

Understanding SPACs

A study of stakeholder characteristics in the US SPAC market

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Abstract

The number of Special Purpose Acquisition Companies (“SPACs”) have surged in the recent year, despite previous research documenting the historical underperformance of SPACs, both compared to the market and traditional initial public offerings (“IPOs”). The purpose of this thesis is to contribute to an increased understanding of the US SPAC market and to further investigate stakeholder characteristics that in turn could point us towards an understanding of the SPAC market’s general nature and development over time. I apply a data driven approach and investigate the SPAC market characteristics from the three different perspectives: founders, targets, and investors. I collect and analyze an extensive dataset, covering the years 2003 to 2020, including 636 SPAC IPOs. From the result of my analysis, I have four main findings that can conclude the thesis. First, private equity (“PE”) and venture capital (“VC”) sponsorship have increased over time, with VC sponsoring showing a notable increase in recent years. Second, it is common that SPACs are part of a series of several SPACs, where SPACs part of a series exhibit lower liquidation rates and higher post-merger index adjusted returns. Third, I find that PE and VC owned targets have increased over time which indicates that PE and VC firms use SPACs as an exit vehicle for their portfolio firms. Finally, there seems to be one type of investor at the IPO and another type of investor after the merger.

Keywords: Special Purpose Acquisition Company, SPAC, Blank Check, Shell Company, Reverse Merger, Initial Public Offering, IPO, Stakeholder

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Glossary

General Abbreviations

AMEX	American Stock Exchange
BAHR	Buy and Hold Returns
FPA	Forward Purchase Agreement
IPO	Initial Public Offering
JOBS	The Jumpstart Our Business Startups Act
LOI	Letter of Intent
NYSE	New York Stock Exchange
OTCBB	OTC Bulletin Board
PE	Private Equity
PIPE	Private Investment in Public Equity
SEC	US Securities and Exchange Commission
SPAC	Special Purpose Acquisition Company
US	United States
VC	Venture Capital

Definitions

DeSPAC transaction	The merger between a target and a publicly traded SPAC
Founder(s)	The initiator(s) of a SPAC (incl. potential sponsors)
Founder shares	Shares bought by founders when establishing the SPAC
Key management team	Chairman, CEO, CFO, COO, CTO and EVP
Promote	Compensation for founders (20% of the shares)
SPAC (founder) series	Series of SPACs that has been initiated by the same SPAC founder(s) / sponsor(s)
Sponsor	Significant stakeholder considered as corporate sponsor or backer to the SPAC
Target	Collective term to describe the firm that a SPAC merge with or the asset it acquires
Virgin SPAC	SPAC with no members with previous SPAC experience

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1 Introduction

2020 was the year Special Purpose Acquisition Companies (“SPACs”) made it into the headlines. From 59 US SPAC initial public offerings (“IPOs”) in 2019 to 248 in 2020, SPACs have become a hot topic for debate. The suggested drivers of the recent surge in SPAC IPOs are many, one being increased market volatility and uncertainty as a result of the COVID-19 pandemic. With the SPAC activity continuing to increase in 2021 with 318¹ SPAC IPOs and still counting, it seems that SPACs will remain an attractive option for companies considering an IPO. The decrease in liquidation rates in recent years has given credibility to the SPACs’ *raison d’être*; to find and merge with a private company. However, with hundreds of SPACs in the market competing for attractive merger candidates, only time will tell the true viability of the SPAC as a vehicle for private firms to enter the public markets. What is certain is that the recent developments in the SPAC market have risen many new questions waiting to be explored.

SPACs are a type of blank check company which become public shell companies from conducting an IPO. The purpose of the SPAC is to complete a merger with a private company within a set timeframe. By merging with the SPAC, the target can become publicly listed. If the SPAC does not find a target before the end of the timeframe, the SPAC needs to liquidate and return the pro-rata trust value to their shareholders.

Previous studies evaluate short-term and long-term performance of SPACs, merger probability and post-merger survival. In addition, some of the more recent studies focus on the real economics of a SPAC investment in different securities for different stakeholders. However, what many previous studies have in common is that they are outdated or use a limited dataset, only spanning a couple of years, either with a focus on SPAC IPOs and mergers before the tendering rule change in 2010 or based on the most recent years. However, to my knowledge, no paper has looked into the SPAC market dynamics using a dataset covering the whole period from the first SPAC in 2003 to the recent surge starting in 2020. Although many studies have used a broad set of control variables across a range of outcome measures, the aim of this thesis is to look into the characteristics of SPAC founders, targets and investors and how these affect merger likelihood and post-merger performance.

¹ As per 16 May 2021 (SPAC Analytics).

Previous studies show that SPACs underperform both the market and traditional IPOs after a business combination, but at the same time we note a large increase in the number of SPACs in recent years. The purpose of this thesis is to contribute to an increased understanding of the US SPAC market and to further investigate stakeholder characteristics that in turn could point us towards an understanding of the SPAC market's general nature and development over time. With a descriptive methodology based on hand collected data on SPAC characteristics, this thesis intends to create a more structured and nuanced picture of SPAC stakeholder characteristics compared to previous studies. To address the purpose of the thesis, I aim to answer the following research questions:

- Are there different types of SPAC founders, and if so, are their characteristics related to differences in merger probabilities and post-merger performance?;
- Are there SPAC founders that raise several SPACs?;
- What type of targets do SPACs merge with?; and
- Who are the investors that invest at the SPAC IPO and are they different from the investors at the time of the business combination?

I apply a data driven approach and investigate the SPAC market characteristics from the three different stakeholder perspectives: founders; targets; and investors. I collect and analyze an extensive dataset covering the years 2003 to 2020 which includes 636 SPAC IPOs. In addition, a SPAC merger sample of in total 283 deSPAC transactions is used for the analysis.

Initially I explore the founder characteristics and the main results are the following: I find that a large share of the SPAC IPOs are sponsored by private equity ("PE") firms constituting 29% of the total sample. Furthermore, I find that PE and venture capital ("VC") sponsorship have increased over time, with VC sponsoring in particular showing a notable increase in recent years.

I further find that there is a common phenomenon that SPAC founders raise several SPACs. Moreover, SPACs that are part of a series of several SPACs show a statistically significant lower share of liquidated SPACs compared to the proportions of the non-series group. Also, looking at the 3-month, 6-month, 12-month and 24-month mean index adjusted returns, I find that SPACs which are part of a series exhibit negative index adjusted returns over all post completion periods. However, SPACs not part of a series exhibit even lower returns.

In addition to this, I find that SPACs that are the first in a series of several SPACs show the lowest or among the lowest liquidation rates with proportions statistically significantly different from the remaining groups' proportions for the two periods pre 2010 and 2003 – 2020. This type of SPAC shows higher, although still negative, index adjusted returns compared to the rest of the group. Related to this, I find that SPACs being last in a series exhibit higher liquidation rates compared to SPACs being first or in the middle of a series. In addition, SPACs being first in a series have lower liquidation rates with proportions that are statistically significantly different from the other groups. Also, looking at each generation of SPACs, the SPACs that are the last in a series exhibit higher liquidation rates compared to the group of SPACs that are part of a continuing series. In addition to these results, I find that the time gap to the predecessor SPAC is higher for SPACs in a series that has a predecessor that liquidated.

Second, I explore target characteristics and find that a larger share of all targets that merged with a SPAC that went public pre 2010 were incorporated in China compared to the period post 2010. In addition, I find that SPACs that went public post 2010 source targets in the US and Canada to a larger extent. Looking at target industries, SPACs that went public pre 2010 merged with targets or acquired assets in industries such as media and telecommunications and transportation to a larger extent compared to SPACs that went public post 2010. I also note an increase in the percentage of SPACs that merge with targets or acquire assets in industries such as industrial products and services, healthcare, leisure and business software. I find that the increase of targets active in industrial products and services, healthcare and leisure are driven by deSPAC transactions made in growth related sectors including electric vehicles, MedTech, BioTech as well as gambling and gaming. In addition, some targets are sourced in ESG related sectors. I also find that the percentage of founder and management led companies going public via deSPAC transactions have decreased and that PE owned targets have increased from 20% to 33% between the two periods pre and post 2010. Lastly, I can see an increase of VC backed firms going public via a SPAC, which especially can be derived from an increase of these types of transactions for SPACs that went public in 2019 and 2020. By conducting a cross tabulation of sponsor type and target ownership at the deSPAC transaction, I find that many targets have the company founders or management as owners. Furthermore, I find that PE firms and SPAC firms tend to source targets or assets from PE firms. I also show that VC firms merge with targets backed by other VC firms to a large extent.

Analyzing performance, I note that PE backed targets exhibit statistically significant higher returns over all periods compared to other groups. However, returns for the group of PE backed targets are still negative over the four post-merger periods, with a 12-month adjusted return of -18% compared to the group total average of -33%.

Lastly, I find that hedge funds are frequent SPAC IPO investors. I also find that only a fraction of the investors at the IPO still holds a position in the merged entity after the deSPAC transaction. After the deSPAC transaction, there is a more diversified group of investors ranging from private banking and pension fund managers to family offices and hedge funds.

From the result of my analysis, I have four main findings that can conclude the thesis. First, PE and VC sponsorship have increased over time, with VC sponsoring showing a notable increase in recent years. Second, it is common that SPACs are part of a series of several SPACs, where SPACs part of a series exhibit lower liquidation rates and higher post-merger index adjusted returns. Third, I find that PE and VC owned targets have increased over time which indicates that PE and VC firms use SPACs as an exit vehicle for their portfolio firms. Finally, there seem to be one type of investor at the IPO and another type of investor after the merger.

The thesis is structured as follows: Section 2 describes an institutional background covering the process and structural characteristics of SPACs, the historical development of SPACs as well as the stakeholders in the SPAC market. Section 3 reviews previous research on SPACs with a focus on stock performance, merger probability and post-merger survival. Section 4 illustrates the sample that forms the basis of this thesis. Section 5 explains the data collection and the methodology. Section 6 presents the result for each stakeholder group. Section 7 discusses the result and its implications. Section 8 concludes the thesis.

2 Institutional Background

First, this section defines and explains what a SPAC is and present an overview of the SPAC lifecycle, outlining the process from the pre-IPO phase to the closing / liquidation phase. Second, the section presents the history of SPACs and the main structural changes. Thereafter, the different SPAC stakeholders together with upsides and downsides from each stakeholder perspective are described-

2.1 Special Purpose Acquisition Companies

The Security and Exchange Commission (“SEC”) classifies a SPAC as a type of blank check company. A blank check company is by the SEC defined as “a development stage company that has no specific business plan, or purpose, or has indicated in its business plan is to engage in a merger or acquisition with an unidentified company, other entity, or person.” These companies typically involve speculative investments and often either fall within the SEC’s definition of “penny stocks” or are considered “microcap stocks” (SEC, 2020). The SEC further describes that “a SPAC is created specifically to pool funds in order to finance a merger or acquisition opportunity within a set timeframe”, where the opportunity usually has yet to be identified.

2.1.1 The Lifecycle of Modern SPACs

Based on previous literature and other sources, I identify five phases, and several sub-events, that the SPAC lifecycle can be divided into: (1) the Pre-IPO Phase, (2) the IPO-Phase, (3) the Target Search & Negotiation Phase, (4) the Approval Phase, and (5) the Closing / Liquidation Phase. Each phase is described in detail below. For an overview of the SPAC lifecycle, showing the most important events and the relationships between them, see Figure 1.

2.1.1.1 Pre-IPO Phase

To establish a SPAC, the SPAC founders make a private placement by buying so called “founder shares” in the SPAC. The founder shares are purchased prior to the submission or filing of the IPO registration statement with the SEC. A nominal amount, usually \$25,000, will be paid by the founder for a 25% stake of the total number of shares being registered in the IPO (inclusive of a

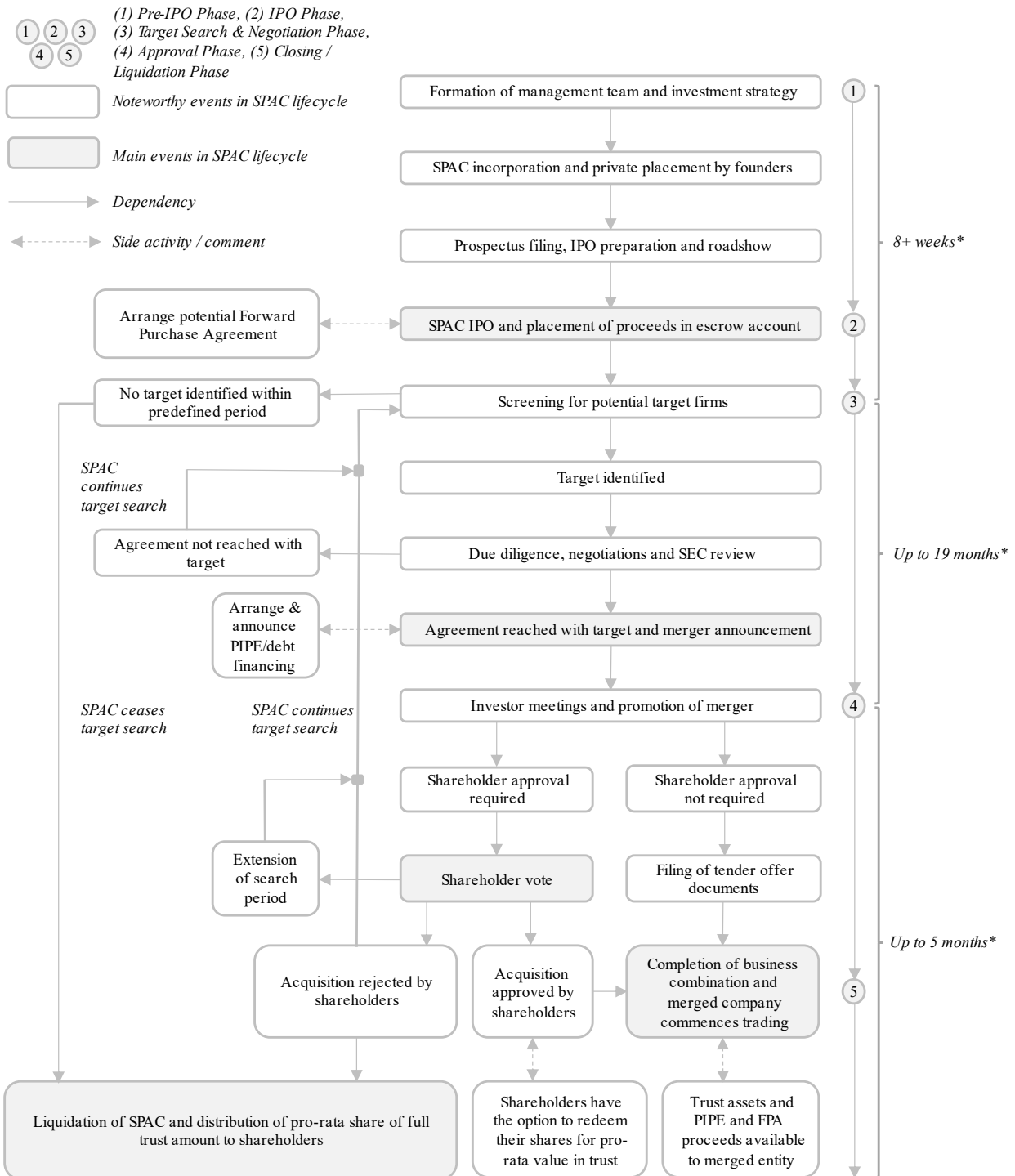
traditional 15% over-allotment option i.e., that the underwriter is allowed to issue additional shares). To the degree the over-allotment option is not exercised in full, the founders will agree to give up a number of shares so that the number of founder shares equals 25% of the public shares sold in the IPO. As a result, the founder shares will equal 20% of the total shares outstanding after completion of the IPO, adjusted for the over-allotment. The post-IPO 20% founder shares are commonly referred to as the “promote”, which is the compensation to the founders (Layne, et al., 2020).

As with common stock, the founders purchase whole warrants. The strike price for the warrants is often set to 15% above the per share IPO price (including adjustments for splits and stock and cash dividends), and the warrants become exercisable on the later of (1) 30 days after the deSPAC transaction (i.e., the completion of a business combination) and (2) 12 months after the SPAC IPO (Layne, et al., 2020). The founder investment should cover the cost of the IPO and act as working capital during the time period when the SPAC is looking for a target.

In many ways, SPACs follow a traditional IPO process and are formally established when the SPAC founders, with help from their underwriters, file Form S-1 registration statement with the SEC and by that announce their intention to conduct an IPO. The S-1 filing further provides a description of the financing needs of the new company and the securities issued, a disclosure of the underwriting agreement and any conflict of interest between SPAC founders and future investors, a discussion on the proposed business, and a presentation of the background of the management team (Shachmurove & Vulcanovic, 2019).

As a next step the management team and underwriters continue with the preparations for the IPO, go on a roadshow and initiate the book-building process. Amendments to the S-1 filing are also made in response to SEC comments. Once the roadshow is complete, a final prospectus (Form 424-B) is filed by the underwriters, reporting all changes implemented since the initial S-1 registration statement (Layne, et al., 2020).

Figure 1: The SPAC Lifecycle



* Illustrative timeline from PwC (2020) and Layne et al. (2020)

2.1.1.2 IPO Phase

In a SPAC IPO, public investors are sold units consisting of one share of common stock and a fraction of a warrant to purchase a share of common stock in the future. In most cases the per unit purchase price is set to \$10.00 (Layne, et al., 2020). Initially, only the units will trade. However, as the over-allotment option is completed and an audited balance sheet is filed with the SEC, common shares, warrants and potential rights will start trading as well (Shachmurove & Vulcanovic, 2019). According to Lewellen (2009), the common stock and warrants are generally separated and begin trading independently ca. 1 month after the IPO. SPAC investors can choose to hold or sell the SPAC securities over the SPAC lifecycle. In recent years, a few SPACs also issued IPO investors rights to receive additional shares in connection with the deSPAC transaction.

Compared to founders, who can buy whole warrants, the units sold to the public typically include a fraction of a warrant to purchase a whole share. The fraction differs between SPACs, but it is common that the units include a half warrant, although larger IPOs often include one-third of a warrant in each unit. However, only whole warrants are exercisable. (Layne, et al., 2020)

In a deSPAC transaction, holders of public shares can redeem their shares for a pro rata portion of the proceeds held in the trust account. The offer of redemption does not apply to the public warrants as these will be outstanding regardless of whether the public share is redeemed or not, until the warrant is exercised or cancelled/exchanged. In other words, a unit investor that choose to redeem the common share will still hold the warrant (Layne, et al., 2020)

The proceeds from the IPO are placed in an escrow (trust) account with an established financial institution where the proceeds are invested in short-term US government securities (often US Treasury bills) or held as cash. The proceeds, usually an amount equal to 100% or more of the gross proceeds of the IPO, are kept in the account until they are used to (1) finance an acquisition, (2) fund a payment of the deferred underwriting discount, (3) cover transaction expenses and working capital of the company post deSPAC transaction (if any amounts remain), (4) redeem shares if requested by shareholders, or (5) are returned to investors if the SPAC fails to consummate a merger and liquidates (Layne, et al., 2020).

In addition, affiliates of the sponsor and institutional investors can enter into a forward purchase agreement (“FPA”) with the SPAC which implies that they are committing to purchase equity, either stock or units, in connection with the deSPAC transaction (if needed to complete the

transaction). When the FPA is made with a PE fund or a similar investor, the obligation may be conditioned so that it satisfies their investment mandate (Layne, et al., 2020).

2.1.1.3 Target Search and Negotiation Phase

After the IPO closing, a SPAC typically has 18 to 24 months to identify and complete a merger with a target company. If the SPAC does not complete a merger within the predefined time frame (before the so called “outside date”), the SPAC liquidates and the IPO proceeds are returned to the public shareholders (PwC, 2020). It is important that the SPAC initiates the target search after the IPO, as a SPAC (due to its listing as a blank check) cannot identify acquisition targets prior to the closing of the IPO. Thus, as soon as possible after the IPO, the SPAC will start identifying and screen potential targets, conduct initial diligence and negotiate and execute Letter of Intent (“LOIs”) (Layne, et al., 2020). The screening will often be based on an investment thesis focused on a sector and geography, as stated in the SPACs prospectus filings. Often, this will be related to a sponsor’s experience and background in a specific industry or geography (PwC, 2020). If the screening is successful, the SPAC will pursue an acquisition opportunity and negotiate a merger or purchase agreement to acquire a business or assets.

If additional capital is needed to pursue the business combination or pay other expenses, the SPAC founder may start looking for additional funds to the SPAC. To finance some of the cash needed for the merger, SPACs often arrange committed debt or equity financing e.g., private investment in public equity (“PIPE”). As a next step, a SPAC would sign the acquisition agreement and publicly announce the acquisition and the committed financing (Layne, et al., 2020).

There is a minimum size of a target company which is approximately 80% of the funds in the SPAC trust account. Thus, a large SPAC is not able to purchase a relatively small company unless being combined with another target. SPACs can acquire multiple companies at the same time. In order to reduce the dilutive impact of founder shares and warrants, SPACs usually combine with target companies that have a value of 2x-4x the amount of the IPO proceeds (Layne, et al., 2020).

2.1.1.4 Approval Phase

Following the merger announcement, a SPAC will undertake either (1) a mandatory shareholder vote or (2) a tender offer process, both offering the public investors the right to return their shares for cash amounting to approximately the IPO price paid plus interest (Layne, et al., 2020).

The shareholder vote involves the filing of a proxy statement with the SEC (with a review and commenting), the mailing of the proxy statement to the SPAC's shareholders, and the holding of a shareholders meeting to count all of the votes and record the voting result. For many of the early SPACs, an approval was hard to obtain, primarily because the SPACs established a qualified majority that could disapprove a merger in their final prospectuses. In the period 2003 to 2006 the threshold was 20%, meaning that a maximum of 20% of the shares could be redeemed in order for a SPAC to pursue with its business combination. From 2006 to 2008 it increased to approximately 30%, with a number of SPACs having a threshold of 40% (Layne, et al., 2020).

Post-financial crisis SPACs are almost without exception structured as tender offers and, since asset acquisitions and share purchases do not generally require shareholder approval, in many cases shareholders are unable to prevent acquisition and have to choose to either keep or redeem their shares. However, there are some exceptions when the stock exchange rules (NYSE and Nasdaq) require a shareholder vote: (1) direct mergers where the SPAC does not survive, (2) amendments to a company's charter, and (3) transactions where the company issues 20% or more of its issued and outstanding shares (to the seller of the target business, to PIPE investors or to a combination). In practice, most SPACs end up seeking shareholder approval for business combinations (SPAC Research, 2021). However, if a SPAC shareholder vote is not required, the SPAC will conduct a tender offer to give the public shareholders an opportunity to redeem their shares. The tender offer materials generally contain more or less the same information as would be required in a proxy statement. Even if not legally required, a SPAC could choose to hold a shareholder vote for pure business reasons (Layne, et al., 2020).

An important side note is that the holders of founder shares typically will commit at the time of the IPO to vote any founder shares held by them in favor of the deSPAC transaction. This is also true for public shares purchased by them during or after the IPO. Thus, at least 20% of the SPAC's outstanding shares will be committed to vote in favor of a transaction (Layne, et al., 2020).

As a SPAC's liquidation date is approaching, it is common that the SPAC holds a shareholder meeting to extend the amount of time by which they must consummate a business

combination. If so, shareholders will be given the opportunity to redeem their public shares (pro rata share of the trust account) and vote on the potential extension of the SPACs liquidation date (SPAC Research, 2021).

2.1.1.5 Closing / Liquidation Phase

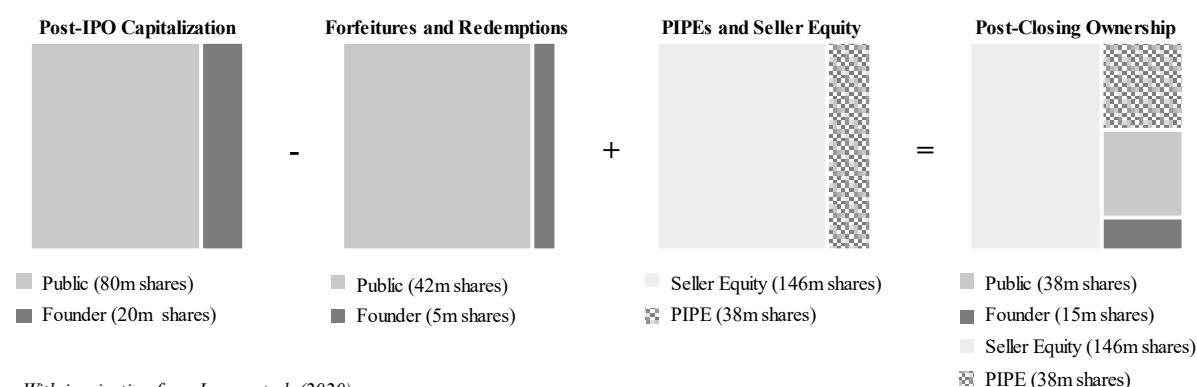
If the shareholders approve the business combination, and the financing and other acquisition agreement conditions are satisfied, the business combination will be consummated. As a result, the SPAC and the target will merge into a public entity (Layne, et al., 2020).

In connection with the deSPAC transaction, SPACs must offer the public shareholders the right to redeem their public shares for a pro rata portion of the proceeds held in the trust account. The redemption amount per public share typically equal to approximately \$10.00. Under NYSE and Nasdaq stock exchange rules, only shareholders voting against the business combination must be given the opportunity to redeem their public shares. However, SPAC charter documents often require the offer to be made to all holders (Layne, et al., 2020).

At the time of the deSPAC transaction, the founder shares often convert into public shares on a one-for-one basis automatically. If additional issuance of public shares or equity-linked securities have taken place in connection to the closing of the deSPAC transaction, there will be an anti-dilution adjustment of the exchange ratio. This adjustment implies that the exchange ratio to which founder shares convert to public shares will be adjusted so that the founder shares represent up to 20% of the total founder shares and public shares outstanding. Except for this anti-dilution adjustment, the public shares and founder shares are usually identical and vote together as a single class (Layne, et al., 2020).

The post-closing ownership in the merged entity can be illustrated by Figure 2 below, with inspiration from the findings of Layne et al. (2020). After the IPO, I assume that the public owns 80 million shares and that the founders own 20 million shares. According to Layne et al. (2020), looking at a sample of 47 US deSPAC transactions between 2017 and 2019, the founders forfeit on average 27% of its shares and the public investors redeem on average 53% of their shares. Also, using the reasoning of Layne et al. (2020), I assume that the SPAC issues 38 million shares in a PIPE to fund the cash consideration. In addition, the Seller receive shares of common stock as stock consideration. After adjusting for these transactions, the post-closing ownership is the following: (1) public investors (16%), (2) Founders (6%), (3) Seller (62%), and (4) PIPE (16%).

Figure 2: Post-closing Ownership



If the SPAC does not consummate the deSPAC transaction and complete a merger before the outside date, the SPAC liquidates and the public shareholders get their money back (pro-rata value in trust) and the public warrants, founder shares and founder warrants expire without value (Layne, et al., 2020).

2.1.2 Rule 419

To get a good understanding of why SPACs are structured the way they are, it is important to be familiar with Rule 419; why it was implemented, what it covers and, even more important for the case of SPACs, its exemptions.

The reverse merger technique was discovered in the 1970s and 1980s. During this period, a number of players got into the market and committed fraud by: (1) forming new blank check companies, (2) raising money in blank check IPOs, and (3) taking the money as fees for themselves instead of finding merger candidates for the newly created shells. Other widespread fraudulent practices included among others manipulative trading of the stock of the shells (Feldman, 2018).

These practices were part of a broader problem of fraud and abuse during this period in what is referred to as the penny stock market. As a reaction to this, the US Congress took action by passing the Penny Stock Reform Act of 1990, which directed the SEC to pass rules to treat registrations of shares by blank check companies differently. In 1992, the SEC passed Rule 419 under the Securities Act of 1933 (Feldman, 2006).

The SECs aim with Rule 419 was to eliminate four concerns relating to blank checks: (1) founders draining the shells for cash, (2) abusive trading practices, (3) the lack of a time limit to

find a reverse merger candidate, and (4) investors not being offered a chance to review or vote on a proposed business combination (Feldman, 2018).

According to Feldman (2018), Rule 419 has a few key components. First, all money raised in the public offering of a blank check company, excluding up to 10% for expenses and underwriting commissions, and the shares issued in the offering are required to be placed in an escrow account until the business combination is completed. Second, the management team of the blank check need to find and complete a merger within 18 months after the IPO, otherwise all remaining funds must be returned to investors. Third, if the investors do not agree with the proposed merger, they have the right to opt out and get their money back (less any expenses and commissions taken). In fact, if the merger is not approved by investors holding at least 80% of the blank check's shares, the merger cannot be finalized and all money is returned to investors, less any deductions taken. If more than 80% approve the merger, the merger can be completed, and the money and shares are released from the escrow account. However, the investors that vote against the deal still get their money back (Feldman, 2018).

In order to qualify for release of the funds, there are some requirements that a merger need to meet. One requirement is that the value of the target must be at least 80% of the amount raised in the blank check's IPO. Lastly, if a blank check has more \$5 million in assets before the IPO, or seeks to raise at least \$5 million in a firm commitment IPO underwriting, Rule 419 is not applicable. If this is true for a particular firm, the firm does not have to follow Rule 419 and thus does not have any escrow arrangements, trading restrictions, or time limits (Feldman, 2018). This exemption to Rule 419 is relevant for this thesis as it created the opportunity for SPACs to develop.

2.1.3 The Invention of the SPAC

According to Feldman (2018), David Nussbaum at the boutique investment banking firm EarlyBird Capital, was a key person of the SPAC movement that began in mid-1990s (with help from his partners and a few lawyers). While working at the brokerage firm GKN Securities, Nussbaum saw an opportunity as companies were becoming larger and could thus benefit from being public. However, the companies did not have an opportunity to become public using the traditional ways as the economy was recovering from a recession and the IPO market was suffering. Nussbaum used an exemption under Rule 419 as mentioned in Section 2.1.2, which states that any company with \$5 million in assets, or that seeks to raise \$5 million in a public

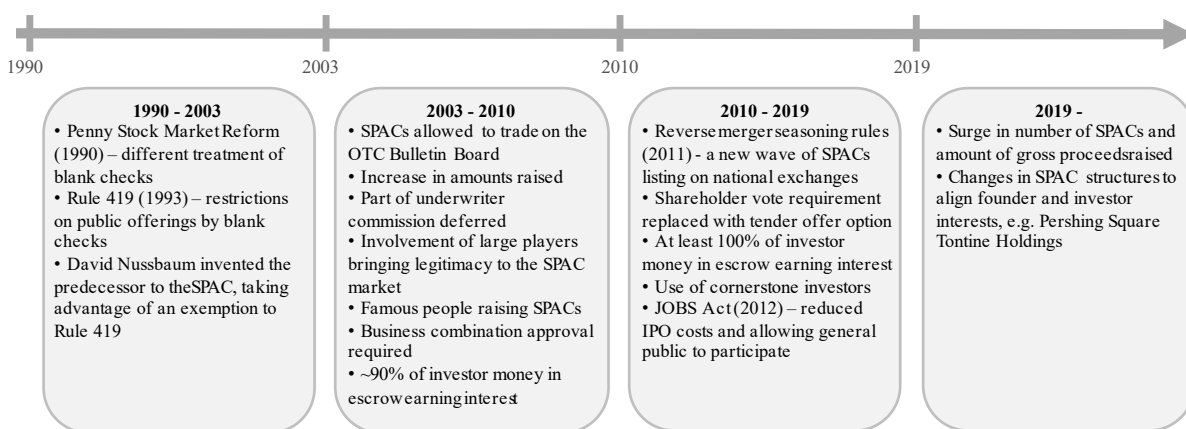
offering, do not need to comply with Rule 419. However, Nussbaum did not avoid all Rule 419 restrictions. Instead, he adopted some of them for marketing purposes but also to attract investors and convince the SEC to not create additional regulations that would further restrict the market. For example, 90% of the gross proceeds would be put in an escrow account earning interest.

Nussbaum and GKN Securities further made adjustments to some of the restrictions. First, they increased the time window to close a merger from 18 months up to two years. Second, Nussbaum established a trading market for the SPAC shares and for warrants sold to investors in the IPO which would not be permitted in a traditional 419 shell. Third, the SPAC should be specialized in an industry or a geography. Lastly, again to gain investor interest, Nussbaum would attract a prominent management team that would be responsible for identifying a target to merge with (Feldman, 2018).

2.1.4 SPAC IPO Waves

I have identified three waves of SPAC IPOs for the period 2003 to 2020. The following section will describe the identified SPAC IPO waves and is divided into the three subsections: (1) Pre 2010 wave; (2) 2010 – 2019 wave; and (3) Post 2019 wave. Key characteristics of each wave are highlighted in Figure 3 below, including an additional illustration of the period pre 2003.

Figure 3: SPAC Structure Development



2.1.4.1 Pre 2010

As mentioned in Section 2.1.3, the first SPACs were created already in the mid-1990s, when about a dozen SPACs were formed. However, as the IPO market boomed in the second half of the 1990s,

SPACs were no longer popular. SPACs returned in 2003 after the burst of the stock market bubble in early 2000 when IPO market activity decreased and, even after recovering, remained inaccessible to smaller companies. According to Feldman (2018), Nussbaum, at the time running EarlyBird Capital, thought it was time to bring back SPACs. In order to do that, Nussbaum had to convince Nasdaq, then overseeing the OTC Bulletin Board (“OTCBB”), at that time the main over-the-counter trading platform, to allow the new generation of SPACs to trade on their platform.

Feldman (2018) further discusses that the 2003–2008 new wave of SPACs was different from the SPACs in the 1990s. First, the new SPACs raised more money. Second, as SPAC investors became more confident and savvy, investment bankers had to revise the commissions received for raising money, resulting in more underwriters agreeing to defer a portion of their commissions until a merger was completed. Third, the involvement of large players such as Deutsche Bank, Merrill Lynch, and Citigroup brought more legitimacy to the SPAC market. Fourth, with people like Steve Wozniak, investor Mario Gabelli, Revlon chief Ronald Perelman, former Vice President Dan Quayle, former CIA Director George Tenet, and billionaire Nelson Peltz joining SPAC teams, SPAC founders were looking like business A-lists.

Between 2003 and 2007 SPACs became more popular. SPAC market activity increased from one US SPAC in 2003, to 66 SPACs in 2007. However, as the global financial crisis hit in 2008, the SPAC market activity took a halt, with 17 new SPACs created in 2008, and only one SPAC registered in 2009. According to Feldman (2018), the decrease in SPAC market activity in 2008 can be derived from a combination of difficult market conditions, the credit crisis, simple saturation, and the underperformance of many former SPACs after their business combination.

2.1.4.2 2010 – 2019

Between 2010 and 2011 there were some new SPACs; 7 in 2010 and 16 in 2011. An important development in the market at this time was the introduction of the reverse merger seasoning rules that were passed in 2011. The seasoning restrictions were a direct response to the allegations of fraud in Chinese reverse-merged companies at that time. The restrictions were implemented by Nasdaq and the NYSE after requests from the SEC. In short, the seasoning rules required a post-shell merger company to season on the over-the-counter market e.g., OTC Bulletin Board, for at least one full fiscal year and file its Form 10-K with the SEC for that year. Before listing on a larger exchange, the stock must trade persistently at the minimum level required. These restrictions

affected the SPAC market since SPACs that traded over-the-counter also would be subject to seasoning after they finalize reverse mergers. Thus, SPACs trading over-the-counter were forced to comply, making them less attractive (Feldman, 2018).

The seasoning rules were the beginning of a new wave of SPAC activity with listings on national exchanges. Among benefits such as no requirement for a state blue sky review of the IPO, where required filings are reviewed by a state agent (Blue Sky Laws), a listing on a national exchange meant that SPACs could avoid the reverse merger seasoning restrictions. According to Feldman (2018), Nussbaum's previous discussions with Nasdaq had provided an opening for this. The first SPAC was listed on the American Stock Exchange ("AMEX") already in 2005, with pre-2005 SPACs only being traded on OTC markets. However, in 2014 and 2015 over \$5 billion was raised in SPAC IPOs, with all SPACs being listed on national exchanges. In 2008, the SEC approved rule changes proposed by NYSE and Nasdaq, allowing for additional listing options for SPACs.

In addition, the new wave of SPACs was aimed to address many of the issues that challenged the previous wave of SPACs. Feldman (2018) discusses that the resurgence was driven by a combination of the strengthening equity markets generally and a change in the SPAC structure which can be summarized as four main adjustments to the previous structure.

First, the shareholder vote on the deal was replaced with a tender offer, giving public shareholders the opportunity to opt out of a merger and tender their shares to get a pro-rata share of the trust account. The adjustment was implemented by the national exchanges in 2010, agreeing that investors were equally protected with the tender offer. In addition, the national exchanges thought that the tender offer included full disclosure about the potential merger. The replacement of the shareholder vote removed the risk with the prior generation of SPACs that a deal could be canceled by a negative shareholder vote. At this time, the voting system was also increasingly misused by some investors that had realized that their return could be enhanced by voting against a deal in certain circumstances (Feldman, 2018).

Second, the new wave of SPACs did no longer require that a transaction would be completed within a certain industry or geography. However, some SPACs still have a focus area, but management have the right to alter it. Third, to assure that investors received all of their money back in the case of liquidation, which was a common outcome for the previous SPACs, at least 100% of investor money would be in escrow and earning interest. Lastly, some SPACs started to

use so called “cornerstone” investors. These investors invested money before the IPO and promised to not redeem their shares, even if they disagreed with the merger (Feldman, 2018).

Another driver of the new wave of SPAC activity was the JOBS Act, signed in 2012. The purpose of the act was to make it easier and cheaper for young and small companies to get access to public markets. This was done by less filing and reporting requirements. The reform did not only make non-SPAC IPOs easier, but it provided advantages for SPACs as well through reduced IPO costs due to lower filing requirements and less reporting requirements after the merger (Kolb & Tykvová, 2016). Moreover, the JOBS Act allowed the general public to invest in SPACs, previously only available to accredited investors (Rodrigues, 2012).

2.1.4.3 Post 2019

The number of SPAC IPOs have surged in the recent year, amounting to 248 SPAC IPOs in 2020 and 318 SPAC IPOs as per 16 May 2021 (SPAC Analytics, n.d.). According to Credit Suisse (2020), there are four primary reasons for the large increase in the number of SPAC IPOs. First, SPACs can offer pricing certainty in markets with uncertain conditions, where the uncertainty around the COVID-19 pandemic has created volatility in the equity markets during 2020. Second, public market valuations have reached all-time highs and thus incentivizing private companies to go public. Third, dry powder (cash reserves that corporations, private equity funds and other similar market actors have available to deploy) is at high levels and SPACs may provide an exit opportunity for private capital. Last, private companies have remained private longer and consequently there are more targets available. However, with the recent surge in the SPAC market being a frequent discussion topic, these are just some potential drivers among many others.

According to Klausner et. al (2021) there have also been changes in SPAC structures to align shareholder interests with SPAC founder interests. In July 2020, a SPAC named Pershing Square Tontine Holdings went public with a different type of SPAC structure. One important change in the structure was that Pershing Square TH, the sponsor of the SPAC, took no promote. As a result, Pershing Square TH will only earn a return on its investment if the shareholders earn a return of 20% or more over ten years. Pershing Square’s affiliates also entered into a FPA of \$1 billion, with a possibility to invest another \$2 billion. In exchange they got units consisting of one share and 1/3 of a warrant. The FPA will only yield a positive return if the public shareholders earn a positive return, similar to the initial investment. Pershing Square Tontine Holdings have

also changed the redemption commitment. Similar to other SPACs, the shares can be redeemed with an interest rate that is slightly higher compared to the Treasury note rate. However, Pershing Square Tontine Holdings' units contain a smaller fraction of warrants compared to other SPACs. Non-redeeming shareholders will be rewarded with additional warrants. Also, the warrants that redeeming shareholders previously held will be reallocated to non-redeeming shareholders, and as a result, shareholders are incentivized to not redeem their shares.

2.2 Stakeholder Overview

In this section, an overview of the different SPAC stakeholders is presented. I divide the stakeholders into three main groups being (1) founders, (2) targets and (3) investors. In each subsection, the main characteristics for each stakeholder are presented as well as commonly proposed upsides and downsides from the perspective of each stakeholder group. A summary of the upsides and downsides is presented in Table 1. The aim with the section is not to provide an exhaustive list, but to discuss different concepts and ideas to give a more nuanced picture of the role of SPACs from different stakeholder perspectives. See Annex A for an overview of how the different stakeholders are interconnected via the SPAC IPO and the deSPAC transaction.

2.2.1 Founders

2.2.1.1 Overview

According to Hale (2007), executives involved in SPACs generally include successful company executives, principals at successful PE firms and experienced investment bankers. These individuals usually have experience and contacts in the investment community and have sufficient financial resources to meet the financial obligations that arises when founding a SPAC. This is also supported by Klausner, et al. (2021), who writes that the type of SPAC founders ranges from large PE funds and former S&P 500 executives to individuals with no relevant background.

Shachmurove & Vulcanovic (2019) writes that many management team members are well known public people where their reputation and knowledge act as a warrant that the SPAC can create value and find a target. In addition, SPACs often highlight that the management team members have previous SPAC experience since it acts as evidence that the management team can

raise money for another SPAC if the previous merger has been successful.

Table 1

Summary of Upsides and Downsides

This table presents a summary of upsides and downsides for founders, targets and investors. The investor group is divided into three sub-groups being PIPE investors, IPO investors (investors that invest at the IPO but generally redeem their shares before the merger) and buy and hold investors (investors that continue to hold their shares after the merger).

	Upside	Downside
Founder	• 20% promote • Fund next phase of career and avoid cost of equity sponsor • IPO proceeds not in escrow are working capital • Higher financial rewards for operating executives compared to being a private equity partner • Unfunded financial sponsors get dedicated capital • Alternative asset managers can invest outside of its core mandate • Public companies and investment banks can capitalize on deal flow • Raise capital and acquire a company faster than PE • PE can leverage public markets for additional funds	• If voting, risk that the merger is not approved • If high level of redemptions, the SPAC might not fulfil the minimum cash requirement • Compete with financial and strategic buyers who can move faster and guarantee deals • Dilution to target shareholders might decrease willingness to merge with a SPAC • Reputational risks • Investments in warrants may become worthless • Time from IPO to deSPAC transaction exposes the deal to market risk • Costs associated with filings, investor relations etc. • Management with no experience in fulfilling compliance requirements might get distracted
Target	• Beneficial for smaller, complicated, levered targets • Foreign private firms can access US public markets • Firms with pending lawsuits can access public markets • SPACs are active in sectors with no PE financing • Exit opportunity when there are no strategic buyers • Less disclosure requirements • Cash reserve • Ability for target management to cash out, but also possible to retain control • Faster and less expensive compared to standard IPO • Less focus on market timing • Can disclose forward-looking statements	• If voting, completion of merger may be delayed • Exposure to market risk • Dilution of target shareholders • Less aftermarket support compared to standard IPO • Less control over the process • VC may function as a credible signal of firm quality in an IPO. The standard IPO can also provide higher degree of reputational capital • Price and deal certainty as dilution is unknown until time of the merger • May not be faster as it is an issue of firm specifics and time measurement
PIPE Investor	• Invest at discount to the IPO price • Ability to investigate a target more carefully • Side payment from founders (cancel shares/warrants)	• Binding commitment • Warrants held by public investors will dilute PIPE investors
IPO Investor	• Limited downside as money is placed in escrow • Safety net • Redemption rights • Hedge funds require liquidity and cannot invest as limited partners in PE funds	• As many of these investors will redeem their shares before the merger, most disadvantages apply to the buy and hold investor • However, there is an opportunity cost of making the investment
Buy and Hold Investor	• Access to acquisitions and buyouts (PE) • Liquidity and price discovery • Adjust risk threshold by exercising right of recession (compared to PE/VC where the investor need to wait until liquidity event) • SPACs more transparent (publicly traded) than PE • Influence with regard to industries compared to PE	• Risk of being misled by the trading of hedge funds • Betting on management • The SPAC may conduct a merger that does not make sense due to limited time • Since 80% of the invested money must be spent on a deal, the SPAC could be overpaying • SPACs may trade at a discount to the cash in the trust due to low liquidity and unknown business risk • Bear majority of the costs (due to dilution from the promote, underwriting fees, warrants and rights and high degree of redemptions before the merger) • Underperformance of SPACs after the merger

2.2.1.2 *Founder Upside*

Jenkinson and Sousa (2011) discuss that SPACs can be highly profitable for founders as they are usually rewarded with an equity stake of 20% in the firm if an acquisition is completed. This means that the founders' payoff is dependent on them finalizing a business combination. Because of their equity stake, the founders are rewarded even if the acquisition is value destroying. Furthermore, SPACs makes it possible for experienced and proven management to obtain substantial capital to fund their goals for the next phase of their careers and avoid the cost of an equity sponsor (Hale, 2007). Another advantage for the founders of SPACs is that the portion of net offering proceeds not held in escrow will be available as working capital for the team while searching for and completing its acquisition of a target company (Schumacher, 2020).

Berger (2008) distinguishes between four groups of founders: operating executives, unfunded financial sponsors, alternative asset managers and corporates. The advantage of SPACs for operating executives is that they get independence and, given a 20% promote, potential financial rewards that can be higher compared to being an operating partner at a private equity fund. Unfunded financial sponsors get dedicated capital and they do not have to find co-investors for each deal. For alternative asset managers such as hedge funds, a SPAC is an opportunity to control transactions and conduct opportunities that do not fit the asset managers' core mandate. By using a SPAC, hedge funds can control the purchase of private companies and thus extend the alternative asset managers' offerings by taking advantage of the infrastructure built up to support the fund. Lastly, public companies can use SPACs to capitalize on deal flow that is not in the core business of the company. In addition to the four groups, investments banks can raise SPACs to capitalize on the deal flow from their advisory business.

Riemer (2007) argues that raising capital through a SPAC is faster compared to PE vehicles. PE vehicles need to find investments from investors such as pension funds and venture capitalists while a SPAC can get individual and institutional investors from the open market (Boyer & Baigent, 2008). Furthermore, acquiring a target company is faster compared to a traditional acquisition since funding is already secured. In addition, business combinations using SPACs are not as complicated since they are pre-funded by the cash raised through the IPO (Riemer, 2007). Lastly, Heyman (2008) discuss that SPACs are attractive for PE investors as they can leverage public markets for additional funds.

2.2.1.3 *Founder Downside*

Berger (2008) discusses that if a vote is required for a merger, there is a risk that a generalist investor does not fully understand the value proposition, and therefore vote against the deal if the common stock is below the trust price. Consequently, the SPAC and target's management team have to identify new investors that understand the value proposition. If the SPAC cannot transition the shareholders to fundamental investors, the SPAC founders may have to buy shares from the investors voting no in order to secure shareholder approval of the acquisition (Berger, 2008).

If there is a tender offer instead of voting, there is still a risk that many investors redeem their shares and as a result decrease the amount of cash available for the deSPAC transaction. Since targets usually need cash, it is common that a minimum cash requirement is included in the merger agreement. However, to avoid not fulfilling this requirement, the founder can for example make additional investments themselves or raise funding from external investors (e.g. PIPEs conditioned on the closing of the merger) (Klausner, et al., 2021).

According to Feldman (2006), SPACs may have difficulties getting a deal with a company considering an outright sale as they have to compete with a financial or strategic buyer. These types of buyers can move fast, and they can usually guarantee that a deal will go through. In addition, the potential occurrence of voting may result in a potential target being less willing to enter into an acquisition agreement with the SPAC, which can place the SPAC at a competitive disadvantage when negotiating a business combination (Hale, 2007).

Related to the uncertainty of the business combination being approved, Riemer (2007) argues that there is a risk that targets may not want to negotiate with the SPAC. In addition, the potential dilution that the target's shareholders might face due to the exercise of in-the-money warrants and rights may decrease their willingness to go public through a deSPAC transaction (Lakicevic, et al., 2014).

Heyman (2008) further discusses that in addition to being a hit to the management egos and reputational capital, the investments made by the management in private placements in warrants become worthless if the SPAC liquidates.

Berger (2008) writes that the SPAC may be at a disadvantage to corporate or PE buyers because of the long timeframe between announcement of a deal and approval. This exposes the deal to market risk, and in volatile markets this might result in a deal that looks good at announcement but look less good at the voting. Another concern is that SPACs are not ideally

suited for auctions, as they have not left significant upside for its shareholders if they pay the highest price. Therefore, they tend to focus on proprietary transactions.

Riemer (2007) discusses that in comparison with PE buyout firms with no public reporting requirements, the SPAC faces costs associated with the compliance with all required filings, corporate governance processes, investor relations obligations and ongoing regulations of being a public company. Moreover, a management team that lacks prior experience fulfilling relevant compliance requirements might get distracted from conducting a successful business combination.

2.2.2 Targets

2.2.2.1 Overview

SPACs generally searches for targets that are large enough to sustain a public company, but still small enough in order to avoid the interest of PE funds or to be a viable candidate for an IPO (Riemer, 2007). In addition, Berger (2008) discusses that due to dilution from the in-the-money warrants and the sponsor's promote, SPACs need to find large targets to limit the impact from dilution since SPACs that makes small deals relative to its size usually face difficulties at the shareholder vote.

According to Kolb and Tykvová (2016), companies choosing to go public through a SPAC are not as appealing as the companies who chose an IPO. They find that SPAC targets are smaller, have lower growth opportunities and are more levered. The authors also argue that VC and PE funds tend to refrain from using SPACs as an exit route, with targets going public via a SPAC merger being less likely to receive investments from VC and PE funds.

2.2.2.2 Target Upside

Using a SPAC may be a beneficial way for smaller companies to raise cash without having to conduct an IPO by themselves (Schumacher, 2020). Berger (2008) further writes that SPACs are advantageous for complicated targets that are not suitable for a traditional IPO and for targets that are in sectors that lack research coverage and benchmarks to compare the valuation against. Related to this, Kolb & Tykvová (2016) discuss that SPACs can provide a route to the public markets for small and levered firms with low growth opportunities. Also, a SPAC could provide a way for foreign private firms to access US public markets through obtaining a listing on the major

American exchanges without conducting an IPO (Vulanovic, 2017). It may also provide an opportunity for companies with pending lawsuits or weak public markets, where average investors do not see the value of the company, to go public (Collins, 2012).

Reimer (2007) discusses that SPACs are active in sectors in which PE financing fall short. SPACs can also provide an exit opportunity when there are no strategic buyers interested in a target (Berger, 2008). PE firms and VC investors may use SPACs to exit their portfolio companies, partly because a number of SPAC managers have been and/or are PE executives (Lewellen, 2009).

Nilsson (2018) argues that the targets acquired by a SPAC can go public without having to provide detailed financial statements and other disclosures that usually is required in an IPO. Also, the SPACs' cash reserve is appealing to targets who are in need of cash as the target company can receive immediate capital that the SPAC raised in its IPO (Hale, 2007). In addition, the SPAC management team can add knowledge and skills that may be hard to replicate (Berger, 2008).

Kolb & Tyková (2016) also discuss that SPACs' cash reserves may appeal to owners of targets who seek to be paid in cash to gain liquidity. If management of the target prefers to cash out, a SPAC transaction makes it possible for the management to avoid selling their shares in the public market. Instead, the shares can be the ones purchased by the SPAC. Also, some target management teams are unwilling to give up a portion of control to PE investors (Schumacher, 2020). The advantage with a SPAC transaction is that it provides a greater possibility for the target's directors to retain control (Heyman, 2008).

Feldman (2006) argues that a SPAC merger is faster and less expensive compared to a standard IPO. As the underwriter already raised money, the target is negotiating more with the SPAC management team than the underwriter. There is also less focus on the IPO window and market timing as the SPAC market usually is active when IPOs are down (Feldman, 2006) (Kolb & Tyková, 2016). Another advantage is that the target does not need to face the risk of underpricing and uncertainty of valuation (Jenkinson & Sousa, 2011), and that an underwriter cannot raise money or alter the offer price as the money is there, and the price is set (Feldman, 2006).

Klausner, et al. (2021) discuss that targets with information that is difficult to convey to investors, or targets that are hard to value, may find SPACs to be more beneficial than an IPO when considering going public. This is in part due to regulatory leniency toward SPACs relative to IPOs. In addition, SPACs and the targets can share projections and other forward-looking

statements which companies in a standard IPO cannot disclose due to different regulatory requirements. In addition, an advantage of SPACs over IPOs is that SPACs usually make a private placement to institutional investors before the merger. The investors review confidential information of the target and the private placement is later disclosed to the market. The private placement serves as a validation of the merger. Usually, a company going public through an IPO does not issue a private placement (Klausner, et al., 2021).

2.2.2.3 Target Downside

In the cases where stockholder approval of a business combination is required, it may delay or threaten the completion of a merger (Hale, 2007). The long time between announcement of the merger and the approval will expose the deal to market risk, and consequently a deal that looks good at announcement may be less attractive at the voting date (Berger, 2008). Also, for those SPACs where voting is required, targets face uncertainty and potential opportunity cost as the target may waste 3 to 6 months in negotiations with the deal potentially ending up being downvoted by SPAC investors (Heyman, 2008).

Other concerns with SPACs are that the exercise of in-the-money warrants might bring additional money to the target but will also dilute the ownership of the shareholders of the target (Kolb & Tykvová, 2016). However, targets could adjust for this in the deal negotiations when discussing pricing and other terms.

In addition, the 20% promote given to the SPAC founders dilutes the target. Some targets might not feel that this dilution is worth it. Also, targets may feel rushed by the SPAC management team due to the time limit of the SPAC. In addition, the aftermarket support after an IPO is generally stronger compared to after a SPAC transaction. The target also has less control over the process and the target management team experiences higher dilution compared to self-filings (Feldman, 2006).

Kolb & Tykvová (2016) discuss the idea that SPACs can offer VCs (and PE funds) an opportunity to immediately convert their holdings into cash. However, they conclude that VC funds refrain from using SPAC acquisitions as an exit. The reason is that VC funds may function as a credible signal of firm quality in an IPO, and that an IPO could provide a higher degree of reputational capital compared to going public via a deSPAC transaction.

According to Klausner et al. (2021), going public via a SPAC is not necessarily a cheaper route to the public markets as commonly suggested. Instead, they argue that the costs are much higher in a SPAC IPO than a traditional IPO. However, their findings suggest that it is the SPAC investors that are bearing a majority of the costs.

It was argued in Section 2.2.2.2., that SPACs provide greater price and deal certainty compared to an IPO. However, this is not necessarily true as dilution is unknown until the time of the merger when the degree of SPAC shareholder redemptions is established. In addition, there are generally many amendments to the merger agreement before it is set a few weeks prior to the merger due to negotiations between the SPAC and public and PIPE investors to ensure that the SPAC has enough cash for the deSPAC transaction (Klausner, et al., 2021).

Another concern is that it is not necessarily quicker to go public via a SPAC merger than an IPO as it is more an issue of firm specifics and how to measure the different time periods for an accurate comparison (Layne, et al., 2020) (Klausner, et al., 2021).

2.2.3 Investors

2.2.3.1 Overview

Rierner (2007) writes that SPAC investors usually are well informed about potential risks, have experience and knowledge to evaluate SPACs and have enough wealth to sustain potential losses associated with a failed SPAC. In addition, few of the first generations of SPACs sold their shares to retail investors as securities laws prohibited the sale of blank check offerings at the time.

Klausner, et al. (2021) discuss that a common notion is that SPACs are a way for investors that previously did not have access to PE to invest in a private-equity-like vehicle (e.g. discussion by Schumacher (2020) in the next section) where the SPAC is described as a “poor man’s” private equity due to the fact that anyone can invest in the SPAC managements’ skills in finding an attractive target and negotiating a good deal while at the same time applying operational engineering to the post-merger entity. However, the authors find that SPAC shareholders are in general large funds and not retail investors. In addition, they identify that SPAC IPOs seems to be dominated by a group of hedge funds, defined as the “SPAC Mafia”. These investors’ trading pattern is to invest in the IPO and trade the shares of the SPAC between the IPO and the merger. However, these investors do not want to stay invested after the merger.

The result is that there is usually one type of investor which shares are sold to in the IPO and another type of investor at the time of the merger. Klausner, et al. (2021) describe that almost all pre-merger shareholders exit at the time of the merger by redeeming their shares or selling them on the market. As a result, one could say the SPAC offers IPO investors a generous payment to make the SPAC public so that other investors can buy shares when a target has been decided upon. According to Klausner, et al. (2021), the average and median redemption rates amounted to 58% and 73% respectively for their merger sample between 2019 and 2020. Approximately 25% of these SPACs had a redemption rate above 95%. To increase the cash after the redemptions, ca. 77% of the SPACs raised additional money where e.g., 83% raised money from third-party investors.

Some SPACs also have PIPE investors that invest before the IPO and that makes a promise to not redeem their shares at the time of the merger which have attracted private equity players into SPACs (Feldman, 2018). In addition, PIPE investors can also invest in a SPAC at merger through a private placement.

The following section discusses upsides and downsides that in particular can be attributed to the three investor groups: PIPE investors, IPO investors and buy and hold investors.

2.2.3.2 PIPE Investor Upside and Downside

One upside of investing in SPACs from the perspective of PIPE investors is that they can make their investment at a discount (c. 10%) to the IPO price. The discount is usually a side payment to the PIPE investor from the SPAC in exchange for a binding commitment. Another upside is that PIPE investors, investing at the merger, have an ability investigate a proposed target more carefully compared to a traditional IPO since the SPAC shares confidential information to PIPE investors that have signed non-disclosure agreements. Also, at the time of the merger, PIPEs may negotiate that the founder should cancel some of its shares or warrants and transfer them as a side payment (Klausner, et al., 2021). A downside to PIPE investors is that the warrants held by public investors as a compensation for investing in the IPO will dilute the PIPE investor (Klausner, et al., 2021).

2.2.3.3 IPO Investor Upside and Downside

Hale (2007) discusses that SPACs provide investors with a potential upside with an additional downside protection. Investing in a SPAC also involves limited risk as the money is placed in an

escrow account, earning interest before the merger (Feldman, 2006). Furthermore, the SPAC have a form of safety net for investors e.g., required disclosure and for some (especially before the rule change 2010) the ability to vote on the acquisition (Heyman, 2008). Investors have a right to get back their investments if a target is not acquired within 18 - 24 months or if they do not agree with the proposed deal (Schumacher, 2020). Also, investors are able to observe the market's view of a proposed deal before they decide on the direction of their vote (Jenkinson & Sousa, 2011). This could be compared to VC funds which are blind pools of money where the investor has little influence (Feldman, 2006). If no business combination is made, investors are guaranteed minimum liquidation value per share (Hale, 2007).

According to Feldman (2018), structured finance and hedge fund investors find SPACs interesting as they perceive SPACs as an investment with low risk. The reason for this is that the investors can opt out if they do not agree with the proposed merger. The hedge funds and institutional investors can place their investors' money in the SPAC and count them as invested, while having no downside and determine whether to invest in the proposed merger.

Berger (2008) writes that hedge funds find SPACs attractive since they require liquidity and thus cannot invest as limited partners in PE funds. By using SPACs, hedge funds can customize a portfolio of securities with similar exposure as PE but with the benefits of liquidity and control.

As mentioned in Section 2.2.3.1., many IPO investors redeem their shares before the merger and as such many of the disadvantages connected to the merger will affect the buy and hold investor to a larger extent. However, a concern for the IPO investor is that there is an opportunity cost of making the investment (Feldman, 2006). If the investor decides to not be part of the merger, they might receive up to 100% of their money back which could have been invested elsewhere. However, they are compensated for its role as IPO shareholders since they can redeem their shares at a price that equals the price they paid for the units and any additional interest while still keeping the warrants and rights that were part of the units (Klausner, et al., 2021).

2.2.3.4 Buy and Hold Investor Upside and Downside

Schumacher (2020) discusses that SPACs provide investors with access to acquisitions and buyouts which generally are restricted to PE funds. The SPAC is an appealing proxy for leverage buyout transactions since they are publicly traded, often highly levered and are diversified across industries and geographies. In addition, the liquidity and price discovery offered by public markets

is an advantage for SPAC investors (Lewellen, 2009). An upside of SPACs compared to PE and VC funds is that investors can adjust their risk threshold by exercising the right of recession once an acquisition is proposed or by selling their shares, whereas investors must wait until the fund's liquidity event in PE and VC funds (Riemer, 2007). Also, the SPAC is a more transparent vehicle than PE as it is publicly traded and regularly file financial statements with the SEC (Shachmurove & Vulcanovic, 2019). The SPAC also gives investors more influence with regard to industries compared to PE (Boyer & Baigent, 2008).

As mentioned in Section 2.2.3.3., hedge funds have no real incentives to invest in a SPAC that is expected to show good performance post the deSPAC transaction. This trading activity can be misunderstood by other less informed investors that usually see hedge funds and other investors as a certification of firm quality.

Another downside discussed by Feldman (2006) is that the investors invest in a high-level management team and are thus betting on the management team's ability to find a good deal. Thus, investors have to rely on the management team's competence, reputation and past performance as a forecast of how the SPAC will perform (Schumacher, 2020). Also, the time frame incentivizes the management team to conduct a merger even if it does not make sense. If they do not conduct a deal, they will have to give money back to the investors but if they do the deal, they get salary and a 20% interest in the SPAC. Moreover, the management team must spend 80% of the invested money on the deal which could result in the SPAC overpaying for the target (Schumacher, 2020). Because of the extreme monetary incentives that founders face if a deal is approved, shareholders need to assess the deal carefully (Jenkinson & Sousa, 2011).

Also, investors provide capital but do not know anything about the assets being acquired. In addition, thin trading volume because of low liquidity (especially referring to the early days of SPACs trading at OTC markets) and unknown amount of business risk may make the SPAC trade at a discount to the cash in the trust (Boyer & Baigent, 2008).

In Section 2.2.2.2. it was discussed that SPACs can provide a cheaper alternative to enter the public markets compared to a traditional IPO. However, according Klausner et al. (2021) this is not necessarily true, especially not for the buy and hold investors who seems to bear a majority of the costs, partly due to dilution from the sponsor's promote, the underwriting fees and the warrants and rights, and further magnified by a high degree of redemptions before merger. Thus,

it appears that the investors that are buying into the SPAC later on and hold shares through the deSPAC transaction bear the costs of the merger.

Last, a majority of the studies evaluating SPAC post-merger performance show that SPACs have underperformed both the market and traditional IPOs which will affect the buy and hold investors negatively. See Section 3 for a presentation of previous performance studies of SPACs.

3 Literature Review

This section presents previous research and literature that is relevant to the analysis of SPACs and their stakeholders. First, the stock performance of SPACs in terms of short-term underpricing and long-term performance is covered. Second, studies on merger probability and post-merger survival are presented.

3.1 Stock Performance

3.1.1 Short-term Performance

Underpricing is a common theme in the previous literature relating to IPOs. Several previous studies have shown that there is no significant underpricing in SPAC IPOs.

Jog and Sun (2007) examine blank check IPOs using a sample of 62 blank check companies that raised capital during 2003 and 2006. They find that there is relatively small underpricing, and that overpricing could be expected. The average underpricing was 1.9%, with the median being 0.9%. The authors did not find any trend in the degree of underpricing over time and there were no large differences based on sector, CEO experience or CEO ownership percentage before and after the IPO. Of the blank check IPOs examined, 53% was slightly underpriced, 24% had zero underpricing and 23% was slightly overpriced.

Boyer and Baigent (2008) study 87 SPAC IPOs between June 2003 and December 2007 and find that SPACs exhibit less underpricing than regular IPOs. The authors find that the average first-day return of SPACs in 2006 was 1.23% compared to average IPO first day return of 26%. The same trend is noticed for 2005 and 2004.

Cizmovic et al. (2013) examine 184 SPACs between 2003 and 2012 and argue that there is no underpricing on average since there is no significant deviation from the offering price on the first day of trading. However, for some companies, underpricing and overpricing is significant. Even if there is no significant underpricing on average, the authors find that underpricing can be impacted by the number of shareholders that can vote against the merger. Moreover, involvement of PE and a focus on the health care sector can increase the degree of underpricing.

Lakicevic and Vulcanovic (2013) studies 161 US SPACs that successfully conducted an IPO between August 2003 and July 2009. They find that the average first-day return was 0.0001%

which supports their hypothesis that SPAC investors have no incentive to diverge from the offer price at the first trading day.

Rodrigues and Stegemoller (2014) use a sample of 162 SPACs between 2003 and 2011 and report that SPACs do not exhibit IPO underpricing, with mean initial returns in their sample of near zero (small but significant return of 0.9%). The small but significant return is also noted if categorizing SPACs into those that subsequently announce an acquisition (1.0%) and those that actually complete an acquisition (1.2%); though there is substantial variation in the returns (−4.8% to 23.3%). The authors discuss that the lower-than-usual underpricing is consistent with the valuation process in a SPAC IPO being less noisy and easier compared to a traditional IPO.

3.1.2 Long-term Performance

Many studies investigate the performance of SPACs focusing on the pre-merger period. In general, the pre-merger performance of SPACs is mixed (but generally better than the post-merger performance). For example, Gahng et al. (2021) examine investor returns between the IPO date to business completion using 114 SPACs that went public between January 2010 to May 2018. The authors find that SPAC IPO period investors earned 9.3% per year and that the lowest annualized return was 0.51%.

This is supported by Lewellen (2009) who uses a sample of 152 SPAC IPOs and 97 merger transactions, and calculates total returns using daily prices (accounting for dividends and stock splits) between August 2003 and June 2008. The author shows that SPACs have a monthly four-factor model alpha of around 2% per month between announcement and completion. SPACs with no target earn an annualized return of 0.1% and SPACs who have found a target earn approximately a monthly excess return of 0.86% (annualized 11%).

The positive pre-merger performance is further supported by Lakecevic and Vulcanovic (2013) and Floros and Sapp (2011). Jog and Sun (2007), on the other hand, find that the median annualized abnormal return (adjusted for Russell Microcap index) to shareholders from the second day to announcement day is -2% using a sample of 42 blank check companies that announced a merger between 2003 and 2006. They also find that the median return between announcement date and outcome date is -3.35%.

Previous literature focusing on post-merger performance generally find that SPACs underperform both the market and traditional IPOs. For example, Klausner et al. (2021) analyze

post-merger returns to SPAC shareholders using a sample of 47 SPACs that merged between January 2019 and June 2020. They find that the average three-month performance is -2.9% , and -13.1% in excess over IPO index and -1.3% in excess over Russell 2000. Median returns are even worse, amounting to -14.5% (-32.8% in excess over IPO index and -16.1% in excess over Russell 2000). After six and twelve months, average return is -12.3% and -34.9% respectively.

This is supported by Dimitrova (2017) who measures the average four-year BHAR following the SPAC IPO, on a sample of 73 post-merger SPACs between 2003 and 2010, to -51.9%, compared with an average return of 8.5% for other IPO firms that went public in the same year. Moreover, she finds strong evidence that SPAC value destruction through bad acquisitions is a result of SPAC managers' incentive to pursue any acquisition over no acquisition. Performance is worse when deals are completed just before the contractually specified deadline, suggesting that SPAC managers become desperate to do any acquisition to avoid liquidation. SPAC performance is also worse when IPO underwriter fees are deferred and paid upon the completion of the merger, suggesting that underwriters have an interest to complete a deal regardless of its quality.

Observing a sample of 127 SPACs between 2003 and 2015 and using two methods to measure long-term performance – event-time analysis (BHARs) and calendar-time analysis (five-factor regression models) – Kolb and Tykvová (2016) track long-term abnormal returns. They find that SPAC firms are associated with severe underperformance in comparison to the market, the industry and comparable IPO firms. Calculating BHARs over periods of 6, 12, 24 and months, Kolb and Tyková find that SPAC firms underperform the market portfolio (Russell 2000 Index) by 29%, 46%, 59% and 102% on average.

Jenkinson and Sousa (2011) also finds, using a sample of 58 US SPAC IPOs between 2003 and 2006, that there is large negative return on average after an acquisition. On an equally weighted basis, SPACs produce an average cumulative return of approximately -24% after six months and -55% after one year. The underperformance of SPACs after a completed business combination is further supported by studies from Gahng et al. (2021), Vulcanovic (2017), Howe and O'Brien (2012), Lewellen (2009) and Floros and Sapp (2011).

Two studies split the sample of SPACs into different groups, where the general takeaway is that there might be some SPAC characteristics that can result in better performance. Jenkison and Sousa (2011) split their sample into good and bad SPACs, based on ex ante market data. In bad SPACs, investors approved a deal when the closing share price on the day before the decision

date was below the trust value per share. Bad SPACs had an average cumulative return of -39% after 26 weeks and -79% after one year. Good SPACs had flat performance after 26 weeks with an average cumulative return of -6.2%. Klausner et al. (2021) divide their sample into: (1) high-quality sponsors and (2) SPAC with sponsors that does not meet that definition (“Non-HQ”). High-quality sponsors are sponsors that are affiliated with a fund listed in PitchBook with AUM of more than \$1 billion and that the sponsor or SPAC founder should previously have been a CEO or a senior officer. Average three-month post-merger return for SPACs with high-quality sponsors is 31.5% and excess returns over the IPO index is 25.1% (37.5% in excess over Russell 2000). For the group with Non-HQ, average and median three-month return is -38.8% and -46.9%. The authors write that it seems to be a strong correlation between the amount of dilution and the size of the fall in share prices after the merger. Thus, SPAC shareholders bear most of the dilution that a SPAC brings to a merger which might imply that the sponsors/founders do quite well even if SPAC shareholders experience losses.

Last, a few studies examine differences in return for common shares and warrants, where they find that warrants perform better than common shares. Gahng et al. (2021) find for 114 SPACs that completed a merger between January 2012 and September 2020 that common shares underperform the market after the deSPAC transaction. The equally weighted average one-year return on company shares that have completed the business combinations amounted to -15.6%, underperforming the market with 24.3%. However, there is a difference between the return of common shares and warrants, where warrants on average outperform common shares. The average one-year BHAR of the merged companies’ warrants is 44.3%. Also, the average unit holder’s return is higher than the common share return with ca. 2-3%, thus implying that investors in the deSPAC period lose money. This is supported by Lakecevic and Vulcanovic (2013) who find, using a sample US SPACs that went public between August 2003 and July 2009, that there are abnormal returns on SPAC’s common stock on the announcement day of 0.85%. However, as the time period increases, cumulative abnormal return decreases. For unit holders, there is a 2.42% positive abnormal return on the announcement day. The total cumulative return is 7.88%. This indicates that unit abnormal returns are mainly driven by the performance of warrants. Warrant holders experience significant abnormal returns on the announcement day (10.49%), but it lasts only for two days. Equity holders experience a -3.81% return on the day of merger completion. The cumulative abnormal return for the seven days following the merger was -9.59%. For the warrant

holders, the abnormal return is 4.76% on the merger day and 7.36% for the seven days following the merger (note that this is a sample of 8 companies).

To summarize, investors investing in SPACs in the period from the IPO to the merger (defined as IPO investors in Section 2.2.3.3.) experience mixed, but in general, positive returns. In addition, IPO investors holds units, and thus also warrants. As such, they usually experience positive returns driven by the warrants. However, investors that invest at the time of the merger and after the merger (defined as buy and hold investors in Section 2.2.3.4.) experience negative returns with underperformance compared to both the market and traditional IPOs. This is however partly mitigated if the investor invests in a high-quality sponsor.

3.2 Merger Probability & Post-Merger Survival

Cumming et al. (2014) identify factors that influence approval probabilities using a sample of 139 SPACs with an IPO date between 2003 to 2008, with outcome and voting data up until 2010. First, the authors find that greater managerial and board member experience does not improve the probability of a SPAC completing a merger. Instead, they find that younger SPAC management teams have higher probability of being approved. According to the authors, an explanation could be that younger managers have an economic incentive while more senior SPAC management teams may create a SPAC as a hobby investment.

Second, the authors find that the probability of deal approval is higher when lead underwriters are not considered to have impressive track records since it may be viewed negatively by investors. The reason is that prestigious underwriters may not agree to terms such as the underwriting fee being paid after acquisition, and thus there are less incentives to help the SPAC search for a target. In addition, the prestigious underwriter may not actively participate in the process if the SPAC IPO does not have a high placement volume. Also, if there is a large number of underwriters, approval probability decreases as it may signal that the deal is riskier. Third, high level of funds in the trust account may signal operational efficiency and thus be associated with a higher probability of approval. Fourth, there is a relationship between deal approval probability and blockholder structure (e.g., blockholdings by hedge funds and private equity funds) i.e., more voting rights to the SPAC management team increases approval probability and vice versa. Also, if the SPAC management team have a high level of voting rights, time to target announcement is lower. The reason for this is that SPAC management does not want to come close to the SPAC's

end date while investors such as hedge fund may be interested in pursuing arbitrage strategies by seeking a SPAC liquidation. Last, deal approval probability is higher in an upward-trending market environment which indicates that SPACs are sensitive to IPO windows.

Kolb and Tykvová (2016) examine post-merger performance and attractiveness of SPACs compared to an IPO. Using a sample of 130 SPACs between 2003 and 2015, they find that more SPAC acquisitions occur in volatile markets compared to IPOs since SPACs already possess liquidity at the time of the acquisition. In addition, SPACs give smaller, more levered and low-growth firms an opportunity to become public. However, expensive debt reduces the likelihood of a SPAC acquisition because targets consider the current debt terms when choosing between SPACs and a standard IPO. The authors also note that the cash-out figure is larger for SPAC acquisitions compared to standard IPOs. A reason for this might be that it is easier to cash out some of the holdings through the SPAC acquisitions. In addition, the SPAC acquisition takes longer time to be executed compared to an IPO, mainly because of the proxy voting causing delays. Lastly, firms where there is no VC or PE involvement are more likely to go public through a SPAC than an IPO.

Vulanovic (2017) studies the relation between institutional characteristics of SPACs and their post-merger survival using a sample of 105 SPACs between 2003 and 2013. He finds that SPACs failure rate is 58.09% and that institutional characteristics are important in determining survival and failure. A failed SPAC is a SPAC that is delisted due to reasons such as bankruptcy or a new acquisition. He finds that an increase in pre-merger commitment by SPAC stakeholders i.e., founder's warrant purchases, increase survival probability because the commitment reduces asymmetric information and moral hazard. In addition, their involvement increases the quality of the acquisition. At the same time, mergers with high transaction costs such as the underwriter fee and level of deferred fee increases the likelihood of failure.

Vulanovic (2017) also finds that higher involvement of underwriters and the size of the syndicate increases survival probability since the larger network of investment banks may imply more resources that are committed to the merger. Also, positive market performance of SPACs increases the likelihood of survival since the markets are still figuring out the value of the company in the first month after the merger. Overvaluations would thus increase the failure likelihood. Mergers that have high transaction costs and that are focused on foreign companies generally have increased probability of failure.

Lastly, merger characteristics also affect survival probability. Finding and announcing a target acquisition earlier increases the probability of survival. Vulcanovic (2017) also argues that SPACs using bank financing have a higher failure probability since bank financing is generally used when no other financing sources are available. In addition, SPACs merging with foreign private companies have higher probability of failure.

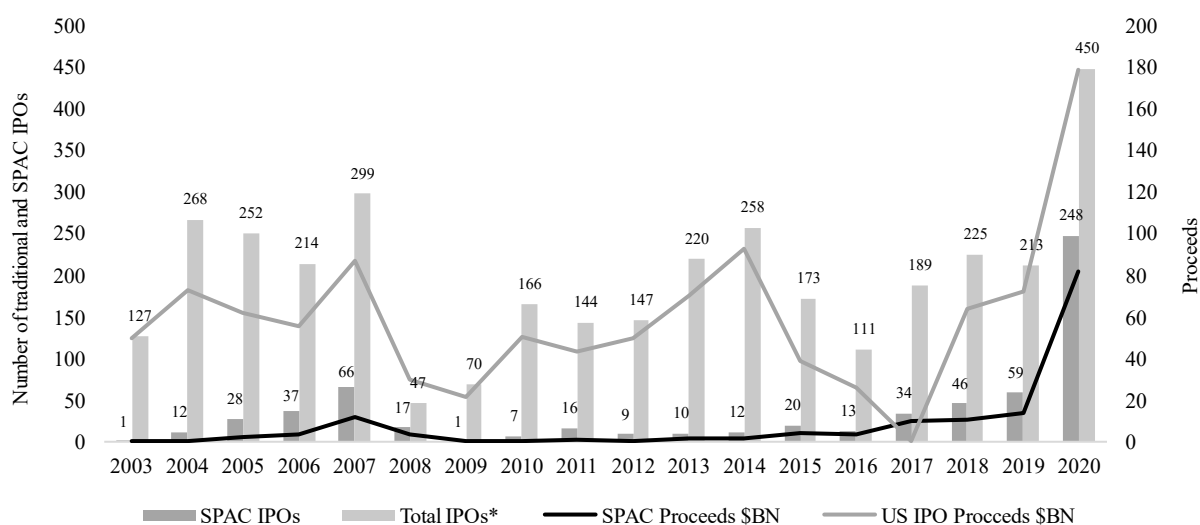
To summarize the literature review, to my knowledge, no previous studies analyze founder characteristics, investor characteristics, different types of target firms and how shareholdings change over the SPAC lifecycle to the same extent as this thesis. Thus, this thesis can add to existing literature as no study look at these aspects in a complete and exhaustive way. In addition, the thesis adds to previous research through an extensive dataset covering all SPAC IPOs and deSPAC transactions between 2003 and 2020.

4 Sample Selection and Construction

For this thesis, I create two datasets: (1) a dataset of SPAC IPOs and (2) a dataset of deSPAC transactions. The thesis focuses on US SPACs since the US SPAC market is large and well-developed with a high volume of SPAC IPOs and deSPAC transactions. The fact that all SPACs operate in the same regulatory environment also allow for consistency in the analysis.

The SPAC IPO sample is a hand collected dataset that includes all 636 US SPACs IPOs between 2003 and 2020. Since there is no exhaustive list of SPAC IPOs between 2003 and 2020, to my knowledge, I assemble the list of SPACs from a variety of sources. As a starting point, I use the idea screening tool offered from the data provider FactSet to compile an initial list of US SPAC IPOs according to FactSet's definition. After this, I cross-check the compiled list with: (1) a report provided by Morgan Joseph Triartisan (2013) listing SPACs between 2003 and mid-2013; (2) auditor league tables from SPAC Research (n.d.) listing SPAC IPOs between 2015 and 2021; and (3) the database Capital IQ. After finalizing the list, the total number of SPAC IPOs amount to 636 SPACs between 2003 and 2020. As a final check, I compare the annual IPO count with summary statistics for the US SPAC market provided by SPAC Analytics (n.d.) and confirm that the yearly count of SPAC IPOs is in line with their summary. See Figure 4 for a graphical illustration of the number of SPACs raised over the period 2003 to 2020, compared to the traditional IPO market.

Figure 4: Illustration of number of SPAC IPOs compared to traditional IPOs (Source: SPAC Analytics)



*IPOs greater than \$40M (excludes direct listings)

The SPAC merger dataset contains all 283 SPACs that went through a deSPAC transaction between 1 January 2003 and 6 March 2021. The 283 SPACs are matched with the relevant firm that merged with the SPAC at the deSPAC transaction, or asset in the case of an asset deal. For the purpose of this thesis, I use “target” as a collective term for both deal types to describe the firm that a SPAC merge with or the asset it acquires. The SPAC merger sample is constructed by using the idea screening tool provided by FactSet and covers mergers made by SPACs that went public between 2003 and 2020. The initial list of transactions is identified by screening on the SPAC names compiled in the SPAC IPO sample. In total, 283 deSPAC transactions are identified. However, as 19 SPACs merged with more than one target, there is a total amount of 310 targets subject to analysis. Two SPACs have been excluded from the total sample of 283. The reason is that one SPAC transformed into a REIT, and one SPAC avoided liquidation by transforming into another form of shell company.

The number of SPAC mergers is lower than the total amount of SPAC IPOs because some SPACs have been liquidated as a result of not finding an appropriate target and some of the more recent SPACs are still searching for a target or in process to complete a business combination. The merger status of each SPAC (Active, Announced Merger, Effectuated Merger and Liquidated) is as per 6 March 2021. The compiled list of deSPAC transactions is cross-checked to a report provided by Morgan Joseph Triartisan (2013) and the data providers Mergermarket and Capital IQ. The total amount of SPAC liquidations and effected mergers is also compared to summary statistics provided by SPAC Analytics (u.d.). See Table 2 for merger status over time for all SPACs in the sample.

Table 2
Overview of SPAC Outcome

The table shows the number of SPACs that are active, have announced a merger, have effected a merger or have been are liquidated for the period 2003 to 2020.																		
	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20
Active																	9	150
Announced Merger															2	3	20	79
Effectuated Merger	1	10	24	17	32	11	1	3	13	6	8	9	17	12	29	42	29	19
Liquidated		2	4	20	34	6		4	3	3	2	3	3	1	3	1	1	
Total	1	12	28	37	66	17	1	7	16	9	10	12	20	13	34	46	59	248

5 Data and Methodology

5.1 Founders

Founder data is collected from final prospectus filings (424B) from the EDGAR database and is gathered for all SPAC IPOs between 2003 and 2020. As the founders, or initiators, of the SPAC is not clearly stated in a majority of the prospectus filings, and as the founders of a SPAC can be both private individuals, corporates or a combination of both, the founder information gathered from the prospectus can be divided into two groups: (1) management team information, and (2) sponsor information. From the management team section in the prospectus data about the members of the management team and their positions (titles) has been collected. In addition to the management team, some SPACs also have special advisors which I treat as a separate group and not include in the management team definition. Entities mentioned as sponsors in the prospectus filing and/or that are a significant stakeholder in the SPAC are considered as potential corporate sponsors or backers to the SPAC. The names of these entities are collected and manually cross-checked against information in the prospectus and other sources including FactSet, Capital IQ and Pitchbook to identify whether the entity could be considered an operating entity, or related to an operating entity, and not solely a holding company or shell incorporated by the founders for the purpose of holding stock in the SPAC. If the entity is confirmed to be an operating entity or related to an operating entity, information about the type of the entity is collected and labeled into a pre-specified group of sponsor types as follows: (Alternative) Asset Management; Financial/Strategic Advisor; Holding Company/Conglomerate/Corporation; Private Equity; Venture Capital; SPAC Firm; and Private Professional. A SPAC firm is defined as a firm that is specialized in and has a sole or main purpose to raise SPACs. SPACs where no sponsor, according to the definition above, is identified, is labelled as Private Professional.

In the absence of a clear founder definition in the prospectus filings, I use key members of the management team as a proxy for the founding members. Key members include the chairman and executive officers such as the CEO, CFO, COO and CTO as well as executive vice presidents. The members of the SPAC can thus be divided into (1) founders, (2) non-key members of the management team, and (3) special advisors. In addition, sponsors are a fourth party to take into account when mapping the initiators of a SPAC.

After defining founders and sponsors, a mapping of recurring founders and sponsors is made. As a first step, all 636 SPACs are grouped into three categories as follows: Virgin; Team Experience; and Founder Series. Virgin is defined as a SPAC with no members in the management team or the group of special advisors that have experience from a previous SPAC. Founder Series is defined as a SPAC that has at least one key member of the management team that has been a key member of a previous SPAC. In addition, SPACs without recurring key members, but with a recurring sponsor that have at least one employee in the management team or the team of special advisors has also been defined as Founder Series (although rare). Team Experience is defined as a SPAC with at least one member of the management team or the group of special advisors that have been a member or special advisor in a previous SPAC, excluding SPACs defined as Founder Series.

As a next step, I map out the SPAC Generation for each SPAC. SPAC Generation is defined as the SPAC position in a series of SPACs initiated by the same key management member(s) or sponsor(s). For example, a SPAC that is the first in a series of several SPACs is labelled as Generation 1, the second SPAC in a series Generation 2 etc. SPACs that are not part of a series are labelled Generation 0.

From the definitions above, I further divide the groups Virgin and Team Experience into subgroups to show whether the SPACs in the groups are part of a series or not. As a result, I end up with five groups describing both the experience of the SPAC management team and special advisors, as well as whether the SPAC is part of a series or not. The groups are as follows: Virgin, Virgin (Series), Team Experience, Team Experience (Series), and Founder Series.

As a last step, I calculate the time in months between each generation of SPACs using the IPO date. As an example, if the first SPAC in a series of SPACs, named SPAC A, went public on the first day of January 2019, and the second SPAC in the series, named SPAC B, went public on the first day of January 2020, SPAC A is assigned 0 months, and SPAC B 12 months.

5.2 Targets

Data on targets is collected from FactSet and proxy statements and other SEC filings (Form S-4/proxy or tender offer documentation). In addition, data points on completion date, merger status, country and industry are retrieved from FactSet, and cross-checked with other data sources including Mergermarket, Capital IQ and a report from Morgan Joseph Triartisan (2013). The

completion date retrieved from FactSet is defined as “the date the parties involved in the transaction disclosed that it has become effective”. Completion date and merger status are manually compared to Mergermarket and Capital IQ to check for potential data reporting errors and are adjusted accordingly.

Target country data is retrieved from FactSet and re-categorized manually into 5 regions as follows: Asia (excl. China); China; Europe; South- & Central America; United States & Canada. For asset deals, the country used for the analysis is the sellers’ country of incorporation. Target industry data is collected from FactSet and Mergermarket. By comparing FactSet’s own industry classification with Mergermarket’s, and by looking at the target company descriptions from both data providers, two customized industry classifications are created for the SPAC merger dataset: one broad and one narrow.

A unique dataset of target ownership at the deSPAC transaction is hand collected from proxy statements and other SEC filings (Form S-4/proxy or tender offer documentation) accessed on the EDGAR database. The information collected from the SEC filings is cross-checked with FactSet’s and Mergermarket’s deal descriptions and seller information. From the data collected, target ownership is categorized into five groups based on the type of the majority ownership or significant shareholder(s) at the time of the deSPAC transaction, as follows: Founder/Management; Listed; Private Equity; Subsidiary; Venture Capital and Founder/Management.

As mentioned in section 4, 634 SPACs in the sample (excluding two SPACs from the total sample of 636 SPACs) have gone through a total number of 281 deSPAC transactions with in total 308 targets. As a result, the analysis of targets can be done in two ways depending on from which side of the transaction I conduct the analysis. I can either analyze the target characteristics from the group of 308 targets and show the percentage distribution of characteristics between them. Alternatively, I can choose to analyze the targets from the perspective of SPACs, matching a target characteristic to each SPAC to determine the share of SPACs that have sourced a specific type of target. However, the second type of analysis can only be made for SPACs that have merged with multiple targets if all the targets have the same characteristic for the variable I am analyzing. As a result, target region and ownership characteristics will be analyzed from a target perspective, as a number of SPACs have merged with multiple targets from different countries and with different ownership structures. However, target industry characteristics will be analyzed from the

perspective of each SPAC, as this is a characteristic that doesn't differ between targets in a potential multiple target deSPAC transaction.

5.3 Investors

Investor ownership data is retrieved from FactSet. First, a list of all the institutional investors (excluding insiders) at the quarter end for each SPAC after the SPAC IPO is compiled. In addition to the investor names, their FactSet investor category are retrieved. Due to data availability, the investor data sample only include SPACs that went public between 2015 and 2020. Using the same methodology, a list of institutional investors (excluding insiders) in the newly merged entity the quarter after the completion of the merger is retrieved for each SPAC. As a next step, a list of the 40 most frequent investors over the period by count pre-merger completion and post-merger completion is compiled using the collected data. Lastly, using the same dataset, I match the pre-merger and post-merger investors and create a dummy variable that is assigned the value of 1 if the pre-merger investor also exists in the investor list of the post-merger entity.

5.4 Outcome and Performance

As mentioned in Section 4, I compile a list of SPAC mergers. A SPAC's merger status can either be Active, Announced Merger, Effected Merger or Liquidated. I use the distribution between SPACs in the Effected Merger and Liquidated categories to illustrate the success rate of a specific group of SPACs when it comes to finalizing a business combination. I use Fisher's Exact Test² to test whether the proportion of liquidations to effected mergers is different for different groups.

Stock price data is retrieved for all SPACs that went public between 2003 and 2020, and that successfully found and merged with a target company. Within this definition, in total 283 SPACs are identified. Prices for common shares, adjusted for splits, spinoffs and cash dividends at merger completion date are retrieved from FactSet. If the merged entity changed ticker and started trading with a new ticker a period after the completion date, I use the first trade date for the new ticker instead. Since the share prices (especially between IPO and merger announcement)

² Fisher's Exact Test is a significance test used when analyzing contingency tables. The test is used for categorical data that arises when observations are classified into different groups. For this thesis, I calculate two-tailed p-values.

should be proportionate to the trust value, this thesis focuses on post-merger performance and not on pre-merger returns.

Price data for 3 months, 6 months, 12 months and 24 months after completion date is retrieved. The total amount of observations decreases as the post completion period increases. This is partly driven by a number of SPACs that have not been listed long enough after merger completion, but also by a smaller number of SPACs that is acquired by another entity 6 to 24 months after the deSPAC transaction or delisted after a period due to non-compliance with exchange requirements or the requirements set by the SEC. Post-merger returns for the different periods are calculated by comparing 3-month, 6-month, 12-month and 24-month closing prices to the closing price at the merger completion date. In addition, gross index returns are calculated over the same periods using the Russel 2000 index. Index adjusted returns are calculated for all four periods by subtracting the gross index returns from the SPAC post-merger returns for each SPAC. I calculate t-tests³ to see if there are significant statistical differences in mean returns between different groups.

³ T-test is a statistical hypothesis test which is generally used when the test statistic would follow a normal distribution. The test shows e.g., if two sample means are significantly different from each other. For this thesis, I calculate two-tailed p-values.

6 Result

The following section outlines the result of this thesis. First, an overview of the outcome of SPACs and their post-merger performance is described. Second, I analyze SPAC founders by investigating founder characteristics and how it is related to SPAC outcome and post-merger performance. Third, I investigate target characteristics followed up with an evaluation of SPAC post-merger performance. Last, I analyze investors around the SPAC IPO and around the deSPAC transaction.

6.1 Overview of Outcome and Performance

As previously discussed, and shown in Table 2 in Section 4, a SPAC's status can be divided into four groups; Active, Announced Merger, Effected Merger or Liquidated. Table 3 shows the status of each SPAC in the sample, further divided into two time periods; Pre 2010 and Post 2010. The time period Pre 2010 includes all SPACs in the sample that have made an IPO between 2003 and 2009, and the period Post 2010 includes all SPACs that made an IPO between 2010 and 2020. In addition to showing the distribution between all four groups, Table 3 also show the percentage distribution between the two groups Effected Merger and Liquidated. The distribution between SPACs in the Effected and Liquidated categories illustrates the success rate of a specific group of SPACs. However, as the full sample also constitutes of active and announced SPACs, that can either effect a merger or liquidate in the future, it is important to also take into account the share of SPACs in the categories Active and Announced Merger when deciding upon the accuracy of the ratio of effected SPACs over liquidated SPACs. From Table 3, I find a decrease in the share of liquidations over the two time periods. Among the group of effected and liquidated SPACs, the share of liquidated SPACs has decreased from 41% to 11% over the two periods. I test the proportions of effected and liquidated SPACs for the two time periods and find that they are statistically significantly different from each other.

Table 3
SPAC Status Pre and Post 2010

The table illustrates the distribution of SPACs within the four groups: (1) Active, (2) Announced Merger, (3) Effected Merger and (4) Liquidated. The distribution is divided into two time periods, pre 2010 (2003 - 2009) and post 2010 (2010 - 2020). The table also illustrates the distribution of effected and liquidated SPACs, excluding active SPACs and SPACs that have announced a merger.

All SPACs					
	Active	Announced	Effected	Liquidated	N
Pre 2010	0%	0%	59%	41%	162
Post 2010	34%	22%	39%	5%	474
Total	25%	16%	44%	14%	636
Effected and Liquidated SPACs					
			Effected	Liquidated	N
Pre 2010			***59%	***41%	162
Post 2010			***89%	***11%	211
Total			76%	24%	373

Notes: *, **, and *** denotes significance at the 10%, 5%, and 1% level, respectively.

Table 4 shows the mean and median 3-month, 6-month, 12-month and 24-month post-merger index adjusted returns (Russell 2000) for SPACs that completed an IPO in the period before 2010 compared to the group of SPACs that completed an IPO in the period between 2010 and 2020. I note that SPACs underperform the index across all return measurement periods for both the pre 2010 and post 2010 group. The pre 2010 and post 2010 groups' mean index-adjusted returns are not significantly statistically different from each other indicating that mean returns has not changed over time.

Table 4
Mean and Median Index-adjusted Returns

The table shows mean and median index-adjusted returns for 3 months, 6 months, 12 months and 24 months following the completion of the merger. The returns are divided into two time periods, pre 2010 (2003 - 2009) and post 2010 (2010 - 2020). The index used is Russell 2000.

Index-adjusted Return	Pre 2010	Post 2010	2003 - 2020	N
Mean, 3-month	-12%	-10%	-11%	274
Mean, 6-month	-22%	-20%	-21%	236
Mean, 12-month	-39%	-27%	-32%	210
Mean, 24-month	-54%	-65%	-59%	171
Median, 3-month	-13%	-9%	-11%	274
Median, 6-month	-23%	-22%	-23%	236
Median, 12-month	-44%	-38%	-41%	210
Median, 24-month	-56%	-72%	-62%	171

6.2 Analysis of Founders

6.2.1 Founder Characteristics

As illustrated in Table 5, I find that SPACs backed by private professionals are the most common with a 36% share of all SPAC IPOs between 2003 and 2020. This is followed by PE sponsored SPACs that constitutes 29% of all SPAC IPOs in the sample. Comparing the distribution pre and post 2010, I find that PE sponsored SPACs have increased from 18% to 32%, while SPACs backed by private professionals have decreased from 59% to 28% of all SPACs for the two periods. Furthermore, I find that VC sponsored SPACs have become more common over the two periods, with a notable increase from 3% to 11%. I find that the increase in post 2010 VC sponsored SPACs is driven by a large share of VC sponsored SPACs in 2020, constituting 17% of all SPACs raised. Lastly, I find that the share of SPAC firm backed SPACs has increased between the two periods, from 1% pre 2010 to 7% post 2010. There are in total 32 SPACs raised by SPAC firms in the sample.

Table 5
Distribution of SPAC Sponsorship by Sponsor Type

The table shows the distribution of SPAC sponsorship by different sponsor types for the period pre 2010 (2003 - 2009) and post 2010 (2010 - 2020). Due to the surge in SPAC IPOs during 2020, the group of post 2010 SPACs can be divided into two sub-groups: 2010 - 2019 and 2020 alone.

	Pre 2010	Post 2010	Post 2010		2003 - 2020
			2010 - 2019	2020	
(Alternative) Asset Management	6%	10%	11%	9%	9%
Financial / Strategic Advisor	9%	8%	8%	8%	8%
Holding Company / Corporation	4%	4%	5%	3%	4%
Private Equity	18%	32%	36%	29%	29%
Private Professional	59%	28%	27%	29%	36%
SPAC Firm	1%	7%	9%	4%	5%
Venture Capital	3%	11%	4%	17%	9%
N	162	474	226	248	636

Table 6 shows the distribution of SPACs by founder and management team experience, also taking into account whether the SPAC is part of a series or not. Virgin SPACs that are not part of a series constitutes 48% of all SPAC IPOs between 2003 and 2020, being the most common group of SPAC IPOs. 28% of all SPAC IPOs can be labelled as Founder Series, showing an increase between the pre 2010 and the post 2010 periods from 13% to 33%. Thus, there is a

common phenomenon that SPAC founders raise several SPACs. However, it is important to highlight that the categorization of SPACs is made at the date of the data collection, meaning that SPACs categorized as Virgin or Team Experience can become part of a series if a sequel SPAC is raised.

Table 6
Distribution of SPACs by Founder and Management Experience

The table shows the distribution of SPACs by founder and management experience for the period pre 2010 (2003 - 2009) and post 2010 (2010 - 2020). Due to the surge in SPAC IPOs during 2020, the group of post 2010 SPACs can be divided into two sub-groups: 2010 - 2019 and 2020 alone. For definitions of Virgin, Team Experience, Virgin (Series), Team Experience (Series) and Founder Series, see Section 5.1.

	Pre 2010	Post 2010	Post 2010		2003 - 2020
			2010 - 2019	2020	
Virgin	59%	45%	37%	52%	48%
Virgin (Series)	17%	10%	19%	2%	12%
Team Experience	7%	10%	9%	10%	9%
Team Experience (Series)	3%	3%	4%	2%	3%
Founder Series	13%	33%	31%	35%	28%
N	162	474	226	248	636

Table 7 provides a more detailed overview of the distribution between SPACs that have raised several SPACs between 2003 and 2020. I find that, although rare with only 0.2% of all SPAC in the sample, there are founders that have been involved in up to eight SPACs. Naturally, the share of SPACs in each generation decreases as the generation count increases.

I find that Generation 0 SPACs constitutes the largest share of the total SPACs raised. Analyzing the distribution over the period (see Annex B), I find that there are many Generation 0 SPACs pre 2010 (around the global financial crisis) as well as in 2019 and 2020 when the number of SPAC IPOs surged. I also find that the number of SPACs in later generations increases over time as sequel SPACs are raised.

Table 7
Distribution of SPACs by SPAC Generation

The table shows the distribution of SPACs by SPAC generation for the period pre 2010 (2003 - 2009) and post 2010 (2010 - 2020). Due to the surge in SPAC IPOs during 2020, the group of post 2010 SPACs can be divided into two sub-groups: 2010 - 2019 and 2020 alone. For definition of SPAC generation, see section 5.1.

	Pre 2010	Post 2010	Post 2010		2003 - 2020
			2010 - 2019	2020	
Generation 0	66.7%	54.2%	46.0%	61.7%	57.4%
Generation 1	20.4%	12.4%	22.6%	3.2%	14.5%
Generation 2	10.5%	16.7%	17.7%	15.7%	15.1%
Generation 3	1.2%	7.8%	7.5%	8.1%	6.1%
Generation 4	1.2%	4.0%	3.5%	4.4%	3.3%
Generation 5	0.0%	2.1%	2.2%	2.0%	1.6%
Generation 6	0.0%	1.7%	0.4%	2.8%	1.3%
Generation 7	0.0%	0.8%	0.0%	1.6%	0.6%
Generation 8	0.0%	0.2%	0.0%	0.4%	0.2%
N	162	474	226	248	636

Table 8 shows that SPACs raised as a part of a series of SPACs (including the first SPAC raised in the series) are most common among SPAC firms, where SPACs raised as a series of SPACs constitutes 94% of all SPACs raised by SPAC firms. This is natural as a SPAC firm is defined from its core business model to raise SPACs. The remaining 6% can be explained by sponsors that have been identified as SPAC firms, but that at the time of the sample collection only had raised one SPAC. Furthermore, SPACs identified as being raised by private professionals are to a lower degree raised as a part of a series of more than one SPAC, with 72% being SPACs not included in a SPAC Series (previously referred to as Generation 0 SPACs).

Table 8
Cross Tabulation of Sponsor Type and SPAC Series

The table shows a cross tabulation of sponsor type and SPAC series. A SPAC series is defined as a series of SPACs raised by the same founder or sponsor.

	SPAC Series	No SPAC Series	N
(Alternative) Asset Management	46%	54%	57
Financial/Strategic Advisor	66%	34%	53
Holding Company / Corporation	50%	50%	26
Private Equity	45%	55%	182
Private Professional	28%	72%	229
SPAC firm	94%	6%	32
Venture Capital	39%	61%	57
Total	43%	57%	636

6.2.2 Outcome and Performance

Table 9 shows the SPAC IPO sample grouped by status and type of sponsor, only comparing liquidated SPACs with those that have effected a merger. See Annex C for an outcome comparison including the categories Active and Announced Merger.

I find that the liquidation rate has decreased across all sponsor groups over the two periods pre and post 2010. Looking at the full sample, SPAC firms have not raised any SPACs that have been liquidated and 21 SPAC firms have successfully conducted a business combination. Advisors also show a low liquidation rate of 9%. In comparison, private professionals show the highest liquidation rate of 36%. I test for differences in proportions for the full sample (2003 to 2020) and find that the proportion of effected mergers and liquidations for advisors, SPAC firms and private professionals are statistically significantly different to the rest of the group. However, to take into account the fact that liquidations overall have shown a decreasing trend over time, where e.g. SPAC firms have been more present as SPAC sponsors post 2010, I also test proportions after dividing the full sample into the two periods pre and post 2010. I find that only private professionals in the post 2010 sample have statistically significant differences in proportions compared to the rest of the group. The results indicate that private SPACs backed by private professionals show higher liquidation rates compared to the other sponsor groups. In addition, although SPAC firms do not show significantly different proportions compared to the other for the period post 2010, the fact that the sponsor group has not liquidated a single SPAC while successfully completed 21 business combinations, indicate strong performance measured by outcome for the SPAC firm as a sponsor group.

Table 9
SPAC Outcome by Sponsor

The table shows the outcome for SPACs by sponsor type for the period pre 2010 (2003 - 2009) and post 2010 (2010 - 2020).

	Pre 2010			Post 2010			2003 - 2020		
	Effected	Liquidated	N	Effected	Liquidated	N	Effected	Liquidated	N
(Alt.) Asset Management	56%	44%	9	78%	22%	23	72%	28%	32
Financial / Strategic Advisor	80%	20%	15	100%	0%	18	**91%	**9%	33
Holding Company / Corp.	57%	43%	7	91%	9%	11	78%	22%	18
Private Equity	62%	38%	29	89%	11%	74	82%	18%	103
Private Professional	55%	45%	96	**81%	**19%	52	***64%	***36%	148
SPAC Firm	100%	0%	1	100%	0%	20	***100%	***0%	21
Venture Capital	60%	40%	5	100%	0%	13	89%	11%	18
Total	59%	41%	162	89%	11%	211	76%	24%	373

Notes: *, **, and *** denotes significance at the 10%, 5%, and 1% level, respectively.

In Table 10, I summarize the index adjusted post deSPAC transaction performance grouped by SPAC sponsor. The table shows index adjusted returns for both the full sample, as well as for the periods pre and post 2010. However, note that the sample size for each sponsor is significantly lower for the mean performance returns pre and post 2010 compared to the full sample. Looking at the 3-month, 6-month, 12-month and 24-month mean index adjusted returns for the full period, SPAC firms and VC backed SPACs indicate higher returns compared to the group average, with 12-month index adjusted returns of 11% and 9% respectively compared to the group average of -32%. However, only SPAC firms exhibit a statistically significant difference from the rest of the group. 24-month returns for SPACs sponsored by SPAC firms exhibit negative returns, but still statistically significantly different from the rest of the group. Lastly, I find that the sponsor group (Alternative) Asset Management show worse performance compared to the group, with a 12-months index adjusted return of -62%, statistically significantly different from the rest of the group.

Table 10
SPAC Performance by Sponsor Type Pre and Post 2010

The table illustrates the mean 3-month, 6-month, 12-month and 24-month index-adjusted returns of SPACs. The index used is Russell 2000. The distribution is divided into three time periods, pre 2010 (2003 - 2009), post 2010 (2010 - 2020) and the whole sample (2003 - 2020).

2003 - 2020				
	3-month	6-month	12-month	24-month
(Alternative) Asset Management	***-28%	***-48%	***-62%	*-85%
Financial / Strategic Advisor	-9%	-11%	-29%	-56%
Holding Company / Corporation	-6%	-42%	-52%	-70%
Private Equity	-7%	-17%	-41%	-66%
Private Professional	-15%	-27%	-32%	-56%
SPAC Firm	**3%	**0%	***11%	** -10%
Venture Capital	-7%	1%	9%	-59%
Total	-11%	-21%	-32%	-59%
N	274	236	210	171
Pre 2010				
	3-month	6-month	12-month	24-month
(Alternative) Asset Management	-21%	-29%	-56%	-76%
Financial / Strategic Advisor	1%	-9%	-51%	-55%
Holding Company / Corporation	-23%	-56%	-72%	-67%
Private Equity	-18%	-12%	-33%	-52%
Private Professional	-12%	-25%	-34%	-51%
SPAC Firm	-9%	-31%	-14%	-4%
Venture Capital	-13%	-29%	-46%	-69%
Total	-12%	-22%	-39%	-54%
N	96	96	95	92
Post 2010				
	3-month	6-month	12-month	24-month
(Alternative) Asset Management	***-30%	***-56%	** -67%	** -98%
Financial / Strategic Advisor	-15%	-13%	-7%	-60%
Holding Company / Corporation	1%	-36%	-39%	-72%
Private Equity	-4%	-18%	-45%	-74%
Private Professional	-18%	-29%	-29%	-68%
SPAC Firm	*4%	**2%	**13%	** -10%
Venture Capital	-5%	14%	36%	-30%
Total	-10%	-20%	-27%	-65%
N	178	140	115	79

Notes: *, **, and *** denotes significance at the 10%, 5%, and 1% level, respectively.

In Table 11, I show the SPAC status grouped on whether the SPAC is part of a SPAC series or not. For the pre 2010, post 2010 and 2003 – 2020 time periods, SPACs that are part of a series show a statistically significant lower share of liquidated SPACs compared to the proportions of the non-SPAC Series group. Looking at Annex D, which includes the categories Active and Announced, I find that SPACs as a part of a SPAC series that went public between 2003 and 2020 have a liquidation rate of 7% with a fairly low number of active SPACs and SPACs that have

announced mergers. This indicates that the low share of liquidated SPACs is not biased by a high share of active and announced SPACs at the data collection date.

Table 11
SPAC Outcome by SPAC Experience

The table shows the outcome for SPAC Series and No SPAC Series for the period pre 2010 (2003 - 2009) and post 2010 (2010 - 2020). A SPAC Series is all SPACs that are part of a series of SPACs, also including the first SPAC in the series.

	Pre 2010			Post 2010			2003 - 2020		
	Effectuated	Liquidated	N	Effectuated	Liquidated	N	Effectuated	Liquidated	N
SPAC Series	***81%	***19%	54	**93%	**7%	125	***89%	***11%	179
No SPAC Series	***48%	***52%	108	**83%	**17%	86	***63%	***37%	194
Total	59%	41%	162	89%	11%	211	76%	24%	373

Notes: *, **, and *** denotes significance at the 10%, 5%, and 1% level, respectively.

Table 12 shows the 3-months, 6-months, 12-months, and 24-months post completion stock performance divided into three time periods: pre 2010, post 2010 and 2003 - 2020, keeping the grouping on SPACs that are part of a series, and SPACs that are not. I find that SPACs which are part of a series exhibit negative index adjusted returns over all post completion periods. However, one-off SPACs exhibit even lower returns. For the full sample, the 12-month mean index adjusted return is -17% for SPACs that are part of a series and statistically significant different to non-series SPACs returns with a mean of -51%.

Table 12
SPAC Performance by SPAC Series Pre and Post 2010

The table illustrates the mean 3-month, 6-month, 12-month and 24-month index-adjusted returns of SPACs that are part of a Series and SPACs that are not part of a Series. The index used is Russell 2000. The distribution is divided into three time periods, pre 2010 (2003 - 2009), post 2010 (2010 - 2020) and the whole sample (2003 - 2020).

Pre 2010				
	3-month	6-month	12-month	24-month
SPAC Series	-11%	-18%	** -28%	** -40%
No SPAC Series	-14%	-26%	** -48%	** -67%
Total	-12%	-22%	-39%	-54%
N	96	96	95	92
Post 2010				
	3-month	6-month	12-month	24-month
SPAC Series	*** -3%	*** -11%	*** -11%	*** -52%
No SPAC Series	*** -21%	*** -36%	*** -54%	*** -84%
Total	-10%	-20%	-27%	-65%
N	178	140	115	79
2003 - 2020				
	3-month	6-month	12-month	24-month
SPAC Series	*** -5%	*** -14%	*** -17%	*** -46%
No SPAC Series	*** -18%	*** -31%	*** -51%	*** -74%
Total	-11%	-21%	-32%	-59%
N	274	236	210	171

Notes: *, **, and *** denotes significance at the 10%, 5%, and 1% level, respectively.

In Table 13, I summarize the SPAC status for the three time periods: pre 2010, post 2010 and 2003 – 2020, grouped by SPAC experience. I find that Virgin SPACs that are part of a series show the lowest or among the lowest liquidation rates across all three time periods, with proportions significantly different from the remaining groups' proportions for the two periods pre 2010 and 2003 – 2020. SPACs categorized as either Virgin or Team Experience, not being part of a series, show higher than group mean liquidation rates across all three periods, with SPACs classified as Team Experience showing proportions differences that are statistically significant from the proportions of the remaining group across all periods. The same is true for virgin SPACs not part of a series for the periods pre 2010 and 2003 – 2020. See Annex E for an outcome comparison including the categories Active and Announced Merger.

Table 13
Outcome for Management Experience

The table shows the outcome for management experience for the period pre 2010 (2003 - 2009) and post 2010 (2010 - 2020). A SPAC Series is all SPACs that are part of a series of SPACs, also including the first SPAC in the series.

	Pre 2010			Post 2010			2003 - 2010		
	Effectuated	Liquidated	N	Effectuated	Liquidated	N	Effectuated	Liquidated	N
Virgin	***50%	***50%	96	84%	16%	70	***64%	***36%	166
Virgin (Series)	*96%	*4%	28	95%	5%	16	**96%	**4%	70
Team Experience	***33%	***67%	12	*75%	*25%	42	***57%	***43%	28
Team Experience (Series)	80%	20%	5	100%	0%	10	93%	7%	15
Founder Series	62%	38%	21	90%	10%	73	**84%	**16%	94
Total	59%	41%	162	89%	11%	211	76%	24%	373

Notes: *, **, and *** denotes significance at the 10%, 5%, and 1% level, respectively.

In Table 14, I show the 3-month, 6-month, 12-month and 24-month mean index adjusted returns for all SPACs in the sample grouped on SPAC experience for the three time periods: pre 2010, post 2010 and 2003 – 2020. Looking at the period 2003 – 2020, returns are zero or negative. I find that Virgin SPACs not part of a series exhibits lower mean index adjusted returns compared to the group mean across all post-closing periods. The mean index adjusted return for the Virgin group of SPACs is statistically significantly different from the mean of the remaining groups. In contrast, virgin SPACs part of a series show higher, although still negative, index adjusted returns compared to the group mean.

Table 14
SPAC Performance by Management Experience

The table illustrates the mean 3-month, 6-month, 12-month and 24-month index-adjusted returns of SPACs depending on their management experience. The index used is Russell 2000. The distribution is divided into three time periods, pre 2010 (2003 - 2009), post 2010 (2010 - 2020) and the whole sample (2003 - 2020).

2003 - 2020				
	3-month	6-month	12-month	24-month
Virgin	***-20%	***-32%	***-48%	***-72%
Virgin (Series)	-6%	***-6%	***-6%	***-26%
Team Experience	-4%	-23%	-74%	-86%
Team Experience (Series)	-8%	0%	-8%	-64%
Founder Series	-5%	-24%	-31%	-64%
Total	-11%	-21%	-32%	-59%
N	274	236	210	171
Pre 2010				
	3-month	6-month	12-month	24-month
Virgin	-17%	-26%	-45%	-65%
Virgin (Series)	-10%	-15%	***-17%	***-24%
Team Experience	19%	-20%	-74%	-80%
Team Experience (Series)	-12%	-13%	-29%	-60%
Founder Series	-12%	-26%	-51%	-66%
Total	-12%	-22%	-39%	-54%
N	96	96	95	92
Post 2010				
	3-month	6-month	12-month	24-month
Virgin	***-22%	***-37%	***-52%	**-.83%
Virgin (Series)	-3%	**1%	**6%	**-.29%
Team Experience	-12%	-24%	-75%	-91%
Team Experience (Series)	-7%	9%	8%	-69%
Founder Series	-3%	-23%	-24%	-63%
Total	-10%	-20%	-27%	-65%
N	178	140	115	79

Notes: *, **, and *** denotes significance at the 10%, 5%, and 1% level, respectively.

Table 15 show the proportions of effected and liquidated SPACs, grouped into the categories based on the SPACs position in a series (first, middle or last). I find that SPACs being last in a series exhibit higher liquidation rates compared to the two other groups for all periods. The proportions of effected and liquidated SPACs are statistically significantly different from the two other groups. In addition, for the period 2003 – 2020, SPACs being first in a series show lower liquidation rates with proportions that are significantly different from the other groups. See Annex F for an outcome comparison including the categories Active and Announced Merger.

Table 15
SPAC Outcome by Position in Series

The table shows the outcome by Position in Series for the period pre 2010 (2003 - 2009) and post 2010 (2010 - 2020). A SPAC Series is all SPACs that are part of a series of SPACs, also including the first SPAC in the series.

	Pre 2010			Post 2010			2003 - 2020		
	Effectuated	Liquidated	N	Effectuated	Liquidated	N	Effectuated	Liquidated	N
First in Series	***94%	***6%	33	96%	4%	52	***95%	**5%	85
Middle of Series	75%	25%	12	**100%	**0%	47	95%	5%	59
Last in Series	***44%	***56%	9	***73%	***27%	26	***66%	***34%	35
Total	81%	19%	54	93%	7%	125	89%	11%	179

Notes: *, **, and *** denotes significance at the 10%, 5%, and 1% level, respectively.

Table 16 summarizes the 3-month, 6-month, 12-month and 24-month mean index adjusted returns for SPACs grouped on the SPACs position in a series (first, middle or last) for three time periods: pre 2010, post 2010 and 2003 – 2020. In the period 2003 to 2020, I find that the first SPAC in a series exhibit negative but higher index adjusted mean returns compared to the rest of the group, statistically significant for the 6-month, 12-month and 24-month period. In contrast, SPACs that are last in a series exhibit lower index adjusted mean returns compared to the remaining group, statistically significant for the 6-month, 12-month and 24-month periods.

Table 16
SPAC Performance by Position in Series

The table illustrates the mean 3-month, 6-month, 12-month and 24-month index-adjusted returns of SPACs depending on their position in series. The index used is Russell 2000. The distribution is divided into three time periods, pre 2010 (2003 - 2009), post 2010 (2010 - 2020) and the whole sample (2003 - 2020).

2003 - 2020				
	3-month	6-month	12-month	24-month
First in Series	-6%	** -5%	** -6%	** -31%
Middle of Series	-9%	-17%	-24%	-53%
Last in Series	6%	** -39%	* -44%	*** -81%
Total	-5%	-14%	-17%	-46%
N	157	132	117	92
Pre 2010				
	3-month	6-month	12-month	24-month
First in Series	-10%	-15%	* -19%	* -29%
Middle of Series	-16%	-20%	-55%	-58%
Last in Series	-2%	-41%	-42%	-84%
Total	-11%	-18%	-28%	-40%
N	44	44	44	44
Post 2010				
	3-month	6-month	12-month	24-month
First in Series	-3%	** 2%	6%	-35%
Middle of Series	-8%	-16%	-14%	-50%
Last in Series	8%	** -39%	** -45%	** -81%
Total	-3%	-11%	-11%	-52%
N	113	88	73	48

Notes: *, **, and *** denotes significance at the 10%, 5%, and 1% level, respectively.

Supported by the results above, Table 17 shows that for each generation, SPACs that are the last in a series exhibit higher liquidation rates compared to the group of SPACs that are part of a continuing series. This is consistent over Generation 1, Generation 2 and Generation 3. I only cover these generations due to a small sample for the higher generations. For Generation 1 and Generation 2, the proportions for the group last in series and for the group of continuing series are statistically significant from each other. Consistent with the findings above, Table 18 shows that for each generation, the SPACs that are part of a continuing series exhibit higher, but still negative, mean index adjusted returns compared to the group of SPACs being last in a series. I find that the mean index adjusted returns over the four post-closing periods for Generation 1 SPACs part of a continuing series are statistically significantly different from the mean index adjusted return of Generation 1 firms being last in a series. See Annex G for an outcome comparison including the categories Active and Announced Merger.

In addition to these results, I find that the time gap to the predecessor SPAC is higher for SPACs in a series that has a predecessor that liquidated. If I look at Generation 1 and 2 SPACs that have liquidated but are still followed by a sequel SPAC, the average time gap to the next SPAC is 93 and 104 months respectively. This can be compared to Generation 1 and 2 SPACs that have effected a merger and are followed by a sequel SPAC, both exhibiting a time gap of 33 months on average.

Table 17
Comparison of SPAC Outcome between Continuing SPACs and Non-continuing SPACs

The table shows the outcome for SPACs part of a continuing series compared to SPACs part of a non-continuing series for three different generations of SPACs.

Generation 1			
	Effected	Liquidated	N
Last in Series	***63%	***37%	194
Part of continuing Series	***95%	***5%	85
Total	73%	27%	279
Generation 2			
	Effected	Liquidated	N
Last in Series	***65%	***35%	26
Part of continuing Series	***91%	***9%	32
Total	79%	21%	58
Generation 3			
	Effected	Liquidated	N
Last in Series	83%	17%	6
Part of continuing Series	100%	0%	13
Total	95%	5%	19

Notes: *, **, and *** denotes significance at the 10%, 5%, and 1% level, respectively.

Table 18**Comparison of SPAC Performance between Continuing SPACs and Non-continuing SPACs**

The table illustrates the mean 3-month, 6-month, 12-month and 24-month index-adjusted returns of SPACs part of a continuing series and SPACs part of a non-continuing series for three different generations of SPACs. The index used is Russell 2000.

Generation 1				
	3-month	6-month	12-month	24-month
Last in Series	**_-18%	***_-31%	***_-51%	***_-74%
Part of Continuing Series	**_-6%	***_-5%	***_-6%	***_-31%
Total	-13%	-20%	-32%	-57%
N	198	176	157	129
Generation 2				
	3-month	6-month	12-month	24-month
Last in Series	2%	-32%	-41%	-79%
Part of Continuing Series	-12%	-13%	-20%	-49%
Total	-7%	-20%	-28%	-62%
N	45	37	33	29
Generation 3				
	3-month	6-month	12-month	24-month
Last in Series	30%	-48%	-54%	-90%
Part of Continuing Series	-10%	-24%	-22%	-23%
Total	2%	-31%	-32%	-53%
N	16	14	12	9

Notes: *, **, and *** denotes significance at the 10%, 5%, and 1% level, respectively.

In Annex H and I, I summarize all SPAC sponsors that have raised at least 5 SPACs, and SPAC firms that have raised at least 3 SPACs. What this group of founders have in common except for the significant number of SPACs they have raised, is that no SPAC has been liquidated. Thus, among this club of 14 SPAC sponsors, founders and SPAC firms, having raised in total 63 SPACs, no SPACs have been liquidated. However, only 62% of the SPACs have gone through a deSPAC transaction.

6.3 Analysis of Targets

In this section, I analyze the 308 targets that went public via a deSPAC transaction or sold their assets to one of the 281 SPACs that went public between 2003 and 2020. I investigate target characteristics including country of incorporation, industry and majority or significant ownership at the deSPAC transaction and compare it to information about SPAC sponsorship. In addition, target ownership at the deSPAC transaction is mapped against the performance of the merged entity after completion of the merger.

6.3.1 Target Characteristics

Table 19 shows the country of incorporation (grouped into regions) for targets that have gone public through a SPAC merger during the period 2003 to 2020. As a number of SPACs have merged with several targets incorporated in different countries, the analysis is made from the perspective of targets. Thus, the analysis should not be interpreted as the share of SPACs that merge with a target in a specific region, but instead as percentage of targets that are from a specific region that choose to merge with a SPAC. The table show that a larger share of all targets that merged with a SPAC that went public pre 2010 were incorporated in China compared to the period post 2010, where the percentage share decreased from 19% pre 2010 to 7% post 2010. In addition, I find that SPACs that went public post 2010 sourced targets in the US and Canada to a larger extent, with an increase from 63% to 75% of all targets sourced by SPACs between the two periods.

Table 19
Overview of Target Regions

The table shows the distribution of target regions for the period pre 2010 (2003 - 2009) and post 2010 (2010 - 2020). Due to the surge in SPAC IPOs during 2020, the group of post 2010 SPACs can be divided into two sub-groups: 2010 - 2019 and 2020 alone.

	Pre 2010	Post 2010	Post 2010		2003 - 2020
			2010 - 2019	2020	
Asia (excl. China)	8%	7%	8%	0%	7%
China	19%	7%	8%	0%	11%
Europe	9%	5%	6%	0%	6%
South- & Central America	1%	5%	5%	0%	4%
United States & Canada	63%	75%	72%	100%	71%
N	104	204	185	19	308

Table 20 presents the industry classification for the sample of targets, divided into different periods based on SPAC IPO year. As all SPACs in the sample (including SPACs that have merged with multiple targets) have completed a merger with a one target or multiple targets active in one single industry, the analysis can be interpreted as the share of SPACs that merge with a target in a specific industry. I find that SPACs that went public pre 2010 to a larger extent merged with targets or acquired assets in industries such as media and telecommunications and transportation, with media and telecommunications showing a decrease from 14% to 4% and transportation a decrease from 11% to 2% between the two periods. In addition, there is an increase the percentage of SPACs that merge with targets or acquire assets in industries such as industrial products and services,

healthcare, leisure and business software, with an increase from 7% to 16%, 8% to 12%, 2% to 11% and 3% to 8% respectively between the two periods.

Table 20
Overview of Target Industry

The table shows the distribution of target industry for the period pre 2010 (2003 - 2009) and post 2010 (2010 - 2020). Due to the surge in SPAC IPOs during 2020, the group of post 2010 SPACs can be divided into two sub-groups: 2010 - 2019 and 2020 alone.

	Pre 2010	Post 2010	Post 2010		2003 - 2020
			2010 - 2019	2020	
Consumer	14%	14%	14%	15%	14%
Industrial Products and Services	7%	16%	7%	16%	13%
Financial Services, Insurance	14%	12%	14%	13%	13%
Healthcare	8%	12%	8%	9%	11%
Energy, Mining	5%	12%	5%	13%	10%
Leisure	2%	11%	2%	11%	8%
Media, Telecommunications	14%	4%	14%	4%	7%
Business Software	3%	8%	3%	8%	6%
Transportation	11%	2%	11%	2%	5%
Construction	7%	3%	7%	4%	5%
Business Services	7%	3%	7%	4%	5%
Manufacturing	4%	1%	4%	1%	2%
Agriculture	3%	1%	3%	1%	2%
N	95	186	167	19	281

Annex J shows a more narrow industry classification for the sample of targets, grouped into pre and post 2010. I find that the increase of targets active in industrial products and services, healthcare and leisure are driven by deSPAC transactions made in growth related sectors including electric vehicles, MedTech and BioTech as well as gambling and gaming. In addition, I find that the decrease in SPACs sourcing targets or assets in the transportation sector can be derived from a decrease of targets active in the shipping industry. In addition, Annex K shows an increase of targets sourced in ESG related sectors, including sectors seen in Annex J such as electric vehicles and recycling and waste management.

In Table 21 I summarize the targets' ownership grouped on SPAC IPO year pre and post 2010. As with the country results, the analysis is made from the perspective of targets. I find that founder and management led companies going public via deSPAC transactions have decreased from 53% for SPAC IPOs pre 2010 to 34% for SPAC IPOs post 2010. Furthermore, PE owned targets have increased from 20% to 33% between the two time periods. Lastly, I find an increase of VC backed firms going public via a SPAC, increasing from 7% pre 2010 to 21% post 2010. The increase in VC backed targets going public via a deSPAC transaction for SPACs post 2010

especially can be derived from an increase of these types of transactions for SPACs that went public in 2019 and 2020, with a 47% and 53% share respectively.

Table 21
Overview of Target Ownership

The table shows the distribution of the majority ownership for the period pre 2010 (2003 - 2009) and post 2010 (2010 - 2020). Due to the surge in SPAC IPOs during 2020, the group of post 2010 SPACs can be divided into two sub-groups: 2010 - 2019 and 2020 alone.

	Pre 2010	Post 2010	Post 2010		2003 - 2020
			2010 - 2019	2020	
Founder / Management	53%	34%	37%	11%	41%
Listed	10%	2%	3%	0%	5%
PE	20%	33%	34%	32%	29%
Subsidiary	11%	9%	9%	5%	9%
VC & Founder / Management	7%	21%	18%	53%	16%
N	104	204	185	19	308

Table 22 illustrates a cross tabulation of sponsor type and target ownership at the deSPAC transaction. I find that a large share of the targets sourced by SPACs have founders or management as owners, ranging from 21% to 51% for the different sponsors, with a group average of 41%. Furthermore, I find that PE firms and SPAC firms tend to source targets or assets from PE firms, with 36% and 46% of all deals sourced by PE firms and SPAC firms being from PE firms, respectively. These are higher than the group average of 29%. The table also show that VC firms merge with targets backed by other VC firms to a large extent, with 38% of all targets sourced by VC firms being VC backed, compared to the group average of 16%.

Table 22
Cross-tabulation of SPAC Founders and Target Owners

The table shows a cross-tabulation of the type of SPAC founders and the type of target owners.

	Founder/ Management	Listed	PE	Subsidiary	VC & Founder/ Management	N
(Alternative) Asset Management	32%	8%	12%	20%	28%	25
Financial / Strategic Advisor	40%	3%	27%	7%	23%	30
Holding Company / Corporation	40%	7%	33%	13%	7%	15
Private Equity	36%	3%	36%	10%	14%	88
Professional	51%	6%	25%	8%	9%	110
SPAC Firm	21%	4%	46%	0%	29%	24
Venture Capital	38%	0%	13%	13%	38%	16
Total	41%	5%	29%	9%	16%	308

6.3.2 Outcome and Performance

Table 23 shows the average 3-month, 6-month, 12-month and 24-month index adjusted returns grouped on target ownership type. Returns are negative across the board. PE backed targets exhibits statistically significant higher returns over all periods compared to the other groups. However, returns for the group of PE backed targets are still negative over the four periods, with a 12-month adjusted return of -20% compared to the group total average of -33%.

Table 23
SPAC Performance Split by Target Owner

The table illustrates the mean 3-month, 6-month, 12-month and 24-month index-adjusted returns grouped on majority target owners between 2003 and 2020. The index used is Russell 2000.

2003 - 2020				
	3-month	6-month	12-month	24-month
Founder/Management	-13%	-29%	-40%	-64%
Listed	-17%	-27%	-41%	-62%
PE	*-5%	***-11%	**20%	***-43%
Subsidiary	-13%	-16%	-33%	-66%
VC & Founder/Management	-10%	-23%	-32%	-80%
Total	-11%	-21%	-33%	-60%
N	299	261	235	195

Notes: *, **, and *** denotes significance at the 10%, 5%, and 1% level, respectively.

6.4 Analysis of Investors

In this section, I investigate IPO investor investment behavior by comparing institutional ownership the quarter after the SPAC IPO with the list of institutional investors being invested the quarter after the deSPAC transaction.

In Annex L, I list the 40 most frequent investors in SPAC IPOs between 2015 and 2020. Hedge funds are well represented among the investors, with 29 of the top 40 investors at the quarter end after the IPO being hedge funds. The other investor types among the top 40 investors are investment advisor (6), broker (4) and insurance company (1). The top five investors are all hedge funds, with CNH Partners LLC in the lead, having invested in 370 of 420 possible SPAC IPOs between 2015 and 2020.

Table 24 shows the percentage share of the IPO investors that are still invested the next quarter end after the deSPAC transaction has been completed. I find that among brokers, hedge fund managers and investment advisors, where the lion share of all the observations are, the

percentage of the investors that are still invested after the deSPAC transaction is in the range of 21% to 27%. Thus, only a fraction of the investors at IPO still holds a position in the merged entity after the deSPAC transaction.

Table 24
Institutional Investor Exits in Percent

This table illustrates the mean of percentage exits in different groups of institutional investors

	Hold	Exit	N
Broker	27%	73%	409
Hedge Fund Manager	21%	79%	4,148
Investment Advisor	25%	75%	1,426
Mutual Fund Manager	49%	51%	126
Bank Investment Division / Private Banking	38%	63%	112
Family Office / Foundation / Endowment	33%	67%	21
Insurance Company / Pension Fund Manager	13%	87%	178
Grand Total	23%	77%	6,420

Annex M is a list of the top 40 most frequent investors in the merged entity at quarter end after the deSPAC transaction. The list shows a more diversified group of companies ranging from private banking and pension fund managers to family offices and hedge funds. 11 of the 40 top investors are hedge funds, however, among the top five most frequent investors after deSPAC transaction there is only one hedge fund. Morgan Stanley & Co. LLC is the most frequent investor, having invested in 94 post deSPAC entities since 2015, measured at the end of the merger quarter.

Table 25 shows the average institutional investor exit percentage for different SPAC sponsor types. The exit percentage is high across all sponsor types ranging from 70% for VC sponsored SPACs, to 81% for SPACs sponsored by asset managers and alternative asset managers. Looking at the 9 hedge fund sponsored SPACs that are grouped into the alternative asset management category, I find that the average exit percentage is 84%.

Table 25
Mean Investor Exits in Percent

This table illustrates the mean of percentage exits in different groups of SPAC founders.

	Mean of % exit	N
(Alternative) Asset Management	81%	16
Financial/Strategic Advisor	74%	15
Holding Company / Conglomerate / Corporation	80%	7
Private Equity	79%	49
Professional	78%	32
SPAC firm	79%	16
Venture Capital	70%	13
Total	78%	148

7 Discussion

7.1 Analysis and Discussion of the Results

This thesis investigates SPAC stakeholder characteristics and how these affect merger likelihood and post-merger performance. First, I investigate founder characteristics and find that a large share of the SPACs are sponsored by PE firms, constituting 29% of the total sample. I further find that PE and VC sponsorship have increased over time, with VC sponsoring in particular showing a notable increase in the recent years. This is in line with Klausner et al. (2021) who write that the type of SPAC founders ranges from large PE funds and former S&P 500 executives to individuals with no relevant background. The increase in PE and VC backed SPACs indicates that these players see SPACs as an attractive vehicle. One explanation could be that the SPAC offers PE and VC firms a possibility to extend their product offering, which is supported by the findings of Heyman (2008) who discusses that SPACs are attractive for PE investors as they can leverage public markets for additional funds. Riemer (2007) also argues that capital raising is faster for a SPAC compared to PE and that the acquisition of a target is faster. In addition, SPACs could be seen as a way for PE and VC investors to capitalize on their existing deal flow and sourcing networks. Lastly, another argument could be that the PE and VC founders are involved in SPACs mainly for the financial reward as the founders generally get a 20% promote if they complete a business combination.

I find that it is a common phenomenon that SPAC founders raise several SPACs. Looking at outcome and performance, I find that SPACs part of a series exhibit lower liquidation rates and higher post-merger index adjusted returns. The findings indicate that the founder commitment to raise several SPACs is related to outperformance, both in terms of merger outcome, but also with regard to post merger stock performance.

The result also shows that for a specific SPAC generation, SPACs that are not followed by a sequel SPAC have a higher degree of liquidations and worse performance compared to SPACs that are part of a continuing series. It could be discussed whether founders raise another SPAC because of the previous SPAC's good performance or if the previous SPAC perform well because of the aim and commitment of the founders to raise several SPACs, where a successful first SPAC is necessary as it positively affects the founders' reputation which may make it easier to create a

new SPAC. The second reasoning is supported by Shachmurove and Vulcanovic (2019) who argue that management team members with previous SPAC experience can act as evidence that the management team can raise money for another SPAC if the previous merger has been successful.

The findings above implies that founders of a SPAC that liquidates or have bad performance choose to not raise another SPAC. In addition, the results show that in cases where founders raised another SPAC although the first predecessor SPAC was liquidated, it took relatively longer time before the next SPAC was raised. These findings can be an indication of the importance of reputation since it seems that if the SPAC liquidates or perform badly, the founders will in general not raise another SPAC, and if they do so, there seem to be a necessary time gap between the two SPACs, as a bad reputation can diminish over time.

Third, I find that there is a decrease of founder/management led companies going public from 53% for IPOs pre 2010 to 34% for IPOs post 2010. In addition, I identify an increase of PE owned targets over the two periods, increasing from 20% to 33%. I also find a significant increase of VC backed targets in 2019 and 2020, increasing from 16% in 2018 to 47% and 53% in 2019 and 2020 respectively. This is in line with Lewellen (2009), who argues that PE firms use SPACs as an exit vehicle for their portfolio firms. Opposite to Kolb and Tykvová's (2016) conclusion that VC firms tend to refrain from using SPACs as an exit route, the results instead suggests that SPACs is a viable exit route for VC firms. However, the results suggest an increase in recent years which might explain Kolb and Tykvová's (2016) findings as their sample consisted of SPAC IPOs until 2015. The results indicating that SPACs are a viable exit route for PE funds are also against the findings by Riemer (2007), mentioning that SPACs generally search for targets that are large enough to sustain a public company but small enough in order to avoid the interest of private equity funds. However, this can naturally be explained by the fact that by the change in SPAC deal size, and the general development of the SPAC market since Riemer (2007) made his findings

I also find that PE backed sponsors tend to acquire PE backed targets. In line with Lewellen (2009), it seems that PE and VC firms use SPACs as a way to exit their portfolio companies which may be because the SPAC founders are, or have been, PE and VC executives. With this reasoning, the findings could be explained by target screening via network, where PE executives naturally have a wide network of other PE professionals.

In addition, the results indicate that there has been an increase of targets active in industrial products and services, healthcare and leisure driven by deSPAC transactions made in growth

related sectors such as electric vehicles, MedTech and BioTech. Moreover, there is an increase of targets sourced in ESG related sectors. The focus on growth industries, together with the previous finding that VC firms exit their portfolio companies, may indicate that young companies with high growth opportunities find SPACs as an attractive alternative to go public. Also, as discussed by Klausner et al. (2021), the SPAC structure may simplify the process of taking these types of targets public as they can provide forecasts and forward-looking statements, which are not allowed to be disclosed in a standard IPO. These findings are again in opposite to Kolb and Tykvová's (2016) findings, who suggest that firms that merge with SPACs have lower growth opportunities and are more levered and are less likely to receive investments from VC and PE funds. However, as mentioned above, this could be explained by the change in the type of targets that have chosen the SPAC IPO route in recent years, as Kolb and Tykvová's study only includes SPACs raised before 2015.

Last, I find that there seem to be one type of investor at the IPO and one type of investor around the merger, in line with the findings from Klausner, et al. (2021). The institutional IPO investors are often hedge funds. However, these investors seem to exit their investment before the time of the merger. As such, my findings suggest that these investors are not exposed to the underperformance of SPACs post-merger as an investor that holds its investment through the merger and after the business combination has been completed. Given that a majority of the IPO investors exit the investment before the deSPAC transaction, the hedge funds have no real incentive to invest in a SPAC that is expected to perform well after merger completion and further they do not have to bet on the management team's ability to find a good deal. It could be discussed that the trading activity of IPO investors may be misunderstood by other less informed investors that might view hedge funds' investments as a certification of firm quality. This could further explain the demand for SPACs as an investment, both at IPO, but also as a buy and hold investment.

7.2 Limitations

There are seven limitations with this thesis that I would like to highlight. First, as the SPAC founders are not clearly stated in a majority of the prospectus filings, I define a group of key management members as a proxy of founders of a SPAC. This proxy is cross-checked against

founder information when available in prospectus and from the databases FactSet and Mergermarket to confirm the viability of the proxy.

Second, the sample includes all 636 SPACs between 2003 and 2020. However, with the current surge in the SPAC market with 318 new SPAC IPOs to date⁴ in 2021, there is a large share of SPAC IPOs not included in the SPAC IPO sample. However, in comparison to previous studies, the hand collected dataset used in this thesis can be deemed extensive.

Third, in addition to SPACs labelled as liquidated or effected, several SPACs are labelled as active or announced. Thus, the distribution between the SPAC merger status groups naturally changes over time and therefore also after the date of data collection.

Fourth, the scope of this thesis has been limited to the US SPAC market. Regulatory and structural differences between geographies and markets make the findings in this thesis more or less relevant depending on to which market the findings are applied.

Fifth, the analysis of stakeholder dynamics has been limited to the three stakeholder groups: founders, targets and investors. This is not an exhaustive list of stakeholders active in the US SPAC market excluding e.g., underwriters. In addition, I do not suggest that the analysis of each group is exhaustive in any way, leaving several sub-groups and perspectives to be explored.

In addition, a significant share of the data used has been manually collected, increasing the risk for errors in the data. However, to decrease the risk of errors the collected data has been cross-checked many times.

Lastly, as I only conduct basic statistical test to validate my findings, the results should be interpreted as indicative.

⁴ As per 16 May 2021 (SPAC Analytics).

8 Conclusion

The aim of this thesis was to look into the characteristics of SPAC founders, targets and investors and investigate how these affect merger likelihood and post-merger performance.

From the result of my analysis, I have four main findings that can conclude the thesis. First, PE and VC sponsorship have increased over time, with VC sponsoring showing a notable increase in the recent years. The increase of PE and VC firms as sponsors indicates that these players see SPACs as an attractive vehicle, as SPACs can offer PE and VC firms the possibility to extend their product offering and the possibility to extend their network and capitalize on their existing deal flow and sourcing networks.

Second, it is common that SPACs are part of a series. I find that SPACs part of a series exhibit lower liquidation rates and higher post-merger index adjusted returns. The findings indicate that the commitment to raise several SPACs is related to outperformance, both in terms of merger outcome, but also with regard to post merger stock performance. In addition, I find that SPACs that are not followed by a sequel SPAC have a higher degree of liquidations and worse performance compared to SPACs that are part of a continuing series which implies that founders of a SPAC that liquidates or have bad performance choose to not raise another SPAC. These findings can be an indication of the importance of reputation since it seems that if the SPAC liquidates or perform badly, the founders will in general not raise another SPAC, and if they do so, there seem to be a necessary time gap between the two SPACs, as a bad reputation can diminish over time.

Third, I find that PE and VC owned targets have increased over time which indicates that PE and VC firms use SPACs as an exit vehicle for their portfolio firms. Also, PE backed sponsors tend to acquire PE backed targets. The findings could be explained by target screening via network, where PE executives naturally have a wide network of other PE professionals. Lastly, there has been an increase of targets in growth related sectors. The increase in VC backed targets and targets from growth industries indicate that young companies with high growth opportunities find SPACs as an attractive alternative to go public. The reasoning behind this could be that the SPAC structure simplify the process of taking these types of targets public as they can provide forecasts and forward-looking statements, which are not allowed to be disclosed in a standard IPO.

Finally, there seem to be one type of investor at the IPO and another type of investor after the merger. Institutional investors such as hedge funds seem to exit their investment before the time of the merger. Thus, these investors are not exposed to the post-merger underperformance and given that they exit, they do not have to bet on the management team. I argue that this trading behavior of IPO investors may be misunderstood by other less informed investors that might view hedge funds' investments as a certification of firm quality. This could further explain the demand for SPACs as an investment, both at IPO, but also as a buy and hold investment.

To conclude, my findings indicate that SPACs have become an attractive vehicle for PE and VC firms; both to raise new capital, but also to use as an exit route for their portfolio companies. In addition, the findings suggest that buy and hold investors have a higher exposure to SPAC underperformance, but that the exposure can be mitigated by SPAC founder commitment. The reason is that SPACs generally underperform both the market and traditional IPOs post-merger. However, IPO investors limit their exposure to post-merger underperformance by exiting their positions before the merger. This is not true for buy and hold investors. However, my findings suggest that SPAC liquidation rates and post-merger underperformance can be mitigated by SPAC founder commitment.

There are several ways that future research can extend on the findings in this thesis. Firstly, a more thorough analysis of founders can be done. This thesis looked into sponsor characteristics and tracked founders that have raised several SPACs by using a proxy for founders. However, future research could look into the individuals in the management team and study whether their characteristic have an influence on post-merger performance. Secondly, future research could look into SPAC founder commitment in the merged entity and investigate whether a more present management team from the SPAC influences performance. In addition, future research could extend the scope of this thesis to include other geographies and markets outside of the US. Lastly, an interesting addition to this thesis could be to conduct a series of interviews with representatives from different SPAC stakeholder groups, to complement the data with qualitative insights.

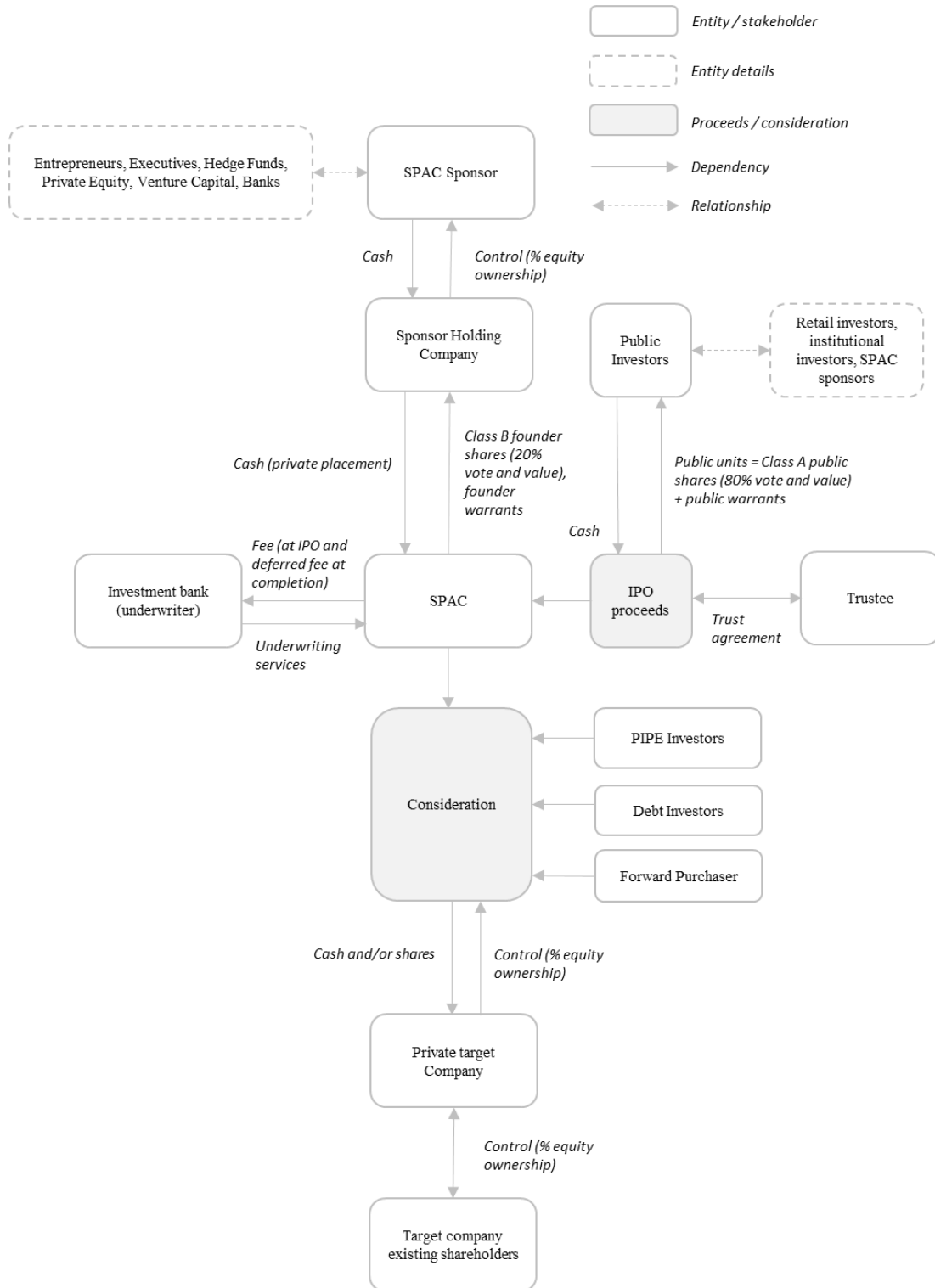
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10 Appendix

Annex A



Annex B

Distribution of SPACs by SPAC Generation

The table shows the distribution of SPACs by SPAC generation between 2003 and 2020. For definition of SPAC generation, see section 5.1.

Year	0	1	2	3	4	5	6	7	8	N
2003		100.0%								1
2004	33.3%	58.3%	8.3%							12
2005	60.7%	28.6%	7.1%	3.6%						28
2006	78.4%	16.2%	2.7%		2.7%					37
2007	68.2%	15.2%	15.2%	1.5%						66
2008	70.6%	5.9%	17.6%		5.9%					17
2009	100.0%									1
2010	57.1%		42.9%							7
2011	50.0%	12.5%	25.0%	12.5%						16
2012	66.7%	22.2%		11.1%						9
2013	40.0%	10.0%	40.0%		10.0%					10
2014	25.0%	33.3%	33.3%	8.3%						12
2015	40.0%	20.0%	25.0%	10.0%		5.0%				20
2016	53.8%	38.5%		7.7%						13
2017	38.2%	26.5%	17.6%	14.7%	2.9%					34
2018	43.5%	32.6%	10.9%	4.3%	4.3%	2.2%	2.2%			46
2019	52.5%	15.3%	15.3%	5.1%	6.8%	5.1%				59
2020	61.7%	3.2%	15.7%	8.1%	4.4%	2.0%	2.8%	1.6%	0.4%	248

Annex C

SPAC Status by Sponsor Type Pre 2010, Post 2010 and 2003 - 2020

The table illustrates the distribution of SPACs within the four groups: (1) Active, (2) Announced Merger, (3) Effected Merger and (4) Liquidated. The distribution is divided into three time periods, pre 2010 (2003 - 2009), post 2010 (2010 - 2020) and the whole sample (2003 - 2020).

Pre 2010

	Active	Announced	Effected	Liquidated	N
(Alternative) Asset Management			56%	44%	9
Financial / Strategic Advisor			80%	20%	15
Holding Company / Corporation			57%	43%	7
Private Equity			62%	38%	29
Private Professional			55%	45%	96
SPAC Firm			100%	0%	1
Venture Capital			60%	40%	5
Total			59%	41%	162

Post 2010

	Active	Announced	Effected	Liquidated	N
(Alternative) Asset Management	29%	23%	38%	10%	48
Financial / Strategic Advisor	34%	18%	47%	0%	38
Holding Company / Corporation	26%	16%	53%	5%	19
Private Equity	29%	23%	43%	5%	153
Private Professional	36%	25%	32%	8%	133
SPAC Firm	10%	26%	65%	0%	31
Venture Capital	62%	13%	25%	0%	52
Total	34%	22%	39%	5%	474

2003 - 2020

	Active	Announced	Effected	Liquidated	N
(Alternative) Asset Management	25%	19%	40%	16%	57
Financial / Strategic Advisor	25%	13%	57%	6%	53
Holding Company / Corporation	19%	12%	54%	15%	26
Private Equity	24%	19%	46%	10%	182
Private Professional	21%	14%	41%	23%	229
SPAC Firm	9%	25%	66%	0%	32
Venture Capital	56%	12%	28%	4%	57
Total	25%	16%	44%	14%	636

Annex D**Outcome by SPAC Experience Pre 2010, Post 2010 and 2003 - 2020**

The table illustrates the distribution of SPACs within the four groups: (1) Active, (2) Announced Merger, (3) Effected Merger and (4) Liquidated. The distribution is divided into three time periods, pre 2010 (2003 - 2009), post 2010 (2010 - 2020) and the whole sample (2003 - 2020).

Pre 2010					
	Active	Announced	Effected	Liquidated	N
SPAC Series			81%	19%	54
No SPAC Series			48%	52%	108
Total			59%	41%	162
Post 2010					
	Active	Announced	Effected	Liquidated	N
SPAC Series	21%	22%	53%	4%	217
No SPAC Series	44%	22%	28%	6%	257
Total	34%	22%	39%	5%	474
2003 - 2020					
	Active	Announced	Effected	Liquidated	N
SPAC Series	17%	17%	59%	7%	271
No SPAC Series	31%	16%	34%	19%	365
Total	25%	16%	44%	14%	636

Annex E

SPAC Status by Management Experience Pre 2010, Post 2010 and 2003 - 2020

The table illustrates the distribution of SPAC management experience within the four groups: (1) Active, (2) Announced Merger, (3) Effectuated Merger and (4) Liquidated. The distribution is divided into three time periods, pre 2010 (2003 - 2009), post 2010 (2010 - 2020) and the whole sample (2003 - 2020).

Pre 2010					
	Active	Announced	Effectuated	Liquidated	N
Virgin			50%	50%	96
Virgin (Series)			96%	4%	28
Team Experience			33%	67%	12
Team Experience (Series)			80%	20%	5
Founder Series			62%	38%	21
Total			59%	41%	162
Post 2010					
	Active	Announced	Effectuated	Liquidated	N
Virgin	45%	21%	28%	5%	211
Virgin (Series)	2%	9%	85%	4%	47
Team Experience	39%	26%	26%	9%	46
Team Experience (Series)	8%	8%	83%	0%	12
Founder Series	27%	27%	42%	4%	158
Total	34%	22%	39%	5%	474
2003 - 2020					
	Active	Announced	Effectuated	Liquidated	N
Virgin	31%	15%	35%	19%	307
Virgin (Series)	1%	5%	89%	4%	75
Team Experience	31%	21%	28%	21%	58
Team Experience (Series)	6%	6%	82%	6%	17
Founder Series	24%	23%	44%	8%	179
Total	25%	16%	44%	14%	636

Annex F**SPAC Status by Position in Series Pre 2010, Post 2010 and 2003 - 2020**

The table illustrates the distribution of SPAC by position in series within the four groups: (1) Active, (2) Announced Merger, (3) Effectuated Merger and (4) Liquidated. The distribution is divided into three time periods, pre 2010 (2003 - 2009), post 2010 (2010 - 2020) and the whole sample (2003 - 2020).

Pre 2010					
	Active	Announced	Effectuated	Liquidated	N
First in Series			94%	6%	33
Middle of Series			75%	25%	12
Last in Series			44%	56%	9
Total			81%	19%	54
Post 2010					
	Active	Announced	Effectuated	Liquidated	N
First in Series	3%	8%	85%	3%	59
Middle of Series	12%	19%	69%	0%	68
Last in Series	39%	32%	21%	8%	90
Total	21%	22%	53%	4%	217
2003 - 2020					
	Active	Announced	Effectuated	Liquidated	N
First in Series	2%	5%	88%	4%	92
Middle of Series	10%	16%	70%	4%	80
Last in Series	35%	29%	23%	12%	99
Total	17%	17%	59%	7%	271

Annex G

Comparison of SPAC Outcome (all) between Continuing SPACs and Non-continuing SPACs

The table illustrates the distribution of outcomes for SPACs part of a continuing series compared to SPACs part of a non-continuing series for three different generations of SPACs. The distribution of outcomes is showed for the four groups: (1) Active, (2) Announced Merger, (3) Effected Merger and (4) Liquidated.

Generation 1					
	Active	Announced	Effected	Liquidated	N
Last in Series	31%	16%	34%	19%	365
Part of Continuing Series	2%	5%	88%	4%	92
Total	25%	14%	45%	16%	457
Generation 2					
	Active	Announced	Effected	Liquidated	N
Last in Series	39%	16%	30%	16%	57
Part of Continuing Series	8%	10%	74%	8%	39
Total	26%	14%	48%	13%	96
Generation 3					
	Active	Announced	Effected	Liquidated	N
Last in Series	9%	64%	23%	5%	22
Part of Continuing Series	6%	18%	76%	0%	17
Total	8%	44%	46%	3%	39

Annex H

SPAC Club: Notable SPAC Sponsors

The table show the notable SPAC Sponsors that have more than 4 SPACs, together with the SPAC name, IPO year and status.

Sponsor / Founder	SPAC Name	IPO Year	Status
Chardan Capital Markets (Financial / Strategic Advisor)	Chardan China Acquisition Corp.	2004	Effectuated Merger
	Chardan South China Acquisition Corp	2005	Effectuated Merger
	Chardan North China Acquisition Corp.	2005	Effectuated Merger
	Chardan 2008 China Acquisition Corp.	2008	Effectuated Merger
	Chardan Healthcare Acquisition Corp.	2018	Effectuated Merger
	Chardan Healthcare Acquisition 2 Corp.	2020	Active
	Globis Acquisition Corp.	2020	Active
	Ventoux CCM Acquisition Corp.	2020	Active
Gores Group (Private Equity)	Gores Holdings, Inc.	2015	Effectuated Merger
	Gores Holdings II, Inc	2017	Effectuated Merger
	Gores Holdings III, Inc.	2018	Effectuated Merger
	Gores Metropoulos, Inc.	2019	Effectuated Merger
	Gores Holdings IV, Inc.	2020	Effectuated Merger
	Gores Holdings V, Inc.	2020	Announced Merger
	Gores Holdings VI, Inc.	2020	Announced Merger
Social Capital and Hedosophia (Venture Capital)	Social Capital Hedosophia Holdings Corp.	2017	Effectuated Merger
	Social Capital Hedosophia Holdings Corp. II	2020	Effectuated Merger
	Social Capital Hedosophia Holdings Corp. III	2020	Effectuated Merger
	Social Capital Hedosophia Holdings Corp. IV	2020	Active
	Social Capital Hedosophia Holdings Corp. V	2020	Announced Merger
	Social Capital Hedosophia Holdings Corp. VI	2020	Active
TPG (Private Equity)	Pace Holdings Corp.	2015	Effectuated Merger
	TPG Pace Energy Holdings Corp.	2017	Effectuated Merger
	TPG Pace Holdings Corp.	2017	Effectuated Merger
	TPG Pace Beneficial Finance Corp.	2020	Announced Merger
	TPG Pace Tech Opportunities Corp.	2020	Announced Merger
The Bancorp (Holding Company / Corporation)	FinTech Acquisition Corp.	2015	Effectuated Merger
	Fintech Acquisition Corp. II	2017	Effectuated Merger
	Fintech Acquisition Corp. III	2018	Effectuated Merger
	FTAC Olympus Acquisition Corp.	2020	Announced Merger
	FinTech Acquisition Corp. IV	2020	Announced Merger
	Fintech Acquisition Corp. V	2020	Active
M. Klein and Company (Financial / Strategic Advisor)	Churchill Capital Corp.	2018	Effectuated Merger
	Churchill Capital Corp. II	2019	Announced Merger
	Churchill Capital Corp. III	2020	Effectuated Merger
	Churchill Capital Corp. IV	2020	Announced Merger
	Churchill Capital Corp. V	2020	Active

Annex I**SPAC Club: Notable SPAC Firms**

The table show the notable SPAC firms that have more than 3 SPACs, together with the SPAC name, IPO year and status.

Sponsor / Founder	SPAC Name	IPO Year	Status
Capitol Investment Corp	Capitol Acquisition Corp.	2007	Effectuated Merger
	Capitol Acquisition Corp. II	2013	Effectuated Merger
	Capitol Acquisition Corp. III	2015	Effectuated Merger
	Capitol Acquisition Corp. IV	2017	Effectuated Merger
	Capitol Investment Corp. V	2020	Announced Merger
Eagle Equity Partners	Global Eagle Acquisition Corp.	2011	Effectuated Merger
	Silver Eagle Acquisition Corp.	2013	Effectuated Merger
	Double Eagle Acquisition Corp.	2015	Effectuated Merger
	Platinum Eagle Acquisition Corp.	2018	Effectuated Merger
	Diamond Eagle Acquisition Corp.	2019	Effectuated Merger
	Flying Eagle Acquisition Corp.	2020	Effectuated Merger
	Falcon Capital Acquisition Corp.	2020	Announced Merger
Hennessy Capital	Hennessy Capital Acquisition Corp.	2014	Effectuated Merger
	Hennessy Capital Acquisition Corp. II	2015	Effectuated Merger
	Hennessy Capital Acquisition Corp. III	2017	Effectuated Merger
	Hennessy Capital Acquisition Corp. IV	2019	Effectuated Merger
	PropTech Acquisition Corp.	2019	Effectuated Merger
	Proptech Investment Corp. II	2020	Active
	7GC & Co. Holdings, Inc.	2020	Active
Forum Capital Management, LLC	Forum Merger Corp.	2017	Effectuated Merger
	Forum Merger Ii Corp.	2018	Effectuated Merger
	Forum Merger III Corp.	2020	Announced Merger
GigCapital	GigCapital, Inc.	2017	Effectuated Merger
	GigCapital2, Inc.	2019	Announced Merger
	GigCapital3 Inc	2020	Announced Merger

Annex J

Overview of Target Industry (Narrow)

The table shows the distribution of target industry (narrow definition) for the period pre 2010 (2003 - 2009) and post 2010 (2010 - 2020). Due to the surge in SPAC IPOs during 2020, the group of post 2010 SPACs can be divided into two sub-groups: 2010 - 2019 and 2020 alone.

	Pre 2010	Post 2010	Post 2010		2003 - 2020
			2010 - 2019	2020	
Agriculture					
Agriculture	3%	1%	1%	5%	2%
Business Services					
Business Services	7%	3%	4%	0%	5%
Business Software					
Business Software	3%	8%	8%	5%	6%
Construction					
Construction	6%	3%	3%	0%	4%
Rental & Leasing	1%	1%	1%	0%	1%
Consumer					
Consumer (Foods)	3%	2%	2%	0%	2%
Consumer (Foods, ESG)	0%	2%	2%	0%	1%
Consumer (Retail)	8%	4%	5%	0%	6%
Consumer (Services)	2%	2%	2%	0%	2%
Internet, E-commerce	0%	4%	4%	5%	3%
Energy, Mining					
Alternative Energy	0%	2%	2%	0%	1%
Mining	0%	1%	1%	5%	1%
Oil & Gas	5%	9%	10%	0%	7%
Financial Services, Insurance					
Financial Services, Insurance (Other)	14%	6%	6%	5%	9%
FinTech, InsurTech, Payments	0%	6%	7%	5%	4%
Healthcare					
Healthcare (Other)	7%	3%	3%	0%	4%
Medtech, Healthtech, Biotech, Biopharma	1%	9%	6%	37%	6%
Industrial Products and Services					
EVs, Autonomous Driving	0%	7%	7%	11%	5%
Industrial Products (Other)	5%	3%	3%	0%	4%
Industrial Services (Other)	1%	2%	2%	0%	2%
Recycling, Waste Management	0%	3%	3%	5%	2%
Rental & Leasing	1%	1%	1%	0%	1%
Leisure					
Gambling, Drugs, Adult Entertainment	0%	4%	4%	11%	3%
Gaming, Streaming, Sports	0%	3%	3%	5%	2%
Travel, Destinations, Resorts	2%	4%	4%	0%	3%
Manufacturing					
Manufacturing	4%	1%	1%	0%	2%
Media, Telecommunications					
Media, Telecommunications	14%	4%	4%	0%	7%
Transportation					
Shipping, dredging, Vessels	8%	2%	2%	0%	4%
Transportation (Other)	2%	1%	1%	0%	1%
N	95	186	167	19	281

Annex K

Overview of ESG focus

The table shows the distribution of targets with ESG Focus and with no ESG focus for the period pre 2010 (2003 - 2009) and post 2010 (2010 - 2020). Due to the surge in SPAC IPOs during 2020, the group of post 2010 SPACs can be divided into two sub-groups: 2010 - 2019 and 2020 alone.

	Pre 2010	Post 2010	Post 2010		2003 - 2020
			2010 - 2019	2020	
ESG Focus	0%	13%	13%	21%	9%
No ESG Focus	100%	87%	87%	79%	91%
N	95	186	167	19	281

Annex L

Summary of IPO Investors

The following table is a list of the top 40 IPO investors.

Name	Type	2015	2016	2017	2018	2019	2020	Total
CNH Partners LLC	Hedge Fund Manager	17	12	32	37	53	219	370
Periscope Capital, Inc.	Hedge Fund Manager	0	2	34	44	57	218	355
Glazer Capital LLC	Hedge Fund Manager	16	6	23	44	46	208	343
Polar Asset Management Partners, Inc.	Hedge Fund Manager	19	12	34	37	54	172	328
Hudson Bay Capital Management LP	Hedge Fund Manager	10	10	29	36	47	190	322
Walleye Capital LLC	Investment Advisor	0	0	0	35	57	210	302
Wolverine Asset Management LLC	Hedge Fund Manager	7	2	26	35	52	178	300
UBS Securities LLC	Broker	10	8	17	32	43	187	297
Magnetar Financial LLC	Hedge Fund Manager	0	0	2	13	43	220	278
Millennium Management LLC	Hedge Fund Manager	0	0	3	16	35	216	270
Weiss Asset Management LP	Hedge Fund Manager	9	5	23	35	47	149	268
W.R. Berkley Corp. (Investment Portfolio)	Insurance Company	15	9	32	18	32	155	261
Basso Capital Management LP	Hedge Fund Manager	11	7	32	45	56	105	256
Shaolin Capital Management LLC	Hedge Fund Manager	0	0	0	0	48	198	246
HGC Investment Management, Inc.	Investment Advisor	0	0	27	41	47	129	244
Boothbay Fund Management LLC	Hedge Fund Manager	0	5	13	22	38	161	239
Kepos Capital LP	Hedge Fund Manager	0	0	0	16	36	186	238
PanAgora Asset Management, Inc.	Investment Advisor	0	0	0	29	38	169	236
HRT Financial LLC	Broker	0	0	0	0	1	222	223
K2 & Associates Investment Management, Inc.	Hedge Fund Manager	6	11	29	39	42	95	222
Linden Advisors LP	Hedge Fund Manager	2	1	8	9	44	156	220
Radcliffe Capital Management LP	Hedge Fund Manager	0	0	0	0	1	217	218
Tenor Capital Management Co. LP	Hedge Fund Manager	0	0	4	15	40	158	217
RiverNorth Capital Management LLC	Investment Advisor	0	3	21	36	43	106	209
Moore Capital Management LP	Hedge Fund Manager	10	7	14	16	23	132	202
Longfellow Investment Management Co. LLC	Investment Advisor	1	1	26	31	44	94	197
BlueCrest Capital Management (UK) LLP	Hedge Fund Manager	0	0	0	23	31	142	196
Castle Creek Arbitrage LLC	Hedge Fund Manager	9	3	2	24	26	132	196
Schonfeld Strategic Advisors LLC	Hedge Fund Manager	0	0	7	10	3	162	182
Monashee Investment Management LLC	Hedge Fund Manager	0	2	11	19	28	118	178
Aristeia Capital LLC	Hedge Fund Manager	4	0	0	3	0	170	177
HBK Investments LP	Hedge Fund Manager	0	0	12	13	27	117	169
Yakira Capital Management, Inc.	Hedge Fund Manager	3	1	15	20	25	104	168
Jane Street Capital LLC	Broker	0	0	0	0	0	167	167
Verition Fund Management LLC	Hedge Fund Manager	0	0	1	3	32	131	167
Alberta Investment Management Corp.	Investment Advisor	0	3	9	14	29	108	163
UBS O'Connor LLC	Hedge Fund Manager	0	1	3	0	25	133	162
Cowen & Co. LLC	Broker	0	2	18	25	43	71	159
Context Capital Management LLC	Hedge Fund Manager	0	1	6	18	24	108	157
Picton Mahoney Asset Management	Hedge Fund Manager	0	1	1	0	13	140	155

Annex M

Summary of Post-merger Investors

The following table is a list of the top 40 post merger investors.

Name	Type	2015	2016	2017	2018	2019	2020	Total
Morgan Stanley & Co. LLC	Broker	9	6	17	25	21	16	94
Millennium Management LLC	Hedge Fund Manager	6	5	14	23	21	15	84
Morgan Stanley Smith Barney LLC (Inv. Mgmt)	Investment Advisor	4	5	11	21	24	17	82
UBS Securities LLC	Broker	9	3	9	26	19	10	76
Tower Research Capital LLC	Investment Advisor	8	3	13	19	16	14	73
Goldman Sachs & Co. LLC (Private Banking)	Private Banking/Wealth Mgmt	5	3	12	15	16	12	63
The California Public Employees Retirement System	Pension Fund Manager	1	1	7	26	20	8	63
Citigroup Global Markets, Inc. (Inv. Mgmt)	Investment Advisor	2	3	8	14	14	11	52
Wells Fargo Clearing Services LLC	Private Banking/Wealth Mgmt	3	2	6	8	17	14	50
The Vanguard Group, Inc.	Mutual Fund Manager	7	4	14	10	7	6	48
Geode Capital Management LLC	Investment Advisor	5	5	9	12	10	4	45
Wolverine Asset Management LLC	Hedge Fund Manager	1	0	6	17	14	5	43
Arrowstreet Capital LP	Investment Advisor	3	1	3	16	15	5	43
UBS Financial Services, Inc.	Private Banking/Wealth Mgmt	1	1	4	11	12	13	42
Penserra Capital Management LLC	Investment Advisor	0	0	1	8	20	13	42
RBC Capital Markets LLC (Inv. Mgmt)	Investment Advisor	1	1	5	6	14	14	41
Securities America Advisors, Inc.	Family Office	1	1	3	11	14	11	41
ExodusPoint Capital Management LP	Hedge Fund Manager	0	1	3	12	17	7	40
Citadel Advisors LLC	Hedge Fund Manager	2	3	4	7	12	11	39
BlackRock Fund Advisors	Investment Advisor	2	4	7	9	12	4	38
Jane Street Capital LLC	Broker	2	0	2	10	15	8	37
Wells Fargo Advisors Financial Network LLC	Investment Advisor	1	0	4	8	13	10	36
Alyeska Investment Group LP	Hedge Fund Manager	2	4	3	7	9	11	36
BlueCrest Capital Management (UK) LLP	Hedge Fund Manager	2	3	10	7	7	5	34
Kepos Capital LP	Hedge Fund Manager	0	0	9	12	7	6	34
Susquehanna Financial Group LLLP	Broker	1	0	2	6	13	11	33
Cutler Group LP	Broker	0	0	0	8	14	11	33
Monashee Investment Management LLC	Hedge Fund Manager	2	2	7	7	10	5	33
BofA Securities, Inc.	Broker	0	0	1	12	12	8	33
Merrill Lynch, Fenner & Smith, Inc. (Inv. Mgmt)	Investment Advisor	3	3	5	6	8	8	33
Polar Asset Management Partners, Inc.	Hedge Fund Manager	8	4	9	5	5	2	33
RBC Dominion Securities, Inc. (Inv. Mgmt)	Investment Advisor	0	0	1	8	12	11	32
Northern Trust Investments, Inc. (Inv. Mgmt)	Investment Advisor	1	3	10	7	8	3	32
HRT Financial LLC	Broker	0	0	0	7	9	14	30
Fidelity Management & Research Co. LLC	Investment Advisor	1	3	4	7	6	9	30
Boothbay Fund Management LLC	Hedge Fund Manager	0	2	5	11	6	6	30
Wells Fargo Bank, NA (Private Banking)	Private Banking/Wealth Mgmt	3	2	5	6	9	5	30
Simplex Trading LLC	Broker	0	0	1	5	12	11	29
Hudson Bay Capital Management LP	Hedge Fund Manager	2	2	3	8	10	4	29
Royal Alliance Associates, Inc. (Inv. Mgmt)	Investment Advisor	1	0	1	5	11	9	27