The Perverse Incentives of SPACs[*]

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Abstract

This paper studies the performance of acquisitions by Special Purpose Acquisition Companies (SPACs) and shows that a significant portion of the cross-sectional variation in performance can be explained by the strong implicit incentives embedded in the SPAC contract. For instance, the short-term performance of SPAC acquirers is worse for acquisitions that are announced closer to the 2-year deadline (SPACs are given two years to complete a deal), for acquisitions where a portion of the IPO underwriting fees are being deferred and paid conditionally on a successful merger completion, and for acquisitions that have a market value very close to the required 80% threshold. This evidence suggests that some of the incentives in the contract may lead to value-destroying outcomes. While the continued involvement of SPAC sponsors as shareholders and CEOs in the new companies improves long-term performance, extremely high levels of sponsor ownership are found to be detrimental for performance. Surprisingly, the presence of institutional investors is also negatively related to performance, possibly because of the temporary cessation of lending to hedge funds during the financial crisis of 2008.

> *"Because all of our directors and officers either directly or indirectly own shares of our securities that will not participate in liquidation distributions, they may have a conflict of interest in determining whether a particular target business is appropriate for a business combination."*
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> Prospectus of Acquicor Technology Inc.
> March 15, 2006

The above is only one of the long list of risks mentioned in the "Risks relating to the company and the offering" section of the prospectus of a typical Special Purpose Acquisition Company. While it is still unclear what incentives regular investors have to invest in these types of companies, it is certainly clear that SPAC founders have perverse incentives to take advantage of these investors. A special or specified purpose acquisition company, a mix between an initial public offering (IPO) and a reverse merger, is a relatively new investment vehicle designed to raise capital through public equity markets. SPACs are shell or blank-check companies that have no operations but go public with the intention of merging with or acquiring a company with the proceeds of the SPAC's initial public offering of shares.

Recently there has been a significant surge in SPAC IPOs, in contrast to the otherwise declining U.S. IPO market. Despite all the risks involved in investing in a company with no assets or business plan, and all specific risks associated with the SPAC structure, the interest in this type of transactions has been growing. For instance, in 2008 SPACs in the U.S. account for one third of the IPO market in terms of both the number of offerings and the total capital raised (Berger, 2008). Yet, regardless of their increasing importance, IPOs of SPACs and their follow-up acquisitions have been examined only in few studies. This stands in contrast to the large body of existing literature on factors that influence the value created or destroyed when a company goes public in a "traditional" IPO.

Acquisitions by SPAC bidders are being executed in numerous industries and potential targets typically see them as an alternative to a reliance on private equity or a "traditional" IPO. Some targets choose to be acquired by a SPAC because they need the financial resources but do not want to give up control to the private equity firm. For example, the management of a small company can use a reverse merger with a SPAC to give their company a cash infusion and publicly traded shares of stock, without losing control of the firm. In other cases, target owners agree to the SPAC acquisition because they wish to go public but otherwise cannot (IPOs could be relatively expensive (Loughran and Ritter, 2002)), or because they just want to "cash out".

The Special Purpose Acquisition Company is a modern form of the "blank check" company which becomes regulated by the Penny Stock Reform Act of 1990, the Securities Exchange Act of 1934 Rule 3a51-1, and the Security Exchange Act of 1933 Rule 419, after being used as a part

of many fraudulent investment schemes in the 1980s.[1] Creative lawyers developed the SPAC as a way to work around the new regulations without defeating the regulations' purpose of investor protection (Heyman, 2007). The SPAC uses an exception in the penny stock definition to avoid being subject to Rule 419, and yet because it follows most requirements of Rule 419, the Security and Exchange Commission (SEC) does not find it necessary to regulate it more heavily.[2]

SPACs have been around since the 1990s but have traditionally been confined to pursuing "below the radar screen" transactions, mainly because favourable market conditions during the 90s made it easy for small companies to raise money in traditional IPOs (see Savitz, 2005). However, in 2003 activity began to pick up and while the IPO market has been slow during the mid- and late-2000s, SPACs have grown significantly in size in recent years, and are now chasing bigger and bigger targets. Further, the constraints posed on private equity firms, big acquirers during that period, by difficulties in the high yield and leveraged loan market have accelerated SPACs' growth.

The increased popularity of SPACs in recent years suggests that there has been a significant interest from the different parties involved in such transactions: underwriters, SPAC founders, target companies, and investors.[3] However, as in the case with every innovation, SPAC transactions add value to the marketplace only if the total potential benefits associated with them overweigh the costs. In this paper, I study acquisitions by SPAC acquirers that took place in the U.S. market over the period 2004-2010 to examine how the structure of the SPAC contract affects shareholder value. I find some evidence that SPAC transactions are one of those financial innovations that Van Horne (1985) describes as "ideas that have a substance, but the promoters have eaten not only the icing of the cake but also the cake itself". The SPAC structure and built in incentives create an enormous drive for the founders to do any kind of acquisition. The results show that their determination to close a deal, independent of whether it is a profit-generating or a value destroying acquisition, is reflected in the short- and long-run post-acquisition performance of SPACs.

I start by describing the SPAC structure in detail and examining the stock price reaction to SPAC acquisitions at the time of the acquisition announcement. Similar to previous findings on acquisitions by SPACs and acquisitions of private companies in general, I find that there is a significant positive market reaction upon the acquisition announcement. Nevertheless, this positive stock performance is short lived-I find that over the long-run SPAC acquirers significantly underperform the market. The average one year buy-and-hold return following the acquisition completion is -42.9%, compared to an average market return of -2.1%.[4] However, I find that there is a large cross-sectional variation in the returns and that these returns are related to specific characteristics of the deal, as well as some governance characteristics in place at the time of the acquisition. In

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[1]The SEC Rule 419 was intended to put strict controls on the proceeds of the blank check offering, and to increase investors protection by bringing more transparency to the transaction.

[2]In order to be exempt from Rule 419, the SPAC's offering is designed in a way which leaves the company with greater than $5 million in net tangible assets subsequent to the IPO.

[3]See Heyman (2007) for a brief explanation of the interests of each party involved in a SPAC transaction.

[4]I find similar results when I examine the performance for the whole period from the merger announcement until a year after the acquisition was completed.

particular, the deadline to purchase a target within 2 years of the SPAC IPO puts SPAC sponsors under enormous time pressure.[5] This appears to affect performance as I find that there is a significant concave relationship between the time it takes for a SPAC acquirer to find a potential target and its short-term performance. My results suggest that the optimal time for the acquirer to announce an acquisition is approximately 7 months after the SPAC IPO. In addition, I find that the short-term performance of SPAC acquirers is worse if a portion of the underwriting fees of the IPO underwriters is deferred and paid only upon the merger completion. The market reaction is also significantly negative for acquisitions that have a market value very close to the required 80% threshold (at least 80% of the SPAC's net assets must be spend on the target business). These findings underline the importance of the incentives built in the SPAC contract, and how these incentives may in fact encourage the SPAC founders to make rather than to pass on a bad acquisition.

I find a significant cross-sectional variation in the long-term returns as well. For instance, the continued involvement of the SPAC sponsors as shareholders and members on board has an impact on the long-term performance of SPAC acquisitions. Increasing sponsor ownership is positively related to stock returns at low levels of ownership but negatively related at high levels of ownership. Extremely high levels of sponsor ownership seem to be detrimental for performance. This is consistent with the perverse incentives of SPAC sponsors to obtain a maximum compensation in the deal, by not diluting their ownership.[6] My results are also consistent with the findings of Jenkinson and Sousa (2009) that sponsors may be wrongly incentivised to make substantial purchases of the SPAC shares solely to ensure that they receive a favourable stockholder vote on the proposed acquisition. An alternative explanation could be that by "cashing out" their shares, target owners are sending a strong negative signal to the market, about the quality of their company. In contrast, I find that performance is higher when one of the SPAC founders is appointed as a CEO or a chairman in the merged company. More specifically, on average there is 71 percentage points increase in the 1-year post-acquisition returns if the CEO is one of the SPAC sponsors.

I also find some evidence that SPACs perform worse with increasing target insiders ownership. This result is not surprising, given the enormous incentives of SPAC sponsors to complete an acquisition and the fact that they have to spend at least 80% of the invested money on the deal, a fact of which the target managers are well aware, may lead to sponsors overpaying for the acquisition and leaving target insiders with larger ownership in the new company. Finally, I find that the ownership of the institutional blockholders has also a negative effect on the long-term performance. While this result is puzzling and needs a further investigation, it suggests that the investment behaviour of institutional blockholders in SPAC acquisitions (who are typically represented by hedge funds) is mainly motivated by speculative reasons rather than activism and monitoring of the company's management. A plausible explanation could be that hedge funds were forced to

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[5]I use the terms "founder", "sponsor", and "manager" of the SPAC interchangeably in this paper.

[6]SPAC managers do not receive cash compensation. They typically are awarded 20% interest in the SPAC after a successful completion of a deal. However, their ownership will be diluted in all cases except for acquisitions paid 100% by cash.

liquidate their existing positions, due to the loss of debt capital during the financial crisis of 2008, and this led to a downward pressure on SPAC prices (Mitchell and Pulvino, 2011). In summary, the analysis shows that the average investor in SPAC acquisitions incurs large losses in the long run. However, some investors lose less than others.

The evidence from the accounting performance of SPAC acquirers, using measures such as operating margins and return on sales, further confirms that SPAC acquisitions significantly underperform various benchmarks. When I examine the level of long-term debt, I find that SPACs have more debt relative to their peers, however they also hold more cash on balance, and as a result SPAC acquisitions appear to be as levered as their counterparts. In other words, the poor operating performance of SPACs does not appear to be caused by higher leverage and financial distress costs. Lastly, I find some evidence that the market held high expectations for these deals because they are sold and trade, at least initially, at higher valuations relative to other comparable firms.

The literature on SPACs is quite limited compared to the importance of these deals. The few papers that have studied them have mainly described their specific structure characteristics and legal implications. Heyman (2007) illustrates some of the important features of SPACs, and Sjostrom (2008) points out the legal differences between SPACs and other blank check companies. Berger (2008) underlines the increasing popularity of SPACs, and highlights the various motives that lead private targets to pursue an acquisition by a SPAC. Jog and Sun (2007) primarily focus on the conflicts of interest inherent in the SPAC structure, while Jenkinson and Sousa (2009) show the role that SPAC managers play in the approval of value-destroying acquisitions. Lewellen (2009) compares SPACs to private equity funds and studies their return patterns. Finally, Tran (2009), whose paper is probably the closest to this study, compares the short-term performance of acquisitions by SPAC bidders to other acquisitions. He examines all deal announcements (completed and withdrawn) and finds positive abnormal performance observed around the acquisition announcement. Moreover, he finds that the announcement returns are negatively related to the time it takes for a SPAC acquirer to announce an acquisition, but the negative effect is partially mitigated under the monitoring by independent long-term institutional blockholders.

Given that one third of the SPAC deals in Tran's sample are later withdrawn and are never completed, I extend on his study by first, comparing the announcement returns of completed versus uncompleted deals, and second by examining in deeper detail the post-acquisition performance of all completed deals. The main contributions of this paper are that I study not only the short-term market reaction, but also the long-term stock and operating performance of SPAC acquisitions. Furthermore, I introduce additional factors related to the conflicts of interest between various parties (including sponsors, target insiders, and SPAC IPO underwriters) involved in the deal, ownership structure, and corporate governance of the merged firms, and show that they have significant explanatory power for the cross-sectional variation in the performance of SPAC acquisitions.

The reminder of the paper is organized as follows. Section 1 discusses the SPAC transactions in more detail. Section 2 describes the characteristics of the sample. Section 3 analyses the short- and long-term performance, as well as the operating performance of the companies. Section 4 presents the cross-sectional variation in performance. Section 5 concludes.

1 Description of SPAC Transactions

1.1. The acquirer

A SPAC is a blank check company that is formed to raise funds in a public stock offering for the sole purpose of purchasing an operating business. SPACs are typically formed by a small group of experienced managers, the sponsors, who rely mainly on their reputation to raise capital by creating a publicly traded shell company and offering shares in the shell company to investors via an IPO. The IPO is structured as a sale of units consisting of both common stock and "in the money" warrants, which cannot be exercised until the SPAC completes an acquisition. Typically, the common shares and warrants are decoupled from the units, and are traded separately after the IPO has been completed.

Upon the completion of the IPO, a minimum of 85% of the net proceeds of the offering are placed in an escrow or trust account, invested in low-risk U.S. government securities, until the SPAC's management makes an acquisition. These funds are released upon the earlier of the completion of a business combination or the liquidation of the SPAC. The management is typically allowed to use the remainder of the proceeds that are not held in the trust as well as a predetermined fraction of the interest earned on the trust account to cover administrative expenses, fees and working capital. The costs of due diligence on prospective targets, as well as the costs of negotiation, structuring, and gaining shareholder approval for the merger, are also paid from this money.

SPAC managers are not granted a salary or other cash compensation.[7] They typically receive a 20% interest in the SPAC, which is usually purchased in a private placement executed prior to the IPO. They may also purchase heavily discounted warrants at the time of the IPO. If a deal is made, the 20% share of the founders becomes very valuable. On the other hand, if the SPAC liquidates without having completed an acquisition, the shares and warrants owned by the sponsors end up worthless as they do not share in the liquidation proceeds if a deal is not made. This in

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[7]As previously mentioned, SPAC managers are allowed to use a maximum of 15% of the IPO proceeds for working capital. Interestingly, when reading the IPO prospectuses I find that typically SPAC managers pay a standard amount of $180,000 to cover their administrative expenses over the two-year period. Furthermore, the money is usually being paid to a company that is affiliated to either one or more of the SPAC sponsors. I also find that a significant portion of the proceeds is used by the SPAC sponsors to pay for director and officer liability insurance premiums. When I study the relation between the size of the insurance premiums they buy and the stock market reaction to the acquisition announcement, I find that there is a significantly negative relation between the two. SPACs whose sponsors insure themselves with higher premiums against potential future lawsuits are perceived to make lower quality deals (Lin, Officer, and Zou, 2011).

effect, creates an extremely strong economic incentive for the founders of the SPAC to complete an acquisition prior to the SPAC's expiration date.

1.2. The acquisition

The founders normally have only eighteen months from the date of the IPO to make an acquisition, plus a six month grace period if a deal is announced but not completed by the end of the first eighteen months. If the SPAC does not acquire a target firm within the maximum period of 2 years, the company is required to liquidate and the escrowed IPO proceeds are distributed pro-rata to holders of IPO shares (Savitz, 2005).

Given the time pressure and the strong incentives of the sponsors of the SPAC to close an acquisition within the fixed time frame, the process of finding a suitable target starts immediately after the IPO and in many cases involves the consideration of a large number of potential target candidates.[8] While in most cases SPAC sponsors do not have a target company in mind at the time of the IPO, based on their particular expertise, they do typically provide a specific industry or geographic region of interest for their future acquisition.

Another important characteristic of the SPAC is that it must spend at least 80% of its net assets on the business combination in order to avoid liquidation. While in some rare cases SPACs attempt to acquire multiple targets at the same time, the most common approach is the acquisition of a single target. Nevertheless, the fact that SPACs must spend 80% of the invested money on their deal, a fact of which the target's own management and owners are well aware, could lead to the SPAC sponsors to overpay for the target company.

Typically, SPACs also rely on the advice of investment bankers, private equity professionals, lawyers and business owners. For instance, in many cases the SPAC IPO underwriters also become the company's advisors during the acquisition negotiation process. Importantly, underwrites have incentives to engage in the merger process because a portion of their IPO underwriting fees is usually deferred and paid only upon the successful completion of a business combination by the SPAC. In other words, if a SPAC fails to make an acquisition, the underwriters only receive a fraction of their total fee. While this in effect leads to high initial trust values (lower immediate underwriting fees are subtracted at the time of the IPO), it also creates a strong incentive for the underwriters to push for any potential target and close a merger on time.

SPAC shareholders are allowed to vote on a proposed business combination, even though such approval may not be required under state law.[9] A proposed acquisition is approved by the share-

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[8] According to Tran (2009), the average SPAC signs confidentiality agreements and receives confidentiality information from 30 different potential targets, and after reviewing them typically submits preliminary and non-binding acquisition proposals to about 5 potential targets.

[9] Most acquirers' shareholders are only allowed to vote on stock-for-stock acquisitions if the expected equity dilution factor from the business combination exceeds 20% (Hsieh and Wang, 2008).

holders if: 1) a majority of shareholders vote to approve the transaction and 2) a substantial percentage of shareholders (typically 60-80%) agree not to redeem their shares for the pro-rata trust value on the date of the shareholder vote. If the above two conditions are not satisfied the acquisition must be withdrawn. External shareholders who vote against a proposed acquisition are entitled to redeem their common stock in return for a pro-rata share of the value held in trust if the acquisition is ultimately approved. The shareholders who choose to redeem their shares are allowed to keep and/or exercise their warrants irrespective of their voting decision.

1.3. The target

The SPAC may be an attractive way for private companies to obtain access to additional capital without having to do an IPO on their own.[10] The target companies acquired by a SPAC avoid the lengthy process of doing a traditional IPO, as they are not required to supply the detailed financial statements and other disclosures that typically accompany initial public offerings (see Sjostrom, 2008). In addition, they also save on the extremely high costs associated with the traditional IPO underwriting process (Loughran and Ritter, 2002).[11]

Given their large cash reserves, SPACs may also be appealing to target companies whose owners prefer to cash out. By allowing the company to be purchased by a SPAC, they gain liquidity without having to sell their shares in the public market.[12] Similarly, SPACs may also be used by private equity firms as an exit vehicle of their portfolio companies.

Target companies may value not only the access to additional capital but also the benefit they receive from the expertise of the SPAC's management team. SPAC sponsors typically have demonstrated a track record of success and a proprietary edge in the areas of private equity, mergers and acquisitions, and/or operating experience.[13]

2   Sample Selection and Sample Characteristics

I gather data on SPAC acquisitions from a variety of sources. To identify the sample, I employ a list of SPACs that filed for an IPO and match it with a list of all completed acquisitions by

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[10]Although uncommon, it is possible that a SPAC acquirer buys a publicly traded company.

[11]I check whether some of the deals in my sample involve targets that have previously tried and failed to undergo an IPO. I find that there are only 4 deals in the whole sample where the target is a previously failed IPO, typically because of poor market conditions.

[12]For instance, exiting of the target's owners trough an IPO may be less plausible given that most IPOs feature share lockup agreements, which prevent insiders and other pre-IPO shareholders from selling any of their shares for a specified period immediately after the IPO (typically 180 days) (Field and Hanka, 2001).

[13]Services Acquisition Corp. is an example of a SPAC with high profile management that includes former executives from Blockbuster, AutoNation, and Boca Resorts. The SPAC that has received perhaps the most media attention of all is Acquicor Technology Inc., formed by former Apple executives Steve Wozniak, Gil Amelio, and Ellen Hancock.

a SPAC acquirer. The main data on the firms are obtained from SDC/Platinum and Thompson One Banker (IPO data and M&A data), CRSP and Bloomberg (stock price data), and Compustat (accounting data). I obtain further data from S-1 (prospectuses), DEFM14A (proxy statements), and 10-K (annual reports) by searching the SEC filings in EDGAR.

Table 1 lists the completed acquisitions by SPACs included in my analysis, in chronological order of their respective S1 dates. Table 2 shows the distribution of SPAC IPOs and M&A transactions. The first half of the table includes the distributions of IPO and M&A transactions of SPACs that successfully completed an acquisition within the fixed time frame. The second half shows the distribution of SPACs that were liquidated because they were unable to complete an acquisition. The first IPO transaction took place in 2003, the bulk of the deals that entered the sample occurred in 2005 and 2007, and only six SPACs that went public in 2008 and completed an acquisition within the next two years, are included in my sample. The distribution of completed acquisitions made by a SPAC acquirer over time shows that there are only two acquisitions in the first two years, 2004 and 2005, and that most of the deals are completed between 2007 and 2009. The difference in distributions between columns 2 and 3 of Table 2 gives some indication that there is a variation between SPACs in the time it takes them to complete an acquisition. Table 2 also shows that a significant portion of SPACs are being liquidated (approximately 39% of the SPACs in my sample announced an acquisition that was later withdrawn).

Table 3 contains the industry composition of the target firms. It appears that there is a significant industry variation in the target companies. The total sample of 73 targets being acquired by SPACs is spread over 31 industries. A total of 15 targets are in business services, 6 are in holding and other investment offices, 5 in engineering, accounting, research, management and related services, and 5 in communications. The remainder of the deals are distributed over 27 industries with a maximum of 3 targets coming from the same industry. It seems that SPACs are not limited to a particular industry and that they complete acquisitions with target companies from numerous industries.

Table 4 contains summary statistics. The average (median) deal value of an acquisition by a SPAC is $275.7 ($141.2) million. Based on the SPAC trading price at the time of the merger announcement, the average (median) market capitalization of acquirers is $153.1 ($73.4) million. The average (median) relative size, computed as the ratio of target value over market capitalization of the acquirer, is 1.907 (1.610). This implies that on average SPACs tend to purchase targets that are 1.9 times bigger. The financing required to pay for these larger deals is typically obtained by issuing additional equity or debt at the time of the acquisition.

The SPAC sponsors, on average, collectively own approximately 11% of the shares of the new merged company and they hold 34% of the board seats of the sample firms upon the merger completion. Although, sponsors are typically awarded 20% of the SPAC shares, their ownership may vary depending on the method of payment used in the acquisition, cash versus stock, and

whether they bought additional shares in the stock market. In addition, the CEO (chairman) comes from the SPAC sponsors in 30% (52%) of the cases. This evidence suggests a substantial involvement by the SPAC sponsors at least in the initial operations of the newly merged companies. There are only two companies in the sample where the sponsors did not receive any shares and five companies where they did not obtain any board representation.[14] The shares received by the sponsors represent the bulk of their compensation for their effort in finding a suitable target.

The target insiders own an average (median) 24.7% (21.6%) of the company after the acquisition. They supply about one third of the directors of the new company. A target insider is elected as a CEO of the new company in 66% of the cases, and as a chairman in 45% of the cases. There is a significant variation in the level of post-acquisition ownership of target insiders. This is consistent with the evidence that on one hand, SPACs may be used as an exit strategy of the target owners, while on the other hand they may be used by targets as a strategy to get an access to the U.S. public market, through a reverse merger.[15]

The primary holders of SPAC shares, the institutional investors (typically represented by hedge funds), have an average (median) ownership stake of about 29% (27%) in the new merged entity. At a first sight these levels seem to be below the average institutional ownership level of 51.6% for all publicly traded stocks as reported by Gompers and Metrick (2001). However, it is difficult to make any comparisons of the size of institutional ownership, given that my sample is in the bottom of the NYSE size deciles.[16]

While underwriters are generally attracted to SPACs because of the underwriting compensation in connection with the proposed offering, in 47% of the deals the SPAC IPO underwriters are also the company's acquisition advisors.[17] Furthermore, in approximately 66% of the SPAC IPO contracts a portion of the underwriter's compensation is deferred and paid only upon a successful merger completion. This evidence is suggestive of the strong incentives of underwriters to assist the SPAC during the acquisition process, in order to successfully complete a business combination and collect their deferred underwriting fees.[18] Interestingly, I find that the underwriter becomes the company's acquisition advisor 63% of the time if part of the underwriting fees are being deferred, while only 16% of the time if there are no deferred fees.

There is a significant variation in the time period between the SPAC IPO and the acquisition

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[14]The ownership structure (sponsors, target insiders, and institutional ownership) is collected from the definite merger proxy statements, and reflects the voting rights (in some cases shareholders may own shares that have cash flow rights but not voting rights) of different parties in the newly merged firm at the time of the acquisition completion.

[15]An example of a high profile SPAC reverse merger deal is the agreement by Endeavor Acquisition Corp. to purchase American Apparel. American Apparel's CEO, Dov Charney, stated that this transaction is superior to private equity because a company is partnering with the marketplace, rather than a single person or company.

[16]The maximum market capitalization of SPACs in my sample is $1.026 billion.

[17]The SPAC underwriting fee in my sample varies between 5% and 10%, with an average fee of 7.40%, which is larger than the standard IPO fee of 7% (Chen and Ritter, 2000).

[18]The deferred underwriting fees and commissions are being placed in a trust account and are released only if a merger is completed. Underwriters do not share in the liquidation proceeds if a deal is not made and the SPAC has to be liquidated.

announcement. On average it takes about 13 months for a SPAC to find a suitable target. However, in some cases the acquisition is announced within 3 months of the IPO, while in other cases it takes almost the whole two-year period to find a target.

Given the requirement that the business acquired needs to have a fair market value equal to at least 80% of SPAC's net assets at the time of the acquisition, some sponsors may deliberately target the 80% threshold in order to complete an acquisition. I show that 24% of the deals in the sample have a value that is within 10% of the required 80% threshold, at the time of the acquisition completion.[19]

3   Measures of Success or Failure

In this section I examine the performance of SPAC acquisitions in my sample. I study both stock market performance and accounting performance. In each case, it is important to determine the appropriate benchmark. I first compare the stock price performance of the companies in the sample to a measure of the overall stock market, using the return on the Russell 2000 index. Second, I report results using industry- and size-matched firms. Further, I test the robustness of my results by comparing the performance of SPAC acquisitions to the performance of all companies that become public in the same year as the SPAC acquisition. I examine the performance of SPACs at the time of the acquisition announcement and also the long-run performance of the new merged company over the first year following the acquisition completion.

3.1. Stock returns at the acquisition announcement

I measure the market reaction to SPAC-related acquisitions by calculating the cumulative abnormal returns (CARs) over three-day and two-day event windows around the acquisition announcement date. The univariate results are reported in Table 5. Upon the acquisition announcement, SPACs exhibit statistically significant average CARs of 1.5%, for the sample of completed acquisitions. I next examine only the sub-sample of uncompleted acquisitions and find that the market reaction to these deals is insignificantly different from zero. Moreover, the difference in CARs between completed and uncompleted deals is statistically significant, suggesting that the market perceives only the announcement of completed acquisitions as a value-creating event. Alternatively, it could also mean that the deals with poor announcement performance are later withdrawn. On average the CARs are 2.2% higher for the successfully completed deals. The market reaction to

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[19]I examine these deals in more detail by reading the information provided in the definite proxy statements on whether the potential targets satisfy the required "80% test". The findings can be summarized as follows: 1. the sponsors of these companies do not look for a fairness of opinion from an independent source when valuing the target; 2. the sponsors use the services of an independent source at the time of the acquisition announcement but do not update the information at the time of the merger completion; 3. the sponsors state that the deal value does not satisfy the "80% test" but ask shareholders to vote for the acquisition approval.

all 118 acquisitions shows an average CAR of 1%. This result is consistent with the findings of Tran (2009) that SPAC acquirers make better acquisitions, than public acquirers with an average three-day CAR of 1.7% compared to the CAR of 0.33% of other public bidders.[20] The result is also consistent with the findings of the literature on acquisitions of private companies that bidder shareholders gain when buying a private firm or a subsidiary but lose when purchasing a public firm (see Chang, 1998, and Fuller, Netter, and Stegemoller, 2002).[21]

3.2. Post-acquisition stock performance

Having shown that the announcements of acquisitions by SPAC acquirers are received positively by the market I next examine the long-run share price performance of SPAC acquisitions. In Panel A of Table 6, I report the buy-and-hold stock returns for several sub-periods after the effective date of the merger, as well as the buy-and-hold stock returns between the merger announcement and the merger effective date; and for the whole period from the merger announcement until a year after the acquisition was completed. I find no significant difference in the general market performance and the performance of the new merged company over the period between the merger announcement and the merger effective date. The average return on SPACs is 4.4%, compared to the Russell 2000 index return of 2.2% for the same period. After the merger completion, however, the average performance of the merged company starts to deteriorate dramatically. Mean and median returns for the new merged company are negative in all subsequent periods and always significantly less than the market returns. For the 70 firms in the sample, the 1 year post-merger return data shows total mean (median) returns of -42.9% (-56.3%), compared to the market returns of -2.1% (-6.6%). These figures provide strong evidence that investing in SPAC acquisitions has been harmful to shareholders' wealth, on average. Moreover, the performance for the whole period from the merger announcement until a year after the acquisition was completed is even worse, with an average buy-and-hold return of -44.1% compared to -1.4% return of the market.

The significant post merger underperformance of SPAC acquisitions is much worse compared to the findings of previous literature on the long-term performance of mergers. For example, Agrawal, Jaffe, and Mandelker (1992) examine 937 U.S. mergers from 1955 to 1987 and find that mergers are followed by significant abnormal returns of -1.5% over a year, and -10.3% over a five-year period after the effective date.[22] In more recent evidence provided by Moeller, Schlingemann, and Stulz (2003), for 12,023 acquisitions from 1980 to 2001, the authors find three-year buy-and-hold returns of -16% for the whole sample. In addition, they find that acquirers of private targets are the worst long-term performers, with three-year buy-and-hold returns of -26.5%.

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[20]Tran (2009) examines all acquisition announcements and uses the CRSP value-weighted return as a market benchmark.

[21]88 % of the transactions in the sample involve acquisitions of a private target or a subsidiary, while the rest are acquisitions of public companies. There is no significant difference in the returns between these two groups of targets.

[22]Other studies of post-acquisition returns include Jensen and Ruback (1983), Loderer and Martin (1992), and Rau and Vermaelen (1998).

Panel B of Table 6 provides further evidence on the long-run stock price performance of the firms in my sample using an alternative benchmark constructed from a sample of matching firms. The sample consists of firms in the same industry (four-digit SIC code) closest in size to the SPAC merged company. As illustrated in the table, the firms in the sample also underperform the industry benchmark by a large margin: SPAC acquisitions one-year average returns are -42.9% versus 21.4% for the matched firms. Similarly, their performance for the whole period from the merger announcement until a year after the acquisition is completed is significantly worse than that of their matching counterparts.

Given that SPACs are viewed as a hybrid between an IPO and a merger transaction, I also compare the post-acquisition long term performance of SPACs to the post-IPO performance of companies that have completed an initial public offering in the same year as the SPAC acquisition. The results are reported in Panel C of Table 6. The 3 month post-acquisition returns show no significant difference between the long-term performance of the newly merged companies and the performance of the newly public companies. However, the performance in the following months suggests that the SPAC acquisitions are performing significantly worse than their IPO counterparts and a year after the acquisition they have an average buy-and-hold return of -43.2% compared to -19.4% of the newly public firms.

I reach the same conclusion when I compare my findings to the findings of other studies on post IPO performance. For example, Loughran and Ritter (1995) in their sample of 4,082 IPOs, conducted between 1970 and 1990 report one-year average raw returns of 1.6%, compared to 6.1% of their benchmark. The IPO-adjusted returns in my sample appear to be similar to those reported by Brown, Dittmar, and Servaes (2005), who show that roll-up IPOs also underperform the market, with an average total return of -7.45%, after two years, compared to market returns of 46.93%.[23]

Although the performance of the SPAC acquisitions is substantially worse than that of the alternative benchmarks, not all of the SPAC transactions in my sample perform poorly. In fact, some of them outperform their benchmarks by large margins. In Section 4, I examine whether the structure of the firm at the time of the acquisition announcement is related to the SPAC subsequent performance.

3.3. Post-acquisition operating performance and valuation

In this section I study the operating performance and valuation of the firms in my sample in the year following the acquisition. Panel A of Table 7 contains data on industry-adjusted, matched firm-adjusted, and IPO firm-adjusted profitability. I make industry adjustments by subtracting the median ratio of all firms that operate in the same four-digit SIC code, as defined by Compustat. I

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[23]I test the robustness of my results using a four factor market model as an alternative benchmark (Fama and French, 1993, and Carhart, 1997). The results are very similar to my previous findings.

also perform matched firm-adjustments by subtracting the correspondent measures of firms in the same industry (four-digit SIC code) closest in size to the SPAC merged company. Lastly, the IPO firm-adjustment is done by subtracting the median ratio of all firms that performed an IPO at the same year as the SPAC acquisition.[24]

I report data on two profitability measures: operating profits divided by sales and net income divided by sales. The first measure, operating return on sales, shows that there is a significant difference in the accounting performance between SPACs and the various benchmarks used. The second measure, return on sales, provides further evidence that SPACs have significantly lower post-acquisition performance relative to other firms in their industry, matched peers, or newly public firms. The results are suggestive that SPAC acquisitions have not only poor stock price performance, but also poor operating performance.

My results are in contrast to the findings of previous literature that studies post-acquisition operating performance. For, example, Ghosh (2001), who uses firms matched on pre-acquisition performance and size as a benchmark, finds no evidence that operating performance improves following acquisitions. Healy, Palepu, and Ruback (1992), using industry-median firms as a benchmark, conclude that cash flow performance improves following acquisitions.

Again, it is also useful to compare the post-acquisition operating performance of SPACs to the post-IPO performance of companies that have completed an initial public offering. My findings are consistent with the previous studies that find a significant decline in operating performance following the year of the IPO (see Jain and Kini, 1994, and Mikkelson, Partch, and Shah, 1997).

When examining the operating performance of SPAC acquisitions is also important to take into consideration their capital structure. It could be that SPAC acquisitions are more levered, have higher financial distress costs, and as a result lower operating performance. In Panel B of Table 7 I report the industry-, matched firm-, and IPO firm-adjusted ratio of long-term debt to assets, cash to assets, and net long-term debt to assets. The results suggest that firms in my sample do have higher level of leverage relative to the median firm in their industries and the median firm that became public in the same year. Nevertheless, SPAC acquisitions also appear to have significantly larger cash holdings compared to the median industry and IPO firm.[25] When I take into account the level of cash that each company holds I find that SPAC acquisitions are as levered as their counterparts. Only when compared to other IPO firms, SPAC acquisitions appear to have higher, and statistically significant average net long-term debt to assets ratio.

Given the above analyses showing that SPAC acquisitions have poor stock and accounting performance, it remains unclear why investors keep investing in these types of vehicles. It is possible

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[24]All variables reported in Tables 7 and 8, except the P/E ratios, are winsorized at the 5%.

[25]For instance, in some IPO prospectuses the SPAC sponsors state that they would prefer not to use cash as a medium of exchange in order to keep significant amount of cash on hand that they can use to make subsequent acquisitions or finance other growth opportunities.

that SPACs were expected to do much better, assuming the valuable expertise of their founders. I study whether this is the case by examining if the initial valuations of the SPAC acquisitions imply high anticipated profit growth relative to other firms in the industry. For this purpose I compute the Tobin's Q, E/P ratio and the P/E ratio.

Panel A of Table 8 reports statistics on the differences between the SPAC sample and the industry, matched firm, and IPO, firm valuation ratios, a year after the acquisition was completed. The Tobin's Q ratio of the SPACs is either not significantly different, or significantly lower, than that of the alternative benchmarks. However, their E/P ratio in the first year after the merger is significantly below all benchmarks. Given that 60 percent of the E/P ratios of the sample have negative values, I also report the P/E ratios only for the firms with positive earnings. The findings lead to the conclusion that the expectations for the earnings growth of SPAC acquisitions, were not higher than those based on various benchmarks. However, it might be useful to compare the anticipated profit growth of SPACs at the time of the merger completion rather than a year later. Therefore in Panel B of Table 8 I report the firm valuation ratios of SPAC acquisitions at the time of the merger. Although the results are weak, they give some indication that at least initially SPAC acquisitions were valued higher relative to some benchmarks and relative to their own valuations a year later.

In summary, the findings from this section imply that SPACs accounting performance in the year following the acquisition is worse than that of their industry peers. In addition, SPACs do not seem to be more levered, and at least initially investors had higher valuations of SPACs and were expecting them to perform better.

4   Cross-Sectional Determinants of Stock Returns

So far, I have shown that although the announcements of SPAC acquisitions are received positively by the market, SPACs, in aggregate, deliver poor stock returns in the year following the acquisition. In this section, I examine the deal- and firm-specific characteristics that help determine whether particular SPAC acquisitions are successful or not. For dependent variables, I first use the three-day event window CARs measured around the announcement date. I then study the long-run performance, measured by the one-year matched firm-, market-, and IPO firm-adjusted buy-and-hold stock returns of SPACs, following the effective date of the merger. I seek to explain the cross-sectional variation in performance by focusing on factors related to the conflicts of interest between various parties involved in the SPAC acquisition, corporate governance of the merged firms, as well as other deal characteristics.

The time from the IPO to the acquisition announcement may have an impact on acquisition announcement returns. SPACs have a maximum of 2 years from the time of their IPO to ac-

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quire another company or otherwise they have to liquidate and return the money to the investors. Knowing that they have to close an acquisition in order to collect their compensation, and being pressured under the 2-year time constraints, SPAC founders might be encouraged to make unsuitable acquisitions. The market reaction to the acquisition may vary depending on how much time it takes for a SPAC to find the right target. SPAC deals that are announced closer to the deadline of an acquisition completion might be perceived positively or negatively by the market. On one hand, SPACs that take longer time to announce an acquisition are potentially putting more effort and time in finding the best suitable target, and conducting thorough due diligence. This in effect could be reflected in a positive market reaction. On the other hand, deals announced by SPACs close to the acquisition deadline may be seen as a last minute opportunistic deals, and may receive a negative market reaction. For instance, Tran (2009) finds that SPAC acquisition announcement returns are negatively related to the time from IPO to acquisition announcement.[26]

The continued involvement of the SPAC IPO underwriters in the follow up acquisition process of the company may also affect the SPAC performance. Given that part of the underwriting fees is deferred and paid to the underwriters only upon the acquisition completion, the underwriters have an incentive to get involved in the merger process and influence the purchase decision of the SPAC managers. For example, by becoming acquisition advisors to the SPAC, underwriters may follow their own private interests and recommend any possible unsuitable target in order to close a deal and collect their deferred fees in addition to their merger advisory fees.[27] I therefore, investigate how the acquisition announcement performance varies when a portion of the underwriter's compensation is deferred and paid only upon the merger completion, and when the SPAC acquisition advisor is the same as its IPO underwriter. In addition, I also study how performance is affected when the IPO underwriter becomes the SPAC acquisition advisor, conditional on there being deferred underwriting fees.

One of the requirements about the target business, stated in the IPO prospectus of the SPACs, is that the initial target business that the SPAC acquires, must have a fair market value equal to at least 80% of the SPAC's net assets at the time of the acquisition. The rationale behind this rule is that the money is initially raised for the purpose of making an acquisition, and not to provide the SPAC with proceeds for general corporate purposes or to turn it into an investment fund.[28] However, this requirement may also give SPAC sponsors the wrong incentives to overpay for the target. In other words, the sponsors may use this 80% as an anchor in their decision when they evaluate potential targets, and not necessarily consider what is best for the interests of minority shareholders. They may find it more convenient to overpay for a smaller target, rather than bid for the acquisition of a large target and end up diluting their ownership. I test whether the market reacts differently to the announcement of acquisitions whose value is within 10% of the required

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[26]Tran (2009) does not allow for non-linearity in the relationship.

[27]Lewellen (2009) reports that deferred underwriting compensation in SPAC IPOs have increased dramatically over time, from 0% in 2003 to an average of 3.8% of gross average proceeds in 2008.

[28]The sponsors can always use stock as a method of payment for the acquisition, and keep the cash proceeds raised in the SPAC IPO to finance future growth opportunities.

80% threshold (80% of the SPAC's net assets) at the time of the acquisition completion.

Sponsor ownership could potentially also affect performance. The effect of a high level of SPAC sponsor ownership on corporate performance could be positive or negative. The positive effect stems from the enhancement in firm value, as increased managerial ownership decreases agency costs of equity by reducing managers' consumption of perquisites (Jensen and Meckling, 1976). On the other hand, as Jenkinson and Sousa (2009) show, the enormous incentives of SPAC sponsors to complete any kind of deal may encourage the SPAC management teams and related parties to purchase large blocks of stock on the open market just prior to the shareholder vote on a proposed acquisition. The authors interpret this behaviour as evidence that SPAC sponsors are buying shares from likely "no" voters, and are approving acquisitions in order to receive their promised 20% equity compensation.[29] Given that the approved acquisitions are not necessarily the optimal choice, increasing sponsor ownership may have negative effect on performance.[30] In addition, increasing sponsor ownership may also send a strong negative signal to the market about the quality of the target firm whose owners are using the acquisition as an exit strategy. Further, I also investigate whether the long-term post-acquisition SPAC performance is related to the level of board control exercised by the sponsor. I examine two aspects of board control: 1) whether one of the sponsors provides the CEO, and 2) whether one of the sponsors becomes the chairman of the board.

The involvement of the target insiders in the management of the newly merged company may also affect performance. Again, arguments can be developed to support both positive and negative effects. If the target insiders receive proper incentives to maximize the value of the new firm, their continued involvement could prove to be beneficial because they have substantial inside knowledge of the target and the industry. For instance, in many cases target insiders are also the founders of the target company and as pointed out by Schwert (1985) the founder is probably the most important asset of the firm at least in the early stages of the company's life. Conversely, higher target insider ownership in the merged company may be an indication that the SPAC sponsors overpaid for the acquisition. The target management and owners are well aware of the fact that sponsors must spend at least 80% of the SPAC money on the purchase, within the limited time of two years. Consequently, they may use their bargaining power and extract a higher premium for the target shareholders. In addition, I also examine whether the continued involvement of target insiders has an effect on the post-acquisition performance of the merged company, by introducing

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[29]I review Schedule 13D, Schedule 13G, as well as Form 13F, and find that in more than 50% of the deals in my sample the sponsors report that they buy additional shares prior to the Special Meeting of Stockholders, held to consider and vote upon the proposed merger. Furthermore, in 29 deals the sponsors enter into an agreement with Victory Park Capital Advisors, LLC pursuant to which funds managed by Victory Park, or other purchasers acceptable to Victory Park and the sponsors, will use their reasonable best efforts to purchase up to an agreed amount of SPAC shares from third parties prior to the Special Meeting of Stockholders.

[30]In fact, the SEC has recently proposed amendments to Rule 10b-18 under the Securities Exchange Act of 1934. The stated purpose of the change is to prevent use of the safe harbour (extend the time in which the safe harbour is unavailable in connection with an acquisition by a SPAC, until the completion of the SPAC's stockholder vote) where there is a strong incentive for a SPAC to make substantial purchases of its stock solely to ensure it receives a favourable stockholder vote on its acquisition.

two new variables: 1) whether one of the target insiders provides the CEO, and 2) whether one of the target insiders becomes the chairman of the board.

The previous literature also underlines the role of institutional blockholders' monitoring as an important corporate governance mechanism. I investigate whether the level of institutional ownership in the merged firm is reflected in better performance of the SPAC acquisitions. As the majority of the targets in the sample are private companies, and acquisitions of private targets have been found to differ from acquisitions of public companies, I include an additional control variable PRIV (see Officer, 2007).[31] I also control for the SPAC size (LMKTCAP), relative size (RELSIZE), medium of exchange (CASH), and deal value (LDEALVALUE), since these variables have been found to have an effect on acquisition announcement returns (see Moeller et al., 2004, Moeller et al., 2007, and Travos, 1987, respectively).[32]

Table 9 contains the results of the regression analyses. The dependent variable in all specifications is the three-day event window CARs measured around the announcement date, using Russell 2000 index as a market proxy. Model (1) shows the effect of the time from IPO to the acquisition announcement variable, as well as the ownership variables, controlling only for deal and SPAC characteristics. In model (2), (3) and (4) I introduce three dummy variables that capture the effect of deferred IPO underwriter fees, SPAC underwriter being also the SPAC acquisition advisor, and an interaction dummy that captures the effect of a SPAC underwriter becoming an acquisition advisor, conditional on there being deferred underwriting fees, respectively. In the last two models I include a dummy variable that reflects whether the value of the target at the time of the acquisition was within 10% of the required 80% threshold of the SPAC's net asset value.

I find no evidence that the cumulative abnormal returns upon the acquisition announcement depend on the SPAC sponsors ownership. Similarly, I find no relationship between the stock performance of the SPAC and the ownership of target insiders, or institutional blockholders in the new merged company. I do find evidence, however, of a concave relationship between the time it takes for SPAC sponsors to find a potential target, and the SPAC performance. The estimated relationship reaches its maximum at around 200 days, based on the coefficients in model (6). In other words, the longer it takes for the SPAC to announce an acquisition, the higher are the stock returns, as the sponsors are potentially putting in more time to conduct thorough due diligence and purchase the most suitable target. However, acquisitions that are announced too quickly or too late are perceived by the market as less valuable. Given the strong incentive of the sponsors to buy a target, they can either purchase a target as soon as possible after the SPAC IPO, or make a last minute acquisition under the pressure of the approaching 2-year deadline date.

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[31]Given that 33% of the targets in the sample are foreign companies, I investigate whether the findings differ for this type of deals; however, I do not find that their performance is significantly different.

[32]LMKTCAP is the natural logarithm of the market capitalization of the SPAC computed at the price at the acquisition announcement, measured in millions of dollars. RELSIZE is the value of the target as a fraction of the market capitalization of the acquirer.

The coefficient estimate on the "deferred IPO underwriter fees" variable is negative and significantly different from zero. A possible interpretation of the less favourable reaction to these acquisitions is that the market realises that the deferred IPO underwriter fees may create the wrong incentives for the IPO underwriters. This indicates that the CARs are, on average, between 5.1 and 6.2 percentage points lower if part of the IPO underwriter compensation is deferred and paid upon the merger completion. When I add the "underwriter is an advisor" variable I find that its coefficient estimate is statistically insignificant. Similarly, when I add the interaction dummy that captures the effect of a SPAC underwriter becoming an acquisition advisor, conditional on there being deferred underwriting fees I also find a statistically insignificant coefficient estimate. In other words, what appears to drive the results is whether part of the fees of the IPO underwriters are being deferred and paid conditional on a merger completion.

My findings suggest that the market recognizes the poor incentive of the SPAC underwriters, who have not collected the full amount of their underwriting fees, to get involved in the merger process and strictly follow their own private interests that may not necessarily be aligned with the interests of the SPAC shareholders, and push for any potential deal. Reading the "background of the merger" section in the definite merger proxy statements shows that in fact it is not uncommon that the underwriter/advisor is the one who finds the potential target and introduces it to the SPAC sponsors.

The market reaction is also significantly negative for acquisitions that have a market value very close to the required 80% threshold. These acquisitions have on average 4.4 percentage points lower CARs. It appears that although these deals are satisfying the 80% test, the market somehow perceives them as lower quality acquisitions. It is possible that SPAC sponsors, aware of the 80% requirement necessary for the acquisition approval, are given the wrong incentives to deviate from their optimal choice, overpay for a smaller target, complete an acquisition and collect their compensation.

In Table 10, I proceed to examine the long-run stock price performance of the newly merged firms following the acquisition. The dependent variable in the first four model specifications is the one-year industry- and size-adjusted buy-and-hold stock returns of SPACs, following the effective date of their acquisition. The adjustment is done by subtracting the one-year buy-and-hold returns of the industry- and size-matched firms. In the following specifications, to test the robustness of my results, I replace the dependent variable with the one-year market-adjusted buy-and-hold stock returns, in specification (5), and with the one-year IPO-adjusted buy-and-hold stock returns, in specification (6). The market adjustment is made by subtracting the one-year buy-and-hold return of Russell 2000 index. The IPO adjustment is done by subtracting the average one-year buy-and-hold return of all companies that became public in the same year as the SPAC acquisition. Because I am studying the long-term performance of SPACs I introduce an additional variable, the ratio of EBITDA to total assets (EBITDA_TA) to control for the operating profitability of each company. Further, I also control for the value of the target relative to the market capitalization

of the acquirer (RELSIZE), and for the deal value (LDEALVALUE), since I conjecture that these choices could be affected by the sponsors' incentives, and therefore may have an indirect effect on SPACs post-acquisition performance.[33]

I find evidence that the continued involvement of the SPAC sponsors as shareholders and members on board has an impact on the long-term performance of SPAC acquisitions. Based on the significant results, in almost all model specifications, there is a concave relationship between sponsor ownership and SPAC performance. It appears that increasing sponsor ownership has a positive impact on performance because sponsors have higher incentives to maximise firm value rather than expropriating shareholders wealth. The inflection point of the relationship is on average around 13.2% sponsor ownership, depending on the model used. Any further increase in sponsor ownership has a negative effect on performance. Sponsors may prefer to pass on potentially more valuable (but also more expensive) targets, in order not to dilute their ownership. Sponsors may be approving value-destroying acquisitions, in order to obtain their compensation, by buying additional shares in the open market. In addition, high sponsor ownership may be a proxy for acquisitions that were mainly paid by cash, and used by target insiders as an exit vehicle.[34] Therefore, the negative effect of high levels of sponsor ownership may also be interpreted as a signalling device about the bad quality of the target.

Further, sponsors board representation also seems to matter. The coefficient estimate on the CEO sponsor dummy is positive and statistically significant in the first four models. This indicates that the long-run returns are approximately 71 percentage points higher, based on model (2), after adjusting for industry movements, if one of the SPAC sponsors is appointed as a CEO of the merged company. These findings underline the importance of continuing sponsor involvement. While their expertise may matter a lot during the search for a suitable target and the execution of the acquisition, the results suggest that sponsors may also add value by leading the company's management, at least initially after the merger. My findings are also consistent with previous literature that underlies the importance of individuals' superior characteristics and track records for firm performance (see Bertrand and Schoar, 2003, and Kaplan et al., 2010). More importantly, since "CEO sponsor" and sponsor ownership are included in the model, the CEO sponsor variable is not simply a proxy for sponsor ownership. Further, whether the chairman is a sponsor also seem to affect the long term performance of the company. The results suggest that the long-run returns are between 37 and 60 percentage points higher, depending on the model, when the appointed chairman is one of the SPAC directors.

When I examine the effect of target insiders ownership on performance I do not find evidence of a strong relationship between the two variables. Only in the last model specification, where I use the IPO-adjusted buy-and-hold stock returns as the dependent variable, the coefficient estimates of the

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[33]For instance, I have previously shown that the 80% rule may wrongly incentivize sponsors when selecting the potential target, given that they may find it advantageous to overpay and acquire a smaller size target.

[34]I have also controlled for deals that were paid 100% by cash (CASH), however the coefficient estimate of this variable appears to be statistically insignificant.

target insiders ownership variables seem to indicate that there is a non-linear relationship between target insiders ownership and SPAC performance. While the first-order coefficient estimate of target insiders ownership is negative, the second-order coefficient estimate is positive. The inflection point of the relationship is at 38% target insider ownership. The negative effect of increasing target insiders ownership on performance suggests that sponsors may have overpaid for the acquisition. Given their strong incentives to complete an acquisition, sponsors may agree on a deal that leaves target insiders with higher levels of ownership.

SPAC sponsors know that they have to make an acquisition in order to receive their compensation. Pressured under the time constraints they may be wrongly incentivized to engage in acquisition transactions that would benefit them but not necessarily benefit the minority shareholders. For example, Jog and Sun (2007) examine returns earned by shareholders and management of blank check IPOs from their issuance date to the post-acquisition date and show that while the shareholders earned -3% annualised abnormal returns, the sponsors earned approximately 1900 percent annualised return. In addition, target insiders ownership may be a proxy for target insiders who use the acquisition to cash out of firms expected to perform poorly. Therefore, target insiders left with a significant portion of the ownership may also be interpreted as a certification effect of the good quality of the target. I also find that the continued involvement of target insiders as chairmen in the newly merged companies has a positive effect on the long term performance of SPAC acquisitions. My results suggest that the inside knowledge of the target management is valuable for the company in the transition period following the acquisition completion.

Lastly, in my regression models I find that the ownership of the institutional blockholders has a negative effect on performance. These results are in contrast with the findings of Tran (2009). In particular, he examines the acquisition discount (the percent difference between acquisition multiples for the sample target and the average multiple for industry and size-matched comparable acquisitions of publicly traded targets) obtained by SPAC bidders at the time of the acquisition, and finds that the higher the level of independent long-term institutional blockholders the larger is the discount.[35] The author's interpretation is that institutional blockholders act as a monitoring device and potentially mitigate the perverse incentives of the sponsors to make unsuitable acquisitions. I, on the other hand, do not find that institutional ownership affects the cumulative abnormal returns around the merger announcement, but do find its effect on the long-term stock performance to be significant and negative.[36] The long-run buy-and-hold returns are on average between 6.4 and 15.2 percentage points lower, for every 10% increase in institutional ownership, depending on the specification used. In some regression models, reported in Table 10, I divide the institutional

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[35]It is important to highlight the differences between my and Tran's identification technique. First, Tran (2009) is examining the effect of institutional ownership on the acquisition discount, while I am looking at the effect of institutional ownership on the post-acquisition, long-term stock performance of SPAC acquisitions. Second, he is studying only the effect of independent long-term institutional blockholdings, obtained one quarter before the merger announcement, while I am examining the effect of total institutional ownership, measured at the time of the acquisition completion.

[36]I have also allowed for non-linearity in the relationship; however, the results appear to indicate a linear relationship.

ownership in two separate variables: the ownership of the original institutions, who bought shares at the time of the IPO, and the ownership of the new institutional holders, who bought at the merger completion. The coefficient estimates on both variables remain negative and statistically significant.

Typically institutional investors in SPAC acquisitions are represented by hedge funds. Unfortunately, the lack of disclosure limits the quantitative data available on hedge funds and constrains my empirical investigation. In an attempt to shed some light on the interests of institutional investors in SPAC transactions, I examine what their intentions are based on the information reported in Item 4 of Schedule 13D. For instance, Brav et al. (2008), argue that hedge funds are better positioned to act as informed monitors than other institutional investors, because they are subject to less regulation and their managers also suffer few conflicts of interest. In addition, according to their findings, hedge fund activists are not short-term in focus, as some critics have claimed, and based on their sample the holding period of hedge funds is closer to 20 months.

However, after reading Schedule 13D filed with the SEC, I do not find evidence that hedge funds interest is to force changes or seek control at the SPAC companies. In particular, the information in Item 4 of Schedule 13D, which requires the filer to declare its reasons for acquiring the shares, suggests that in majority of the cases institutional investors acquired shares for investment reasons only.[37] Moreover, I also examine whether the institutional investors in SPACs are short-term or long-term investors. It appears that initial institutional investors that owned on average 29% prior to the merger completion are left with 20% following the merger, and with 13%, one year following the effective date of the merger. These results suggest that the initial investors are mainly interested in short-term investment. In other words, the negative effect of institutional ownership on long-term performance, that I find, could potentially capture the downward pressure that the exit of hedge funds can have on the price.

In a way, my results are consistent with the findings of Mitchell and Pulvino (2011). They show that during the financial crisis of 2008, when debt financing was pulled from arbitrage hedge funds, and the substantial uncertainty in the market led to a significant increase in investor redemptions, hedge funds were forced to liquidate their existing positions. Furthermore, while for liquid securities, such as exchange-traded equities, rehypothecation lenders (banks or brokers who re-use collateral posted by clients, such as hedge funds, to back their own trades and borrowings) were able to liquidate the collateral to cover loans, in the case of relatively illiquid stocks such as SPACs rehypothecation lenders had no choice but to temporarily cease lending to hedge funds. The aggressive selling of SPACs by hedge funds that employ financial leverage could potentially explain the downward pressure on the price, and the significant relative underperformance of SPACs.[38]

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[37] In fact, some hedge fund investors report that they have bought shares in the SPAC acquisition in order to benefit from event-, risk- or merger-arbitrage strategies.

[38] I have examined whether the negative relationship between institutional ownership and performance is stronger in the post-crisis period by creating an interactive dummy (multiplying the INSTOWN with a POST2008 dummy). Although, the coefficient estimate on the interactive dummy is negative, it is not significantly different from zero.

Overall, the findings reported in Tables 9 and 10 indicate that there are important cross-sectional differences in the short-run stock performance around the acquisition announcement, as well as in the long-run stock performance of the firms in my sample. If the SPAC sponsors take a long time to find a target or a portion of the IPO underwriting fees are being deferred and paid conditionally on a successful merger completion, the firms underperform following the acquisition announcement. The market reaction is also significantly negative for acquisitions that have a market value very close to the required 80% threshold.[39] Further, sponsor ownership and target insider ownership have non-linear effect on long-term performance. Too high ownership retention by the sponsors can be detrimental for the long-term performance of the merged company. The reverse relationship holds for target insiders ownership, suggesting that SPAC sponsors overpaid for the target and left target insiders with higher ownership in the newly merged firm. These results show that the perverse incentives of sponsors may wrongly incentivize them to buy unsuitable targets. Firms that appoint a sponsor as a CEO or a chairman, on the other hand, perform better, consistent with the valuable expertise and the importance of continuing to a certain extent, sponsor involvement. Finally, the presence of institutional investors also has a negative effect on long-term performance. Although my results suggest that institutional blockholders are there for speculative reasons rather than for intervention and monitoring, it is difficult to draw any conclusions about the trading strategies of hedge funds without knowing the full composition of their portfolios.

5   Concluding Remarks

Are Special Purpose Acquisition Companies a financial innovation that adds value, or do they require special regulations from the SEC given that the perverse incentives built in their structure lead mainly to value-destroying acquisitions? In this paper I try to shed some light on this question by studying 73 SPAC acquirers that have successfully completed an acquisition over the period 2004-2010. I study the stock price reaction to SPAC acquisitions at the time of the acquisition announcement, as well as their stock and accounting performance in the year following the successful acquisition completion.

While the announcements of acquisitions by SPAC acquirers in the sample are received positively by the market, on average these acquisitions underperform in the long-run. The results of the accounting performance of SPAC acquisitions also suggest that they significantly underperform their various benchmarks. Further, while SPAC acquisitions do not appear to be more levered, they do fall short of investors' expectations given that they are sold and initially trade at higher valuations relative to their peers.

Unfortunately, the small number of observations in my study prevents me from further analysing the effect by dividing the sample into two subsamples, pre- and post-crisis.

[39]When I add the "deferred IPO underwriter fees" and the "80% deal" dummy variables as independent variables in the regression models reported in Table 10, I find no evidence of a significant relationship.

There is a substantial cross-sectional variation in the short-term as well as in the long-term price performance of the companies in the sample. I document that the perverse incentives embedded in the SPAC contract may encourage some SPAC sponsors and underwriters to make bad acquisitions in order to collect their equity compensation, and deferred underwriting fees, respectively.

By examining the cross-sectional variation in the long-term returns, I find that the continued involvement of the SPAC sponsors as shareholders and members on board in the new company influences future performance. The results suggest that there is a concave relationship between sponsor ownership and stock returns. Further, I document that the continued involvement of SPAC sponsors as CEOs and chairmen of the merged company has a beneficial impact on the long-term performance.

The continued involvement of the target insiders as shareholders in the new company also seems to affect performance, as increasing ownership of target insiders leads to worse performance. It appears that target insiders, being aware of the strong incentives of sponsors to complete an acquisition, may be able to negotiate a better deal for themselves. Finally, the long-term performance of SPAC acquisitions is also negatively affected by the ownership of the institutional blockholders, which could potentially be due to the temporarily cease of lending to hedge funds during the financial crisis of 2008.

Although, acquisitions made by SPAC bidders perform poorly on average, the increased popularity of this type of transactions, and the significant amount of capital that SPACs raise suggest that there are parties who are interested investing in them. The analysis indicates that while there is a large cross-sectional variation in performance, the implicit incentives embedded in the SPAC contract are more likely to lead to value destroying acquisitions. Whether reregulation occurs and reduces this trend remains to be seen.

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Table 1: Sample of completed acquisitions by a SPAC acquirer

The sample acquisitions are listed in order of the S-1 filing date of the SPAC

SPAC	S-1 Date	Target	M&A Date
Millstream Acquisition Corp	25/08/2003	NationsHealth Holdings LLC	01/09/2004
CEA Acquisition Corp	12/02/2004	Etrials Worldwide Inc	09/02/2006
Chardan China Acquisition Corp	16/03/2004	State Harvest Holdings Ltd	08/11/2005
Great Wall Acquisition Corp	17/03/2004	ChinaCast Communication Holdings Ltd	18/01/2007
Tremisis Energy Acquisition Corp	12/05/2004	RAM Energy Inc	08/05/2006
Arpeggio Acquisition Corp	24/06/2004	Hill International Inc	28/06/2006
Rand Acquisition Corp	27/10/2004	Lower Lakes Towing Ltd	06/03/2006
China Unistone Acquisition Corp	18/11/2004	Beijing e-Channels Century	02/01/2006
Mercator Partners Acquisition Corp	11/04/2005	European Telecommunications & Technology Ltd	16/10/2006
Terra Nova Acquisition Corp	18/04/2005	ClearPoint Business Resources Inc	12/02/2007
KBL Healthcare Acquisition Corp II	21/04/2005	Summer Infant Inc	06/03/2007
Services Acquisition Corp	29/06/2005	Jamba Juice Co	29/11/2006
Courtside Acquisition Corp	30/06/2005	American Community Newspapers LLC	02/07/2007
Oakmont Acquisition Corp	12/07/2005	Brooke Credit Corp	18/07/2007
Israel Technology Acquisition Corp	12/07/2005	IXI Mobile Inc	06/06/2007
Fortress America Acquisition Corp	13/07/2005	VTC LLC	19/01/2007
Juniper Partners Acquisition Corp	13/07/2005	Firestone Communications Inc	19/01/2007
Echo Healthcare Acquisition Corp	15/07/2005	XLNT Veterinary Care Inc	07/01/2008
Healthcare Acquisition Corp	28/07/2005	PharmAthene Inc	07/08/2007
Chardan North China Acquisition Corp	02/08/2005	Beijing HollySys Co Ltd	20/09/2007
Stone Arcade Acquisition Corp	15/08/2005	Kraft Papers Business	02/01/2007
Ithaka Acquisition Corp	17/08/2005	Alsius Corp	25/06/2007
Ad.Venture Partners Inc	25/08/2005	180 Connect Inc	24/08/2007
Chardan South China Acquisition Corp	02/09/2005	Head Dragon Holdings Ltd	24/01/2008
Coconut Palm Acquisition Corp	08/09/2005	Equity Broadcasting Corp	02/04/2007
Viceroy Acquisition Corp	13/10/2005	Eastman SE Inc	01/11/2006
Federal Services Acquisition Corp	19/10/2005	Advanced Technology Systems Inc	16/01/2007
Paramount Acquisition Corp	21/10/2005	Chem Rx Corp	26/10/2007
Platinum Energy Resources Inc	24/10/2005	Tandem Energy Corp	26/10/2007
Endeavor Acquisition Corp	15/12/2005	American Apparel Inc	12/12/2007
Star Maritime Acquisition Corp	15/12/2005	Star Bulk Carriers Corp	27/11/2007
Boulder Specialty Brands Inc	16/12/2005	GFA Holdings Inc	21/05/2007
Argyle Security Acquisition Corp	24/01/2006	ISI Detention Contracting Group Inc	31/07/2007
Global Logistics Acquisition Corp	15/02/2006	Clark Group Inc	13/02/2008
India Globalization Capital Inc	03/03/2006	Sricon Infrastructure Private Ltd	07/03/2008

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Table 1— Continued

SPAC	S-1 Date	Target	M&A Date
Acquicor Technology Inc	15/03/2006	Jazz Semiconductor Inc	20/02/2007
Asia Automotive Acquisition Corp	11/04/2006	Hunan TX Enterprise Co Ltd	23/04/2008
Global Services Partners Acquisition Corp	18/04/2006	Southpeak Interactive LLC	14/05/2008
Community Bankers Acquisition Corp	05/06/2006	TransCommunity Financial Corp	31/05/2008
Marathon Acquisition Corp	24/08/2006	Global Ship Lease Inc	14/08/2008
Energy Services Acquisition Corp	30/08/2006	ST Pipeline Inc	15/08/2008
Freedom Acquisition Holdings Inc	21/12/2006	GLG Partners LP	02/11/2007
ChinaGrowth South Acquisition Corp	23/01/2007	Olympia Media Holdings Ltd	27/01/2009
ChinaGrowth North Acquisition Corp	23/01/2007	UIB Group Ltd	27/01/2009
Information Services Group Inc	31/01/2007	Technology Partners International Inc	16/11/2007
Hyde Park Acquisition Corp	05/03/2007	Essex Holdings LLC	31/10/2008
Symmetry Holdings Inc	07/03/2007	Novamerican Steel Inc	15/11/2007
China Opportunity Acquisition Corp	20/03/2007	Golden Green Enterprises Ltd	17/03/2009
Vectro Intersect Security Acquisition Corp	25/04/2007	Cyalume Technologies Inc	19/12/2008
Vantage Energy Services Inc	24/05/2007	Offshore Group Investments Ltd	12/06/2008
Aldabra 2 Acquisition Corp	19/06/2007	Boise Cascade LLC	22/02/2008
Alyst Acquisition Corp	29/06/2007	China Networks Media Ltd	30/06/2009
Alternative Asset Management Acquisition Corp	01/08/2007	Great American Group LLC	03/08/2009
InterAmerican Acquisition Group Inc	04/09/2007	Sing Kung Ltd	09/09/2009
Hicks Acquisition Co I Inc	28/09/2007	Resolute Natural Resources Co	25/09/2009
FMG Acquisition Corp	04/10/2007	United Insurance Holdings LLC	30/09/2008
TM Entertainment & Media Inc	17/10/2007	Hong Kong Mandefu Holdings Ltd	15/10/2009
Global BPO Services Corp	17/10/2007	Stream Holdings Corp	31/07/2008
Triplecrown Acquisition Corp	22/10/2007	Cullen Agricultural Technologies Inc	22/10/2009
Secure America Acquisition Corp	23/10/2007	Ultimate Escapes Holdings LLC	29/10/2009
Enterprise Acquisition Corp	07/11/2007	ARMOUR Merger Sub Corp	06/11/2009
Prospect Acquisition Corp	14/11/2007	Kennedy-Wilson Inc	14/11/2009
China Holdings Acquisition Corp	16/11/2007	Gaoan Production Facility	22/01/2010
Ideation Acquisition Corp	19/11/2007	SearchMedia International Ltd	30/10/2009
Global Consumer Acquisition Corp	20/11/2007	Service1st Bank of Nevada Corp	29/10/2010
Camden Learning Corp	29/11/2007	Dlorah Inc	23/11/2009
Liberty Acquisition Holdings Corp	06/12/2007	Promotora de Informaciones	29/11/2010
Polaris Acquisition Corp	11/01/2008	Hughes Telematics Inc	31/03/2009
Asia Special Situation Acquisition Corp	16/01/2008	Amalphis Group Inc	30/01/2010
GHL Acquisition Corp	14/02/2008	Iridium Holdings LLC	29/09/2009
BPW Acquisition Corp	26/02/2008	The Talbots Inc	07/04/2010
CS China Acquisition Corp	11/08/2008	Asia Gaming & Resort Ltd	02/02/2010
Chardan 2008 China Acquisition Corp	11/08/2008	DAL Group LLC	15/01/2010

Table 2: Summary statistics: Distribution of SPAC IPOs and M&A transactions

Year	SPACs that completed an acquisition		SPACs that were liquidated	
	Number of IPOs	Number of Acquisitions	Number of IPOs	Number of Acquisitions
2003	1	-	-	-
2004	7	1	1	-
2005	24	1	5	-
2006	10	8	13	-
2007	25	25	25	-
2008	6	15	2	-
2009	-	16	-	-
2010	-	7	-	-
Total	73	73	46	-

Table 3: Summary statistics: Industry classification

Target Industry	Frequency
Agricultural Services (SIC 07)	1
Crude Petroleum & Natural Gas (SIC 13)	3
Water, Sewer, Pipeline & Communications & Power Line Construction (SIC 16)	2
Electrical Work (SIC 17)	1
Food & Kindred Products (SIC 20)	2
Apparel & Other Finished Products Made From Fabrics & Similar Materials (SIC 23)	1
Paper & Allied Products (SIC 26)	2
Printing, Publishing & Allied Industries (SIC 27)	3
Chemicals & Allied Products (SIC 28)	2
Stone, Clay, Glass, & Concrete Products (SIC 32)	1
Primary Metal Industries (SIC 33)	2
Electronic, Electrical Equipment & Components, Except Computer Equipment (SIC 36)	3
Surgical & Medical Instruments & Apparatus (SIC 38)	1
Games, Toys & Children's Vehicles (No Dolls & Bicycles) (SIC 39)	1
Deep Sea Foreign Transportation of Freight (SIC 44)	3
Communications (SIC 48)	5
Wholesale Trade - Durable Goods (SIC 50)	1
Apparel & Accessory Stores (SIC 56)	1
Miscellaneous Retail (SIC 59)	1
National Commercial Banks (SIC 60)	1
Personal Credit Institutions (SIC 61)	1
Security Brokers, Dealers & Flotation Companies (SIC 62)	1
Fire, Marine & Casualty Insurance (SIC 63)	2
Insurance Agents, Brokers, & Service (SIC 64)	1
Holding & Other Investment Offices (SIC 67)	6
Hotels & Motels (SIC 70)	1
Business Services (SIC 73)	15
Amusement & Recreation Services (SIC 79)	1
Health Services (SIC 80)	1
Educational Services (SIC 82)	2
Engineering, Accounting, Research, Management & Related Services (SIC 87)	5

Table 4: Summary statistics: Deal characteristics, ownership, and governance

Relative size is the value of the target as a fraction of the market capitalization of the acquirer. Market capitalization of SPAC is computed at the price at the acquisition announcement, measured in millions of dollars. Ownership of sponsors, target insiders and institutions is the fraction of the firm held by sponsors, target insiders, and institutional blockholders immediately after the acquisition, respectively. Deferred fees shows if part of the IPO underwriter fees are being deferred and paid only upon a successful merger completion. Time from IPO to acquisition announcement is measured in calendar days. 80% deal shows if the value of the deal is worth within 10% of the required 80% threshold (80% of the SPAC's net assets), at the time of the acquisition completion.

Variable	Mean	Median	SD	Min.	Max.	N
Panel A: deal characteristics						
Deal value	275.7	141.2	507.4	11.3	3403.4	72
Market capitalization of SPAC	153.1	73.4	183.1	7.2	1026.7	72
Relative size	1.907	1.610	1.192	0.264	5.073	71
Cash as a medium of exchange (%)	0.178	-	-	-	-	73
Stock as a medium of exchange (%)	0.205	-	-	-	-	73
Time from IPO to acquisition announcement	388.7	395.0	192.8	45.0	731.0	72
Deferred fees	0.658	-	-	-	-	73
Underwriter is a M&A advisor	0.466	-	-	-	-	73
Deferred fees & Underwriter is a M&A advisor	0.411	-	-	-	-	73
80% deal	0.239	-	-	-	-	71
Panel B: ownership						
Ownership of sponsors (%)	0.108	0.080	0.095	0.000	0.502	71
Ownership of target insiders (%)	0.247	0.216	0.231	0.000	0.760	71
Ownership of institutions (%)	0.286	0.274	0.189	0.000	0.727	71
Panel C: governance						
Directors from sponsors	0.342	0.286	0.231	0.000	1.000	71
CEO from sponsors	0.296	-	-	-	-	71
Chairman from sponsors	0.521	-	-	-	-	71
Directors from target insiders	0.323	0.286	0.226	0.000	0.875	71
CEO from target insiders	0.662	-	-	-	-	71
Chairman from target insiders	0.451	-	-	-	-	71
Board size	7.070	7.000	1.783	3.000	12.000	71

Table 5: Short-term stock performance of SPACs around acquisition announcements

The table reports cumulative abnormal returns, measured over a three-day event window around the acquisition announcement date. The benchmark is the Russell 2000 index. The results of t-tests of differences in means, and nonparametric Wilcoxon signed rank tests of differences in medians are reported. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Announcement Return	Mean	Median	SD	N
Panel A: completed acquisitions				
All	0.016***	0.004	0.059	72
Cash	0.026	0.014	0.068	13
Stock	-0.005	-0.005	0.038	15
Mixed	0.021**	0.004	0.062	44
Panel B: uncompleted acquisitions				
All	0.001	-0.001	0.034	46
Cash	0.003	0.004	0.025	7
Stock	0.002	0.001	0.027	5
Mixed	0.001	-0.009	0.037	34
Panel C: all acquisitions				
All	0.010**	0.001	0.048	118
Cash	0.015	0.009	0.048	20
Stock	-0.003	-0.002	0.034	20
Mixed	0.011**	-0.000	0.051	78
Panel D: completed less uncompleted				
All	0.022**	0.002		46

Table 6: Long-term stock performance of SPACs using alternative benchmarks

In Panel A, the benchmark is the Russell 2000 index. In Panel B, the benchmark is the industry and size matched non-acquisitions, while in Panel C, all companies that became public in the year of the SPAC acquisition. Returns are computed assuming a buy and hold strategy. The first row shows the performance between the acquisition announcement and the acquisition completion. The last row shows the performance from the acquisition announcement until a year after the acquisition was completed. I also show the performance for the three, six, nine and twelve months time horizons following the acquisition completion. The t-tests of differences in means, and nonparametric Wilcoxon signed rank tests of differences in medians are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Time Horizon	Mean Returns		Median Returns		N
	SPACs	Benchmark	SPACs	Benchmark	
Panel A					
Announcement - Effective date	0.044	0.022	-0.002	0.047	71
		(0.58)		(-0.86)	
Effective date - 3 months post merger	-0.095	0.005	-0.145	0.034	71
		(-2.39)***		(-3.18)***	
Effective date - 6 months post merger	-0.198	0.003	-0.242	0.025	71
		(-4.14)***		(-4.68)***	
Effective date - 9 months post merger	-0.338	-0.016	-0.371	0.014	71
		(-7.42)***		(-5.86)***	
Effective date - 1 year post merger	-0.429	-0.021	-0.563	-0.066	70
		(-8.03)***		(-6.06)***	
Announcement - 1 year post merger	-0.441	-0.014	-0.600	-0.040	68
		(-7.87)***		(-5.87)***	
Panel B					
Announcement - Effective date	0.058	-0.009	0.006	-0.020	67
		(0.94)		(-0.78)	
Effective date - 3 months post merger	-0.091	-0.010	-0.129	-0.019	68
		(-1.35)		(-1.93)*	
Effective date - 6 months post merger	-0.205	0.094	-0.260	-0.050	68
		(-2.96)***		(-3.38)***	
Effective date - 9 months post merger	-0.344	0.199	-0.385	-0.055	68
		(-2.70)***		(-4.74)***	
Effective date - 1 year post merger	-0.429	0.214	-0.563	-0.250	68
		(-2.91)***		(-4.80)***	
Announcement - 1 year post merger	-0.433	-0.058	-0.600	-0.203	66
		(-3.29)***		(-3.75)***	

Table 6– Continued

Time Horizon	Mean Returns		Median Returns		N
	SPACs	Benchmark	SPACs	Benchmark	
Panel C					
Effective date - 3 months post merger	-0.093	-0.042 (-1.14)	-0.129	0.006 (-1.51)	70
Effective date - 6 months post merger	-0.197	-0.106 (-1.93)*	-0.248	-0.161 (-2.52)***	70
Effective date - 9 months post merger	-0.340	-0.170 (-4.18)***	-0.375	-0.282 (-3.68)***	70
Effective date - 1 year post merger	-0.432	-0.194 (-4.66)***	-0.564	-0.199 (-4.15)***	69

Table 7: Industry-adjusted, matched firm-adjusted and IPO firm-adjusted accounting performance and leverage

Panel A of this table reports industry-adjusted, matched firm-adjusted, and IPO firm-adjusted statistics on operating returns on sales, and return on sales. Operating return on sales is computed as operating income divided by total sales. Return on sales is computed as net income before extraordinary items divided by total sales. Panel B reports the industry-adjusted, matched firm-adjusted, and IPO firm-adjusted capital structure of SPAC acquisitions. Leverage is computed as the ratio of long-term debt to total assets. Cash is cash and equivalents, divided by total assets. Net leverage is computed as the ratio of long-term debt minus cash, divided by total assets. Industry is defined in the four-digit SIC code level. The t-tests of differences in means, and nonparametric Wilcoxon signed rank tests of differences in medians are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	Industry-adjusted			Matched firm-adjusted			IPO firm-adjusted		
	Mean	Median	N	Mean	Median	N	Mean	Median	N
Panel A									
Operating return on sales (%)	-0.322 (-3.36)***	-0.049 (-2.62)***	66	-0.378 (-3.92)***	-0.107 (-3.54)***	66	-0.299 (-3.22)***	-0.030 (-2.39)***	66
Return on sales (%)	-0.291 (-3.56)***	-0.049 (-2.68)***	66	-0.335 (-3.50)***	-0.078 (-2.83)***	66	-0.302 (-3.49)***	-0.064 (-2.36)***	66
Panel B									
Long-term debt to assets (%)	0.094 (2.52)***	0.015 (1.67)	67	0.047 (1.16)	0.021 (1.14)	66	0.103 (3.26)***	0.020 (2.27)**	67
Cash to assets (%)	0.034 (2.49)***	0.003 (1.76)*	68	-0.040 (-1.90)*	-0.019 (-1.55)	68	0.041 (2.47)***	0.002 (1.89)*	68
Net long-term debt to assets (%)	0.047 (1.24)	0.047 (0.85)	67	0.073 (1.56)	0.096 (1.27)	66	0.072 (2.03)**	0.045 (1.68)	67

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Table 8: Industry-adjusted, matched firm-adjusted and IPO firm-adjusted valuation measures

Panel A of the table reports Tobin's Q, E/P ratios, and P/E ratios for the SPAC acquisitions net of their respective industry median values, matched firms, and matched IPO firms measured one year after the merger was completed. Panel B reports the valuation ratios measured at the time of the merger completion. Tobin's Q is computed as [(book value of assets - book value of equity - deferred taxes + market value of equity)/book value of assets]. The E/P ratio is computed for all firms, while the P/E ratio is only computed for firms with positive earnings. Industry is defined in the four-digit SIC code level. The t-tests of differences in means and nonparametric Wilcoxon signed rank tests of differences in medians are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	Industry-adjusted			Matched firm-adjusted			IPO firm-adjusted		
	Mean	Median	N	Mean	Median	N	Mean	Median	N
Panel A: valuation ratios measured one year after the merger									
Tobin's Q	-0.083 (-1.01)	-0.321 (-1.75)*	65	-0.233 (-1.86)*	-0.084 (-1.09)	64	-0.136 (-1.45)	-0.272 (-2.13)**	65
E/P ratio	-32.954 (-2.89)***	-2.307 (-2.98)***	65	-30.610 (-2.64)***	-1.556 (-1.96)**	65	-32.119 (-2.84)***	-1.105 (-2.53)***	65
P/E ratio	-3.121 (-1.26)	-0.415 (-2.11)**	18	-2.055 (-1.71)*	-0.382 (-2.69)***	16	-0.342 (-0.94)	-0.580 (-1.20)	18
Panel B: valuation ratios measured at the time of the merger completion									
Tobin's Q	0.017 (0.15)	-0.168 (-1.25)	68	-0.158 (-1.08)	-0.195 (-1.55)	68	0.062 (0.51)	-0.175 (-1.09)	67
E/P ratio	-4.206 (-2.43)***	-0.642 (-1.91)*	68	-2.578 (-1.12)	-0.754 (-0.95)	68	-4.445 (-2.63)***	0.004 (-1.16)	67
P/E ratio	2.453 (2.02)**	0.498 (3.36)***	29	1.858 (1.03)	0.099 (0.24)	19	-4.448 (-4.14)***	-2.760 (-3.18)***	13

Table 9: Cross-sectional regression of short-term stock performance of SPACs

The dependent variable is the market-adjusted CARs earned by SPACs over a three-day event window around the acquisition announcement date. LTIMETOACQ is the natural logarithm of the number of days between the SPAC IPO and the acquisition announcement. LTIMETOACQ_SQ is LTIMETOACQ squared. SPONSOROWN, TARGE-TOWN and INSTOWN is the fraction of the firm held by sponsors, target insiders, and institutional blockholders immediately after the acquisition, respectively. CASH is a dummy variable that takes on a value of one if the medium of exchange is cash, and zero otherwise. PRIV is a dummy variable that takes on a value of one if the target is a private firm, and zero otherwise. DEF_FEES is a dummy variable that takes on a value of one if portion of the IPO's underwriter compensation is deferred and paid only upon a successful merger completion, and zero otherwise. UNDER_ADV is a dummy variable that takes on a value of one if a SPAC acquisition advisor is also the company's underwriter, and zero otherwise. DEF_FEES $*$ UNDER_ADV is the product of DEF_FEES and UNDER_ADV. 80% DEAL is a dummy variable that takes on a value of one if the deal value is worth within 10% of the required 80% threshold (80% of the SPAC's net assets), at the time of the acquisition completion, and zero otherwise. RELSIZE is the value of the target as a fraction of the market capitalization of the acquirer. LMKTCAP is the natural logarithm of the market capitalization of the SPAC computed at the price at the acquisition announcement, measured in millions of dollars. LDEALVALUE is the natural logarithm of the value of the transaction. Heteroskedasticity-adjusted (White) standard errors are used in calculation of t-statistics that are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Explanatory variable	(1)	(2)	(3)	(4)	(5)	(6)
LTIMETOACQ	0.454	0.500	0.523	0.516	0.440	0.445
	(2.61)***	(3.22)***	(3.29)***	(3.21)***	(2.81)***	(2.72)***
LTIMETOACQ_SQ	-0.042	-0.047	-0.049	-0.048	-0.041	-0.042
	(-2.65)***	(-3.26)***	(-3.33)***	(-3.26)***	(-2.88)***	(-2.79)***
SPONSOROWN	-0.133	-0.113	-0.111	-0.108	-0.112	-0.106
	(-1.35)	(-1.29)	(-1.26)	(-1.21)	(-1.29)	(-1.21)
TARGETOWN	0.019	0.022	0.023	0.024	0.014	0.017
	(0.46)	(0.62)	(0.64)	(0.68)	(0.41)	(0.47)
INSTOWN	0.028	0.028	0.023	0.025	0.024	0.023
	(0.66)	(0.73)	(0.58)	(0.63)	(0.63)	(0.60)
CASH	0.033	0.031	0.031	0.032	0.034	0.035
	(1.56)	(1.67)	(1.66)	(1.68)*	(1.85)*	(1.86)*
PRIV	0.026	0.028	0.025	0.025	0.027	0.025
	(1.51)	(1.82)*	(1.60)	(1.57)	(1.84)*	(1.64)
DEF_FEES		-0.062	-0.058	-0.053	-0.061	-0.051
		(-4.04)***	(-3.50)***	(-2.75)***	(-4.03)***	(-2.73)***
UNDER_ADV			-0.012	0.001		0.010
			(-0.73)	(0.05)		(0.36)
DEF_FEES $*$ UNDER_ADV				-0.018		-0.024
				(-0.52)		(-0.71)
80% DEAL					-0.044	-0.044
					(-1.76)*	(-1.70)*
RELSIZE	0.002	0.001	-0.001	-0.002	0.016	0.013
	(0.13)	(0.05)	(-0.08)	(-0.13)	(0.88)	(0.72)
LMKTCAP	0.011	0.030	0.027	0.025	0.073	0.068
	(0.35)	(1.07)	(0.93)	(0.84)	(1.98)**	(1.76)*
LDEALVALUE	0.002	-0.002	0.003	0.005	-0.046	-0.040
	(0.06)	(-0.07)	(0.11)	(0.18)	(-1.23)	(-1.02)
Constant	-1.256	-1.408	-1.464	-1.449	-1.227	-1.240
	(-2.61)***	(-3.28)***	(-3.34)***	(-3.28)***	(-2.83)***	(-2.75)***
N	69	69	69	69	69	69
Adj R^2	0.077	0.270	0.264	0.254	0.300	0.279

Table 10: Cross-sectional regression of long-term stock performance of SPACs

The dependent variable in columns 1 to 4 is the one-year matched firm-adjusted buy-and-hold returns of SPACs, following the acquisition completion date. The dependent variable in column 5 is the one-year market-adjusted buy-and-hold returns, while in column 6, the one-year IPO-adjusted buy-and-hold returns. SPONSOROWN (TARGETOWN) is the fraction of the firm held by sponsors (target insiders) immediately after the acquisition. SPONSOROWN_SQ (TARGETOWN_SQ) is SPONSOROWN (TARGETOWN) squared. SPONSORCEO (TARGETCEO) is a dummy variable that takes on a value of one if the CEO is one of the sponsors (target insiders), and zero otherwise. SPONSOR-CHAIR (TARGETCHAIR) is a dummy variable that takes on a value of one if the chairman is one of the sponsors (target insiders), and zero otherwise. OLD_INSTOWN is the fraction of the firm held by old institutional blockholders (institutional blockholders who also held shares prior to the acquisition) immediately after the acquisition. NEW_INSTOWN is the fraction of the firm held by new institutional blockholders (institutional blockholders who first buy shares at the time of the acquisition announcement) immediately after the acquisition. INSTOWN is the sum of OLD_INSTOWN and NEW_INSTOWN. RELSIZE is the value of the target as a fraction of the market capitalization of the acquirer. LDEALVALUE is the natural logarithm of the value of the transaction. EBITDA_AT is computed as the ratio of EBITDA to total assets, measured a year after the acquisition was completed. Heteroskedasticity-adjusted (White) standard errors are used in calculation of t-statistics that are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Explanatory variable	(1) match firm adjusted	(2) match firm adjusted	(3) match firm adjusted	(4) match firm adjusted	(5) market adjusted	(6) IPO firm adjusted
SPONSOROWN	6.145	6.138	5.439	4.810	3.023	5.248
	(2.10)**	(2.14)**	(1.91)*	(1.73)*	(1.38)	(2.35)***
SPONSOROWN_SQ	-20.687	-22.659	-21.410	-18.620	-12.944	-19.219
	(-2.27)**	(-2.51)***	(-2.41)***	(-2.13)**	(-1.88)*	(-2.75)***
TARGETOWN	-0.364	-0.746	-1.296	-0.646	-1.056	-1.520
	(-0.37)	(-0.76)	(-1.28)	(-0.66)	(-1.41)	(-2.00)**
TARGETOWN_SQ	0.278	0.698	1.254	0.664	1.174	2.005
	(0.20)	(0.50)	(0.90)	(0.48)	(1.11)	(1.87)*
SPONSORCEO	0.714	0.709	0.636	0.700	0.244	0.118
	(1.86)*	(1.90)*	(1.73)*	(1.89)*	(0.86)	(0.41)
TARGETCEO	0.426	0.457	0.385	0.451	0.195	0.145
	(1.17)	(1.27)	(1.08)	(1.25)	(0.71)	(0.52)
SPONSORCHAIR		0.521	0.604	0.513	0.366	0.119
		(2.17)**	(2.52)***	(2.30)**	(2.00)**	(0.64)
TARGETCHAIR		0.493	0.563	0.484	0.399	0.233
		(2.21)**	(2.53)***	(2.32)**	(2.35)***	(1.35)
OLD_INSTOWN			-1.183			
			(-2.76)***			
NEW_INSTOWN			-2.201			
			(-4.04)***			
INSTOWN	-1.504	-1.517		-1.421	-0.642	-0.654
	(-3.70)***	(-3.85)***		(-3.66)***	(-2.14)**	(-2.14)**
RELSIZE	0.098	0.130	0.150	0.105	0.117	0.116
	(1.32)	(1.76)*	(2.04)**	(1.45)	(2.09)**	(2.02)**
LDEALVALUE	-0.134	-0.126	-0.141	-0.106	-0.113	-0.137
	(-1.77)*	(-1.71)*	(-1.94)*	(-1.46)	(-2.02)**	(-2.41)***
EBITDA_AT	0.205	0.182	0.173		0.292	0.298
	(1.46)	(1.32)	(1.28)		(2.77)***	(2.79)***
Constant	-0.171	-0.714	-0.564	-0.736	-0.398	0.069
	(-0.31)	(-1.21)	(-0.97)	(-1.26)	(-0.88)	(0.15)
N	64	64	64	66	64	64
Adj R^2	0.228	0.274	0.304	0.250	0.174	0.184