibility of a liquidation that would make the warrant worthless.

[44] In March 2020, during the short-lived Covid-19 panic, many SPAC units dropped to a market price of approximately $9.50.

Investors, especially the SPAC Mafia, have realized that SPAC IPOs offered a free lunch, as long as liquidation rates stayed low. During 2020 and the beginning of 2021, other investors were also willing to buy in the market, driving up the first-day returns of the SPAC IPOs. Sponsors responded by providing fewer warrants per unit. In Figure A3, using data from January 2018 to December 2021, we show the quarterly SPAC IPO average first-day return, and the quarterly average of the potential dilution per unit. This figure illustrates these two important recent changes. First, the market became more efficient, because it started to realize the SPAC period abnormal returns immediately as first-day returns, rather than waiting until after a merger is announced. In the first quarter of 2021, 298 SPAC IPOs occurred, with average first-day returns of 3.7%. Second, with the increased investor demand for SPAC IPOs, sponsors started to structure SPAC IPOs with fewer warrants and less dilution. This second change reduces the wealth transfer from operating company and deSPAC period shareholders (including the sponsor) to SPAC period investors, making SPACs less attractive for IPO investors, but more attractive for deSPAC and operating company shareholders.

These trends began to reverse in the second quarter of 2021. As hundreds of SPACs went public in 2020 and early 2021, the market started to reevaluate the probability of successful mergers and expected returns. That is, having hundreds of SPACs with similar deadlines searching for target companies increased the probability of SPACs being liquidated. Conditional on completing a merger, the increased competition from sponsors searching for deals increased the pre-money valuation that operating companies can demand, lowering the expected returns for the SPAC period investors. Thus, from the second quarter of 2021, the average first-day return dropped, to -0.2% in the third quarter, reflecting investors' expectation adjustments. Accordingly, sponsors reversed their course, and started to offer more generous warrants to attract the SPAC stage investors. Our interpretation is that the decline in first-day returns does not reflect a decline in market efficiency. Rather, it reflects revised expectations of SPAC IPO period performance due to a supply increase and changed warrant terms.

— Place Figure A3 About Here —

As the SPAC market softened in 2021, an earnout, or vesting, provision for sponsor promotes became common. The compensation structure of SPAC sponsors allows them to earn positive

returns even from weak deals because the average cost of sponsor shares, calculated as net sponsor shares divided by the at risk capital investment, is only about $2 per share. The market started to mitigate the incentive to propose weak mergers by introducing earnout provisions for sponsor promotes, in which promote shares are locked up for many years unless certain price targets are hit. We have observed an upward trend in the frequency of earnout provisions. For the 153 business combinations for SPACs since 2015, 27% of them have earnout provisions for sponsor promotes (see Panel A of Table 9). This percentage is zero for 2016 (the first year with completed mergers for these SPAC IPOs), 8% for 2017, 17% for 2018, 32% for 2019, 34% for 2020, and 25% for the first quarter of 2021.

These earnout provisions typically require the stock price to stay above a threshold price in order for the shares to be released to the sponsor. For example, for the merger between Double Eagle Acquisition Corp. and Williams Scotsman, which was closed on November 29, 2017 and is now called WillScot Mobile Mini Holdings Corp. (Ticker Symbol WSC on NASDAQ), the merger agreement states that "If, at any time during the period of three years following the Closing Date, the closing price of the shares of the Company (i) exceeds $12.50 per share for 20 out of any 30 consecutive trading days, then 6,212,500 shares will be released from escrow...." Double Eagle has additional shares that are subjected to a $15 threshold, and the earnout provisions are contingent on the public share redemptions.[45] Multiple thresholds, which are typically two, are common. Sponsor shares, as well as private placement warrants, will become worthless if a merger does not happen.

Then why has there been a boom in the SPAC market in 2020 and 2021? For many years, sponsors and hedge fund IPO investors both earned attractive returns on SPACs, but the scarce factors were finding quality operating companies to merge with and investors to buy the SPAC shares at the time of the merger when hedge funds exited. Figure A1 reports the number of SPAC IPOs between 2010 and 2021 and their outcomes as of December 2021. In 2017-2019, for example, nine SPACs liquidated and of the completed mergers, 44 out of 64 (69%) had more than 50% of the shares redeemed. PIPE investments in many cases made up some or all of the cash that public market investors redeemed, allowing the merger to be

[45]See https://www.sec.gov/Archives/edgar/data/0001647088/000110465917071936/a17-27887_28k.htm (retrieved as of June 2022) for more details.

completed. Thus, although it may have been quicker to complete a merger with a SPAC than to go public with a traditional IPO, contrary to the often repeated statement that merging with a SPAC exposed an operating company to less uncertainty about deal completion and proceeds raised, the evidence is that an operating company was exposed to substantial uncertainty about the amount of cash that would be delivered.

— Place Figure A1 About Here —

In 2020, 62 mergers were completed and only two SPACs liquidated. Of the 62 mergers, only 25 out of 62 (40%) had 50% or more of the SPAC shares redeemed. In the fourth quarter, there were 0 liquidations and 37 completed mergers, with only 10 out of 37 (27%) having 50% or more of the SPAC shares redeemed.

Thus, our interpretation is that what changed in 2020, especially in the last quarter, was that investor sentiment towards the mergers became much more positive, allowing the sponsors to complete deals because the cash raised in the IPO was unlikely to be redeemed. For operating companies, the probability that a merger would be completed and substantial cash delivered increased, making merging with a SPAC more attractive than it had been. PIPE investments also became more common, providing additional cash and assurance that the merger would be completed.

Why did investor sentiment change in 2020? We posit that the high returns earned on several high-profile deals, including the October 2019 Virgin Galactic merger, the March 2020 Betterware merger, the April 2020 DraftKings merger, and the June 2020 Nikola and Open Lending mergers, led to an inflow of retail investors chasing past returns. The high returns continued into February 2021, when the returns on both pre-deal, announced deal, and completed deal SPACs peaked and then turned negative. Because of the relative speed with which a SPAC IPO can be completed, 298 SPAC IPOs occurred in the first quarter of 2021 alone, before a rapid deceleration occurred. During the second and third quarters, 149 SPAC IPOs occurred, still an annualized pace of 298 IPOs. Issuing activity picked up again in the fourth quarter of 2021, before rapidly slowing down in 2022.

As we show in Figure A3, the fraction of a warrant offered in a SPAC unit fell dramatically from the beginning of 2018 to the beginning of 2021, as sponsors found it easier to attract

IPO investors. The lower warrant fraction left a larger slice of the pie for other stakeholders, including the operating company. SPAC IPO activity dropped dramatically in April 2021 due, in part, to increasing concerns about an oversupply of SPACs ("too much money chasing deals") and concerns raised by the U.S. SEC. The SEC questioned whether sponsor warrants should be expensed (much as employee stock options, which are also warrants, are), and whether the regulatory arbitrage discussed in Section 1 is in fact present.

A3. The Relative Costs and Speed of Going Public in Detail

A3.1. Relative Costs in Detail

In Table 1, we estimate the relative costs of going public. For the costs associated with merging with a SPAC, we use SPAC IPOs since January 2015 that completed a merger by March 2021. There were 153 such mergers, but we exclude three mergers that had negative cash delivered because of redemption ratios of close to 100%, and for which the operating company waived the minimum cash requirement in the merger agreement. We compute the equivalent costs for 677 traditional operating company IPOs between January 2015 and March 2021.[46] We also exclude IPOs raising more than $500 million (Uber Technologies, Lyft, Airbnb, etc.) before overallotment option shares, because they were much bigger than almost all the companies involved with a SPAC merger. We also examine the seven companies that went public via a direct listing in the same period.

Our median costs as a percentage of cash raised of 48.3% and median costs as a percentage of the market cap of 15.1% are close to the Klausner et al. (2022) medians of 62% and 14%, respectively. Our calculations assume that private placement warrants have the same value as public warrants, even though private placement (founder) warrants typically do not have an early redemption provision, making them more valuable than public warrants. Offsetting this bias is that some founder shares have vesting provisions, which would lower their value relative to public shares. Klausner et al. (2022) subtract the value of all warrants from their cash delivered calculations while we do not. This difference partly explains why

[46]The operating company IPO sample includes IPOs with an offer price of at least $5.00, excluding ADRs, unit offers, closed-end funds, REITs, natural resource limited partnerships, small best efforts offers, banks and S&Ls, and stocks not listed on CRSP (NYSE and NASDAQ). See Ritter (2023) (https://site.warrington.ufl.edu/ritter/files/IPO-Statistics.pdf). Both SPAC and operating company IPO proceeds exclude overallotment option shares.

there exists a greater difference for the costs of going public when cash delivered is used as the denominator instead of market capitalization. Also, Klausner et al. (2022) value the common share at $10 per share whereas we use the market price.

When we calculate the costs for merging with a SPAC as reported in Panel A of Table 1, we use the market value of all claims held by non-legacy investors (i.e., investors who were not operating company shareholders) including shares, warrants, and rights, and compare it to the cash delivered to the operating company.

Panel A of Table 1 reports that more than 10% of traditional IPOs have negative costs of going public. Negative costs occur when there is a sufficiently negative amount of money left on the table due to a price drop on the first day of trading that exceeds the gross spread in magnitude.

Klausner et al. (2022) note that the money left on the table component of SPAC costs depends upon when this number is measured. In their Appendix Table 10, they show that due to negative deSPAC returns, the median costs to the operating company as a percentage of the money raised are small if prices a year after the merger are used. This low median cost is due to the ability to receive cash per share that is at or above where the share price will be a year later, with both the cash per share and price a year later well below $10 per share.

It is important to note a possible selection issue when we compare these relative costs in Panel A of Table 1. Companies choosing SPACs might be fundamentally different from companies opting for traditional IPOs, having different unobservable characteristics. In other words, it is possible that companies that went public via merging with a SPAC would have experienced severe underpricing or a withdrawn deal if they had chosen traditional IPOs. Even with this caveat, however, we do not believe that selection bias can fully explain the large difference in costs between the two methods. Note that the 25th percentile of costs as a percentage of post-issue market capitalization for SPACs is 8.5%, higher than the 75th percentile for traditional IPOs of 7.1%.

A3.2. Relative Speed in Detail

In general, the time between filing a confidential draft registration statement (DRS) and the public form S-1 (or F-1 for foreign companies) is about three months. After the S-1 is filed, it

takes a minimum of three weeks before the IPO is consummated and the stock starts to trade. Chaplinsky et al. (2017)'s Table 2 reports a median of 104 days in registration (DRS to IPO date) for their sample of 312 Emerging Growth Company IPOs from April 2012 to April 2015. The time it takes to draft a DRS would be a minimum of a month or so, suggesting a median of at least five months for the time it takes to do a conventional IPO.

A SPAC typically announces a business combination when it reaches a definitive agreement with a target company. Before the merger is completed, the SPAC must prepare and file SEC form S-4 (F-4 if the merger is with a foreign company), which must be reviewed by the SEC staff. The S-4 contains much of the information that would be in an S-1, although revenue and earnings projections are generally included, with these projections possibly protected by a "safe harbor" provision that we discuss as a third potential advantage of merging with a SPAC.

Table 1 shows that merging with a SPAC might have close to no speed advantage for a company that was well-prepared for an IPO filing, but would be faster for a company that needed time to prepare a DRS that involved complications due to a lack of audited financial statements.

A4. Fama-French Three Factor Alphas

We run Fama and French (1993) time-series three-factor regressions to examine how deSPAC period common share returns load on standard asset pricing factors and to shed further light on the stock performance of merged companies during the deSPAC period. Specifically, we run

$$R_{p,t} - R_{f,t} = a + b * (R_{m,t} - R_{f,t}) + c * SMB_t + d * HML_t + e_{p,t} \tag{5}$$

where $R_{p,t}$ is the return on either the equally weighted or post-issuance market capitalization-weighted return of a portfolio of deSPAC common shares in calendar month t; $R_{m,t}$ is the return on the value-weighted CRSP index in month t; $R_{f,t}$ is the one-month T-bill rate in month t; SMB_t is the return on small firms minus the return on big firms in month t; and HML_t is the return on high book-to-market stocks minus the return on low book-to-market stocks in month t.

— Place Table A3 About Here —

Table A3 shows that, consistent with the raw returns reported in Table 4, deSPAC period common shares underperform by 1.1% to 2.1% per month, although not all of the alphas are statistically different from zero. This is mainly because monthly portfolios early in our sample include only a few companies, resulting in high standard errors. Both equally weighted and value-weighted portfolios load positively on SMB, which is not surprising given that most merged companies have market caps that place them in the Russell 2000.

A5. Sponsor Compensation and State-Contingent Contracts

A5.1. Sponsor and Underwriter Compensation Renegotiations in Detail

For the traditional IPO, a number of papers discuss the direct costs of going public, of which the largest is the underwriting commission. The indirect costs of IPOs, most notably the underpricing, have been studied extensively as well (e.g., Loughran and Ritter (2002), among others). Many other papers focus on opaque compensation structures, especially how general partners are paid in the private equity industry (Metrick and Yasuda (2010), Chung, Sensoy, Stern, and Weisbach (2012), Robinson and Sensoy (2013), and Phalippou et al. (2018), among others). A recent study by Phalippou (2020) shows that from 2006-2019, on average private equity limited partners earned no abnormal returns, while general partners earned enormous fees.

SPAC sponsors' compensation has also been spotlighted. For example, in September 2020, then SEC Chairman Jay Clayton mentioned that the SEC was focusing on SPAC sponsors' incentives and compensation.[47]

SPAC merger agreements can include vesting (earnout) provisions for sponsor promotes, typically tied to future stock prices of the merged company. For such contingent cases, in Table 9 we report the summary statistics on the shares subject to vesting provisions but treat these shares as not being forfeited, to conservatively report the frequency and magnitude of sponsor compensation renegotiations.

[47] https://www.cnbc.com/video/2020/09/24/sec-chairman-jay-clayton-on-disclosure-concerns-surround-going-public-through-a-spac.html - Retrieved as of June 2022.

The amount of new capital at the time of the merger contributed differs across deals, and the format also varies, as some include preferred shares and convertible debt.[48]

Our per share cash numbers are higher than the median of $5.70 per share for 47 SPACs between January 2019 and June 2020 in Klausner et al. (2022) for two reasons. First, Klausner et al. (2022) subtract the value of both public and private placement (sponsor) warrants in the calculation of cash delivered. We include the value of warrants in calculating the costs of going public via merging with a SPAC in Panel A of Table 1, but we do not subtract the value of warrants in calculating the per share cash delivered in Panel B of Table 9 because these warrants do not have any cash implications at the merger. Klausner et al. (2022) calculate 'net cash per share' by treating warrants as liabilities, whereas we address the dilutive nature of warrants separately. There is no substantive difference between the two approaches, however, although the cash delivered per share numbers are affected. For a $200 million SPAC IPO with one-half warrant per unit, 5 million promote shares, 37% redemptions, and 7 million private placement warrants, there would be 12.6 + 5 = 17.6 million shares and 17 million warrants. If each warrant is worth $1.50, the $25.5 million warrant value would be $1.45 per share. Second, in their sample period, there were higher redemptions and fewer PIPE investments than in our longer sample period. PIPE investments increase the cash per share because, even if the sponsor lowers the effective cost by transferring promote shares, the transfer does not increase the net number of shares held by non-legacy shareholders, while at the same time the PIPE investor is normally contributing $10 in cash per newly issued share. Third, Klausner et al. (2022) have a more comprehensive set of fees subtracted than we do, including financial advisor fees paid by the operating company.[49]

A5.2. State-Contingent Contracts

It is not unusual for SPAC sponsors to have complicated state-contingent compensation structures. For example, the merger agreement between Acies Acquisition Corp ("ACAC") and PlayStudios

[48] We include investments in preferred equity and convertible debt as part of the new capital in Table 9. Many business combinations in recent years also involve syndicated loans. We do not count these loans arranged along with the merger as part of the new capital.

[49] We also include structured financing including preferred shares and convertible bonds in our PIPE investments. We treat the structured financing as being fairly priced and convert them into shares at $10 per share. The 20% discount for PIPE investments reported in Table 8 in the paper is not closely related to cash per share that is delivered, as such discounts mainly come from two sources: "free" warrants or sponsor shares given to PIPE investors as inducements and price discounts when the market price of the shares is above $10.

(a mobile game developer), according to the SEC form 8-K filings, includes the following features.[50]

The sponsor will forfeit 403,594 Class B promote shares if more than 25% of public shares are redeemed, and an additional 403,594 shares will be forfeited if more than 50% are redeemed, with a proportional amount forfeited if between 25% and 50% are redeemed. Furthermore, the merger agreement also includes earnout provisions for sponsor promotes − 450,000 promote shares will be forfeited unless the post-merger stock price stays above $15.00 for a certain number of days, and another 450,000 promote shares will be forfeited unless the stock price stays above $12.50 for a certain number of days. In addition, the sellers (operating company shareholders) will be given 7,500,000 shares if the common stock price equals or exceeds $12.50 for a certain number of days at least 150 days after, but within 5 years of closing; and an extra 7,500,000 shares if the common stock price equals or exceeds $15.00 for a certain number of days for the same period. The additional common shares would offset the dilutive effects from SPAC warrants.

Therefore, the SPAC shareholders will be diluted if the post-merger operating company stock price goes up sufficiently, but the operating company and public SPAC shareholders will gain from the forfeiture (anti-dilutive) effect of sponsor shares being canceled if the stock price does not go up. The merger agreement requires the SPAC to deliver $200 million in cash (ACAC had $215 million in trust), and values the common equity of PlayStudios at $1.041 billion. The $1.041 billion pre-money valuation is based on PlayStudios stockholders receiving 89.1 million shares of ACAC common stock and $150 million in cash. $250 million has been committed from PIPE investors at $10 per share. Essentially all shares of the sponsors and PlayStudios shareholders will be subject to a 12-month lockup.

Post-merger, there would be up to 21.525 million public shares, 89.1 million Playstudios shares, 5.3 million sponsor shares, and 25 million PIPE investor shares, for a total of about 141 million shares outstanding, plus about 8.7 million warrants to buy a share at an exercise price of $11.50. The common stock traded at $11.35, above the redemption price, following the merger announcement, which was greeted positively by shareholders. On a fully diluted basis, there would be 141 million + 8.7 million shares from potential warrant exercise + possibly 15 million shares from the earnout.

[50] See https://www.sec.gov/Archives/edgar/data/1823878/000110465921010465/0001104659-21-010465-index.htm

A5.3. Table 10 of Manuscript Updated to Include deSPACs from April-September 2021

Table A5 updates Table 10 of the text to include deSPACs from the second and third quarters of 2021. The update was provided by Siwen Zhang of the University of South Carolina. There were 122 deSPACs and no liquidations during this period. Although the one-year returns are very low (an EW average -62.1%), sponsors did not have to forfeit many shares or agree to vesting provisions on these deals, most of which were negotiated at the peak of the SPAC boom in late 2020 and early 2021. Also, the sponsor returns are based on their at-risk capital investment at the time of the IPO, not the high price at the time of the deSPAC that lowers the one-year deSPAC returns.

References

Bai, J., A. Ma, and M. Zheng (2021): "Segmented going-public markets and the demand for SPACs," *SSRN Working Paper*.

Blomkvist, M. and M. Vulanovic (2020): "SPAC IPO waves," *Economics Letters*, 197, 109645.

Carter, R. and S. Manaster (1990): "Initial public offerings and underwriter reputation," *Journal of Finance*, 45, 1045–1067.

Carter, R. B., F. H. Dark, and A. K. Singh (1998): "Underwriter reputation, initial returns, and the long-run performance of IPO stocks," *Journal of Finance*, 53, 285–311.

Cazier, R. A., K. J. Merkley, and J. S. Treu (2020): "When are firms sued for qualitative disclosures? Implications of the safe harbor for forward-looking statements," *The Accounting Review*, 95, 31–55.

Cembalast, M. (2021): "Hydraulic spacking: The SPAC capital raising boom, and why Biden's early stage energy policies are more likely to increase oil imports rather than reduce emissions," Report, J. P. Morgan. https://assets.jpmprivatebank.com/content/dam/jpm-wm-aem/documents/en/investing/eotm/Hydraulic-Spacking.pdf

Chaplinsky, S., K. W. Hanley, and K. Moon (2017): "The JOBS Act and the costs of going public," *Journal of Accounting Research*, 55, 795–836.

Chung, J.-W., B. A. Sensoy, L. Stern, and M. S. Weisbach (2012): "Pay for performance from future fund flows: The case of private equity," *Review of Financial Studies*, 25, 3259–3304.

Coates, J. C. (2022): "SPAC law and myths," *SSRN Working Paper*.

Cumming, D., L. H. Hass, and D. Schweizer (2014): "The fast track IPO – Success factors for taking firms public with SPACs," *Journal of Banking & Finance*, 47, 198–213.

Dambra, M., O. Even-Tov, and K. George (2022): "Are SPAC revenue forecasts informative?" *SSRN Working Paper*.

Degeorge, F., J. Martin, and L. Phalippou (2016): "On secondary buyouts," *Journal of Financial Economics*, 120, 124–145.

Dimitrova, L. (2017): "Perverse incentives of special purpose acquisition companies, the "poor man's private equity funds"," *Journal of Accounting and Economics*, 63, 99–120.

Fama, E. F. and K. R. French (1993): "Common risk factors in the returns on stocks and bonds," *Journal of Financial Economics*, 33, 3–56.

Fernando, C. S., V. A. Gatchev, and P. A. Spindt (2005): "Wanna dance? How firms and underwriters choose each other," *Journal of Finance*, 60, 2437–2469.

Gryglewicz, S., B. Hartman-Glaser, and S. Mayer (2021): "PE for the Public: The Rise of SPACs," *SSRN Electronic Journal*.

Howe, J. and S. O'Brien (2012): "SPAC performance, ownership, and corporate governance," *Advances in Financial Economics*, 15, 1–14.

Hsu, D. H. (2004): "What do entrepreneurs pay for venture capital affiliation?" *Journal of Finance*, 59, 1805–1844.

Jenkinson, T. and M. Sousa (2011): "Why SPAC investors should listen to the market," *Journal of Applied Finance*, 21, 38–57.

Kiesel, F., N. Klingelhofer, D. Schiereck, and S. Vismara (2022): "SPAC merger announcement returns and subsequent performance," *European Financial Management*, eufm.12366.

Kim, J., S. Park, K. Peterson, and R. Wilson (2022): "Not Ready for Prime Time: Financial Reporting Quality After SPAC Mergers," *Management Science*, 68, 7054–7064.

Klausner, M. D., M. Ohlrogge, and E. Ruan (2022): "A sober look at SPACs," *Yale Journal on Regulation*, 39, 228–303.

Lakicevic, M. and M. Vulanovic (2013): "A story on SPACs," *Managerial Finance*, 39, 384–403.

Lewellen, S. (2009): "SPACs as an asset class," *SSRN Working Paper*.

Loughran, T. and J. R. Ritter (2002): "Why don't issuers get upset about leaving money on the table in IPOs?" *Review of Financial Studies*, 15, 413–443.

——— (2004): "Why has IPO underpricing changed over time?" *Financial Management*, 33, 5–37.

Metrick, A. and A. Yasuda (2010): "The economics of private equity funds," *Review of Financial Studies*, 23, 2303–2341.

Phalippou, L. (2020): "An inconvenient fact: Private equity returns and the billionaire factory," *Journal of Investing*, 30, 11–39.

Phalippou, L., C. Rauch, and M. Umber (2018): "Private equity portfolio company fees," *Journal of Financial Economics*, 129, 559–585.

Renaissance Capital, I. (2020): "SPAC Returns Fall Short of Traditional IPO Returns on Average," *Renaissance Capital Blog Post Report*.

Ritter, J. R. (2023): "IPO statistics for 2022 and earlier years," *https://site.warrington.ufl.edu/ritter/files/IPO-Statistics.pdf*.

Robinson, D. T. and B. A. Sensoy (2013): "Do private equity fund managers earn their fees? Compensation, ownership, and cash flow performance," *Review of Financial Studies*, 26, 2760–2797.

Rodrigues, U. and M. Stegemoller (2013): "Exit, voice, and reputation: The evolution of SPACs," *Delaware Journal of Corporate Law*, 37, 849–927.

SEC (2021): "SPACs, IPOs and liability risk under the securities laws Statement," April 8. https://www.sec.gov/news/public-statement/spacs-ipos-liability-risk-under-securities-laws

——— (2022): "SEC proposes rules to enhance disclosure and investor protection relating to special purpose acquisition companies, shell companies, and projections," Press Release, March 30. https://www.sec.gov/news/press-release/2022-56

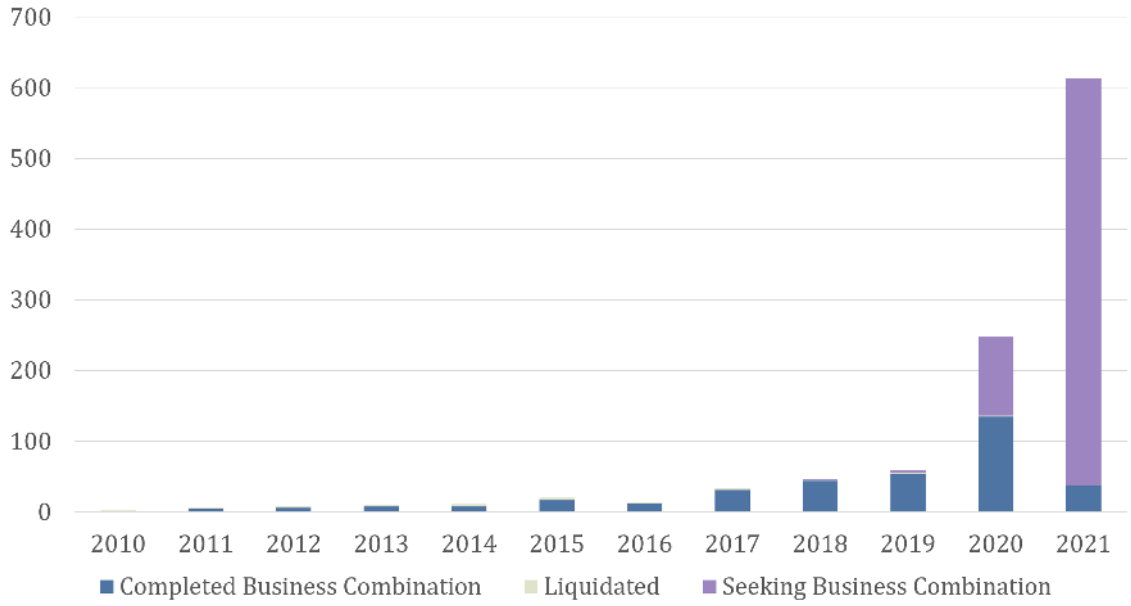
Stulz, R. M. (2020): "Public versus private equity," *Oxford Review of Economic Policy*, 36, 275–290.

Vulanovic, M. (2017): "SPACs: Post-merger survival," *Managerial Finance*, 43:679–699.

Figure A1. SPAC IPOs by Outcome

Panel A reports the outcome of each SPAC based on the year that a SPAC went public. A closed business combination means that a SPAC consummated a merger and started to trade as a newly merged company. Liquidated denotes that a SPAC could not complete a business combination and liquidated. Seeking business combination means that a SPAC is either still searching for a target company or is finalizing a proposed merger after announcing the target company. Y-axis represents the number of SPAC IPOs. **Panel B** shows the same numbers as a percentage for each year. SPAC IPOs do not include those traded in Over-The-Counter (OTC) markets.

Panel A. SPAC IPO Outcomes by Number (as of December 2021)



Panel B. SPAC IPO Outcomes by Percentage (as of December 2021)

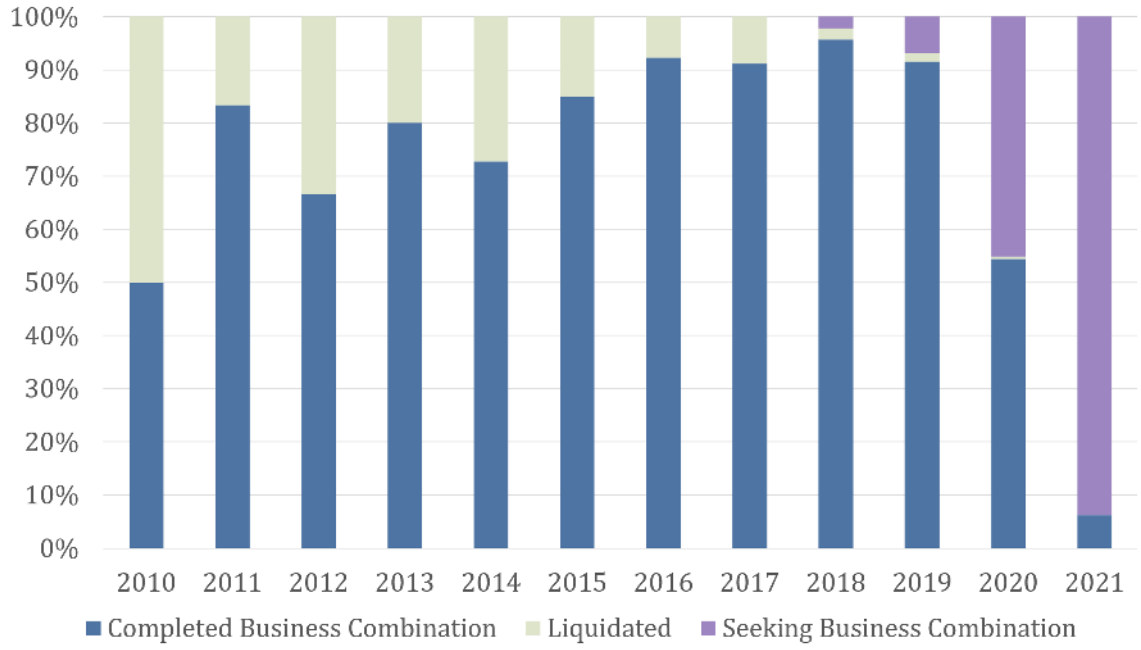
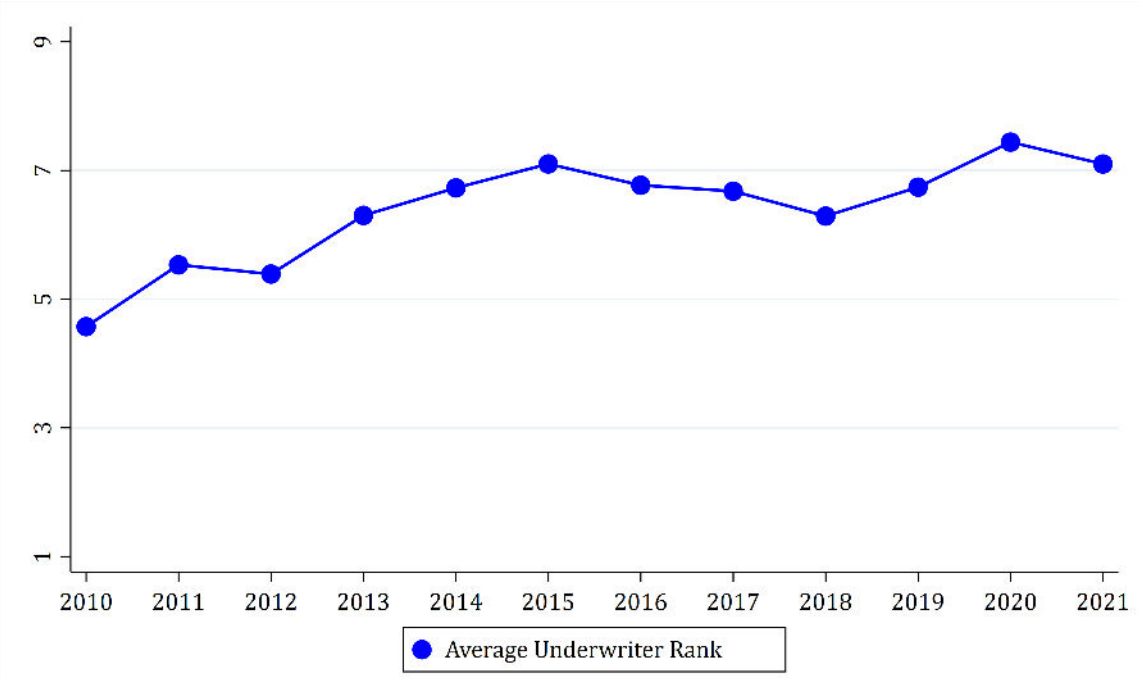


Figure A2. Underwriters

Panel A reports the equally weighted average lead left underwriters' reputation ranks between January 2010 and December 2021, including the 15 SPAC IPOs from 2010−2021 traded OTC. The reputation ranks are from Loughran and Ritter (2004), defined as the prestige rank on a 1 to 9 scale (9 for high prestige) following Carter and Manaster (1990). Panel B reports the combined market share of three prestigious underwriters - Goldman Sachs, Morgan Stanley, and J.P. Morgan. Each IPO is weighted equally.

Panel A. Average Underwriter Rank Over Time



Panel B. SPAC IPO Market Share of Three Prestigious Underwriters

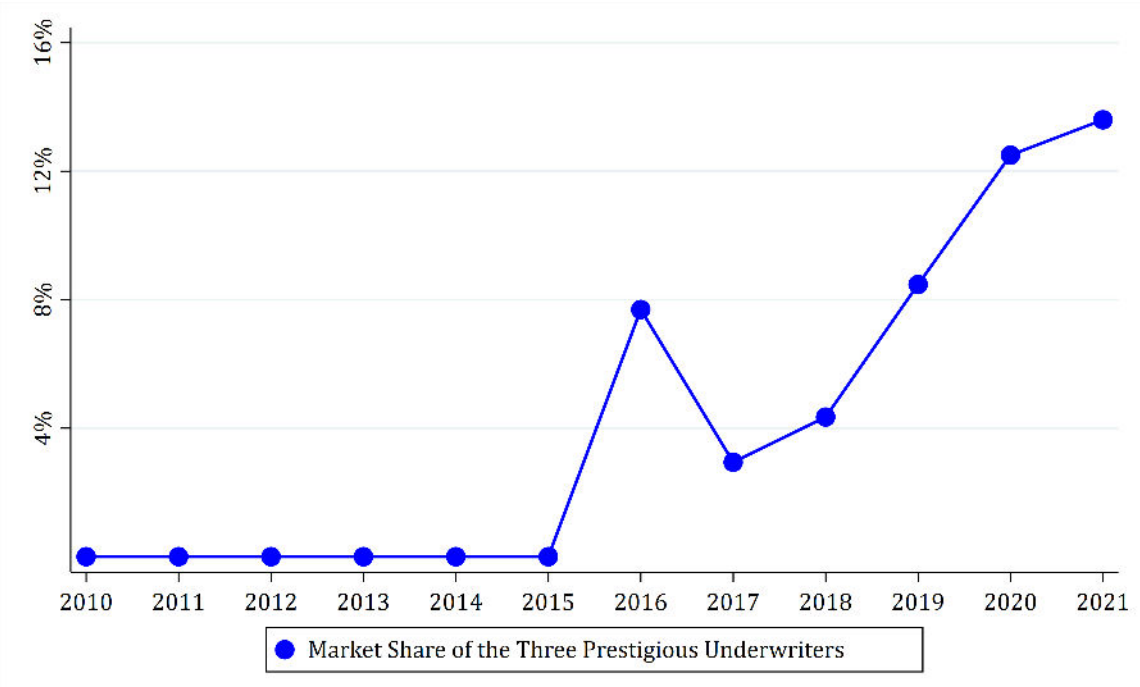


Figure A3. The Evolution of the SPAC Market, 2018-2021

Figure A3 shows the evolution of the SPAC market from the first quarter of 2018 to the last fourth of 2021. We report the quarterly averages of the dilution per unit (blue dots, left axis) and the SPAC IPO first-day return (red triangles, right axis). The first-day return is defined as (the closing market price on the first-day of trading − the offer price) / the offer price. Dilution per unit is the fraction of a common share that derivative securities included in a unit can convert into, expressed as a percentage of a share. For example, if SPAC A's unit comes with one common share and a quarter of a warrant, and if one warrant can convert into a common share, we classify SPAC A as having a 25% dilution. If SPAC B's unit comes with one common share, one warrant, and one right, and if a warrant converts to a common share and a right converts to one-tenth of a common share, we classify SPAC B as having a 110% dilution.

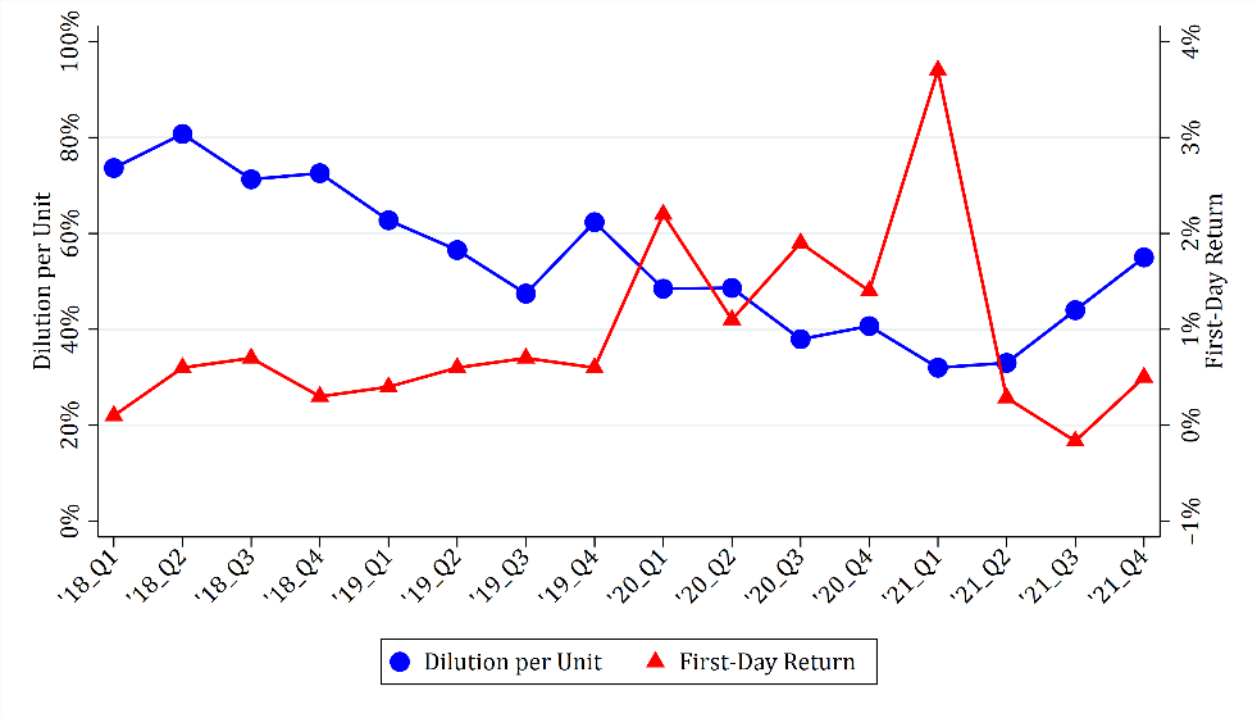


Table A1. SPAC IPOs prior to 2010

Table A1 reports the number of SPAC IPOs before 2010 with total and average proceeds. Among 184 SPACs that went public before 2010, 85 are listed on major stock exchanges (NYSE, NASDAQ, or AMEX) and 99 are traded in Over-The-Counter markets. Proceeds do not include underwriter over-allotment options and are reported in millions of dollars. Information on these 1991-2009 SPAC IPOs has been provided by Tim Jenkinson, Andrew Karolyi, and Milos Vulanovic.

	Major Exchanges			OTC		
Year	No.	Total Proceeds	Avg. Proceeds	No.	Total Proceeds	Avg. Proceeds
1990	-	-	-	1	3	3
1991	-	-	-	1	15	15
1992	-	-	-	2	30	15
1993	-	-	-	8	86	11
1994	-	-	-	7	86	12
1995	-	-	-	2	18	9
1996	-	-	-	4	32	8
1997	-	-	-	2	18	9
1998	-	-	-	-	-	-
1999	-	-	-	-	-	-
2000	-	-	-	-	-	-
2001	-	-	-	-	-	-
2002	-	-	-	-	-	-
2003	-	-	-	1	24	24
2004	-	-	-	12	426	35
2005	6	693	115	22	1,154	52
2006	17	2,236	132	18	777	43
2007	50	10,002	200	15	983	66
2008	12	3,475	290	5	152	30
2009	-	-	-	-	-	-
Total	**85**	**16,406**	**193**	**100**	**3,803**	**38**

Table A2. SPAC and Operating Company IPOs

There are 1,071 SPAC IPOs between January 2010 and December 2022 after excluding 15 IPOs from 2010-2011 traded only in Over-The-Counter (OTC) markets. For the same period, there are 1,650 traditional, operating company IPOs after excluding those with an offer price below $5 per share, unit offers, ADRs, closed-end funds, natural resource limited partnerships, REITs, bank and S&L IPOs, and small best efforts offers. Proceeds do not include underwriter over-allotment options, are adjusted to January 2021 purchasing power using the CPI, and are reported in millions of dollars.

	Number of IPOs		Total Proceeds ($m)		Average Proceeds ($m)	
Year	SPAC	Operating	SPAC	Operating	SPAC	Operating
2010	2	91	125	35,985	63	395
2011	6	81	536	32,027	89	395
2012	9	93	548	35,915	61	386
2013	10	158	1,504	47,192	150	299
2014	11	206	1,738	47,162	158	229
2015	20	118	4,049	24,613	202	209
2016	13	75	3,561	13,826	274	184
2017	34	106	9,690	24,753	285	234
2018	46	134	10,478	35,295	228	263
2019	59	112	12,590	40,718	213	364
2020	248	165	76,596	62,742	309	380
2021	613	311	144,520	119,360	236	384
2022	86	39	11,220	6,555	130	168
Total	**1,157**	**1,689**	**277,156**	**526,145**	**240**	**312**

Table A3. deSPAC Period Common Share Returns − Fama and French's Three Factor Model

Table A3 reports the regression results based on the Fama and French (1993) three-factor model as defined in equation (5).

$$R_{p,t} - R_{f,t} = a + b * (R_{m,t} - R_{f,t}) + c * SMB_t + d * HML_t + e_{p,t}$$

We form a portfolio when there are at least two observations for a given month. Firms are added to the portfolio in the calendar month following a business combination, and kept in the portfolio for 12 months or 36 months, respectively, unless they are delisted earlier. Based on our sample of SPACs that went public in 2010 and later that were exchange-listed, the first business combination occurred in October 2012 and the second in February 2013. Accordingly, the sample period starts in March 2013 and ends in December 2021, forming 106 monthly portfolios. Market is the excess return of the value-weighted CRSP index, SMB is the return on small stocks minus the return on big stocks, and HML is the return on high book-to-market firms minus the return on low book-to-market firms, all measured for a given month. An alpha of -0.015 is -1.5% per month. Standard errors are reported in parentheses. Statistical significance levels: *** p-value<0.01, ** p-value<0.05, * p-value<0.10.

	One-Year deSPAC Common Returns		*Three-Year deSPAC Common Returns*	
	Equally Weighted	Value-Weighted	Equally Weighted	Value-Weighted
	(1)	(2)	(3)	(4)
Alpha	-0.015	-0.019	-0.011	-0.021**
	(0.012)	(0.012)	(0.010)	(0.009)
Market	1.029***	1.065***	1.144***	1.143***
	(0.302)	(0.285)	(0.234)	(0.211)
SMB	1.080**	1.153**	1.117***	0.903***
	(0.477)	(0.450)	(0.370)	(0.333)
HML	0.101	-0.163	0.288	-0.141
	(0.377)	(0.355)	(0.292)	(0.263)
N. Obs	106	106	106	106
Adj. R-Sq	0.168	0.195	0.309	0.307

Table A4. SPAC Mafia

This table reports the list of the largest holders of SPACs (the so-called "SPAC Mafia" members) based on the amount of capital invested in SPACs. AUM stands for "Asset Under Management". The data is from SPAC Research (https://www.spacresearch.com/) based on 13F filings on EDGAR at the end of December 2021.

Rank	Investor Name	SPAC AUM ($M)
1	Marshall Wace	5,529
2	Saba Capital Management	5,285
3	Millennium Management	5,193
4	Citadel Advisors	4,204
5	D. E. Shaw & Co.	4,090
6	Magnetar Financial	4,035
7	Periscope Capital	3,807
8	Radcliffe Capital Management	3,666
9	Aristeia Capital	3,612
10	Polar Asset Management Partners	3,037
11	Fir Tree Capital Management	2,705
12	Linden Advisors	2,602
13	Hudson Bay Capital Management	2,540
14	Weiss Asset Management	2,521
15	Glazer Capital	2,415
16	UBS O'Connor	2,348
17	Highbridge Capital Management	2,335
18	Adage Capital Partners	2,290
19	Shaolin Capital Management	2,260
20	Nomura Holdings	1,854
	Total	**66,329**

Table A5. Sponsor Returns: Updating Table 10

Table A5 updates Table 10 by including deSPACs from April-September 2021. Table A5 reports the mean and median of sponsors' dollar gains at the closing of the deSPAC and one year after the deSPAC. The sponsor at-risk capital is the sponsor's total cash contribution, which is used to purchase either warrants or units in the private placement, at the time of the SPAC IPO. We also report the total and annualized returns one year after the deSPAC, net of sponsor at-risk capital, with returns through September 30, 2022. *Dollar Gains* are the market value of the sponsor's stakes in a SPAC, including promote shares and warrants or units from private placements, minus the amount of at-risk sponsor capital. We calculate the *Dollar Gains* at Closing with the stock and warrant prices from Bloomberg at the closing date of a deSPAC merger. We use the market price of the traded warrants issued to investors as the price for sponsor warrants. For liquidated deals, the market value of the sponsor's stakes is set at zero. For the calculations of the *Dollar Gains* at One Year, we use the market prices at the anniversary of a deSPAC merger or zero for liquidated deals. *Total One Year Ret* (%) is the percentage growth of the sponsor at-risk capital (*Dollar Gains* divided by at-risk capital) at the first anniversary after the deSPAC merger or liquidation. The *Annual One Year Ret* (%) is the annualized return from the SPAC IPO to the anniversary of a deSPAC merger or liquidation. For example, for a merger that occurred 1.5 years after the SPAC IPO, the *Annual One Year Ret* (%) would be calculated 2.5 years after the SPAC IPO using the value of the sponsor's stake at the anniversary relative to its at-risk capital investment. Both the total and annualized one-year returns for a liquidated deal are -100%. As indicated at the top of the panel, the first set of *Dollar Gains* or *One Year Returns* (%) are calculated with the shares (or warrants) subject to vesting requirements being counted at the full value (no shares will be forfeited), while the second set assigns a zero value to any shares or warrants that are subject to vesting requirements. The sample in this panel includes all completed business combinations or liquidations by the end of September 2021 by SPACs that went public in 2015 or later. We first report the summary statistics for the full sample (284 completed business combinations and 9 liquidations). We also report the summary statistics for the sample of the 284 completed mergers split by the median of the redemption ratios.

				Sponsor	Vesting Counted at Full Value				Vesting Counted at Zero Value			
				At-risk	Dollar Gain ($M)		One Year Ret (%)		Dollar Gain ($M)		One Year Ret (%)	
		No.		Capital ($M)	Closing	One Year	Total	Annual	Closing	One Year	Total	Annual
Full Sample		284	Mean	$8.0	$92	$56	611%	129%	$79	$46	510%	110%
			Median	$7.0	$65	$20	329%	91%	$53	$18	281%	79%
Redemption Rate for Completed Mergers	Low	137	Mean	$8.8	$132	$85	868%	185%	$117	$71	731%	161%
			Median	$7.5	$90	$41	519%	136%	$78	$34	426%	124%
	High	138	Mean	$7.2	$58	$27	355%	73%	$47	$20	288%	59%
			Median	$6.8	$47	$11	167%	53%	$37	$7	142%	41%