

The Fast Track IPO – Success Factors for Taking Firms Public with SPACs

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ABSTRACT

In a reverse merger, a private company merges with a publicly listed (“shell”) company, for the purpose of bringing the private company public. Reverse mergers are thus a non-traditional method of going public. In this paper, we focus on Special Purpose Acquisition Companies (SPACs), which are shells initiated with the sole intent of acquiring a privately held company, rather than “natural shells,” which arise after bankruptcy. The main difference is that the “SPAC” acquires the private company and not vice versa and SPACs’ shareholders are required to vote on the merger. Our objective is to study this voting process and to identify the factors that influence approval probability. We use a detailed, proprietary database of 139 SPACs and their characteristics over the 2003-2008 time period. We find that, despite other economic and statistic factors, SPAC blockholder structure and share market conditions are the most important factors in the approval decision. We find a negative correlation between the presence of active investors (hedge funds and private equity funds) shareholdings in a SPAC and approval probability. In contrast, we find that a higher percentage of SPAC management ownership tends to increase approval probability, because managers will always vote in favour of the deal. Furthermore, deal approval is also more likely in upward-trending markets, which means that SPACs are prone to “IPO windows,” just as traditional initial public offerings.

JEL Classification: G12, G24, G34

Keywords: Alternative Asset, Reverse Merger, Shell Company, Special Purpose Acquisition Company (SPAC)

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1. Introduction

A substantial amount of work has studied traditional initial public offerings (“IPOs”) (for recent work, see, e.g., Brau et al., 2010, 2012). In recent years, reverse mergers, a non-traditional method of going public, have become an important alternative to traditional IPOs. Feldman (2009) finds there were 1,065 reverse mergers in the U.S. from 2004 to 2008, outnumbering classic IPOs by roughly 50%.

In reverse mergers, shell companies play an integral part in the transaction. Instead of hiring an underwriter to market and sell shares in an IPO, a private operating company looks for a suitable non-operating (generally inactive) public shell company. The private company then merges with the shell company by buying it, becoming publicly listed itself. Post-merger, the shell company contains the assets and liabilities of the operating company, and it is controlled by the former shareholders (see Sjoström, 2008).

In June 2005, the SEC defined any company with “no or nominal operations, and with no or nominal assets or assets consisting solely of cash and cash equivalents” as a shell company. Since then, all companies reporting to the SEC must indicate whether they are a shell company, according to Rule 12b-2. Shells can either be initiated with the sole intent of merging with a privately held company (Special Purpose Acquisition Companies, SPACs¹), or after selling their operations and assets following bankruptcy (called “natural shells,” or “skeletons”).

We attribute the rising popularity of reverse mergers to four main advantages (see Floros and Travis, 2011): 1) they are not subject to lengthy SEC review processes, 2) less legal preparation is needed, resulting in lower direct expenses and lower indirect IPO costs, such as underpricing, 3) they are less subject to (timing) risks from worsening market conditions,

¹ The original meaning of the abbreviation “SPAC” is “Specified Purpose Acquisition Company.” In recent academic publications, however, practitioners and the media have started to use the word “special” in place of “specified,” and it is now the most frequent interpretation.

during which there is a danger of investors losing interest, e.g due falling markets, and 4) they do not require as much time from the private firm’s managers on events such as road shows.

Despite these advantages, such “backdoor listings” have acquired a bad reputation, due primarily to their lower listing requirements. It is possible that they may create a situation where the purchasers of the newly listed firms will face highly asymmetric information, risk, and uncertainty, because offerings are not conducted at deal consummation. Furthermore, the merged companies tend to have minimal assets, are illiquid, have negative profitability, and are mostly development-stage firms (see Pavkov, 2005, Floros and Shastri, 2009, Carpentier, Cumming, and Suret, 2011, and Floros and Travis, 2011).

SPACs, which emerged out of the notorious “blank check” companies of the 1980s, are a form of reverse merger that does not suffer from these disadvantages.² SPACs became very popular in the U.S. before the recent financial crisis, accounting for about 25% of IPO volume in 2007. Past SPAC management teams include banking legends such as Joseph Perella and Bruce Wasserstein, the co-founder of Apple Computers, Steve Wozniak, and former Israeli Prime Minister Ehud Barak (see Figure 1, Table 1, and Berger, 2008, for an overview).

– Table and Figure 1 about here –

As implied by its peculiar name, SPACs are single-purpose entities that exist solely to fulfill a specific and temporary objective: to raise equity from investors in an IPO (a “blank check”) in order to locate an investment opportunity in an existing and operating (but not publicly listed) company within a specific period of time (usually eighteen to twenty-four

² During the 1980s, blank check companies were frequently involved in fraudulent activities that involved overemphasizing the high liquidity and value creation potential of the intended acquisitions to mislead unsophisticated and inexperienced investors. To counteract these practices, the U.S. government revised the regulations for blank check companies in the Penny Stocks Reform Act of 1990, advocating stronger disclosure requirements and the development of an automated quotation system to ensure transparent pricing. Furthermore, the SEC issued the so-called Rule 419 regulation, which introduced the obligatory trust account for IPO proceeds and the more extensive disclosure requirements like prospectuses, etc. They are not classified as “penny stocks” (see, for example, Beatty and Kadiyala, 2003, Riemer, 2007, Heyman, 2007, and Castelli, 2009).

months). This acquisition must be approved by the SPAC's shareholders (e.g. hedge funds, private equity funds, pension funds – see also Table 5) via a proxy vote. If no target company is found during the time period, or if all proposed acquisitions are rejected by investors, the SPAC's corporate existence ceases. It is then liquidated by returning its capital from the trust account (IPO proceeds – IPO expenses + accrued interest). On average, 96% of the IPO proceeds are returned pro rata to shareholders of the 62 SPACs that were liquidated.

SPAC investments can thus be regarded, until the acquisition, as investments with a partial capital-back guarantee. Most of the invested capital is paid back, and investors face some opportunity costs of investing in, e.g., bonds.

The most important distinction between reverse mergers with “natural shells” and those using SPACs is that, with SPACs, the shell company acquires the private firm. In this setting, we assume the asymmetric information between shareholders and the private company is much lower, for two reasons. First, the SPAC management team follows a classic IPO process, with investor road shows, SEC registrations, prospectuses, etc. During this process, SPAC investors can gauge the quality and ability of SPAC management, which reduces asymmetric information (Heyman, 2007).

Second, prior to an acquisition, SPAC managers generally do not receive a salary for their efforts. Instead, they purchase warrants for a nominal value of about 3% of IPO volume (“at-risk capital”). However, if no acquisition takes place, the warrants will expire and ultimately be worthless. SPAC managers can also receive an average of 20% of the SPAC's equity (referred to as the *sponsor promote*) for a nominal fee of U.S. \$25,000 in a private placement before the SPAC goes public (but with the condition that an acquisition take place within the specified time period). If no acquisition occurs, *sponsors' promote* will also be worthless.

This contractual relationship should (in theory) incentivize SPAC management to find the “best” target company in a fixed period of time available, thereby maximizing shareholder value and simultaneously increasing approval probability (see Boyer and Baigent, 2008). On

the other hand, as Jog and Sun (2007) note, the fact that SPAC management can receive very high compensation (the median return on an annualized basis is 1,900%), or lose their entire at-risk investment and the opportunity costs of their time, may be seen as a conflict of interest. In fact, SPACs may have an incentive toward the end of the specified time period to put forth less desirable deals as potential acquisitions.

Thus, one of the most important points in a SPAC's life is the proxy vote, when investors will determine the fate of a proposed acquisition. Consequently, in this paper, we attempt to identify which factors will have the greatest influence on approval probability. There is obviously a great deal at stake with SPAC approval. If a deal is rejected, investors will earn less on average than the risk-free rate, SPAC management will lose money ("at-risk capital") and time, and private companies may not consider SPACs as suitable vehicles for public listings in the future.

It is critical for investors to not only evaluate the abilities of SPAC management to find an attractive target, but also to be aware of which factors are most important for approval in order to realistically assess risk. For a potential target company, it is also critical to understand the factors driving deal approval, because negotiating and arranging an acquisition is time consuming and costly. Management will only engage in such activities if they expect an approval.

We obtain a detailed proprietary database of 139 SPACs and their characteristics from IPO date 2003 through 2008. One of our major findings is that younger SPAC management teams have a higher deal approval probability. We also find that higher levels of funds in the trust versus the IPO proceeds might signal operational efficiency on the one hand. But it could also create an incentive for investors to reject the deal instead, in order to receive the money invested in the trust.

Underwriter team (composition) can also affect deal approval probability. This is especially true when the lead underwriters are not considered as underwriters with impressive track

records (“glamour” underwriters), because this may be viewed negatively by shareholders. Approval probability also decreases as the number of underwriters (syndication) increases, because this can indicate a “riskier” deal or problems with coalitions.

However, the greatest influence on deal probability – statistically and economically – is blockholder structure. We find that as blockholdings by active investors (hedge funds and private equity funds) increase, deal approval probability decreases substantially, while a higher level of voting rights by SPAC management increases approval probability. In addition we find that a higher level of voting rights by SPAC management decreases the time to target announcement whereas the presence of active investors decrease the time to proxy voting. We find evidence that SPAC management has an incentive to reduce the duration of the whole process, because they do not want to come “to close” to the end of the SPACs lifetime. In contrast active investors also seek a fast proxy voting, but probably for different reason of early SPAC liquidation to get paid out the trust value.

Finally, it is also important to note that, statistically and economically, approval probability is substantially higher in an upward-trending market environment before the proxy voting. This means that SPACs are also prone to “IPO windows”.

The remainder of this paper is structured as follows. Section 2 introduces the institutional background of the SPAC market. Section 3 describes our data sample construction, while section 4 empirically determines the factors influencing approval probability. Section 5 summarizes our main results, and presents our conclusions.

2. Institutional Background

A Special Purpose Acquisition Company (SPAC)³ is an investment vehicle that undertakes an IPO in order to acquire a private company with an operating business. After a successful acquisition, the company is instantly listed via a “reverse merger” (see Figure 2 for a fuller description of this process).

The acquisition is usually financed by the capital raised from the IPO, and must be completed within a predetermined period, usually twenty-four months.⁴ Most of the proceeds raised (generally around 96%) are transferred into a trust account, which earns risk-free interest. The residual proceeds are used to cover the business expenses of finding a target company.

Because at the time of IPO a SPAC is not a “producing” company, and because it aims to acquire a specific target, the SPAC managers (also called “founders” or “SPAC management team”) are considered its only existing asset. Thus, the professional experience, background, network, and investment focus of the management team are in particular interest for potential investors prior to the IPO.

For investors such as hedge funds, private equity funds, mutual funds, and other institutional investors, a SPAC essentially constitutes a “riskless” zero-coupon bond, with an option on a future acquisition (if no transaction takes place, investors receive a pro rata share of the trust value, plus any accrued interest). At the IPO, investors buy units consisting of one share and one or more warrants. Shortly afterward, the IPO shares and warrants begin to trade separately. However, the warrants are not exercisable until an acquisition is completed, and can thus be considered as a call option whose value decreases to zero when no business combination is realized.

³ In the literature, the term “SPAC” is often used interchangeably with the terms “blank check company,” “blank shell,” “cash shell,” or “development stage company.” Note, however, that there can be slight differences in meaning between SPACs and these vehicles. As a result, we do not use these terms here to substitute for SPACs.

⁴ Three SPACs have arranged to extend this period to thirty-six months with shareholder approval.

Potential acquisitions must be announced to investors, who then vote whether to approve at a special meeting. An acquisition is approved when the majority of investors votes in favor of the deal, and only a maximum percentage (e.g., 20%) (referred to as the “threshold”) can redeem their shares.

If the acquisition is approved, the investors who rejected the proposal and redeemed their shares receive a pro rata share of the trust value, plus accrued interest. After the transaction, the SPAC management team can sell their shares on the capital markets after a lockup period. When no acquisition has been completed within twenty-four months, the SPAC’s corporate existence ceases, the capital in trust is returned to the investor base, and the SPAC is liquidated. See Figure 3 for three examples of SPAC price histories over their lifecycles.

– Figures 2 and 3 about here –

Prior to the IPO, SPAC managers receive a “sponsor’s promote” (alternatively “promote shares”) for a nominal payment of \$25,000. They also buy discounted warrants for a value of about 3% of the IPO volume, which become worthless if the SPAC is liquidated (“at-risk investment”). Because SPAC managers receive no salary, the payoff is highly dependent on shareholder voting behavior. If a SPAC is liquidated, the *sponsor promote* does not participate in the liquidation value held in trust, and it hence becomes worthless, as do the warrants. With a successful acquisition, however, the SPAC managers instantly hold an equity stake of around 20% in the newly acquired company (due to the *sponsor promote*), allowing them to generate enormous returns. Those average returns by SPAC management teams are on the order of 1.900%, based on the nominal payment and the warrants (see Jog and Sun, 2007). Thus, the SPAC management team has an extremely strong economic incentive to complete an acquisition prior to the expiration date. To summarize, we can consider a SPAC as a single-deal private equity fund, where investors have voting rights.

2.1 Intervals Within a SPAC's Lifecycle

As Lewellen (2009) notes, a SPAC's lifecycle spans three distinct stages (see Figure 2 again for an illustration). The first stage, the "no target" stage, spans the IPO date until the day prior to the announcement that a target has been identified. As soon as the potential target is found and is communicated to the public via an 8-K filing, the SPAC enters the second stage, the "target found" phase. The SPAC remains in this phase until a special shareholder meeting is held to vote on the target acquisition, at which point it enters the third stage, which is either "acquisition completed," or "acquisition withdrawn." If the acquisition is withdrawn, the SPAC will either liquidate or return to the "no target" stage.

In the latter case, management can begin the target search anew. However, there is a time limit on completing the acquisition. From the IPO date, SPACs have generally had about eighteen months to find a target, and another six months to complete the acquisition. Over time, however, the differentiation between these two periods has diminished, and more recent guidelines stipulate a total of twenty-four months for completion.⁵

After formation and in order to finally become listed on a stock exchange, SPAC managers must register the SPAC with the SEC. Then, they must compile a prospectus with the advising underwriters. The prospectus typically outlines management's investment focus, any relevant evaluation criteria for potential targets, as well as the business experience of management, which is one of the most important criteria investors can use to judge a SPAC's prospects. Prior to the IPO, the SPAC managers receive their "promote" in a private placement, they purchase their warrants, and they pay their deposit into a trust account.

We next describe each of the SPAC lifecycle phases in more detail.

⁵ Three recent SPACs have opted for the possibility of applying for another twelve-month extension, for a total of thirty-six months. However, this request is subject to shareholder approval. In two of the three cases, shareholders rejected the request.

Phase 1: No Target

During a SPAC IPO, the company issues units consisting of one share and one or more warrants. Early unit prices for SPAC IPOs ranged from around \$6.00 to \$8.00; however, recent IPO prices have reached up to \$10.00. Warrants entitle the owner to purchase shares in the company at a prespecified price, known as the strike price. For SPACs, this price is in general lower than the emission price at IPO, so these warrants are in the money, i.e., they have an intrinsic value from the very beginning of a SPAC's corporate existence.

However, warrants are only exercisable after the successful completion of an acquisition. Shortly after the IPO date, the units are split into the two components, and both shares and warrants begin to trade separately. Depending on the terms of emission, the warrants expire after a period of three to five years.

Immediately after the IPO, the largest part of the proceeds (including *sponsor promote* and the at-risk investment) is transferred to the trust account, which is administered by one underwriting bank. The total proceeds are reduced by fees such as underwriter fees. Money can be withdrawn only for financing an acquisition, or for paying out the trust in the case of a liquidation. Typically, the capital raised is invested in U.S. short-term government securities, earning the interest of a T-bill.

As Simmat and Siebert (2010) discuss, the IPO value not held in trust is used to cover 1) the underwriter's discount and other emission fees (between 4% and 7% of the gross proceeds), and 2) the offering expenses and the SPAC's working capital for items such as office expenses (between 1% and 3%).⁶ At this point, the SPAC is still an empty cash shell, however, without any operating business. Therefore, we expect the SPAC's return volatility during this phase to be low, and the price movements should be similar to those of Treasury bonds (see Lewellen, 2009, and Figure 4).

⁶ As described by Hale (2007) and Sjoström (2008), when 100% of the IPO value is held in trust, these expenses can also be covered by private placements of management (e.g., an "at-risk investment"), or by class B shares that do not incorporate claims on trust distribution.

Phase 2: Target Found

Once an acquisition target has been identified, the SPAC managers notify shareholders via a letter of intent.⁷ The size of the proposed target must be at least 80% of the SPAC's net asset value. As long as this requirement is met, the shareholders will decide on a date to hold their special meeting to vote on whether to approve the acquisition.

A successful acquisition must fulfil two requirements. First, the majority (more than 50%) of shareholders must vote in favour of it. Second, the percentage of shareholders who decide to redeem shares must not exceed a certain maximum (the "threshold"). This threshold is defined in the SPAC prospectus, and has historically been between 20% and 40%.⁸

Investors voting against the deal can either keep their shares in the SPAC, or redeem them to the SPAC. In the latter case, they will receive the pro rata trust value of their shares even when the deal is approved. Because warrants trade independently, shareholders who choose to redeem shares can keep their warrants regardless of their voting behaviour, or they can sell them on the market. During this phase, market volatility is higher, because participants know the potential target company and can thus form their own value assessments (see again Lewellen, 2009, and Figure 4).

Phase 3: Acquisition Completed or Withdrawn

If an acquisition is successfully completed, the SPAC brings in its exchange listing and the trust value. This implies the continued existence of the SPAC as an operating company, and its trust value serves the target company as fresh equity that becomes publicly listed (reverse merger). Depending on the financing structure of the deal and the size of the stake acquired by the SPAC, initial owners can remain major stakeholders, become minority stakeholders, or retire from their positions.

⁷ As defined by the SEC, the reporting company has an obligation to file a Form 8-K to report both the entry into a material non-ordinary course agreement providing for the transaction, as well as the completion of the transaction.

⁸ To avoid a large shareholder being able to single-handedly reject the acquisition, some SPACs have regulations requiring that shareholders who own more than 10% may only redeem a maximum of 10% of shares (see Simmat and Siebert, 2010).

The SPAC's terms and conditions may further require that *sponsor promote* shares remain locked up to avoid opportunistic behaviour on the part of managers. A staggered promote structure, where the *sponsor promote* payment is tied to the company's returns or share price performance, may also exist. As Simmat and Siebert (2010) discuss, these shares enjoy the same rights as regular shares, for example, with respect to dividend payments.

If no target is found or if shareholders reject all proposals within the general twenty-four-month period, the SPAC will announce its liquidation and terminate its corporate existence. The full trust account, including any interest earned as well as other net assets, is distributed to the shareholders, who receive the current pro rata trust value of their stock. However, because warrants are only exercisable after a completed acquisition, they are rendered worthless and expire. And owners of the *sponsor promote* lose their entire at-risk investment and the opportunity cost of working in the SPAC. Thus, management clearly has a strong incentive to obtain shareholder approval and complete an acquisition in a timely fashion.

– Figure 4 about here –

3. Data Sample Construction and Methodology

Our sample consists of all U.S. SPACs since 2003,⁹ and does not include preregulation blank check companies (see Figure 1). Because our sample thus covers the entire “first generation” of post-regulation SPACs, it is more comprehensive than that of prior analyses such as Jenkinson and Sousa (2009) and Lewellen (2009), because it covers the entire “first generation” of post regulation SPACs.

⁹ The first “new generation” SPAC, Millstream Acquisition Corp., went public on 28 August 2003; the most recent offering included here is the IPO of 57th Street General Acquisition Corp. on 25 May 2010. Our sample is thus comprised solely of companies formed after the introduction of the Rule 419 Blank Check Offering Terms in response to fraudulent and manipulative activities involving blank check companies during the late 1980s.

Similarly to every publicly listed entity in the U.S., SPACs are subject to the Securities Act of 1933 (see Heyman, 2007), and they must file comprehensive documentation with the Securities and Exchange Commission (SEC).

In our initial step to identify all the relevant offerings, we searched the SEC's Electronic Data Gathering and Retrieval (EDGAR) database¹⁰ for public companies classified with a standard industrial code (SIC) of 6770 ("blank check companies"). The results were then verified using the dataset of the investor platform "SPAC Analytics,"¹¹ research reports from the SPAC underwriter Morgan Joseph,¹² and news articles from the website "The SPAC Report."¹³

Through 1 June 2010, there were 163 SPAC IPOs on U.S. stock exchanges. All 163 completed their life cycles as blank check companies, and either acquired a company or were liquidated (see Figure 1). The requirement to file comprehensive and audited documentation with the SEC and to use data over the entire cycle benefits our analysis because it will not be subject to survivorship or selection biases. Those biases usually affect datasets where the availability of data depends primarily on self-reporting (or partially audited data) of fund managers. Alternatively, using only audited data with precise cash flow timing from, e.g., funds of private equity funds can come at the cost of being considered as a subsample.

Of these 163, ninety-eight successfully completed an acquisition, and sixty-five were liquidated. The offerings of seven SPACs consisted of two share classes (voting and non-voting), and two types of warrants instead of one. For these companies, it was not possible to consistently compare their trading patterns and deal approval processes with the remaining sample, so they are included only in general summary statistics.¹⁴

¹⁰ See <http://www.sec.gov/EDGAR/searchEDGAR/companysearch.html>.

¹¹ See <http://www.spacanalytics.com> for further information.

¹² See <http://morganjoseph.com/i/SPACMarketUpdate.pdf>.

¹³ See <http://spac.dealflowmedia.com>.

¹⁴ The respective SPACs are Global Services Partners Acquisition Corp., Good Harbor Partners Acquisition Corp., Israel Growth Partners Acquisition Corp., Juniper Partners Acquisition Corp., Mercator Partners Acquisition Corp., Middle Kingdom Alliance Corp., and Trinity Partners Acquisition Company.

A further seventeen SPACs had no available stock market data. For the remaining 139, we collected five different types of data: 1) structural SPAC data, 2) IPO process data, 3) ownership structure data, 4) operations and performance data, and 5) human capital characteristics data on the SPAC management team (in the spirit of Cassar, 2006, 2010; Cassar and Craig, 2009). See Table 2 for descriptive statistics and Appendix A for a detailed description and calculation method.

– Table 2 about here –

3.1 Structural SPAC Data

Structural SPAC data describes the contractual design of the offering, the intended acquisition focus, shareholder voting thresholds, and so on. Most of this data can be found in the audited filings available on the SEC EDGAR database, which were also double-checked with other public sources such as media coverage and broker reports of investment banks.¹⁵

We obtain information about the intended acquisition focus (i.e., the industry and/or geographic region) of the SPAC and the beneficial ownership structure from the last prospectus (Form 424) prior to the IPO. Form 424 also includes the number of managers and sponsors, average manager and sponsor investment, average team age, and threshold. Data with respect to the exercise of underwriters' options to cover overallotments come from the 6-K or 8-K filings issued immediately after the IPO, or from subsequent quarterly/annual reports. We calculate gross IPO proceeds, including gross proceeds from the exercise of overallotments, if any.¹⁶

¹⁵ Relevant public SEC filings include registration statements for securities (F-1, S-1), current report filings (6-K, 8-K, 10-K), prospectus filings (424A, 424B1, 424B2, 425), and quarterly and annual reports (10-Q, 10-K), (SEC, 2010). Unaudited sources were used only to complement information from audited sources (e.g., broker reports, press releases from target companies, media discussions of individual shareholder votes, and so on).

¹⁶ The inclusion of overallotments in our issuance data is one difference between our sample and the data used by Lewellen (2009). This may be one reason for the divergent results in some analyses.

The proportion of issued capital that is transferred to the escrow trust is retrieved from Morgan Joseph’s “SPAC Market Daily Update”, and is verified with the company’s IPO prospectus filed with the SEC. If there are discrepancies, we contact SPAC management for verification (there were three cases). Data on intended acquisitions (i.e., about the target company, its industry, and national origin) come from current filings and official press releases, as well as from the Thomson Reuters SDC Platinum database. If we could not find a reliable SIC code classification, we individually compared the target’s principal operating business with the U.S. Department of Labor’s SIC manual.¹⁷ By collecting a multitude of unbiased primary data, we are thus able to minimize any systematic errors in our sample.

3.2 IPO Process Data

We obtain data on which financial institutions served as IPO underwriters from the IPO prospectus, along with exact information on the amounts underwritten by each underwriter. For the 139 single-share class IPOs in our sample, there were a total of 553 underwriting agreements with 87 different underwriters. To measure the standing of each underwriter, we focused on two aspects: 1) expertise in the SPAC market (e.g., market share in SPAC IPOs, and a “success rate” that indicates the likelihood that a SPAC represented by a particular underwriter would be able to complete an acquisition), and 2) overall market prestige in the U.S. equity capital markets.

For the first aspect, we create a database for SPAC underwriters and aggregate the number of underwriting volumes and the number of successful transactions in all SPACs for each of the eighty-seven institutions. However, it would be misleading to conduct an underwriter ranking over our entire sample period that will then be tested in our models for all IPOs. Doing that would mean using information on the early IPOs that is available only at the end of the observation period. Because of the relative infancy of this market, every assessment of an

¹⁷ See <http://www.osha.gov/pls/imis/sicsearch.html>.

underwriter's track record tends to vary substantially with every new SPAC. To ensure this is taken into consideration, we use a dynamic ranking system that adjusts the underwriter ranks immediately after a new IPO enters the market. We can thus consider underwriters' aggregate number of IPO involvements, total underwriting volume, and the number of successful acquisitions among the respective SPAC clients.

For the second aspect, we compare our results with the widely accepted underwriter reputation rankings compiled by Loughran and Ritter (2004) (available for download from Jay Ritter's website).¹⁸ These rankings (henceforth referred to as the "Ritter ranks") are based on the methodology of Carter and Manaster (1990) and Carter, Dark, and Singh (1998), who developed a 0-9 scale based on the pecking order found in "tombstone" advertisements.¹⁹ Loughran and Ritter (2004) analogously created rankings for the years 1992-2009. They adjusted some values to correct for a potential flaw in the Carter and Manaster (1990) methodology that could overvalue the reputation of penny stock underwriters, who frequently serve as lead underwriters of relatively insignificant offerings in their peer group, but almost never compete in syndicates of reputable underwriters.²⁰

Because numerous penny stock underwriters serve as syndicate members in the market (especially for early SPAC IPOs), this adjustment is very valuable in the context of our analysis. Unfortunately, the initial prevalence of boutique investment banks in the SPAC market means that only forty-six of the eighty-seven underwriters in our sample were among the 1,133 banks that received Ritter ranks. We attribute another marketwide ranking

¹⁸ See <http://bear.warrington.ufl.edu/ritter/ipodata.htm>.

¹⁹ In these advertisements, lead underwriters are usually listed first, followed by co-managing underwriters, and then by other syndicate members. Carter and Manaster (1990) examined each IPO in a given time period, and ranked underwriters according to their role and underwriting volume. They assigned each underwriter a corresponding prestige rank, ranging from 0 (lowest) to 9 (highest).

²⁰ For a detailed description of our methodology and the adjustments we made to the Carter Manaster (1990) rankings, see Appendix C in Loughran and Ritter (2004, pp. 34-35).

developed by Corwin and Schultz (2004) (henceforth referred to as “Corwin-Schultz ranks”) to fifty-six SPAC underwriters (64% of our sample).²¹

For our analyses, we developed a dynamic underwriter ranking after every SPAC IPO. To do this, we ranked each SPAC underwriter with regard to SPAC volume, number of SPACs, and success rate. We also included the Ritter and Corwin-Schultz ranks, if available. Our final rank is based on the rank sum minimum. See Table 3 for the twenty highest ex post-ranked underwriters.

– Table 3 about here –

3.3 Ownership Structure Data

To retrace each SPAC’s lifecycle, we obtained all the relevant dates (i.e., formation date, IPO date, acquisition announcement, date of extraordinary shareholder meeting, and date on which an acquisition was completed or liquidated) from company prospectuses and current report filings (6-K, 8-K, 10-K). We further crosschecked the dates with M&A data from SDC Platinum. In the case of any discrepancies, we used the earlier date, because only the earliest point at which information is accessible by the capital markets would be relevant to our analysis.

We apply a two-step procedure to analyze the shareholder structure of a SPAC throughout its lifecycle, as well as the underlying trading behavior of its investors.²² First, we reviewed 5,216 SC 13D/SC 13G SEC filings (see EDGAR database) reporting acquisitions of 5% or more of actual voting rights (units and shares) or exercisable voting rights (units and

²¹ The median ranks of the underwriters represented in the 2002 rankings is 6.1 (Ritter) and 0.0544255 (Corwin-Schultz). As defined by Loughran and Ritter (2004), a rank of 5.0 to 7.9 is associated with quality regional or niche underwriters, while a rank of 4.9 or less is associated with underwriters that are active in the penny stock segment.

²² We do not use institutional ownership data from the CDA/Spectrum S34 files, because the classification into different investor groups is very broad. Approximately 85% of the investors are classified as “Other.” Furthermore, CDA/Spectrum provides no information about concentrated blockholdings.

warrants) issued by the SPAC.²³ From these filings, we derive what type of security was acquired and its CUSIP, ISIN, or SEDOL number,²⁴ as well as the date of purchase, and the aggregate amount of beneficially owned securities of each reporting investor (investor group) in absolute and relative terms (e.g., as a percentage of all securities outstanding).

Second, we categorized all investors with stakes exceeding 5% into one of the following groups: “hedge funds,” “private equity funds,” “SPAC managers,” and “others” (financial institutions and investors that do not belong to the other three groups). To do this, we created three comprehensive lists of potential investors (private equity funds, hedge funds, and SPAC managers). Our list of private equity funds comes primarily from three sources: 1) member lists of investment associations (BAI, BVI, BVCA, BVK, EVCA), 2) public rankings of private equity funds, and 3) the Thomson One Banker “Private Equity Flag” database. To identify hedge funds, we compiled an extensive directory from two hedge fund databases: Eureka Hedge and Dow Jones Credit Suisse. To identify SPAC managers, we used SPAC IPO prospectuses that are filed with the SEC (forms 424A, 424B1, 424B2, 425) and are available on EDGAR.

Before matching the base of SPAC investors with these three lists, we removed non-distinctive identifiers from their names, such as “The,” “Fund,” or “Group.” We thus reduced “The Blackstone Group” to “Blackstone.” Finally we used a text-matching program procedure to match these lists with reported investor names. We then visually inspected each match to ensure accuracy and we verified this judgment with practitioners. Whenever investors increased or decreased their shares in a SPAC via amended SC 13 filings, we only consider the delta in beneficial ownership to the previous filing. See Table 3 for the most frequent SPAC investors.

By comparing SPACs’ SC 13D/SC 13G filing dates with three important dates in the SPAC lifecycle, we were able to replicate investor groups’ trading activities and average ownership changes on these dates (see Panels A-C in Table 4). We calculate the concentrated ownership for

²³ Relevant public SEC filings include: SC 13D, SC 13D/A, SC 13G, and SC 13G/A. These filings represent the earliest indicator of a potential structural or directional change in a company’s shareholder base.

²⁴ The type of identification number - CUSIP, ISIN, or SEDOL - depends on a SPAC’s listing.

different investor groups at the IPO date (Panel A), at the announcement date of a potential target company (Panel B), and at the proxy voting date (Panel C).

– Tables 4 and 5 about here –

3.4 Operations and Performance Data

We measure one side of management performance by the number of trading days between the IPO and the first 8-K filing announcement that management has found a suitable target for acquisition. In this context, a second measure is the number of trading days between the first 8-K acquisition announcement and the first proxy voting.

To measure the market assessment of the target company and the proxy voting announcement, we calculate cumulative abnormal returns (CARs), using the Center for Research in Security Prices (CRSP) value-weighted index as a benchmark (Brown and Warner, 1985). We also calculate the CAR over the first three trading days after the IPO (see Table 3 for an illustration of the announcement returns). To calculate the CARs we use daily share prices for the sample period from CRSP and Bloomberg.²⁵

Using the dates collected as part of the ownership structure analysis, we subsequently allocate all SPACs to one of the three lifecycle stages (“no target,” “target found,” and “acquisition completed or withdrawn”) on a daily basis. We then replicate different portfolios of SPACs in the same lifecycle stage. To analyze the trading behavior of SPACs over time, we calculate daily portfolio returns. See Figure 4 for a detailed overview of the performance dynamics during the different stages (see also Lewellen, 2009).

²⁵ We use data from Bloomberg for all SPACs listed on the OTC Bulletin Board, since prices were not available in the CRSP. We adjusted for splits and dividends. For the remaining SPACs listed on the NASDAQ and AMEX, we use data from CRSP. Lewellen (2009) matched the Bloomberg data with CRSP, and finds a total accuracy rate of 99.9%, with pricing errors of less than 1%.

3.5 Human Capital Characteristics Data

To collect data about human capital characteristics, we obtain the condensed curriculum vitae (CVs) of all SPAC executive board members from the prospectuses filed with the SEC prior to an IPO. Although the primary purpose of a prospectus is to sell an offering to investors, the SEC requires every statement in the document to be audited, and thus ensures the accuracy and objectivity of the data. We identified the latest prospectus (Form 424) in the EDGAR database, and we retrieved detailed information on a total of 927 individual SPAC managers.

We define SPAC managers only as executive board members who also own equity stakes (warrants) at the time of the IPO. We further define two groups: 1) non-executive board members, and 2) so-called “special advisors” who are not active members of management. Those who possess stakes in the SPAC’s equity or warrants without being part of management as per our definition are grouped as “sponsors,” and we record the aggregate number of shares owned by this group.

If particular types of information were unavailable in the prospectus, we checked other SEC filings and the “top management” sections of company websites for which the manager serves as an executive or board member (a listing of such positions is a mandatory component of the personal profile in the prospectus). We obtained fifty-six data items for sixteen managers. If we were still in need of information, we searched for the name of the manager on websites such as Forbes.com, the LexisNexis database, and other Internet sources, in that order. In the very rare cases in which we had to access unaudited sources, we only used information confirmed by at least two different reputable sources. If the information was contradictory, we gave strict preference to audited data (twenty-four data items for eight managers).

Thus, for each SPAC board member in our sample, we collected data on three different human capital characteristics: 1) transaction experience, 2) business experience, and 3) formal

knowledge. A detailed description of the variable definitions and method of calculation is provided in Appendix A, in the section *Variables of Human Capital Characteristics for the Instrument Variable Estimation*.

4. Empirical Results

We apply a logit model to comprehensively analyze the success factors for acquisition approvals. The dependent variable approval takes a value of 1 if the proposal is approved, and 0 if it is rejected (77 were approved and 62 were liquidated – see also Figure 1). In this analysis, we consider twenty-five explanatory variables combined into the following four blocks: *SPAC Structure*, *IPO Process*, *Ownership Structure*, and *Operations and Performance* (see Appendix A for the definition and detailed calculation methods).

Before estimating the logit model, we must address the variable threshold, because it is endogenous in regressions with deal approval as the dependent variable. The Threshold is determined by the SPAC management team when initiating the SPAC entity. As Spence (2002) notes, better and potentially more experienced managers who are convinced of the credibility of their investment story could be willing to signal this to the market by initially setting a *lower* threshold. On the contrary, less confident managers, who may be more fearful of losing their at-risk investments, may want to set a *higher* threshold to increase the probability of a successful acquisition.

Therefore, the threshold is clearly set by SPAC management, and could be an indirect measure of management team quality. To counter any endogeneity problems in the logit regression, we instrumentalize the threshold by using all the human capital characteristics in Appendix A. We use the instrumentalized threshold in the subsequent regressions.

Next, we discuss the regression results (see Table 6).

4.1 SPAC Structure

Following the arguments of Yermack (1996) and Eisenberg, Sundgren, and Wells (1998) that large board sizes result in lower firm performance, we expect to find a negative sign for the number of managers. However, the sign is positive and insignificant (Row 2).²⁶ It seems that SPAC dynamics can differ substantially from those of large corporations. Given the lack of operational responsibilities before a successful acquisition, board members may be seen as operating in a less complex environment than board members in large corporations. Thus, they may benefit from having colleagues with their own networks and experience during the search for acquisition targets.

Interestingly, we find the expected sign for the number of sponsors in the SPAC (Row 3). We find that a 1-standard deviation increase in the number of sponsors reduces SPAC approval probability by 9.35%. Sponsors typically act as consultants for the management team. They do not receive any *promote shares*, but they can buy units or warrants (with non-voting agreements for proxy voting) in OTC transactions before the IPO. Therefore, a higher number of consultants might signal a lack of confidence in the management team.

In a traditional view, age is positively correlated with experience, and more experience could be beneficial for finding attractive acquisition targets (see, e.g., Hogan and McPheters, 1980). Furthermore, because SPACs have no operating history that investors could use to judge their chances of profitability, investors are essentially “betting on the jockey,” i.e., on management’s ability to find a suitable, value-creating target.

On the other hand, younger managers may be more motivated to make deals happen because they are usually not earning salaries comparable to older managers (see Tian, Haleblan, and Rajagopalan, 2010). In this sense, younger managers may have more time and energy to spend on a SPAC. However, this would imply that older managers view a SPAC more as a hobby than a full-time profession. Thus, we consider it unlikely that Steve

²⁶ We also run block wise regressions and find qualitatively similar results.

Wozniak, the co-founder of Apple, puts all of his efforts behind the SPACs (Acquicor Technology Inc.) he has championed.

This motivation for reputation and fulfillment by younger managers, paired with a strong focus on increasing one's private wealth, may give younger managers the extra drive they need to succeed. We also imagine that younger managers tend to be more closely connected to the daily business, are likely to be more hands-on, and thus have a better feeling for trends, the potential to create value, and investor needs. We find that on average younger SPAC management teams have a higher probability of achieving a successful acquisition and we attribute this to a presumably higher degree of passion among younger managers (Row 4). However, the economic effect is small, as a 1-standard deviation increase in average team age lowers approval probability by 1.23%.

Before we instrumentalize the threshold, we clearly expect a positive sign. A higher threshold can be directly transferred into an approval probability, as more investors can redeem their shares before disapproval. However, interestingly, after controlling for the human capital characteristics of management, the coefficient is negative, albeit insignificant (Row 5).

The compensation structure for SPAC management can range from uniformly distributed to highly concentrated. We posit that these differences within a team could cause diverging incentives among members. However, we actually find no influence on approval probability (Row 6).

The variable SPAC size measures the gross proceeds of the initial public offering. Following Jenkinson and Sousa's (2009) argument that SPAC managers tend to increase deal approval votes by purchasing additional shares on the open market, we could argue that this effect will decrease with increasing IPO size because of the average SPAC manager's capital constraints.

Similarly, for M&A deals where managers can increase their own compensation by increasing deal size, Grinstein and Hribar (2004) find they suffer from higher negative abnormal announcement returns compared to smaller deals. This argument is likely to apply to the remuneration structure of SPACs, where the economic interest of management is directly linked to the size of the acquisition target, thus making it more difficult for management to obtain approval.

On the other hand, larger IPOs generally have a less concentrated investor base, as well as less predictable interdependencies, relationships, and actions. For larger deals, as we mentioned above, SPAC managers have less opportunity to buy shares on the open market prior to the vote in order to influence the outcome. However, at the same time, due to budget limitations, hedge funds and private equity investors may tend to hold smaller stakes in larger SPACs. By keeping these classic non-voters “away” from the decision table, the odds for an approval may rise. Hedge funds and private equity firms might have to accept less power and thus less impact when it comes to larger deals. We find a negative but insignificant sign on the coefficient for size, indicating a negative correlation between deal size and the likelihood of approval (Row 7).

The SPAC management team profits only when the acquisition is approved by the shareholders. In this case, a prespecified amount of shares (the *sponsor promote*) is distributed to the managers. We thus expect a negative sign on the percentage of shares distributed to the team after a successful acquisition, because we find a positive correlation between the amount of the *sponsor promote* and any conflicts of interest between SPAC managers and shareholders. In our regression, we find a positive but insignificant relationship (Row 8).

The trust value, defined as the percentage of net IPO proceeds transferred to the SPAC’s escrow account, should be of particular interest to investors. This amount plus accrued interest will be paid back if the shares are redeemed or if the SPAC is liquidated. Following this reasoning, Jenkinson and Sousa (2009) argue that shareholders should vote against any

transaction proposal as long as the pro rata trust value exceeds the SPAC's prevailing share price. Given a higher trust value, the value proposition of any acquisition proposal must be even more attractive, because the opportunity costs of redeeming the shares increase.

On the other hand, a higher trust value means lower IPO costs and working capital requirements of management. This suggests an overall higher efficiency when compared to other SPACs, which could be regarded as a positive differentiation (signaling) to other SPACs. Admittedly, the more time that passes until SPAC management locates a potential target company and the higher the trust value is, the more likely it is that investors will redeem shares. The rationale is that the closer the SPAC is to the end of its lifecycle, the less room there will be for management to maneuver. This can leave management more prone to blockholder coercion or "black-(SPAC)-mailing" (see Lewellen, 2009).

Combining this with a higher trust value also gives shareholders an even stronger incentive to redeem shares instead of waiting to sell them for an uncertain price on the secondary market and potentially face liquidity issues with, e.g., price impacts. The regression results show support for the positive signaling hypothesis: The coefficient for trust value is positive and significant (Row 9). We find that a 1-standard deviation increase in trust value increases approval probability by 15.5%. However, as expected, we find a negative and significant sign on the cross-term Trust Value \times Days to Announcement (Row 10) but with an economically small effect. We interpret this as further evidence of a high dependence on shareholders. At the end of a SPAC's lifetime, investors have a higher incentive to redeem shares for high cash payouts than to obtain an approval.

4.2 IPO Process

The SPAC IPO is accompanied by one or more underwriters. SPAC underwriters have agreed to a unique structure whereby half the IPO underwriting fees are paid after the IPO, and the other half are stored in the trust alongside investors' capital, payable after a successful

acquisition. As described in the previous section, most of the underwriters are niche players and not the typical glamour underwriters, but with the tremendous growth in the SPAC market, some large commercial banks have started to enter as well. We suspect that large underwriters will not agree to such terms, however. They are likely to insist on the fees being paid immediately after the IPO, and there will thus be fewer incentives to assist the SPAC in searching for target companies. The fact that almost all SPACs are substantially smaller than the target segments of prestigious banks may further reinforce this phenomenon.

Against this background, we interpret an increasing number of underwriters as a signal of the need for risk-sharing and syndicating, as proposed by Wilson (1968). This is supported by the negative and significant sign on the coefficient (Row 11). A 1-standard deviation increases in the number of underwriters decreases approval probability by 7.5%. Because asymmetric information is widely believed to be the reason for IPO underpricing, underwriter reputation may help convince investors to approve the deal (see Lewellen, 2006). This intuition can be found in the regression results, as a 1-standard deviation increase in average underwriter reputation is associated with a statistically significant higher approval probability of 1.8% (Row 12).

In contrast, when a glamour underwriter participates in a SPAC IPO that does not have a “noteworthy” volume, this may raise fears that the (glamour) underwriter is not actively participating in the process, and may want to learn from the specialized niche underwriters (Row 14). Therefore a 1-standard deviation increase in highest underwriter reputation decreases approval probability by 1.2%. However, if glamour underwriters act as the leads, they would bear the reputational risk of a deal failure, and might need assume much more responsibility (see Higgins and Gulati, 2003). This is supported by our results (Row 15) with an increase of approval probability by 9.6%.

4.3 Ownership Structure

Hedge funds and private equity funds are the two institutional investor groups that account for most of the blockholdings; “other” investors hold only minor positions of about 5% (see Table 5). In contrast to long-only investors like mutual funds, those investors (and probably more so for hedge funds) might be interested in gaining from short-term-oriented trading strategies like arbitrage (see Lewellen, 2009). Such strategies imply that both investor types are likely to vote against the deal in order to receive the pro rata share of the value held in trust.

Thus, we find a negative correlation between the ownership concentration/acquisition voting rights of the lifecycle by hedge funds or private equity funds and the resulting probability of an acquisition approval. Our regression results support this hypothesis that larger blockholdings by hedge funds or private equity funds are associated with a lower approval probability (Rows 16, and 21). We find very strong economic effects for both kinds of investors. A 1-standard deviation increase in hedge fund holdings prior to announcement decreases approval probability by 62.9%. Even stronger are the effects for private equity holdings prior to the proxy vote. A 1-standard deviation increase in private equity holdings decreases approval probability by 253%.

However, SPAC management has the highest incentive in a deal approval, and will likely vote in favor of the deal (see Jog and Sun, 2007). They will thus try to reach a consensus with those who are likely to vote against the deal in order to ensure approval. In this context, they may even consider buying the share of potential “no” voters prior to the decision date. Under this hypothesis, we expect that higher ownership by management will be associated with a higher approval probability, which is supported by the regression results (Rows 17 and 20). Especially, management ownership prior to the proxy voting increases deal approval probability. A 1-standard deviation increase in management holdings before the proxy voting increases deal approval probability by 65.5%.

4.4 Operations and Performance

As we noted at the beginning of this paper, the period of time available for management to successfully complete an acquisition is limited to a total of twenty-four months (with a very few exemptions allowing for up to thirty-six months, but only by shareholder approval). The first step for a successful approval at the shareholder proxy vote meeting is to find a suitable target (days to announcement). The second step is to convince shareholders to vote in favor of the proposed target company (days between announcement and proxy voting).

The first step is characterized by identifying a so-called “long list” of approximately 100 promising target companies, and subsequently narrowing the list to a “short list” of about 15. Non-disclosure agreements will then be signed with about three companies. The final announcement of the potential target company takes some time, however. If SPAC management presents a potential target company after too short a time period, investors may question the quality of the screening process, as well as the quality of the target company. This perception could result in a lower approval probability, which is supported by our regression results (Row 23).

Thus, a longer time period for the identification of a potential target company is generally viewed positively. But because the maximum time until completion is fixed, there is a certain amount of pressure on management, and they have only limited room to maneuver. In the case of a disapproval, a late announcement might also hinder management from launching a second process to seek a target.

Hence, there is something of a contradiction here. The more time management spends on finding a target, the less time is available to promote the target to shareholders and to schedule the proxy vote on the deal. Because active investors are aware of this, they may try to use this to put further pressure on management. In this sense, a longer time horizon until proxy voting can be regarded as a complication within the negotiation process among SPAC management, its shareholders, and the owners of the target company. Issues such as unforeseen shifts in

target industries, poor credit lending conditions, and the alignment of interests among the different parties can also arise and cause further problems.

Jog and Sun (2007) note further that conflicts of interest between shareholders and management may arise. Many SPAC prospectuses include statements such as “Our directors and officers may allocate their time to other businesses, thereby causing conflicts of interest in their determination as to how much time to devote to our affairs.” We therefore assume that the faster and smoother management can conduct this negotiation process, the higher the odds will be of the deal being approved. This is supported in our regression results (Row 24). However, the economic significance of this effect is rather small.

As we discussed above, investors “bet on the jockey,” and market assessments about management and target company quality can be measured using event study methodology as in Brown and Warner (1985). For example, the announcement return after the SPAC IPO can be seen as a proxy for management quality, because the SPAC has cash and a management team searching for a target company. Moreover, if the abnormal return after the announcement of the target company is positive, this can imply that the market perceives the acquisition as value-enhancing. In the regression results, we find evidence for the second example (Row 22), but not for the first (Row 26). We find that a 1-standard deviation increase in announcement returns increases approval probability by 17.7%.

Finally, the market environment could also have an impact on approval probability. During significant market downturns, such as the recent worldwide financial crisis, overall market liquidity is reduced, which triggers a “flight to quality.” In this context, Vayanos (2004) and Acharya and Pedersen (2005), among others, propose that a negative shock in one market may be associated with an increase in the (liquidity) risk premium in others. This leads to a reduction in marketability. Following this argument, we expect that, in proxy voting contests during market downturns, shareholders are more likely to prefer liquidity (cash) and to vote against the deal, which is supported by our regression results (row (25)). We find that a 1-

standard deviation increase in returns three months before the proxy voting increases approval probability by 23.8%.

– Table 6 about here –

4.5 Hazard Rates

In the previous subsections we found strong evidence that the limited life-cycle of SPACs and the change in ownership structure have a significant impact on the approval probability (see Rows 16 to 21 and 24 in Table 6). To carve out this aspect in more detail we employ the Cox proportional hazard model to analyze the influence of SPAC characteristics on the 1) expected time to target announcement and 2) expected time between target announcement and proxy voting (see Cox, 1972 for the methodology and Table 7 for the results).

The first interesting point is that the incentive structure has a high influence on the expected time to target announcement and between target announcement and proxy voting (Row 6). An increase in the Herfindahl index of 1% decreases expected time of target announcement (proxy voting) by 2.03% (3.77%). We find that the higher the concentration of gratification, in case of a successful business combination, the shorter are both durations, which suggest that this concentrated incentive structure fosters a faster process. In a similar manner a higher stake in the SPAC from the management team also reduces the time to target announcement (Row 17). We find that an increase in management holdings by 1% prior to the IPO decreases expected time of announcement by 3.58%.

A highly interesting result can be seen for the ownership structure of hedge funds (Row 19). We find that a higher level of hedge fund presence before the target announcement increases the time to the announcement of a target company. A 1% increase in hedge fund holdings prior to target announcement increases the expected time of target announcement by 0.9%. In contrast, for the time between the announcement and the proxy voting we find the

opposite effect for hedge fund presence. In this situation a 1% increase hedge fund holdings decreases expected time to proxy voting by 1.1%. These findings can be interpreted in the following way: When the management knows that hedge funds have a strong equity position in the SPAC before the target announcement then they might choose their proposed target company more carefully, because they know that hedge fund managers possibly endanger the success probability. In case hedge fund managers have strong positions after the target announcement, and knowing from the logit regressions that a higher presence of active investors reduces the approval probability, they might push the process to a liquidation to get paid out the trust value earlier.

– Table 7 about here –

5. Conclusion

In this paper, we focus on reverse mergers, which can be considered an alternative form of IPOs. In a reverse merger, a shell company (SPAC) is initiated in an IPO and cash-loaded, with the sole intent of merging with a privately held company. In contrast to empty “natural shells,” which arise after a bankruptcy, SPAC shareholders must approve the potential acquisition by proxy vote.

Our aim is to identify the influencing factors for deal approval. We find that younger SPAC management teams tend to have a higher deal approval probability. We also find that a higher level of funds in the trust, compared to IPO proceeds, might signal operational efficiency on the one hand. But it may also create an incentive for investors to vote against deals, in order to receive that money back.

Underwriter team (composition) can also affect deal approval probability. It may be viewed negatively if the lead underwriters are not considered “glamour” underwriters. Approval

probability also decreases as the number of underwriters (syndication) increases, which can indicate a “riskier” deal.

But we find that blockholder structure has the greatest influence on deal probability, both statistically and economically. As blockholdings by active investors (hedge funds and private equity funds) increase, deal approval probability decreases; as voting rights by SPAC management increase, deal probability increases. In addition we find evidence that SPAC management has an incentive to reduce the duration of the whole process. In contrast active investors also seek a fast proxy voting, but probably for different reason of early SPAC liquidation to get paid out the trust value

Finally, it is also important to note that, from both a statistical and economic standpoint, deal approval probability tends to be substantially higher in an upward-trending market environment.

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Figure 1: Development of SPACs over Sample Period

This figure gives an overview of all the SPACs since 2003 in our sample. The respective entities have been identified by searching the SEC EDGAR database for public companies classified with a standard industrial code (SIC) of 6770 (“blank check companies”). The findings were verified with relevant broker reports. Information about announced and completed acquisitions, shareholder proxy voting, and liquidations were obtained from relevant 6-K, 8-K, and 10-K current SEC report filings. The sample period is September 2003 through January 2011. Sources are SEC EDGAR database, Morgan Joseph, and The SPAC Report.

Number of SPACs

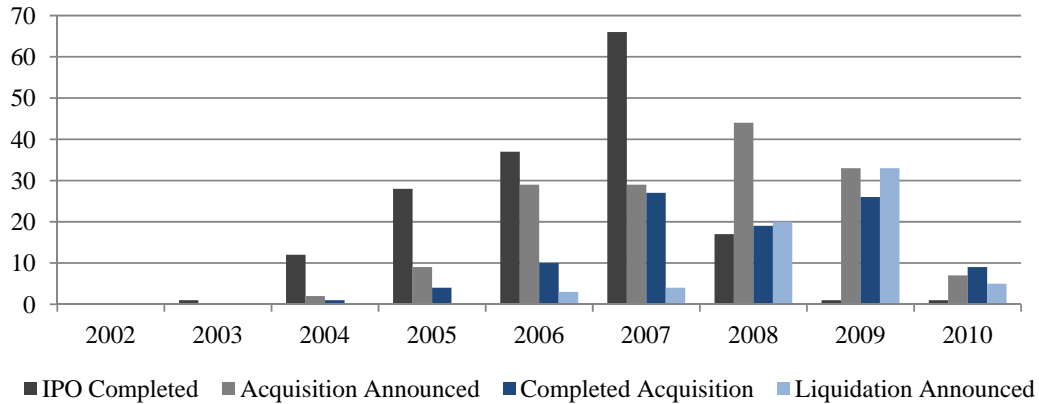
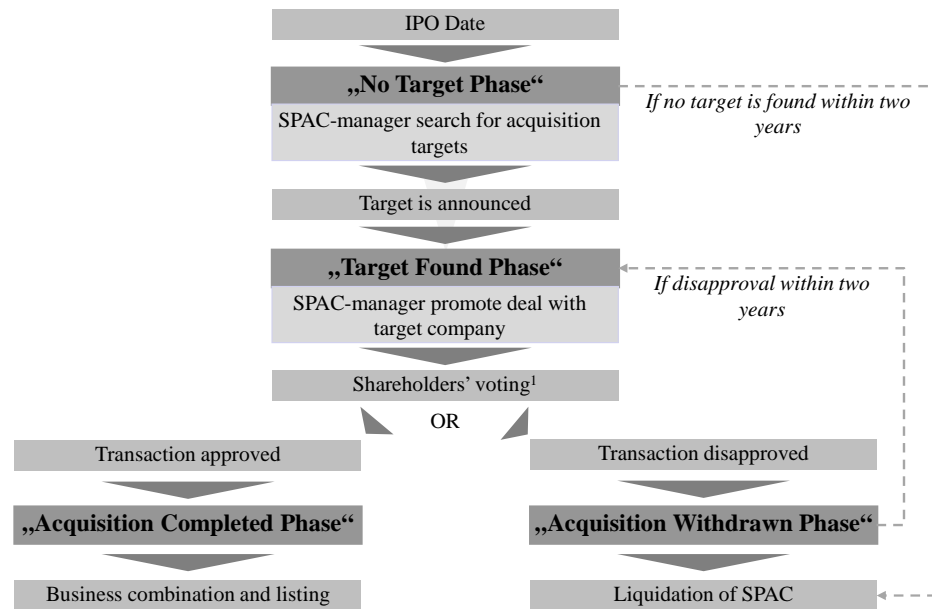


Figure 2: The Lifecycle of a SPAC

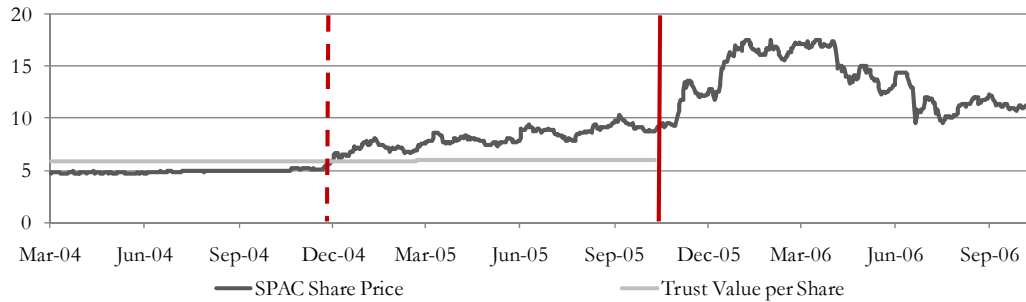


¹Approval of transaction generally requires a 50% majority vote and a redemption rate below the assigned threshold (e.g. 20%)

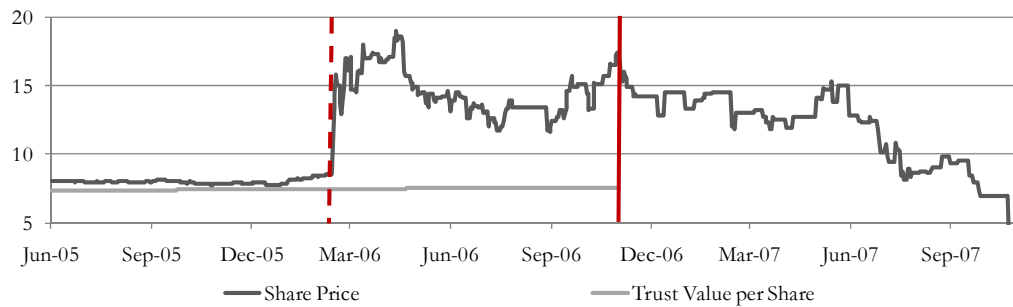
Figure 3: Example Price Histories for three SPACs

This figure shows price histories for three SPACs. The classification of “good” and “bad” SPACs has been adopted from Jenkinson and Sousa (2009).

Example 1: Chardan China Acquisition Company (“Good” SPAC)



Example 2: Services Acquisition Corp. International (“Good” SPAC)



Example 3: Advanced Technology Acquisition Corp. (“Bad” SPAC)

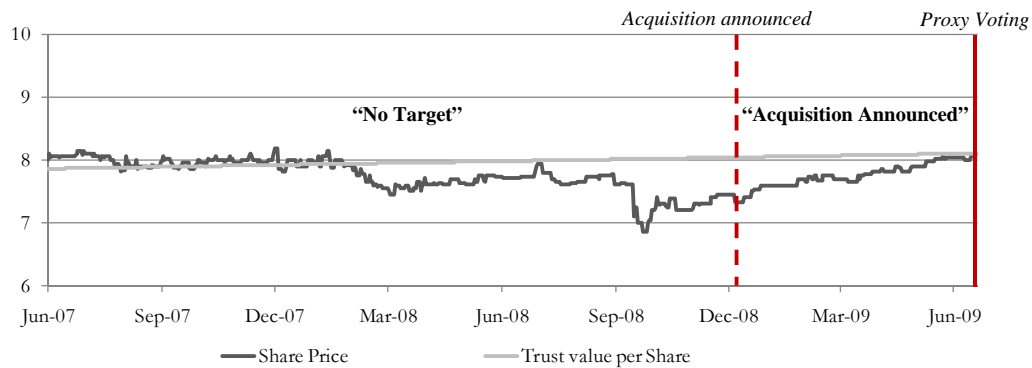
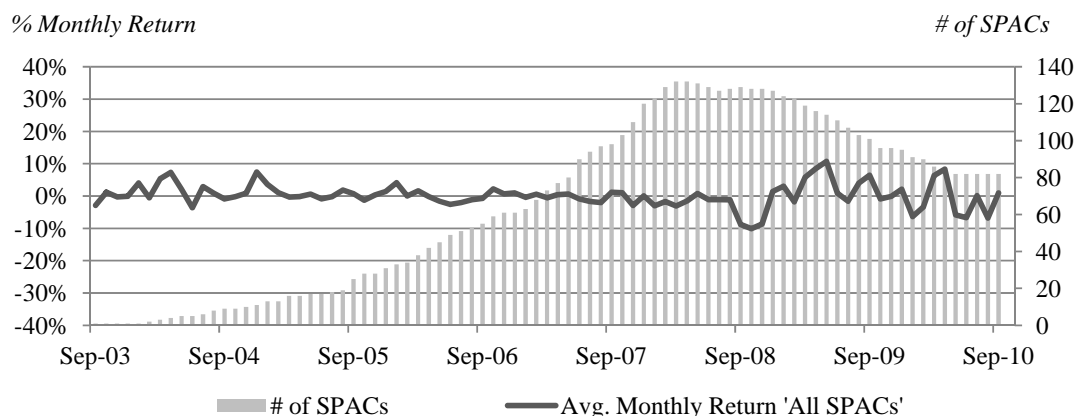


Figure 4: Monthly SPAC Trading Behavior by Lifecycle Phase

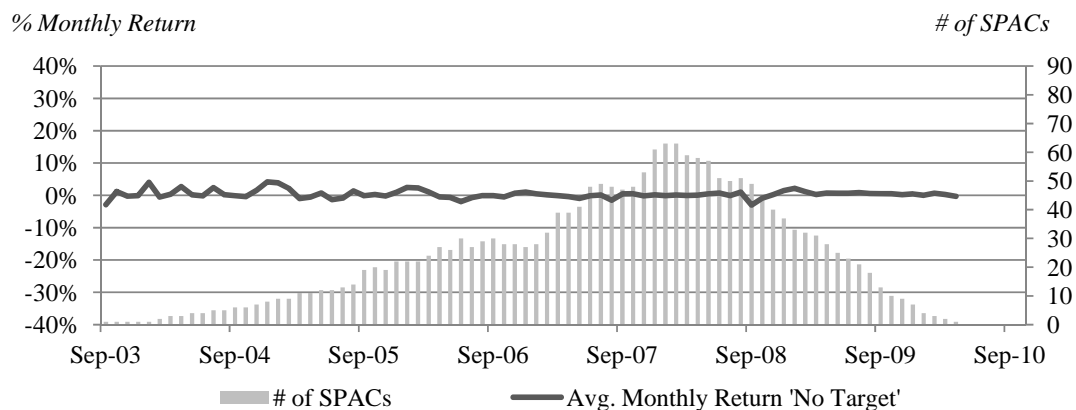
This figure reports the average monthly SPAC returns according to their lifecycle phase (left axis, denoted as return in the table below the exhibit), and the average number of SPACs trading at the given time in the respective category (right axis, denoted as “Ø-#” in the table below the exhibit). All returns are based on monthly data, and are equally weighted. Negative returns are shaded in gray in the tables. We exclude seven SPACs that issued two share classes from the observation. The sample periods for the respective lifecycle stages are: “all SPACs,” “no target,” “target found,” and “acquisition completed.”

Panel A: All SPACs



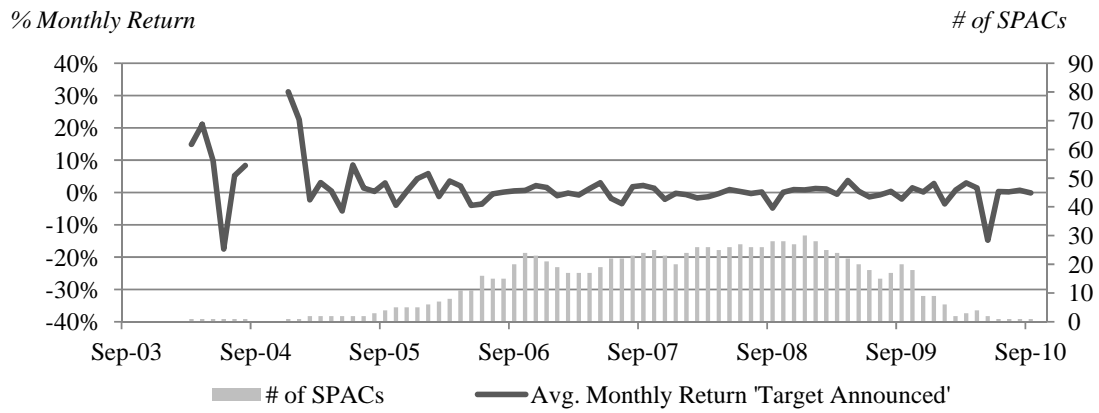
	2003	2004	2005	2006	2007	2008	2009	2010
Return:	-0.52%	2.13%	0.56%	0.12%	-0.38%	-3.15%	3.10%	-1.49%
Ø-#:	1.0	6.0	20.1	48.4	89.4	128.6	108.8	84.4

Panel B: “No Target”



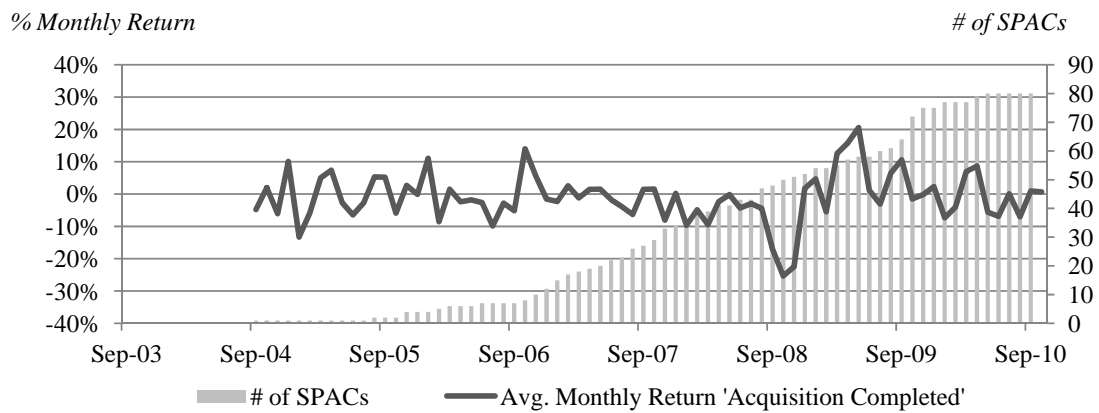
	2003	2004	2005	2006	2007	2008	2009	2010
Return:	-0.52%	1.20%	0.44%	0.26%	-0.11%	0.00%	0.74%	-0.16%
Avg. #:	1	4.5	14.3	26.7	44.4	51.8	20.8	2.5

Panel C: "Target Found"



	2003	2004	2005	2006	2007	2008	2009	2010
Return:	-	10.44%	2.66%	0.59%	-0.02%	-0.50%	0.55%	-1.35%
Ø-#:	-	1	2.9	14.8	20.7	26.6	18.7	2.3

Panel D: "Acquisition Completed"



	2003	2004	2005	2006	2007	2008	2009	2010
Return:	-	0.30%	-0.95%	-0.22%	-1.22%	-8.44%	5.33%	-1.57%
Avg. #:	-	1	1.8	7.1	23.6	44.1	61.9	78.9

Table 1: SPAC IPO Summary Statistics

This table gives an overview of the IPO sizes (in million) of the SPACs in our sample and the IPO year. Offering proceeds exclude overallocments. The data excludes SPACs that only filed offering memoranda with the SEC without subsequently going public. We also exclude seven SPACs that issued two share classes. SPAC IPO data come from SDC Platinum, SEC filings, and the SPAC prospectus. This table also provides an overview over time of the target companies' origins, and summarizes the SPAC target company industries by SIC divisions.

		2003	2004	2005	2006	2007	2008	Total
SPAC Volume		21	376	1,638	2,929	1,0016	3,547	18,526
SPAC Count		1	9	21	32	62	14	139
SPAC Volume	< \$100 million	21	205	626	1,264	2,201	277	4,593
	\$100 - \$250 million	0	171	1,012	848	3,525	920	6,475
	\$250 - \$500 million	0	0	0	818	3,540	750	5,108
	> \$500 million	0	0	0	0	750	1,600	2,350
SPAC Count	< \$100 million	1	8	13	24	33	5	84
	\$100 - \$250 million	0	1	8	6	19	5	39
	\$250 - \$500 million	0	0	0	2	9	2	13
	> \$500 million	0	0	0	0	1	2	3

Target Origin	2003	2004	2005	2006	2007	2008	Total
U.S.	1	6	19	18	32	9	85
China	0	2	0	4	9	1	16
Hong Kong	0	0	1	1	1	0	3
Korea	0	0	0	0	2	1	3
Israel	0	0	0	0	1	0	1
India	0	0	0	3	2	0	5
Other	0	1	1	6	15	3	26

SIC Target	2003	2004	2005	2006	2007	2008	Total
0	0	0	0	0	0	0	0
1	0	2	3	4	3	0	12
2	0	0	5	1	8	1	15
3	0	0	2	5	10	0	17
4	0	2	3	5	5	2	17
5	0	0	0	2	0	2	4
6	0	1	3	7	15	2	28
7	0	2	4	3	9	3	21
8	1	2	0	3	4	0	10
9	0	0	0	0	0	0	0
Unknown	0	0	1	2	8	4	15

Table 2: Descriptive Statistics

This table shows the mean, median, standard deviation (std), minimum value (min), and maximum value (max) for all variables in Appendix A. The sample covers 139 SPACs. We do not consider those with dual classes for equity and warrants.

	Mean	Median	Std	Min	Max
<i>SPAC Structure</i>					
# of Managers	6.05	6.00	1.90	2.00	11.00
# of Sponsors	0.39	0.00	0.86	0.00	6.00
Sponsor Promote	0.24	0.25	0.05	0.01	0.48
Average Team Age	51.56	51.33	5.91	38.25	63.75
SPAC Size in Million	133.28	80.00	145.23	16.50	800.00
Trust Value	0.96	0.97	0.04	0.83	1.00
Threshold in Percent	0.26	0.20	0.07	0.20	0.40
Underwriter Fees	0.07	0.08	0.02	0.02	0.11
<i>IPO Process</i>					
# of Underwriters	3.59	3.00	1.88	1.00	10.00
Average Reputation Underwriter	15.12	12.38	11.17	1.00	50.60
Herfindahl Underwriter	0.46	0.42	0.27	0.00	1.00
Highest Reputation Underwriter	4.12	3.00	5.62	1.00	48.00
<i>Ownership Structure</i>					
Pre-Target Found % Hedge Fund	0.19	0.19	0.17	-0.06	0.99
Pre-Target Found % Manager	0.04	0.00	0.07	-0.09	0.33
Pre-Target Found % Private Equity	0.10	0.08	0.09	-0.01	0.41
Pre-Proxy Vote % Hedge Fund	0.10	0.06	0.13	-0.06	0.69
Pre-Proxy Vote % Manager	0.02	0.00	0.07	-0.15	0.53
Pre-Proxy Vote % Private Equity	0.07	0.02	0.11	-0.12	0.75
<i>Operations and Performance</i>					
Announcement 3-Day CAR	0.02	0.01	0.06	-0.10	0.35
Days to Announcement	453.17	498.50	185.67	74.00	814.00
Days between Announcement and Proxy Voting	167.71	164.00	137.14	0.00	638.00
Market Return 3-Months before Proxy Voting	0.00	0.04	0.13	-0.44	0.38
IPO 3-Day CAR	0.01	0.00	0.04	-0.05	0.23

(continued)

Table 2: Descriptive Statistics—Continued

<i>Variables of Human Capital Characteristics for the Instrument Variable Estimation</i>					
	Mean	Median	Std	Min	Max
<i>Transaction Experience</i>					
# of previous SPACs	1.19	1.00	0.45	0.00	4.00
Experience in Target Industry	0.68	0.71	0.25	0.00	1.00
<i>Business Experience</i>					
# of Current Board Positions	1.87	1.78	1.00	0.20	6.75
Banking Background	0.43	0.40	0.29	0.00	1.00
Entrepreneur	0.18	0.17	0.19	0.00	1.00
Former Top Executive	0.49	0.50	0.26	0.00	1.00
Former Top Executive LC	0.06	0.00	0.12	0.00	0.50
Hedge Fund Manager	0.10	0.00	0.15	0.00	0.78
Herfindahl # of Current Board Positions	0.07	0.02	0.14	0.00	1.00
Herfindahl Manager Age	0.04	0.03	0.05	0.01	0.34
Herfindahl Sponsor Promote	0.28	0.17	0.28	0.00	1.00
Herfindahl Years of Financial Service Experience	0.09	0.00	0.16	0.00	1.00
Herfindahl Years of Industry Experience	0.09	0.02	0.17	0.00	1.00
Herfindahl Years of Private Equity Experience	0.09	0.00	0.22	0.00	1.00
University Affiliated	0.05	0.00	0.09	0.00	0.40
Years of Private Equity Experience	4.49	3.92	3.64	0.00	17.00
Years of Financial Services Experience	9.33	8.13	7.17	0.00	29.00
Years of Industry Experience	14.50	13.79	8.29	0.00	39.00
<i>Formal Education</i>					
Bachelor's	0.27	0.25	0.23	0.00	0.83
Master's	0.13	0.10	0.17	0.00	0.83
MBA	0.32	0.29	0.25	0.00	1.00
PhD	0.18	0.17	0.18	0.00	0.75
Herfindahl Degree	0.15	0.06	0.21	0.00	1.00
Business	0.55	0.57	0.27	0.00	1.00
Economics	0.05	0.00	0.10	0.00	0.50
Engineering/Natural Sciences	0.08	0.00	0.14	0.00	0.60
Law	0.14	0.11	0.16	0.00	0.75
Herfindahl Subject	0.49	0.44	0.33	0.00	1.00
Ivy League	0.36	0.29	0.27	0.00	1.00

Table 3: Largest SPAC Underwriters

This table shows underwriter rank (based on the entire cycle and ranked by number of transactions), underwriter name, number of SPACs as part of the underwriter team, total underwriting volume with the corresponding rank by underwriting volume in parentheses in the respective column, number of approved transactions, and respective success rate in parentheses. The last two columns are the Corwin and Schultz (2004) and Loughran and Ritter (2004) ranks. The sample covers 139 SPACs. We do not consider those with dual classes for equity and warrants.

Rank	Underwriter Name	SPACs Underwritten		Transactions Approved		Overall Market Reputation	
		#	Volume <i>USDm (rank)</i>	#	<i>in %</i>	Corwin-Schultz Rank	Ritter Rank [*]
1	Maxim Group, LLC	71	144.7 (5)	44	62%	n.a.	n.a.
2	Ladenburg Thalmann & Co., Inc.	46	184.3 (3)	21	46%	0.08385	6.1
3	EarlyBird Capital, Inc.	44	153.9 (4)	33	75%	n.a.	n.a.
4	GunnAllen Financial, Inc.	38	24.0 (19)	25	66%	0.012748	3.1
5	Legend Merchant Group, Inc.	37	14.5 (28)	23	62%	n.a.	n.a.
6	I-Bankers Securities, Inc.	30	26.4 (18)	14	47%	n.a.	n.a.
7	Citigroup Global Markets, Inc.	21	495.3 (1)	10	48%	0.014168	8.1
8	Morgan Joseph & Co., Inc.	20	113.4 (7)	13	65%	n.a.	n.a.
9	Broadband Capital Management, LLC	15	23.2 (20)	9	60%	0.00037	n.a.
10	Lazard Capital Markets, LLC	14	97.7 (8)	7	50%	0.324937	9.1
11	Ramius Securities, LLC	13	40.0 (14)	10	77%	n.a.	n.a.
12	Deutsche Bank Securities, Inc.	12	231.3 (2)	5	42%	1.645015	9.1
13	Ferris, Baker Watts, Inc.	12	50.9 (12)	5	42%	0.12812	5.1
14	Chardan Capital Markets, LLC	10	4.7 (42)	9	90%	n.a.	n.a.
15	CRT Capital Group, LLC	9	70.6 (9)	4	44%	n.a.	n.a.
16	Roth Capital Partners, LLC	8	56.9 (11)	7	88%	0.016763	4.1
17	Brean Murray, Carret & Co., LLC	8	13.0 (31)	3	38%	0.037431	4.1
18	Rodman & Renshaw, LLC	7	17.0 (27)	3	43%	0.011847	2.1
19	Bank of America Securities, LLC	6	113.5 (6)	2	33%	2.60291	8.1
20	Joseph Gunnar & Co., LLC	6	1.0 (60)	3	50%	0.009997	4.1

*Interpretation of the modified Carter and Manaster (1990) underwriter prestige scale by Loughran and Ritter (2004): Scale of 0 to 9.1; 8.1-9.1: Prestigious national and international underwriters, 5.0-7.9: Quality regional or niche underwriters, 0-4.9: Underwriters generally associated with penny stock offerings.

Table 4: Most Frequent SPAC Investors

This table shows the most frequent SPAC investors measured in terms of number of blockholding investments of >5%. We obtained the data from SC 13D/G filings from the SEC's EDGAR database for investments in U.S. SPACs over the entire sample period. The sample covers 139 SPACs. We do not consider those with dual classes for equity and warrants.

Rank	Investor Name	Type of Investor	# of Investments
1	Fir Tree, Inc.	Hedge Fund	102
2	Weiss Capital, LLC	Hedge Fund	101
3	Israel A. Englander	Hedge Fund	95
4	HBK Investments, L.P.	Private Equity Fund	86
5	QVT Financial, L.P.	Hedge Fund	68
6	Pine River Capital Management, L.P.	Hedge Fund	56
7	Bulldog Investors	Hedge Fund	50
8	The Baupost Group	Hedge Fund	42
9	Azimuth Opportunity, Ltd.	Private Equity Fund	38
10	Amaranth, LLC	Hedge Fund	35
11	Deutsche Bank Securities, Inc.	Other	23
12	Satellite Fund Management, LLC	Private Equity Fund	23
13	Aldebaran Investments, LLC	Hedge Fund	22
14	Polar Securities, Inc.	Hedge Fund	21
15	JMG Capital Management, Inc.	Hedge Fund	21
16	Arrowgrass Capital Partners (US), L.P.	Private Equity Fund	20
17	Citigroup Global Markets, Inc.	Private Equity Fund	20
18	Dorset Management Corporation	Private Equity Fund	20
19	D.B. Zwirn & Co., L.P.	Private Equity Fund	19
20	Platinum Partners Value Arbitrage Fund, L.P.	Hedge Fund	17

Table 5: Ownership Structure Changes of SPACs

This table shows the average change of voting rights (and exercisable voting rights) during the three periods in a SPAC's lifecycle: 1) at the IPO (Panel A), 2) before the announcement date that management has found an acquisition target (Panel B), and 3) before the day of proxy voting (Panel C) for the investor groups hedge funds, private equity, managers, and others. The table only includes blockholdings of >5%. The voting right concentrations are shown for SPAC IPOs from 2003 through 2008. The sample covers 139 SPACs. We do not consider those with dual classes for equity and warrants.

	2003	2004	2005	2006	2007	2008	Ø
Panel A: IPO							
Hedge Fund	5.9%	1.1%	10.5%	9.6%	8.5%	6.3%	8.4%
Private Equity	0.0%	0.8%	1.6%	1.3%	3.0%	5.9%	2.5%
Managers	0.0%	1.4%	0.3%	2.8%	3.0%	4.9%	2.6%
Other	0.0%	4.6%	0.8%	0.7%	0.6%	1.4%	0.9%
Panel B: No Target							
Hedge Fund	-0.7%	6.6%	12.7%	17.6%	23.9%	20.5%	19.1%
Private Equity	0.0%	2.8%	3.8%	10.1%	12.6%	8.0%	9.5%
Managers	15.7%	2.2%	7.3%	4.1%	4.4%	1.8%	4.5%
Other	0.0%	2.5%	1.3%	21.2%	5.1%	3.2%	7.8%
Panel C: Proxy Vote							
Hedge Fund	36.2%	9.4%	16.2%	13.4%	7.1%	7.7%	10.4%
Private Equity	0.0%	4.9%	5.9%	12.8%	3.4%	8.1%	6.5%
Managers	0.0%	1.6%	4.2%	3.8%	0.1%	1.7%	1.9%
Other	6.8%	3.5%	4.2%	2.2%	1.8%	4.1%	2.6%

Table 6: Logit Regression Analysis Results

The sample covers 139 SPACs. We do not consider those with dual classes for equity and warrants. We run the logit regressions so that the dependent variable equals 1 if the acquisition is approved, and 0 if the SPAC is liquidated. In specification 1, we do not control for year fixed effects; in specification 2, we do. Specification 1' and 2' show the marginal effects. As a robustness check, we run probit regressions, and find that the results remain qualitatively stable. This table is available upon request from the authors. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Specification 1	Specification 2	Specification 1'	Specification 2'
(1) Constant	2.4222	3.7208		
<i>SPAC Structure</i>				
(2) # of Managers	0.1919	0.1868	0.0224	0.0183
(3) # of Sponsors	-0.9539*	-1.0010**	-0.1029	-0.0935
(4) Average Team Age	-0.1243**	-0.1485**	-0.0122	-0.0123
(5) Instrumentalized Threshold	-4.0853	-6.5450	-0.6707	-0.7940
(6) Manager Incentive Structure (Herfindahl)	1.5297	1.2113	0.1599	0.1107
(7) SPAC Size	-0.7032	-0.5185	-0.0709	-0.0425
(8) Sponsors Promote	2.2049	4.1591	0.1711	0.3126
(9) Trust Value	1.9309**	1.8412**	0.1929	0.1551
(10) Trust Value x Days to Announcement	-0.0039***	-0.0042***	-0.0004	-0.0004
<i>IPO Process</i>				
(11) # of Underwriters	-0.7516**	-0.8419**	-0.0768	-0.0752
(12) Average Reputation Underwriter	0.1843***	0.2008***	0.0193	0.0182
(13) Herfindahl Underwriter	-2.1312	-2.1385	-0.2325	-0.1936
(14) Highest Reputation Underwriter	-0.1231*	-0.1333*	-0.0126	-0.0121
(15) Highest Underwriter Reputation x Volume	1.0658**	1.1237**	0.1097	0.0963
<i>Ownership Structure</i>				
(16) Pre-Target Found %Hedge Fund	-6.9211**	-7.3380*	-0.7079	-0.6294
(17) Pre-Target Found %Manager	2.9880	4.0044	0.0461	0.0335
(18) Pre-Target Found %Private Equity	-0.3392	-1.2497	-0.3359	-0.3563
(19) Pre-Proxy Vote %Hedge Fund	2.0695	0.7240	0.2158	0.0481
(20) Pre-Proxy Vote %Manager	25.9059**	28.3280*	0.7404	0.6553
(21) Pre-Proxy Vote %Private Equity	-7.1925*	-7.6627*	-2.7109	-2.5348
<i>Operations and Performance</i>				
(22) Announcement 3-Day CAR	1.4106*	2.0339*	0.1411	0.1779
(23) Days to Announcement	0.0163	0.0168	0.0017	0.0015
(24) Days between Announcement and Proxy Voting	-0.0158***	-0.0173***	-0.0016	-0.0015
(25) Market Return 3-Months before Proxy Voting	9.1592***	10.1907***	0.2856	0.2382
(26) IPO 3-Day CAR	2.7377	2.7918	0.9599	0.8992
<i>Year Fixed Effects</i>	NO	YES		
<i>Mc Fadden R2</i>	47.58%	49.54%		
<i>LR-Ratio</i>	68.27	71.08		
<i>Number of Observations</i>	112	112		

Table 7: Hazard Rates

The sample covers 139 SPACs. We do not consider those with dual classes for equity and warrants. We employ the Cox proportional hazard model to analyze the influence of SPAC characteristics on the expected time of the target announcement and the time period from announcement to proxy voting (see Cox, 1972). In specification 1, we show the hazard rate and do not control for year fixed effects; in specification 2, we do. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Time to Target Announcement		Time between Announcement and Proxy Voting	
	Specification 1	Specification 2	Specification 1	Specification 2
(1) Approval	1.26	1.25	1.91**	1.70*
<i>SPAC Structure</i>				
(2) # of Managers	1.15*	1.15*	0.93	1.00
(3) # of Sponsors	0.98	1.03	1.01	0.97
(4) Average Team Age	0.99	0.99	0.98	0.99
(5) Instrumentalized Threshold	0.69	4.89	0.18	0.03
(6) Manager Incentive Structure (Herfindahl)	2.75**	3.03**	2.65*	4.77***
(7) SPAC Size	1.00	0.86	1.57*	1.42
(8) Sponsors Promote	0.18	0.09	0.10	0.24
(9) Trust Value	0.79**	0.92*	1.03	0.74
(10) Trust Value x Days to Announcement	-	-	1.00	1.00
<i>IPO Process</i>				
(11) # of Underwriters	1.09	1.11	1.09	1.12
(12) Average Reputation Underwriter	1.02	1.02	0.97**	0.96**
(13) Herfindahl Underwriter	2.21	2.29	1.86	1.76
(14) Highest Reputation Underwriter	0.99	0.98	0.99	0.99
(15) Highest Underwriter Reputation x Volume	0.87	0.86	0.65***	0.59***
<i>Ownership Structure</i>				
(16) IPO Hedge Fund	3.75	3.10	0.35	0.38
(17) IPO Manager	3.13***	3.58***	0.02	0.01
(18) IPO Private Equity	0.18	0.25	2.11**	3.87**
(19) Pre-Announcement %Hedge Fund	0.02**	0.01**	1.40**	1.46*
(20) Pre-Announcement %Manager	1.61	1.36	0.12	0.07
(21) Pre-Announcement %Private Equity	0.17	0.33	1.98	3.98
(22) Pre-Proxy %Hedge Fund	-	-	0.72	0.83
(23) Pre- Proxy %Manager	-	-	0.12	0.07
(24) Pre-Proxy %Private Equity	-	-	0.20	0.23
<i>Operations and Performance</i>				
(25) Days to Announcement	-	-	1.00	1.00
(26) IPO 3-Day CAR	0.21*	0.16	0.91	1.97
(27) Market Return 3-Months before Proxy Voting	-	-	1.37	1.25
<i>Year Fixed Effects</i>	NO	YES	NO	YES
<i>LR chi2</i>	60.34**	65.73**	95.21**	109.00**
<i>Log likelihood</i>	-423.37	-420.68	-400.94	-394.05
<i>Number of Observations</i>	112	112	112	112

Appendix

Table A: Variable Definitions

This table gives a detailed description of the data gathering process and the calculation method for all variables.

<i>Dependent Variables</i>	
Variable Name	Description and Calculation
Threshold	Maximum percent of SPAC shareholders that are allowed to redeem shares without rejecting the proposed acquisition. Information about the cash reversion threshold is found in SEC's S-1/F-1 registration filings.
Approval	Dummy variable equal to 1 if an acquisition proposal by management is finally approved, and 0 if it is liquidated. Data on the approval of acquisitions is obtained from the respective Form 10-K, 6-K, and 8-K filings from the SEC's EDGAR database.
<i>SPAC Structure</i>	
# of Managers	Number of active, equity-holding members of the management team.
# of Sponsors	Number of sponsors holding equity stakes.
Average Team Age	Average team age of the respective SPAC team as stated in the latest 424/425 SEC filing prior to the entity's IPO.
Instrumentalized Threshold	Threshold controlled for the endogeneity of management human capital effects (as discussed in section 4).
Manager Incentive Structure (Herfindahl)	Herfindahl index of the SPAC's equity given to SPAC management team members after successful acquisition.
SPAC Size	Market capitalization of the SPAC at the time of IPO (share price \times total number of shares outstanding including overallocments).
Sponsor Promote	Percentage of SPAC's equity given to SPAC management team after successful acquisition.
Trust Value	Proportional share of IPO proceeds placed in the trust account.
Trust Value \times Days to Announcement	Interaction term multiplying trust value and days to announcement (number of working days between IPO and publication of the first 8-K acquisition announcement).
<i>IPO Process</i>	
# of Underwriters	Number of all syndicate members that have underwritten stakes of the offering amount.
Average Reputation Underwriter	Average reputation rank of the most prestigious member of the consortium that underwrote the SPAC IPO.
Herfindahl Underwriter	Herfindahl index of the concentration of underwriter stakes during the issuing process.
Highest Reputation Underwriter	Reputation rank of the most prestigious member of the consortium that underwrote the SPAC IPO.
Underwriter Reputation \times Volume	Interaction term that weights underwriter prestige by multiplying the underwriter rank by the volume underwritten by the respective firm.

(continued)

Table A1—Continued

<i>Ownership Structure</i>	
IPO Hedge Fund	Equity stake and/or exercisable equity stake of hedge funds at IPO.
IPO Manager	Equity stake and/or exercisable equity stake of SPAC management team at IPO.
IPO Private Equity	Equity stake and/or exercisable equity stake of private equity funds at IPO.
Pre-Target Found % Hedge Fund	Average change of percentage equity stake and/or exercisable equity stake of hedge funds one trading day prior to days to announcement. If a single hedge fund owns a stake larger than 10% and the SPAC has a clause that a maximum of 10% of the shares can be redeemed, we reduce the stake to 10%.
Pre-Target Found % Manager	Average change of percentage equity stake and/or exercisable equity stake of manager one trading prior to days to announcement.
Pre-Target Found % Private Equity	Average change of percentage equity stake and/or exercisable equity stake of private equity one trading prior to days to announcement. If a single private equity fund owns a stake larger than 10% and the SPAC has a clause that a maximum of 10% of the shares can be redeemed, we reduce the stake to 10%.
Pre-Proxy Vote % Hedge Fund	Average change of percentage equity stake and/or exercisable equity stake of hedge funds according to the latest filings prior to the proxy voting. If a single hedge fund owns a stake larger than 10% and the SPAC has a clause that a maximum of 10% of the shares can be redeemed, we reduce the stake to 10%.
Pre-Proxy Vote % Manager	Average change of percentage equity stake and/or exercisable equity stake of managers according to the latest filings prior to the proxy voting.
Pre-Proxy Vote % Private Equity	Average change of percentage equity stake and/or exercisable equity stake of private equity according to the latest filings prior to the proxy voting. If a single private equity fund owns a stake larger than 10% and the SPAC has a clause that a maximum of 10% of the shares can be redeemed, we reduce the stake to 10%.
<i>Operations and Performance</i>	
Announcement 3-Day CAR	Cumulative abnormal return (CAR) of the SPAC share over the first three trading days after the announcement of a potential target (starting at the offer price) with Center for Research in Security (CRSP) value-weighted index as benchmark.
Days to Announcement	Number of trading days between IPO and publication of the first 8-K acquisition announcement.
Days between Announcement and Proxy Voting	Number of trading days between the first 8-K acquisition announcement and the first proxy voting.
Market Return 3 Months before Proxy Voting	Log performance of the equally weighted CRSP three months before proxy voting.
IPO 3-Day CAR	CAR on the first three trading days after the IPO – starting at the offer price with CRSP value-weighted index as benchmark.

(continued)

Table A1—Continued

*Variables of Human Capital Characteristics for the Instrument Variable Estimation
Transaction Experience*

# of previous SPACs	Not including potential roles as board member of pre-regulation blank check companies as predecessor of the modern-day SPAC.
Experience in Target Industry	Sum of dummy variables that equal 1 if prior business experience in the respective target industry or region of a SPAC divided by number of managers.

Business Experience

# of Current Board Positions	Number of board positions held within companies and research organizations. Excluding charitable trusts, sports clubs, etc.
% Manager Investment	Relative proportion of IPO proceeds including overallocments provided by SPAC managers.
Age	Average age of SPAC management team as stated in the latest 424/425 SEC filings prior to the entity's IPO.
Banking Background	Sum of dummy variables for prior banking experience in transaction-related financial services in (investment) banks, accounting firms, etc.
Entrepreneur	Sum of dummy variables for prior experience as founder of at least one enterprise. Roles as non-executive board member in startups and the foundation of investment companies such as private equity firms or hedge funds are not considered but are accounted for in the respective background variables.
Former Top Executive	Sum of dummy variables that equal 1 if a position as director on the executive board of a large-cap company was held for a minimum of one year at any point during prior career stages (top management level only, irrespective of firm size).
Former Top Executive LC	Definition of top executive is as stated above. However, it is limited to managers who serve as directors on the executive board of a large-cap company for a minimum of one year at any point during prior career stages. We altered the commonly used definition of the term "large-cap company" ³⁰ as a firm with a market value (defined as fully diluted number of shares outstanding multiplied by the current share price) exceeding USD \$10 billion and considered companies as "large-caps" if either of these two criteria were fulfilled: 1) a market-cap of at least USD 3bn, or 2) minimum revenues of USD 3 bn. ³¹

(continued)

³⁰ We base our interpretation on the definition provided by *Investopedia*. See <http://www.investopedia.com/terms/l/large-cap.asp>.

³¹ We chose this modification given the comparably lower transaction values of SPACs at a median IPO issuing volume of USD 80 million (see Table 2), and the associated transaction scope on small- and nano-cap companies. We therefore conclude that a *large-cap company* in the context of our analysis can be seen as a corporation with a market capitalization of approximately forty times the median SPAC-issuing volume.

Table A1—Continued

Hedge Fund Manager	Prior business experience in hedge funds of at least five years (or 100% of total work experience if the total number of years of work experience amounts to less than five years).
Herfindahl # of Current Board Positions	Herfindahl index of the number of board positions held by individual members of management team.
Herfindahl Manager Age	Herfindahl index of the age of management team members.
Herfindahl Manager Investment	Herfindahl index of the proportional equity stakes held by members of the management team.
Herfindahl Years of FS Experience	Herfindahl index of years worked in financial services within a management team.
Herfindahl Years of Industry Experience	Herfindahl index of years of industry experience within a management team.
Herfindahl Years of PE Experience	Herfindahl index of years of private equity-related work experience within the management team.
Team Size	Proxy variable for team size defined by the ratio: $1/team\ size$.
University Affiliated	Current professional affiliation with a university or research institution. Does not include visiting professors and members of boards of trustees.
Years of Private Equity Experience	Number of average management team years worked in (or closely associated with) the field of private equity investing.
Years of Financial Services Experience	Number of average management team years worked in financial services as defined for the variable <i>Financial Services Background</i> .
Years of Industry Experience	Number of average management team years worked in operational roles within the non-financial industry. ³²
<i>Formal Education</i>	
Bachelor's	Sum of dummy variables for the completion of an undergraduate program as highest obtained degree (excluding MBA degrees).
Business	Sum of dummy variables for the completion of a university program in business administration (including MBA degrees) as highest obtained degree.
Economics	Sum of dummy variables for the completion of a university program in economics as highest obtained degree.
Engineering/Natural Sciences	Sum of dummy variables for the completion of law studies as highest obtained degree.
Herfindahl Subject	Herfindahl index of the subjects studied within a management team.
Herfindahl Degree	Herfindahl index of the concentration of degrees within a management team.

(continued)

³² Exceptions for the measurement of this variable are SPACs that define their target industry as financial services. In these cases, we assumed that the time spent in the financial services industry can be double-counted as industry experience, as it is essential to managerial value creation within the target company.

Table A1—Continued

Ivy League	Reception of an undergraduate, graduate, or PhD degree for fulltime completion at one of the selected U.S. “elite” universities. ³³
Law	Highest degree obtained in the subject of law.
Master’s	Sum of dummy variables of a master’s program representing the highest obtained degree (excluding MBA degrees).
MBA	Sum of dummy variables of a Master of Business Administration degree.
PhD	Sum of dummy variables of a Ph.D. or comparable academic degree (e.g., J.D./Juris doctorae or “Dr.”).

³³ The following institutions qualify for an “Ivy League” dummy value of 1: Brown University, Columbia University, Cornell University, Dartmouth College, Harvard University, Princeton University, University of Pennsylvania, Yale University, University of Chicago, Georgetown University, Massachusetts Institute of Technology, Northwestern University, and Stanford University.