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INVESTING IN SPACS.

EMPIRICAL STUDY ON THE TRADE-OFF BETWEEN COSTS AND RETURNS FOR NON-REDEEMING SHAREHOLDERS.

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To my parents.

For all their sacrifices.

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INTRODUCTION

Special Purpose Acquisition Companies have become one of the most in-vogue financial phenomena in recent years.

The year 2020 was the year of SPACs, with an unprecedented volume of IPO listings, which diffused the idea about the generation of a real financial bubble. Suffice it to say that by the end of 2019, 64 new SPAC IPOs had been registered, with proceeds of about $15 billion, while by the end of 2020, listings had risen to 250 with $84 billion in proceeds. This trend then persisted through the end of 2021 where, at the end of the year, listings of so-called "shell companies" excelled in the Initial Public Offering market, with 55 percent market share, thus surpassing traditional IPOs. Not surprisingly, SPACs to date are widely regarded as the primary alternative means to the IPO for listing private companies.

Although the creation of such companies dates back to the early 1980s, which occurred in the United States under the name of "Blank Check Companies," they have been subject to very fluctuating phases over the past 40 years, due to their decidedly anomalous structure and especially because of a series of speculations implemented by the promoters of such companies. This led to a series of regulations of the SPAC market, particularly starting in 1990 with the introduction of the Penny Stock Reform Act by the SEC. Paradoxically, however, the very structure of these firms, following the outbreak of the Covid pandemic (as will be seen later in the paper), has led to their recent success.

Introducing the structure of SPACs, they are companies formed by a group of Sponsors, namely individuals usually with executive backgrounds in banks, mutual funds, or Private Equity. The Sponsors do not receive remuneration for establishing the company, but they are given shares usually without voting rights in the SPAC, called Founder Shares, in exchange for a relatively small investment (an average of $25,000). Immediately after its formation, a SPAC is listed precisely through an IPO, in which the capital raised from investors' subscription of units, which include both common shares and warrants or fractions thereof, is placed in a trust account. Units are generally priced at $10 each in Initial Public Offerings of SPACs. The proceeds of the trust account then are generally invested in government securities which, in addition to preserving their entirety, ensures the generation of interest. Following the IPO, Sponsors have about 18 to 24 months to identify a private company with which the SPAC aims to merge, thus forming a newly listed company and triggering the so-called "De-Spacing" phase. However, the merger is subject to shareholder approval. If the deal is not approved or if the Sponsors do not identify the target within the time limit, the SPAC

is liquidated and the IPO proceeds are refunded, pro-rata, to investors. The adjective "Blank Check," which was associated with such companies when they were introduced in the 1980s, stems precisely from the fact that shareholders do not know the target company at the time of the IPO, i.e., when they decide to invest in the SPAC, thus it is as if they are writing a blank check.

Therefore, it can be intuited that shareholders are required to have a certain degree of trust in the targeting capabilities of Sponsors. This act of trust, however, is supported by a set of incentives guaranteed to investors in the face of two main risks, namely failure to find a company to merge with or merger with a target that is deemed unprofitable. The incentive instruments to SPAC shareholders are identified in both the issuance of warrants and the right to redeem their shares, upon approval of the business combination. Warrants grant the right to subscribe for new shares at a strike price generally of $11,5 and can also be exercised by those who redeem their own shares. Redemptions (exercisable at the time of the meeting to approve the deal), on the other hand, ensure the return of pro-rata invested capital, in case shareholders do not have confidence in the merger project, thus preventing them from potential losses.

Having introduced the distinguishing features of SPACs, it is worthwhile also to introduce the potential risks that, preposterously, arise precisely from the typical structure of such companies and which give rise to the main criticisms, as well as to the gradual increase in scrutiny by U.S. and European market regulatory authorities, especially in the wake of the mid 2020 bubble burst. The risks pertaining to such investments, mostly belong to the shareholders themselves, particularly the non-redeeming ones, and can be condensed into one word, dilution. Capital dilution may occur either through the exercise of in-the-money warrants by shareholders who have redeemed their investment (and are therefore no longer part of the SPAC's shareholder base), or through Founder Shares, which usually amount to about 20% of SPAC shares. These can be considered true shareholder costs and they all have a common thread, which contributes to increase their effects, namely pre-merger redemption rates. In this respect, it is finally needful to introduce an additional element, namely PIPE investments. These are investments provided by specifically selected investors, chosen by the Sponsors, which generally arise at the time of the business combination, and whose objective is to increase the proceeds that the SPAC is able to contribute to the target. The main objectives of the PIPEs are therefore to increase the size of the deal and thus the chances of a successful merger, especially in the face of high redemption rates, which typically provoke a drastic decrease in the capital available within the trust account.

The issues just introduced have been the subject of several empirical studies, particularly in the last decade, precisely in the face of a number of critical shortcomings noted in the returns on shell company investments, which have engendered the main interest in writing this paper. Specifically, Jenkinson and Sousa (2011), categorized a sample of 43 SPACs into "good" and "bad," depending on the markets' reaction, in terms of share prices, following the announcement of the relevant business combinations. The results of their research reported that, investors who approved the mergers of SPACs deemed "bad," suffered average returns of around -39% after 6 months and -79% after one year. Kolb and Tykvova (2016), analyzed a sample of 130 companies between 2003 and 2015, focusing on features of private companies that decided to list through merger with a SPAC, rather than through a traditional IPO. They showed how, companies that generally relied on a shell company, did not have enough qualities to guarantee them growth opportunities on par with traditionally listed companies, and supported these hypotheses with evidence about lower returns of the former than the latter. The studies by Dimitrova et al. (2017) and Chen et al. (2021), instead, investigated the extent to which the typical characteristics of Sponsors played a role in the outcome of mergers, finding success, in terms of the quality of targeting processes, for those Sponsors that reported a background in Private Equity. On the other hand, with regard to the study of more recent samples, Gahng et al. (2021), reported evidence about the differences among the returns on shares held by SPAC shareholders in post-merger companies and those who exercised warrants only, where, in a sample of 210 companies, the former observed returns averaging -8.1%, while the latter +63%. Klausner et al. (2021), instead focused on the effect of share redemptions on the amount of cash that SPACs have been able to contribute to the target upon business combination. They found that, out of a sample of 47 SPAC mergers, the median value of net cash per share contributed to the targets has been $5,70 per share, despite the fact that the IPOs of SPACs were priced at $10 per share. They also showed that in SPACs deemed to be of "low quality," that is, those that incorporated a more onerous cost structure for shareholders, PIPE investments have been unable to address the burden identified in high redemptions rates.

The objective of this study is thus to fit into the academic literature, reporting evidence that could not be found in existing studies, concerning the analysis of a real trade-off between costs and returns specifically for non-redeeming shareholders of SPACs. The ultimate goal is to unearth the extent to which, the costs actually observed in a given SPAC sample, can be mitigated by the level of returns observed in different time frames, or whether they are actually too onerous for such investors. Finally, a further study will be to compare a sample of SPAC mergers with one of traditional IPOs, dimensionally comparable and occurring over the same time frame. It has been decided to conduct

this investigation as well in view of the fact that, to date, shell companies are considered the most viable alternative for listing a private company. Consequently, investors of IPOs (not private companies), will be further investigated, using a method of analysis similar to the one employed for the SPAC sample, and with the ultimate goal of decreeing which type of investment is more profitable, even in the face of the effects of the "SPAC bubble" that occurred between mid-2020 and early 2021.

To conclude, it follows how the paper will be divided.

In the first chapter, the concept of Special Purpose Acquisition Companies will be introduced, first defining the genesis of such companies and the evolution of the regulatory environment, also conducting an analysis of the existing differences between US and European frameworks. Subsequently, the structure of shell companies will be specifically analyzed, defining the characteristics and roles of the players involved. Finally, the main differences with the traditional IPO, both in structural and regulatory terms, will be introduced.

The second chapter will delve into the analysis of risks inherent in SPAC investments. In the first part, an initial distinction between qualitative and non-qualitative SPACs will be drawn, focusing on elements including characteristics of Sponsors, targeting methodologies, and the conjunction between redemptions rates and PIPE investments. Already at this stage, analyses will be carried out on a reference sample. The second section of the chapter will investigate the dilutive effects generated by warrants and Founder Shares, which will be identified as costs to non-redeeming shareholders. Finally, an analysis of the returns observed precisely for those shareholders and for Sponsors will be reported, emphasizing the effects aroused in companies which suffered high rates of redemptions.

The third and final chapter, therefore, will finally address the trade-off between costs and returns, whereby the results obtained for non-redeeming shareholders of SPACs will be compared with those of investors in traditional IPOs. First, an overview of the causes and consequences of the "SPAC bubble" burst, following the effects generated by the Covid pandemic, will be outlined. Then, after introducing the analysis methodologies, the cost structures of both types of investments investigated will be investigated. Finally, after reporting evidence on the returns of traditional IPO investments as well, the final study concerning the trade-off between costs and returns will be carried out, arriving at the final conclusions about, first and foremost, the effect of costs on the returns of non-redeeming SPAC shareholders and finally about which among them, or the traditional IPO investors, recorded the best performances.

CHAPTER 1. Introduction of Special Purpose Acquisition Companies

In this first chapter, an overview of SPACs will be conducted to provide a background of the operations of these special business models. The paper will begin by examining the origins of SPACs and their regulatory evolution, before defining a current reference framework and highlighting the disparities between the US (where we shall see that these businesses began) and European contexts. Coming that, the structure and life cycle of “cash-shell” companies will be scrutinized in order to not only comprehend their true functioning, but also to identify the critical phases on which the examination of the following chapters will focus, in terms of the cost-benefit trade-off. Finally, the chapter will conclude with a direct comparison of SPACs to the other fundamental method of company listing, the Initial Public Offering. This will aid in identifying the structural and regulatory differences, as well as to introduce the comparison that will bring this research to a conclusion in the third chapter, examining empirical evidence of these financial phenomena.

1.1 Definition and origins

The acronym SPAC stands for "Special Purpose Acquisition Company," and it's also known as a "blank check" firm of “cash-shell” companies[1]. When an individual or group of individuals goes through the IPO process with the intention of investing in a certain region, without specifying targets, they form a SPAC. SPACs were created to acquire or merge with promising private companies, allowing them to go public without the necessity for an Initial Public Offering. Private companies have traditionally chosen to list on the stock exchange through a merger with a SPAC because of the process's greater flexibility and its alleged cost-effectiveness when compared to a traditional IPO. Furthermore, a SPAC listing entails a less severe application of the IPO provisions, such that some companies, notably SMEs[2], would be unable to list due to the lack of specific requirements needed by regulated market supervisory authorities. These aspects will be discussed in more detail in paragraph 1.3. Investors in a SPAC, on the other hand, have no idea who the target companies are. As a result, investors are essentially writing a "blank check" by allocating money to invest in an unknown organization.

[1] Chen, J. (2021, November). What is a SPAC? J.P. Morgan Wealth Management.
[2] Small and Medium-sized Enterprises.

As previously said, in order to better comprehend the structure of Special Purpose Acquisition Companies, it is crucial to first examine the genesis of this phenomena, which dates back to the early 1980s in the United States with the formation of the so-called "Blank Check Companies."

1.1.1 Genesis of SPACs: Blank Check Companies and Rule 419

At the beginning of the 80's, the "Blank Check" Firms were companies listed on the stock exchange through an IPO with the express purpose of obtaining funds to buy an existing private company through an M&A transaction. As previously stated, the term "Blank Check" comes from the idea that investing in such companies was akin to signing a blank check because they were able to be listed on the stock exchange without having a defined mission or business plan (only in a few cases was there an indication of the sectors of interest in which the company would have invested the proceeds deriving from fundraising operations). For this reason, investing in a Blank Check Company was like taking a real gamble; thus, to attract investors, typically these companies were set up by a high-level management team, including high-profile personalities in the financial field. As a result, they were also labeled "cash-shells," because their primary purpose was to collect money rather than set a financial target prior to listing. The peculiarity of these companies in those years, was that they were allowed to offer *Penny stocks*, i.e., shares of small public companies traded in Over-the-counter[3] markets for less than $5 per share[4]. To better understand the value of a Penny stock, it is helpful to refer to the definition provided by Rule 3a51-1 of the Security Exchange Act of 1934, which states that all equity securities are Penny stocks except those that exceed the following criteria[5]:

- Post-offering net tangible assets of at least $5 million.
- A market value of listed securities of $50 million for 90 consecutive days prior to the application for listing, or net income of $750,000 (excluding extraordinary or non-recurring items) in the most recently completed fiscal year or two of the last three fiscal years.
- Operating history of at least one year or a market value of listed securities of $50 million.
- For common or preferred stock, the listing standards must require a minimum offering price of $4 per share.

[3] Over-the-counter (OTC) markets are “decentralized market (as opposed to an exchange market) where geographically dispersed dealers are linked by telephones and computers. The market is for securities not listed on a stock or derivatives exchange”. Source: Nasdaq.
[4] Definition of Penny stock given by SEC, the United States Securities and Exchange Commission.
[5] Extract from the “Amendments to the Penny Stock Rules [Release No.34-51983; File No. S7-02-04]”, Securities and Exchange Commission.

A fundamental aspect contained in Rule 3a51-1 should be pointed out in its paragraph *iv*, in which this provision provided for an exclusion from the definition of Penny stock for all those securities exceeding the minimum price or the net tangible asset of 5 million. This is important because this last exception was the foothold which, following the amendment of Rule 419 of the SEC (which will be described shortly), gave issuers the possibility of not being classified as issuers of penny stocks, giving rise to SPACs as we know them today. This will also be discussed in more detail below.

The main problem with trading Penny stocks through Blank Check Companies during the 1980's was that, due to insufficient regulation, fraudulent schemes could be set up. This often occurred in the following way[6]: Blank Check offerings (typically promoted by hedge funds) were purchased by brokerage firms or colluding clients, allowing them to keep the control of the market thus created. After that, through "*pump and dump*"[7] strategies, prices were easily manipulated to attract more and more investors. When the blank check company announced its purchase, brokers were able to generate a great deal of euphoria around the company. Obviously, this mechanism ended with unsuspecting investors who, at the moment they were eager to monetize their investment by selling their shares (or rather their penny stocks), could not find a liquid market ready to buy them.

Considering the scenario formed as a result of such fraudulent Blank Check transactions, many regulators became concerned about such offerings, thus triggering a series of regulatory reforms designed to protect investors in these types of financial instruments. The first intervention occurred in 1990 with the action of the Security and Exchange Commission (SEC), the North American Securities Administration Association (NASAA) and other state regulators who enacted the Security Enforcement Remedies and Penny Stock Reform Act (PSRA)[8], amending, in relevant part, Section 7 of the Securities Act of 1933.

Therefore, considering that the Penny stock market was an environment whose allowed for a number of abusive market practices (later defined as illicit), an automated listing system was therefore set up, which would have integrated the "pink sheet" instrument, i.e., an unregulated information system for investors, which only guaranteed a minimum of information about the offering of Penny stocks to the public. Dealers in the pink sheets "*need only provide a minimal amount of information about the*

[6] Heyman, D.K. (2007). From Blank Check to SPAC: The Regulator's response to the market, and the market's response to the regulations. *Entrepreneurial Business Law Journal*, 2(1), 533-536.

[7] "A pump and dump scheme is a type of securities fraud that involves the artificial inflation ("pump") of the price of a security through false, misleading, or exaggerated statements regarding the security's price. The fraudster can profit from the price inflation by quickly selling the securities at a high price ("dump"). At the same time, the new owner of the shares will likely lose a substantial part of their capital because the security's price will quickly fall. The pump and dump scheme is considered an illegal activity". Source: Knowledge, *Corporate Finance Institute*.

[8] Beatty, R., Kadiyala, P. (2003). Impact of the Penny Stock Reform Act of 1990 on the Initial Public Offering Market. *The Journal of Law & Economics*, 46(2), 517-519.

listing company" and "*is not legally responsible for the accuracy of the information provided*", as was reported in the H.R. REP. No. 101-617 of 1990. Consequently, the PSRA gave the SEC greater sanctioning authority to keep those who were repeat violators of the so-called "cold-calling rule"[9], out of the market. This rule required brokers and dealers who recommended the purchase of penny stocks to non-established customers to comply with the sales procedures set forth in the rule. Prior to the enactment of the PSRA on January 1, 1990, the SEC was only able to sanction those entities directly associated with broker and dealer transactions in penny stocks. The new legislation, however, expanded this sanctioning authority to include all affiliates of Penny stock issuers, such as promoters, researchers, consultants, or agents. These sanctions by the SEC covered financial instruments such as Penny stocks as defined in footnote 5 of the PSRA but also Nasdaq, American Stock Exchange (AMEX) and Emerging Company Marketplace stocks with a price below $5.[10]

The final turning point for Blank Check Companies legislation came 6 months after the enactment of the PSRA, with the publication of the famous Rule 419. This was commented on by the SEC as "a rule to implement the provisions of the Securities Enforcement Remedies and Penny Stock Reform Act of 1990"[11]. That rule first reworked the definition of a Blank Check Company, defining it as a company that[12]:

i. is devoting substantially all of its efforts to establishing a new business in which planned principal operations have not begun or have begun but there has been no significant revenue from them.
ii. is issuing "penny stocks", as defined in Rule 3a51-1 under the Securities Exchange Act of 1934.
iii. does not have a specific business plan or purpose or has indicated that its business plan is to engage in a merger or acquisition with one or more unidentified companies.

The most important aspect of Rule 419 was the effort made to provide the maximum protection possible for investors in penny stocks issued by such companies, and the following forms of protection were provided[13]:

[9] "Many securities firms telephone investors they do not know to sell stocks and other investments. These "cold calls" can serve as a legitimate way of reaching new customers, but they can also lead to trouble. Dishonest brokers may pressure you to buy a bad investment or a scam. Whether the calls are annoying, abusive, or downright crooked, you can stop cold callers". Definition of cold call given by the SEC on its institutional website.
[10] Beatty, R., Kadiyala, P., *supra* note 8.
[11] Securities Act Release No. 6,891. (1991, April). Securities and Exchange Commission.
[12] Riemer, D.S. (2007, January). Special Purpose Acquisition Companies: SPAC and SPAN, or Blank Check Redux? *Washington University School of Law*, 85(4), 940-943.
[13] *Id.*

1. deposit of the funds raised in the initial offering in an escrow[14] account.
2. the deposit of the securities issued by the blank check company in an escrow account.
3. an eighteen-month limit on the company's right to retain investor funds without completing an acquisition, after which the funds would be returned to investors.
4. a prohibition on trading in securities held as collateral.
5. a requirement that the issuer disclose in the prospectus all of its obligations with respect to the escrow account, including the date on which the invested funds would be returned in the absence of an acquisition.
6. the filing of a post-effective amendment to the company's registration statement at the time of the consummation of an acquisition by the company, including the financial details of such acquisition.
7. an opportunity for investors to obtain a refund of their investment if they disapprove of a proposed acquisition.
8. Restrictions on the release of the offering proceeds from escrow until the purchase conditions have been met, including the condition that the purchase must use at least 80% of the funds raised, both at the IPO and through conversion of the warrants, but not including the amount payable to non-affiliates for underwriting commissions and expenses, and dealer allowances[15].

The restrictions imposed by Rule 419 effectively brought an end to the use of Blank Check Companies as a deceptive tool for investors who are uninformed of the risks of investing in Penny stocks. Of course, there are still fraudulent transactions originating from market manipulation, but these measures were undoubtedly successful in that sense when compared to the unscrupulous fraudulent usage of Blank Check Companies in the 1980s. Clearly, this regulation resulted in an abrupt decline in the number of Blanck Check Companies operating in the market, from approximately 2700 in the 1987-1990 period, to less than fifteen in the early 1990s.

Although Rule 419 seemed to have put a definitive end to the fraud associated with the sale of penny stocks by Blank Check Companies, in the early 1990s legitimate Blank Check issuers were the ones who were hurt the most. This is because the numerous restrictions, although increasing fraud protection for investors, indirectly limited the liquidity of this market. This finally led to the creation of Special Purpose Acquisition Vehicles in 1992. SPACs are entities that were specifically designed

[14] "An Escrow is an arrangement for a third party to hold the assets of a transaction temporarily. The assets are kept in a third-party account and are only released when all terms of the agreement have been met. The use of an escrow account in a transaction adds a degree of safety for both parties". Source: Knowledge, *Corporate Finance Institute*.
[15] Heyman, D.K., *supra* note 6.

to avoid the stringent rules put in place by Rule 419, while still maintaining sufficient protection for investors, as required by the SEC[16].

The idea was to create a company that, once listed on the stock exchange through an IPO, is able to accumulate capital through the sale of public shares, and then invest the proceeds in a business combination with a private company. Although the structure remains similar to that of Blank Check Companies, the creation of "non-Penny stock" SPACs gave SPACs the ability to circumvent the business restrictions instituted by Rule 419.

Obviously, in order to prevent the SEC from perceiving SPACs as scams simply intended to circumvent Rule 419 by not falling under the definition of Penny stock (described above), the easiest way would have been to price the shares offered in the IPO higher than $5 per share. However, the SEC's Exchange Act Release No. 33-7024 of 1993, noted that "the five-dollar price threshold presents an easy mechanism for avoiding the regulatory scheme contemplated by Congress, undercutting the investor protection purpose of the blank check rules". Nonetheless, the SEC confirmed the exception foreseen in paragraph *iv* of Rule 3a51-1 (the reason why it was mentioned above), for companies with net tangible assets greater than 5 million dollars, operating for less than 3 years[17]. The SPACs therefore were built precisely to fall under this exception, making sure that after the IPO the company possesses this requirement. Naturally, the possession of this amount of assets had to be proven with specially audited financial statements, through the use of Form 8-K to be sent to the SEC at the time of the launch of the offering.

To conclude the analysis of the origins of Special Purpose Acquisition Vehicles, it is good to point out the main differences between what used to be Blank Check Companies, regulated by Rule 419, and SPACs. The comparison between these two types of companies can be segmented into different areas:

- Deadline for business combination[18]: while Blank Check Companies had an 18-month deadline for the execution of a business combination (whereupon the dissolution of the company and the pro-rata return of shareholders' shares occurred), for SPACs this deadline was extended to 24 months if the merger was announced within the first 18 months.

[16] *Id*.
[17] Exchange Act Release No. 33-7024. (1993). Securities and Exchange Commission.
[18] Miller, D.A., Gallant, J.M. (2010, December). SPACs: rebuilt and here to stay? *Financier Worldwide*.

- Traded assets: Rule 419 did not allow Blank Check Companies to trade in the company's common stock and warrants[19]. It was necessary to buy and hold both the company's stock and warrants throughout the 18-month allotted time in the hope that a business combination would be executed. This made these instruments unattractive to investors. Instead, by circumventing this rule, SPACs are able to trade their shares and warrants separately after 3 months from the date of the prospectus. This, of course, had to be reflected in the Form 8-K, which had to contain the SPACs' updated financial information[20]. This mechanism clearly made this instrument more attractive to investors, expanding the market.
- Safeness of the investment: Rule 419 provided for the deposit of only 90% of the proceeds deriving from the public offering and from private placements. In SPACs, on the other hand, the deposit of a sum greater than 90% of the proceeds in an escrow or trust account is foreseen. Clearly this makes the investment in the SPAC safer than the Rule 419 blank check. In addition, another fundamental aspect with regard to the safekeeping of the funds held in the escrow account, is that in SPACs it was foreseen that these funds could only be invested in U.S. government securities with a maturity of 180 days or, at the most, in money market funds in accordance with Rule 2a-7 of the Investment Company Act of 1940[21]. Rule 419, on the other hand, provided for the investment of escrow funds in almost any government bond or money market fund.
- Fair value of the target company's business: also, in this area we can see a substantial difference in terms of the consistency of the valuations between SPACs and Blank Check Companies. The difference lies to the fact that, while Rule 419 provided that the fair value or net assets of the target company had to represent at least 80% of the maximum offering proceeds, for SPACs this value must be equal to 80% of the funds held at the time of the business combination in the escrow account[22]. This is obviously a more concrete estimate for the purposes of completing the combination.

The ultimate establishment of SPACs, as just described, occurred in 1993, when David Nussbaum, historically considered the creator of modern SPACs, created a special purpose vehicle that served as lead underwriter for 13 SPAC Initial Public Offerings between 1993 and 1994[23].

[19] Reader, B., de Búrca, S. (2006). SPACS: A Sound Investment or Blind Leap of Faith? *Journal of Taxation of Financial Products*, 6(2), 17-18.
[20] Krus, C.M., Pangas, H.S. (2016, March). A Primer on Special Purpose Acquisition Companies. Articles, *Sutherland Asbill & Brennan LLP*, 6-7.
[21] *Id.*
[22] Reader, B., de Búrca, S., *supra* note 19.
[23] Source: EaryBirdCapital website, Principals.

From this analysis, it is possible to acknowledge how the regulatory efforts of the US authorities have contributed to the evolution of SPACs, which were born in the 1980s as a means inclined to generate fraud and nowadays become an M&A financial instrument in the global spotlight.

1.1.2 US vs Europe: trends and reference framework

After outlining the genesis of Special Purpose Acquisition Vehicles, this analysis continues with a description of the reference framework, with particular attention to the difference between the US and European markets, both in terms of market share and regulatory differences.

In order to better understand how the SPAC market has evolved on an international level, it is useful to digress on the trends of investments in these companies since the end of the 1990s, in order to highlight the reasons why, as we shall see, the American market is, to date, the most proliferated in terms of the number of SPAC listings.

Although in the previous paragraph it has been pointed out that the birth of SPACs took place in the United States, the end of the 90s was a period of "dormancy" for them, so to speak, due to the enthusiasm linked to the tech bubble of the time, for which it was rather easy to raise capital from the market, especially for technological SMEs. For this reason, raising capital by other means, such as a stock market listing through a traditional IPO, seemed more attractive than the typical mechanisms of a SPAC. The "rebirth" of shell companies occurred when the dot-com bubble burst. The consequences of the bubble clearly generated greater difficulties in raising capital for smaller companies, which began to prefer SPACs as a means of listing, rather than undertaking an IPO independently or having to give up part of the control of the company in the face of the intervention of a Private Equity fund.

The real turning point came in August 2003, when the newly formed EarlyBirdCapital Investment Bank, whose co-founder was the famous David Nussbaum, filed an S-1 for a SPAC called Millstream Acquisition Corp, which raised more than 24 million from the IPO[24]. Millstream went public in August 2003 and then acquired Nations Health LLC in March 2004[25].

This acquisition was the spark that started a rapid rise of SPACs in the US market. Furthermore, another key reason why the U.S. market became a leader in the SPAC sector was that the AMEX (American Stock Exchange), was the first stock exchange to list such companies[26], as of July 1, 2005.

[24] Source: EaryBirdCapital website, Completed SPAC IPOs.
[25] Rodrigues, U., Stegemoller, M. (2011, October). Special Purpose Acquisition Corporations: A Public View of Private Equity. *University of Georgia School of Law*, 29-30.
[26] Previously, SPACs were only traded Over-the-counter on the OTC Bulletin Board (OTCBB).

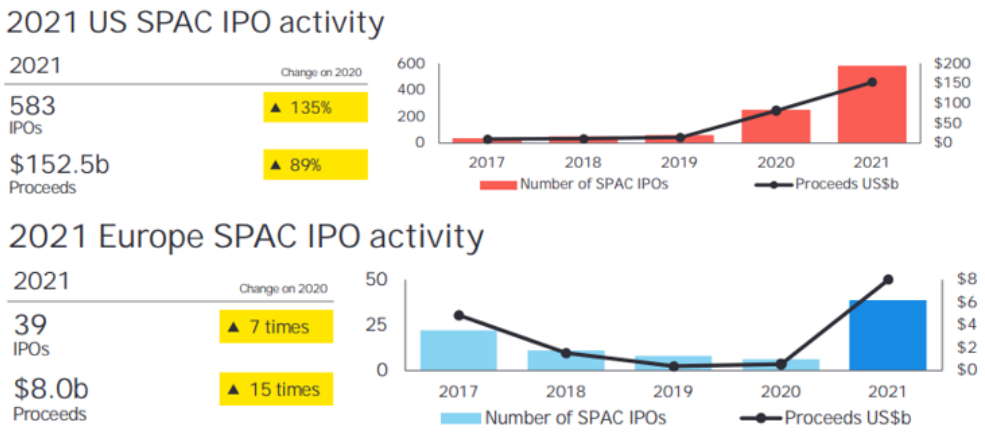
It was followed by the New York Stock Exchange (NYSE) and Nasdaq in 2008[27]. To get an idea, from August 2003 to June 2006, there were approximately 64 SPACs in the U.S. market, which completed IPOs with a total capital raised of $4 billion[28].

This background explains why the US market has always been the benchmark for Special Purpose Acquisition Companies. That said, a comparison can be made with the European framework.

European operators, until recent times, have been more inclined to list their SPACs in the United States, rather than on European stock exchanges[29]. This was clearly linked to the greater attractiveness of the American market, its higher level of liquidity and a more dynamic and prolific ecosystem for start-ups, given the historical precedents.

In addition, American legislation has also been more beneficial for the listing of SMEs through SPACs, considering the stringent rules for traditional IPOs, ensuring more "Venture Capital style" investment opportunities for startups. Clearly, the evolution of the European market was inevitable, considering both a hint of overcrowding of SPACs in the American market, and a gradual increase in the interest of European Sponsors to list on domestic markets, as some of the main exchanges (such as Amsterdam and Frankfurt), began to align themselves with the more favorable American legislation and market practices. In this regard, an analysis of the jurisdictional differences between the United States and the main European markets will be made shortly, in order to grasp the differences and affinities between them as fully as possible.

Figure 1: 2021 US vs Europe SPAC Trend.

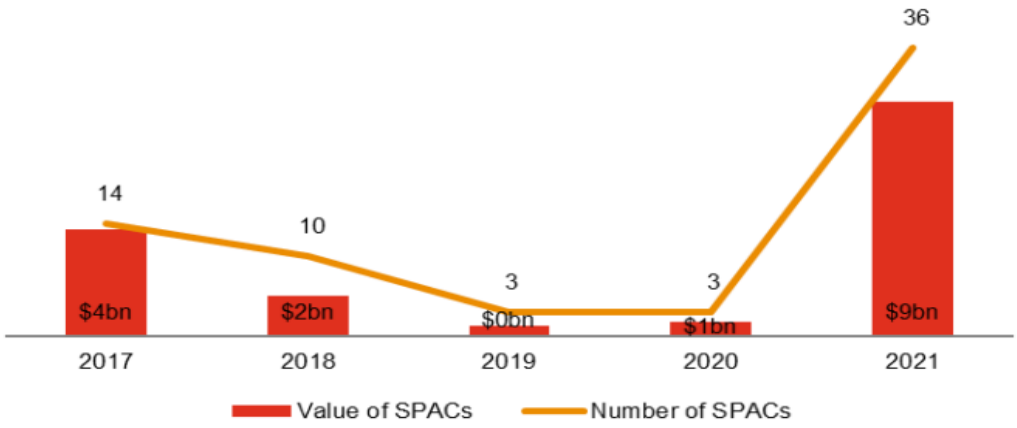


Source: Ernst & Young. (2021, December). "2021 EY Global IPO Trends report".

[27] Rodrigues, U., Stegemoller, M., *supra* note 25.
[28] Hale, M.L. (2007, January). SPAC: A Financing Tool with Something for Everyone. *Journal of Corporate Accounting & Finance*, 18(2), 68.
[29] Caprotti, M. (2021, June). Europe is preparing for a mini-boom in SPACs. *Morningstar News*.

However, even if the gap between the deals closed in the US is still remarkably large, there are several evidence that the quotations of SPAC in Europe are gradually increasing; for instance, between 2020 (years of crisis due to Covid pandemic) and the end of 2021, the proceeds have increased by about 9 times according to a study performed by PwC, from approximately 1 to 9 billion dollars [30].

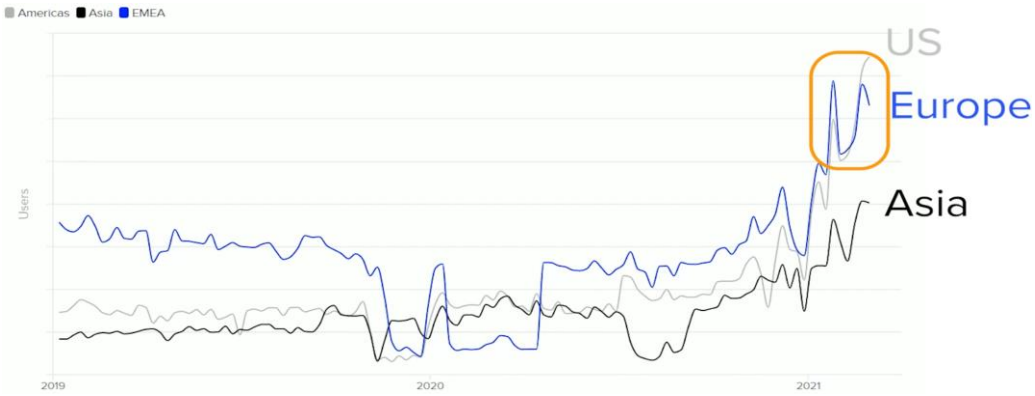
Figure 2: SPAC issuance in Europe since 2017.



Source: PwC. (2021, December).

As evidence of the gradual increase in SPAC transactions in Europe, it is possible to mention a recent study by Refinitiv, a leading provider of data and infrastructure on financial markets globally. In an article titled "Will SPAC surge in Europe", former Refinitiv CEO David Craig, finds that European asset managers in 2021 were gathering much more data on Refinitiv's platforms about SPACs and their listing processes than their US counterparts and the rest of the world.

Figure 3: SPAC data usage by region.



Source: Refinitiv. (2021).

[30] Newman, S., Picard, N., Wisson, M. (2021, December). Global IPO Watch 2021. *PwC.*

In the United States, on the other hand, this analysis showed that in 2021 the greatest interest in SPACs came from brokers and dealers, a symptom of greater listing opportunities in this market rather than of actual investment demand. This marks a strong appetite for the European SPAC market, which could be read as an index of a gradual increase in the scale of European listings and a beginning of a bridging of the gap with the US market.

To conclude the comparison of the frameworks for the operation of SPACs between the US and Europe, it is essential to examine the jurisdictional differences and analogies between these two markets.

The regulatory structure that disciplines the shell companies' business in the United States is fairly well-defined and well transposed throughout the territory, as a result of Rule 419 regulations and exceptions from which SPACs were born. Of course, in Europe, in light of the recent expansion of this market, jurisdiction in this area is constantly evolving, having to cope with both the differences between European countries and the complexities of cross-border transactions[31]. Evidence of this is provided by recent publications, in July 2021, from both the British FCA (Financial Conduct Authority), regarding updates to the listing regulations for SPACs, and ESMA (European Securities and Markets Authority) regarding considerations on prospectus disclosure and investor protection. In particular, ESMA stressed the need to strengthen the regulations on disclosure and correct application of Directive 2014/65/EU (MiFID II), in view of the significant increase in the market volumes of SPACs and therefore a possible increase in risk for investors, considering the complexity of the financial instruments traded by shell companies (shares and warrants)[32].

In order to complete this analysis, below will be summarized and compared the main incorporation jurisdictions for SPACs in the United States and in the major European exchanges, with the support of data provided by a publication of the Harvard Law School Forum on Corporate Governance, on an in-depth study carried out in September 2021 by the law firm Freshfields Bruckhaus Deringer LLP. Specifically, it will compare to the US provision, those of the Frankfurt, Amsterdam and London stock exchanges, the main players by numbers and volumes in the European SPAC market. Among them, the Amsterdam stock exchange is the one that has taken the lead with more than 40% of European SPAC listings in the European market[33], thanks to the greater fiscal and regulatory flexibility, granted *ad hoc* to shell companies in the Dutch territory, in the wake of the US model.

[31] Allen & Overy LLP. (2021). European special purpose acquisition companies (SPACs).
[32] European Securities and Markets Authority. (2021, May). SPACs: prospectus disclosure and investor protection consideration [Press release].
[33] Levitt, M., Austin, M., Gleske, C., Freshfields Bruckhaus Deringer LLP. (2021, October). Update: SPAC Momentum Continues in Europe. *Harvard Law School Forum on Corporate Governance*, 1-5.

Shareholder Approval

United States: majority of votes cast; Sponsor may vote its shares.

Frankfurt Stock Exchange: majority of votes validly cast; Sponsor may vote its shares. The listing rules of the Frankfurt Stock Exchange allow any structure where assets are held in trust and a 50% majority of shareholders determine the use of those assets; Sponsors/founders are allowed to vote their shares.

Euronext Amsterdam: the business combination requires approval of either 1) 70% of the votes cast with a quorum of at least 33%-50%, or 2) approval of more than 50% of the votes cast, typically without a quorum. Regarding Sponsors, in the listing on the Amsterdam stock exchange, Sponsors cannot vote their shares, but Dutch law does not prohibit this (often, in Europe the jurisdiction in which SPACs are incorporated is not necessarily the same as the jurisdiction where the SPAC is listed).

London Stock Exchange: although historically for London-listed SPACs there was no shareholder approval required for the business combination, the new regulations require it, as well as providing for the inability to vote any director who is or is associated with directors of the target company (conflict of interest regulations).

Shareholder Redemptions

United States: Shareholders can redeem their shareholding and receive their pro-rata investment back from the trust account, whether they vote for or against the business combination (or even whether they do or not vote at all). Great flexibility provided to shareholders in U.S. SPACs. In addition, in the United States, up to 100% of the shares of the SPAC may be redeemed in connection with the business combination. All this is subject to the requirement that the SPAC maintains a minimum net tangible asset of at least $5 million at all times.

Frankfurt Stock Exchange: Identical provisions implemented in the US. With regard to the percentage of shares that can be redeemed in a SPAC, Frankfurt again aligns itself with the States, i.e., up to 100%, provided that there are always sufficient distributable reserves in the escrow account[34] at the time of redemptions.

[34] A difference that can be noted between US and European provisions on SPACs is that currently in the US the use of *trust accounts* is foreseen, while in Europe almost all markets provide for the mandatory use of an *escrow account*. Although the purposes of these accounts are exactly the same (i.e. to preserve the capital of the company, in order to use it in case of business combination or redemption of shareholders), the difference lies in the fact that in the trust account it is foreseen the investment of the IPO proceeding of the SPAC in highly liquid and easily sellable assets (such as

Euronext Amsterdam: Normally for SPACs listed in Amsterdam, shareholders are only allowed to redeem their shares if they vote against the business combination with the target company; however, exceptions have recently been noted, again in the wake of the US, where shareholders have been allowed to redeem their shares regardless of their vote. Regarding the percentage of shares that can be redeemed in SPACs listed in Amsterdam, Dutch law provides that no more than 50% of the shares can be redeemed for listed companies (called NVs); this is considering that the practice normally provides that only shareholders against the business combination can redeem the shares (although we have seen that recently there have been exceptions), and the approval of the merger must be 70 or 51% of the votes cast. If, however, a SPAC is listed as a privately held company (called BV in the Netherlands), there is no 50% limit to the redemption of shares, but this is possible up to an amount equal to the capital held in the statutory reserves.

London Stock Exchange: also in the London market, SPAC shareholders are granted considerable flexibility in the redemption of their shares; The FCA's new regulations provide for an alignment with U.S. rules, allowing shareholders to redeem their shares at their discretion, prior to the completion of the business combination, regardless of whether they vote for or against that transaction. Furthermore, the UK SPACs, the FCA has provided that this should take place through a reduction of capital of the companies in question, a provision to be included in the companies' by-laws, together with an indication of the procedures necessary to ensure sufficient distributable reserves to finance redemptions; these reserves are therefore considered to be the upper limit for share redemption.

Sponsor Promote

United States: in the US a Sponsor promotion of 20% of outstanding shares is typically expected, although there have been some cases in which Sponsors have received smaller percentages.
Frankfurt Stock Exchange: also in this case, Frankfurt's forecasts for SPACs are completely in line with those of the United States.

Euronext Amsterdam: recently there has been an alignment with the American provision of 20% also in Amsterdam, although for "NVs", in the quotations of past years Sponsors promoted ranged

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government bonds with maximum maturity of 180 days, as mentioned above), in order to avoid low or negative returns on the account.

from 8% to 30%. The latter is the maximum threshold attributed to Sponsors since, for shareholdings above this percentage, an MTO (Mandatory Tender Offer) is foreseen for public listed companies according to Dutch law. Again, for privately held companies, the 30% limit is naturally not envisaged.

London Stock Exchange: historically in the quotations of British SPACs the allocation of preferred shares to the Sponsors was foreseen, which guaranteed them a certain amount of annual dividends payable in cash or shares and subject to a hurdle price that the traded shares had to reach. Recently, new FCA regulations have also provided for alignment with U.S. and German practices in this case.

Warrants

United States: in the US, all warrants are issued to shareholders when the IPO of the SPAC is closed.

Frankfurt Stock Exchange: once again in line with the US.

Euronext Amsterdam: although the most recent SPAC listings in Amsterdam have been aligned with the US and Germany, historically shell companies listed in the Netherlands typically issued half warrants at the closing of the IPO and the other half at the time of the De-Spacing.

London Stock Exchange: despite the recent alignment of London practices with those in the US, also provided for by the new FCA regulations, historically in the SPACs listed in London, 1/3 of warrants were issued at the same time of ordinary shares, in order to be able to buy new shares in the future (usually at £11.50 each). This practice is currently under scrutiny by the FCA but could remain in force considering the similarity with the American scheme.

Underwriting Fee

United States: the typical structure of underwriting fees for SPACs in the United States provides for a fee of 5.5%, of which 2% is paid in cash at the closing of the IPO and 3.5% at the closing of the business combination.

Frankfurt Stock Exchange: in this case the German provision is different from the American one; an underwriting fee of 4% is envisaged, of which 2% is paid in cash at the closing of the IPO and the

remaining 2% at the closing of the business combination; in addition, a discretionary fee of 1.5% is often agreed upon at the time of the business combination.

Euronext Amsterdam: in Amsterdam, fees of between 3.25% and 5.5% are foreseen, of which 1.5%-2% paid on closing of the IPO of the SPAC and 1.75%-3.5% paid at the time of signing of the business combination.

London Stock Exchange: in London the typical underwriting fee structure is between 2% and 3%, excluding from this amount the shares subscribed by the Sponsors. There may also be separate fees at the time of De-Spacing. Currently, in order to benefit from the concessions provided by the FCA, the SPAC must ring-fence the IPO proceeds so as to guarantee the redemption rights to shareholders minus the costs of managing the SPAC.

Target Size and Time Limit

United States: in the USA the target (or targets, as in the States a SPAC may acquire more than one company) must have an aggregate fair market value of at least 80% of the funds set aside in the trust account at the time the combination agreement is signed. As far as timing is concerned, SPACs usually have 24 months to conclude a business combination, otherwise the company will be liquidated. Sometimes the time limit can be lower (from 12 to 21 months) or there can be an extension of up to 30 months if the business combination is announced within 24 months of the IPO of the SPAC.

Frankfurt Stock Exchange: In Frankfurt there is no 80% rule, so SPACs are free to target one or more companies according to the most appropriate needs of the SPAC's financial structure. The rationale for such choices is usually reported in non-exhaustive guidelines by the SPACs themselves. The time limits are similar to the American ones, usually 24 months, with possible extensions to 27 months if the business combination is announced within the first 2 years from the IPO.

Euronext Amsterdam: the targeting of SPACs listed in Amsterdam works exactly as it does in Frankfurt, without the 80% rule and with the provision of non-exhaustive financial guidelines. The time limits for deals in this case are also usually set to 24 months, but for Dutch SPACs an extension to 30 months can be envisaged subject to approval by shareholders.

London Stock Exchange: also, for the London SPACs there are no targeting limits, but the new FCA regulations require that the SPACs must publish a "fair and reasonable" statement, with particular

attention to conflicts of interest of the directors with respect to the subsidiaries, as well as alignment with the advice given by independent and qualified advisors. Finally, also in London, a time limit of 24 months is envisaged for SPACs, which may be extended by a further 12 months subject to shareholder approval. In addition, there is the possibility that, after the limit of 3 years, a further time extension of 6 months may occur, provided that the acquisition transaction is already at an advanced stage (such as, for example, when further time is required for shareholder approval).

This dissertation on jurisdictional differences concludes the comparison of SPAC frameworks between the United States and the main European markets. It is undeniable that both European and American authorities have, over time, increased the regulatory regimes for SPACs, with the main aim of protecting investors in a context which, despite its attractiveness, presents risks linked to the complexity of the instruments traded and the transactions carried out. Specifically, it should be noted that European jurisdiction on the subject of SPACs has been very active recently, as evidenced by the new disclosure regulations of ESMA and the FCA. Regarding a direct comparison between the USA and Europe, from this analysis it can be seen that the marketplace that has most closely aligned itself with the US model is Frankfurt. Even Amsterdam's SPACs regulations seem to be increasingly aligned with the American model, although some differences continue to persist. The British reform of the FCA, on the other hand, seems to bring the first real harmonized regime concerning SPACs in Europe, aimed at favoring the listing of new SPACs on the London Stock Exchange with clearer rules and always protecting investors. These new rules could also be the result of the consequences of Brexit and therefore of the fluctuating trend of the British financial market, in which the new SPACs were therefore hesitant to be listed; nevertheless, currently the London Stock Exchange is starting to attract more and more SPACs, resulting second for number of SPAC listings in Europe with 9 IPOs, behind only the Euronext in Amsterdam, with 18 IPOs, as reported by Ernst & Young in its report dated end 2021[35].

In a nutshell, we can understand the global importance of the US model, and the numbers of SPAC transactions are evidence of that, but in Europe the trend is increasing and regulators (such as ESMA or FCA) seem to be very proactive, so a potential alignment with the US market cannot be excluded in the near future.

[35] Ernst & Young. (2021, December). 2021 EY Global IPO Trends report.

1.2 Functioning of SPACs

This paragraph is dedicated to examining the structure of Special Purpose Acquisition Companies, i.e., their life cycle, starting from the formation of the companies and their capital raising, up to the final phase of De-Spacing, in which a SPAC merges with the private target company. Therefore, this analysis will focus on the players involved in the processes of a shell company, namely the Sponsors responsible for its establishment, the shareholders who decide to invest in it, and the identification of the target companies. Understanding the dynamics and the players involved in a SPAC is necessary in order to be able to analyze, subsequently, which are the sources of potential risks for investors, as well as to identify the key moments in which the greatest interests and returns are determined, understanding their background.

1.2.1 SPACs' structure and capital raising

The Special Purpose Acquisition Companies are born from the initiative of a group of people or financial intermediaries (usually with a proven experience and prestige in the financial world, as we will see later), called "**Sponsors**" who, supported by Investment Banks acting as underwriters, contribute capital for the constitution of a company without assets and with the sole scope of listing on the stock exchange and raising capital for the merger with a private **target company** potentially successful, usually with a conventional time limit of 2 years as we have already mentioned. The corporate purpose of a SPAC, in fact, does not provide for any kind of financial activity (hence the name "blank check" as we said beforehand), but rather the pursuit of the business combination and, until that moment, limited mainly to defining its organizational structure and putting in place all the necessary fulfilments for the listing process. Recently, SPACs are used to indicating at least the sector for which the promoters have the greatest interest in searching for a target (generally high technology, healthcare, or energy sectors), but the by-laws do not prohibit them from deviating from these preferences and subsequently identifying another company with which to merge.

The peculiarity of the "promotion" of the Sponsors, lies in the fact that their contribution in terms of capital is almost trivial compared to the IPO proceeds, generally a contribution of about 20-25 thousand dollars, from which, however, they receive a social participation in the SPAC of about 20%. Additionally, Sponsors usually purchase additional shares and warrants, simultaneously to the listing of the company, at a price deemed fair but exercisable only after the business combination (so there is a "lock-up" of the securities of the Sponsors), allowing them to receive ordinary shares of the newly formed company. These are the first sources of capital dilution for investors in the common stock of a SPAC, although the proceeds from the purchase of additional shares and Sponsor warrants are

primarily dedicated to covering the operating expenses of incorporation and IPO. Clearly, these incentives for the Sponsors are essentially their compensation for forming the SPAC and for their commitment to the pursuit of a successful business combination; moreover, the granting of warrants exercisable only at the time of the merger should serve precisely to ensure an alignment of interests between them and the common shareholders, although the ownership of 20% of the voting shares is already a very influential factor in corporate decisions.

That said, the second fundamental step in the life cycle of a SPAC is its listing on the stock exchange, through an Initial Public Offering. The peculiarity of the SPAC in this case is that, usually, the shares are always listed at a price of 10 dollars each and sold to **investors** previously selected by the underwriters in the Book Building phase. Clearly the investors identified, as we will see later, are usually institutional investors, therefore appropriate for such investments considering the inherent characteristics and complexity of SPACs. In addition to the ordinary shares, IPO investors also receive "extra kickers"[36], i.e., warrants, which will grant them the right to buy shares, or fractions thereof, at a specific strike price predetermined during the IPO phase (which is usually around 11.50 dollars). Naturally, these warrants, like those subscribed by the Sponsors, have the limitation of not being able to be exercised until the moment of the business combination, although they are freely negotiable on the market, since they are separate from the ordinary shares. These limits evidently derive from the desire to avoid in any way increasing dilutive effects, or giving space to speculative actions, which could affect the capital of the SPAC prior to the completion of a merger.

A fundamentally important feature of SPACs, also mentioned above, is that the proceeds of the IPO are then placed in a trust or escrow account for a percentage which, nowadays and in almost all world markets, is around 100%. The funds in such accounts are then invested in securities with a high level of safety and rating, such as government bonds, generally with a short-term duration. This is to ensure that the funds in the trust or escrow account remain unaffected and generate interest from coupons, which are then paid out to any shareholders who decide to redeem their shares in the business combination.

Thus, the fact that the funds of the trust account are invested in government bonds, makes the SPAC almost appear to investors as a very safe investment[37] since, in cases of merger failure and liquidation of the company, the funds necessary for this process are always guaranteed.

[36] Lamont, D. (2021, March). The pros, cons and incentives behind the SPAC-craze sweeping markets. *Schroders Insights*.

[37] Jenkinson, T., Sousa, M. (2011, November). Why SPAC Investors Should Listen to the Market. *Journal of Applied Finance*, 21(2), 3-5.

In this regard, it is good to specify what are all the objectives behind the establishment of a trust or escrow account, namely[38]:

a) To have all the proceeds coming from the purchase of SPAC stocks available for the business combination.
b) To contribute to the capital of the company that would be formed by the SPAC merger.
c) Redistribute pro-rata capitals to shareholders, plus any interest generated by the account, in the event of liquidation of the SPAC if the merger fails within the time limit.
d) Guarantee to redeeming shareholders the repayment of their investment, plus any interest generated from the account.

An important aspect to consider, referring to the structure of the trust or escrow account, is that, in order for a SPAC to be reasonably efficient, its trading price after the first day of listing and up to the business combination, should not exceed the value of the account itself (obviously divided by the number of shares), just as it should not fall below this threshold. But the very fact that the SPAC guarantees such capital and that it is often formed by high-level Sponsors, allows the stock market prices of the company's shares to rise or, on the other hand, to fall if a target is not identified close to the deadline for the business combination.

In any case, the life cycle of a SPAC is not uniform and is subject to different potential scenarios, depending on whether or not the deal is identified in the predetermined time period at the time of the company's incorporation. Specifically:

- If the business combination is not announced, a shareholder meeting will be scheduled to deliberate either an extension to the searching period for a target company, or the liquidation of the company with the pro-rata repayment of the funds held in trust to stockholders (which generally occurs, such as redemptions, at $10 per share, the price established at the time of the IPO, plus any interest accumulated in the account).
- If the business combination is announced, shareholder approval is required. At this point it may happen that: 1) the shareholders do not approve the business combination and therefore the company is liquidated; 2) the merger is approved and the deal proceeds, with the support of advisors. However, from the moment the business combination is announced, the redemption rights are activated but not the rights to exercise the warrants which, as has been said, can only be exercised following the actual merger.

[38] Klausner, M., Ohlrogge, M., Ruan, E. (2021, December). A Sober Look at SPACs. *Yale Journal on Regulation*, 39(1), 10-15.

Considering the framework of SPACs, if the deal is approved, it may be that the possible redemptions requested by dissident shareholders will substantially reduce the funds available in the trust account needed both to complete the merger and to redeem the shares of the shareholders.

At this point the figure of the Sponsor plays a fundamental role, since it must proceed to the so-called "SPAC roadshow", in search of further financing funds. Generally, these funds, in addition to further payments made by the Sponsors themselves, flow from the "**Private Into Public Equity Investments**" also known as **PIPE**. PIPEs play a key role in SPACs, since in many cases, the high level of shareholder redemptions deplete the funds in the trust account to the point where it is not possible to continue with the business combination. Investors selected for PIPEs, referred to as "accredited investors," generally are large sophisticated institutional investors such as mutual funds or large corporations. They are specifically identified on the basis of their experience in the financial sector, given the risk inherent in such investments since, during the business combination, the shares of the SPAC could be illiquid due to the timing of the deal and the so-called "black-out period", which will be discussed shortly.

The interest of PIPE investors in SPACs derives from the potential price advantages that may arise from the transaction, considering that they are usually issued securities at a discount or, at most, at the same price established at the IPO. In the event that they benefit from a discount, this is usually of a modest amount, not only to avoid further dilutive effects, but also to induce a perception of validation of these investments to the shareholders of the SPAC.

PIPEs can consist of either allotment of newly issued shares or existing shares redeemed by dissident shareholders. In addition, PIPE securities can often also be represented by convertible debt or other equity-linked securities, which provides very flexible alternative sources of funding for the SPAC, which generally only issues shares with warrants (or fractions of warrants) to its shareholders.

Obviously, considering that the SPAC seek for PIPE investments in a very delicate moment, that of the merger, such investors, contextually to the issuance of the financial instruments, are given confidential information related to the deal (with the consequent signing of non-disclosure agreements), in order to give the PIPE subjects evidence about the possibility of success of the combination, thus attracting the greatest possible interest. This is also linked to the fact that PIPE investments are often dedicated primarily to due diligence expenses, since the funds in the trust account can be tapped for this purpose only in a predetermined percentage. A peculiarity related to the issuance of PIPE shares is that SPACs, in conjunction with such transactions, must file with the supervisory authorities (such as the SEC in the US) a "Resale Registration Statement", which must

be valid for a very specific period of time. This is in order to allow PIPE investors to freely resell the shares on the market in that specific time frame. Clearly, in order to avoid speculative actions on the part of these investors (who could immediately resell the shares, taking advantage of the increase in share values following the announcement of the merger), a period in which resale is not permitted is usually agreed upon, called the "black-out period", hence the partial illiquid nature of PIPE investments. This period usually takes from 5 to 30 days[39].

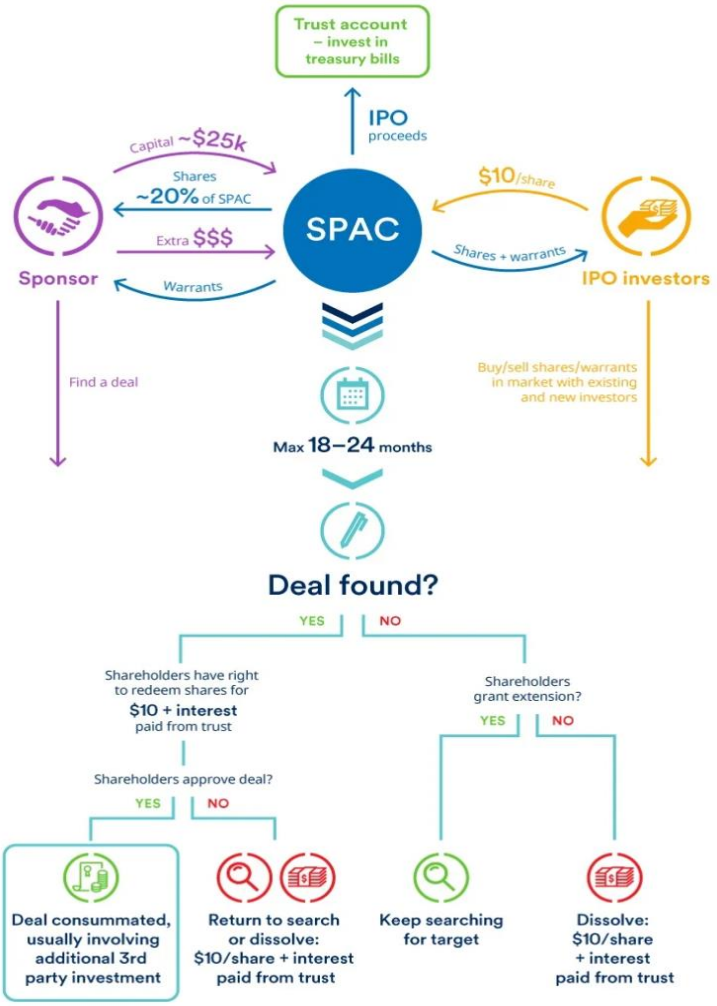
The existence of PIPEs is indeed a fundamental element for the success of the business combination of SPACs; suffice it to think that in 2021, a study by Houlihan Lokey [40] reported that PIPEs generated in the US about 64 billion dollars of additional capital to support the conclusion of 285 SPAC merger transactions. When compared to the approximately $152 billion in proceeds generated through IPOs by SPACs in that year (so about 42%), we understand even more the essence of such funding sources. This topic will then be taken up and analyzed specifically in the second chapter.

The last step in the life cycle of a SPAC, following the business combination (if it occurs), is the "**De-Spacing**". In the De-Spacing phase, the SPAC essentially "disappears", since, following the merger process with the private target company, it will be integrated into a new entity. The corporate purpose of this new company will be the same as the target company had, with the difference that it will now be listed on the stock exchange with the incorporation of the public shares of the SPAC. In this context, all holders of the voting shares of the SPAC then become owners, on a pro-rata basis, of the newly created company (so-called NewCo) resulting from the merger, based on a conversion ratio clearly set forth in the terms of the merger draft. Moreover, in the event that the listing prospectus of a SPAC provides that the warrants could not be exercised until the business combination, this is the moment in which the holders of such instruments will be able to exercise the rights, benefiting from the difference between the strike price inherent in the warrant and the market price of the shares (if positive).

This is the final process for which a SPAC is originally created, i.e., the collection of funds from the market, in order to achieve the objective of merging with a private target company with great growth perspectives. Below follows a summary table of the typical key moments in the life cycle of a SPAC.

[39] Agarwal, A. (2021, August). A primer on SPACs and PIPEs: How they work. *MenaBytes news*.
[40] De Rose, R., Kavney, M., Hellmuth, G. (2022, April). 2020/2021 SPAC PIPE Study. *Houlihan Lokey*.

Figure 4: SPAC life cycle.



Source: Lamont, D. (2021, March). "The pros, cons and incentives behind the SPAC-craze sweeping markets". Schroders.

1.2.2 The Sponsor

As mentioned above, SPACs are promoted by the so-called Sponsors, who are remunerated for the initiative of setting up the company with the assignment of a shareholding of approximately 20% (called "Founders shares", generally without voting rights in order not to influence the success of the business combination), against a contribution generally of small amount, therefore essentially with a large discount compared to the proceeds collected in the IPO. Moreover, at the time of listing, they subscribe the acquisition of warrants, so as to ensure an alignment of interests with those of the IPO investors, considering that the earnings from the exercise of warrants are clearly commensurate with

the success of the SPAC. The instruments subscribed by the Sponsors are also locked in until the business combination is executed, and this is referred to as a "Sponsor lock-up".

In order for the promotion of a SPAC to be successful in attracting capital, Sponsors should demonstrate an excellent track record of past performance in the financial arena, so that their actual ability to generate value and their level of experience can be disseminated to the public. In addition, what also determines the quality of a Sponsor (and therefore of a SPAC) is the breadth of the management network, their contacts, and therefore their ability to obtain information. These are all elements that increase the sense of reliability among investors, and which determines, as will be seen in the next chapter, the distinction between high and low-quality Sponsors.

Regarding the actual identification of the Sponsors that typically constitute SPACs, these can generally be distinguished into four categories[41]:

- Former executives of Investment Banks.
- Dealmakers with an extensive network of contacts and a positive track record in combining transactions and funding.
- Asset Managers, in particular Private Equity Funds or Hedge Funds; especially for the latter, the establishment of a SPAC is a means of differentiating their investments since, while on the one hand these funds are focused on the trading of very liquid instruments upon which dynamic strategies can be applied, the foundation of a SPAC is a specialization in the corporate sphere.
- Public companies, especially those that see SPACs as a means of capitalizing on business flows that are not part of their core operations, but which nevertheless have a certain degree of relevance with them in sectorial terms.

Furthermore, the promoters of the SPAC are also those who appoint the management of the company, usually directors and officers who are part of their own organic staff or network, establishing remuneration policies that, also in this case, guarantee the alignment of their conduct with the interests of the shareholders. The governance policies then require that the majority of directors must be independent, while the company's audit team must be composed entirely of independent directors.

In practical terms, there are two main peculiarities that characterize the investment and initiative of Sponsors:

[41] Berger, R. (2008, October). SPACs: An Alternative Way to Access the Public Markets. *Journal of Applied Corporate Finance*, 20(3), 68-70.

1) The possibility of obtaining large profits, given the lower cash injunction brought by the promoters compared to, as mentioned, the equity investors. A striking example in this case could be that of a group of investors who, led by former Citigroup manager Michael Klein, with the promotion of a SPAC gathered more than 60 million dollars in 2020, with an initial investment, precisely, of 25 thousand dollars[42].

2) The other feature is that the investment of the Sponsors is also defined as "at risk capital"; this because, if the trust account is liquidated due to the failure of a business combination, the proceeds of the account are fully redistributed to the shareholders on a pro-rata basis, including the capital contributed by the promoters to the foundation of the SPAC and through the subscription of warrants. Usually, these funds are equivalent to approximately 2-3% of the entire trust account[43], but in any case, the Sponsors could lose everything within 2 years. Once again, reference is made to an alignment of interests and ways of circumventing agency problems between managers and investors, but it is important that this does not turn into forced attempts to conclude unprofitable mergers for investors.

1.2.3 IPO Investors

As far as the analysis of IPO investors is concerned, as has been said previously, they are usually institutional investors, such as Private Equity funds, which are looking for opportunities arising from M&A transactions such as acquisitions of shareholdings in private companies or buyout strategies[44]. The feature that differentiates SPACs from the point of view of such investors, however, is that these represent relatively flexible and secure means in terms of capital guarantees, since if a shareholder does not approve the decision to go ahead with the business combination, he can redeem his participation under the initial subscription conditions.

In this regard, in order to give an idea of the peculiarities of an investment in a SPAC, it is useful to describe what are the rights guaranteed to the shareholders of such companies; specifically:

- Voting at the shareholders' meeting, crucial for the approval of the business combination or to decide on an extension to the time limit of the target research.

[42] Aliaj, O., Indap, S., Kruppa, M. (2020, November). The Spac sponsor bonanza. *Financial Times.*
[43] Berger, R., *supra* note 41.
[44] "A buyout is the acquisition of a controlling interest in a company and is used synonymously with the term acquisition. If the stake is bought by the firm's management, it is known as a management buyout and if high levels of debt are used to fund the buyout, it is called a leveraged buyout. Buyouts often occur when a company is going private". Source: Investopedia.

- Right to redeem the shareholding at the time of the announcement of the business combination if not deemed appropriate; as already mentioned, the return of the investment is pro-rata and usually at the IPO price, i.e., $10 per share plus any interest generated by the investment of the proceeds of the trust account.
- Right to subscribe for and exercise warrants to purchase additional shares at a predetermined price. The warrant may also be retained by shareholders redeeming their investment, as the warrant is tradable separately from the shares. However, this right is subject to the lock-up period limitation, meaning that it can usually only be exercised at the time of the merger with the target, in order to avoid capital dilution.
- Right to reimbursement of expenses defined as "out-of-pocket", which are those expenses not previously planned in connection with the activities of the SPAC, relating to the search for the target or due diligence activities.
- Finally, there is of course the right to receive, pro-rata, the shares of the new entity resulting from the merger of the SPAC with the target company, in the De-Spacing phase. Naturally, this is a right that belongs to non-redeeming shareholders, namely those who maintain their shareholdings until the conclusion of the deal, without reclaiming their investment from the trust account.

In the second and third chapters, the risks associated with investing in a SPAC and the different scenarios in terms of returns will be specifically addressed, with particular attention to those of non-redeeming shareholders.

1.2.4 Targeting

Previously, it was pointed out that SPACs offer various benefits to the target companies, such as the speed of execution of the deal, greater certainty on the listing price of the shares following the merger and the advantages deriving from the experience of the Sponsors. These aspects will also be analyzed later on, when comparing the listing via SPAC with the traditional IPO.

What is also important to focus on, is the effectiveness of targeting by the management of the SPAC, in order to ensure the success of this investment. Although at the time of the constitution of a SPAC the target company is not immediately declared (hence the adjective "blank check", in addition to the fact of being a company without assets except for cash), it is fundamental that the Sponsor and the board of the company possess proven experience and ability in order to identify potentially successful private target companies, thus guaranteeing the success of the merger. In this regard, the activity of Due Diligence becomes consequently fundamental, since a mere accounting or fiscal analysis of a

company operating in an attractive sector is not sufficient. In order to be considered consistent and complete, due diligence should also analyze a number of other fundamental factors[45]:

- First, a rule of thumb in the SPAC world is that it is most successful if a target is identified with an Enterprise Value 3 or 5 times greater than the proceeds raised by the SPAC (defined as 3x or 5x in terms of valuation via multiples). Empirical evidence on the identification of a target with such an Enterprise Value has reported the following benefits for SPACs: first, it reduces the dilutive effects of the exercise of warrants and redemptions due to a larger cash base. In addition, such a target company size is deemed adequate for the SPAC's income to remain relevant despite shareholder withdrawals.
- Analysis of the business model and go-to-market strategies, then the tactical steps built by the company in order to penetrate the market and expand the customer base, considering industry trends and competition.
- Clearly it is then necessary to continue with a fundamental analysis of the target, then, in addition to a strategic analysis, the estimation of balance sheet key indicators (comparing historical data with current market values) and the forecasting of income statement and balance sheet items, so as to be able to identify values such as free cash flow, operating income and potential dividends. Of course, this kind of analysis gives the SPAC management the possibility to estimate the intrinsic value of the target (i.e., Equity and Enterprise values), through the use of several valuation techniques, first of all the Discounted Cash Flow method (DCF).
- Sponsors should also focus on assessing the operational diligence of the target, in particular by concentrating on reviewing current contracts, studying current client and employee relationships, but also addressing risk management issues (thus including an analysis of the company's debt structure as well as an analysis of the main operational risks).
- Another fundamental aspect is to pay a lot of attention to possible Carve-Out operations of the target company, i.e., the sale of a branch of the company, which can take place mainly prior to the De-Spacing phase, in order to make the company more interesting from an operational point of view and to increase its valuation, against the sale of less performing operational structures.

Ultimately, the Due Diligence activities are fundamental not just for the success of a business combination in strictly economic terms, but also for the perception that the target can have about the

[45] Civi, H., Anani, K. (2021, August). Why SPAC success requires a deeper look into target companies' readiness. *Ernst & Young*.

SPAC, a true partner, not just as a means of listing. In fact, the more the management of the SPAC shows itself to be involved in the diligence operations, the more it shows interest in the prosperity and value creation of the entity that will be formed as a result of the merger process.

1.2.5 De-Spacing

As mentioned earlier, De-Spacing is the process in which a SPAC merges with the target company, giving rise to a new entity which allows the private target to go public by incorporating the shares of the SPAC, previously listed via IPO. This process generally takes eight to ten weeks to be completed, therefore it is generally even faster than a classic merger.

The De-Spacing phase encapsulates the essence of the existence of SPACs, as a means of listing for private companies, as an alternative to the traditional IPO, in which, moreover, the target does not have to give up all or part of its corporate control, as often occurs in Private Equity and Venture Capital processes.

De-Spacing involves processes and requirements quite similar to a merger between public companies, but logically it has substantial differences linked to the functioning of SPACs.

The similarities with a non-SPAC merger clearly pertain to the main processes that lead to the conclusion of a deal, namely[46]:

- Letter of Intent (LOI). A particular aspect in the case of the LOI promoted by a SPAC as part of a business combination, is the provision of a "minimum cash condition", i.e., the agreement according to which, in order for the merger to be effective, the SPAC must guarantee a minimum level of cash for the transaction. This liquidity to be guaranteed comes primarily from the trust account, but also, as has been said previously, from the PIPE investments or from a combination of these with Forward Purchase Agreements[47]. In addition, in the Letter of Intent, the Sponsor of the SPAC may be asked to relinquish part of their shares and warrants in order both to fill valuation gaps and to align the interests among the shareholders of the companies involved in the deal.
- Due Diligence activities, concerning essential elements and key processes of the target company, as mentioned in the previous paragraph.

[46] Best, E.S., Pinedo, A.T. (2021, January). De-Spacing: Overview, Securities Law & Financial Statement Considerations; Derisking with a PIPE Transaction. *Mayer Brown*.

[47] "In a number of recent SPAC IPOs, affiliates of the sponsor or institutional investors have entered into a forward purchase agreement with the SPAC, committing to purchase equity (stock or units) in connection with the De-SPAC transaction to the extent the additional funds are necessary to complete the transaction". Source: Lane, R., Lenahan, B. (2018, July). Special Purpose Acquisition Companies: An Introduction. *Harvard Law School Forum on Corporate Governance*.

- Sale and Purchase Agreement. The final agreement between the companies in the SPAC merger is also a phase in line with a classic public merger. In the SPA, the specific terms of the deal are defined, such as representation and warrants, covenants, purchase consideration and so on.

The main differences between a SPAC merger and a "traditional" one, therefore, concern the internal contingencies of the processes foreseen in a shell company, for which the merger may, or may not, be implemented. In particular, it refers to:

- Shareholder approval of the business combination. SPAC management is typically required to obtain shareholder approval in order for the merger to take place; this approval must be obtained in accordance with the rules laid down by the market supervisory authorities concerning proxy voting.
- Redemption rights. As already mentioned, several times, at the time of the business combination the SPAC must offer to holders of shares who wish to redeem their stakes, the right to redeem them in proportion to the percentage held, obviously drawing from the trust account, at the price set at the time of the IPO plus interest generated by the account. Naturally, redemption does not extend to warrants, which are negotiable and exercisable separately from the shares even if a shareholder redeems his participation. In addition, there may be rare circumstances where shareholder voting is not required to approve the merger, which must be clearly stated in the SPAC's by-laws. In such cases, the SPAC will be required to conduct a tender offer in order to execute a redemption action for shareholders who disagree with the merger plan. Finally, another important aspect upon De-Spacing, is that the Sponsor and directors of the SPAC holding company shareholdings and warrants, must waive their redemption rights, demonstrating their involvement in the business until the completion of the merger (or eventually the liquidation of the company). This will help to extend the period available for the completion of the De-Spacing process.
- PIPE Investments. As described in Section 1.2.1, PIPE investments are very often essential for SPACs in order to make a business combination actually plausible, due to the redemptions made by shareholders not in favor of the merger which invalidate availability of funds in the trust account. Actually, PIPE investments reveal their cruciality just in the first phase of De-Spacing, inherent to the preparation of the deal, in which the management of the SPAC activates a process of research (previously defined "SPAC roadshow") of new funds in investors specifically selected to meet these needs, thanks often to the agreement with them of financing instruments more flexible than the issue of ordinary shares. PIPEs are the

culmination of such capital chasing, and to understand their importance for the closing of SPAC mergers, it is sufficient to consider that, according to Venture Capitalist John Lutting, the ratio PIPE to SPAC money is typically between 2:1 and 3:1, i.e. a SPAC with a countervalue of, for instance, 400 million dollars (in terms of cash available in the trust account at the time of the merger after redemptions), could be able to execute a transaction between 1.2 and 1.6 billion dollars[48].

- U.S. Super 8-K. In the U.S., following completion of the De-Spacing, the SPAC must complete and file a special Form 8-K with the SEC within four days of completion of the process. This form contains the key information about the merger transaction and is specifically designed by the SEC for SPAC companies. It includes: documents on the completion of the acquisition and disposition of assets, evidence of change in control of registrants, change in shell company status, and financial statements. The Super 8-K is a further demonstration of the efforts made by regulators in the United States to regulate and clarify the world of SPACs for investors.

The De-Spacing process concludes the life cycle of a SPAC and giving rise to a new entity in which, generally, the shareholders of the dissolved SPAC receive minority stakes in the newly created public company, as do the Sponsors against the participation of approximately 20% obtained by setting up the shell company. The majority share instead remains in the hands of the shareholders of the former target companies.

From the analysis of this process, it can be deduced that the mechanisms by which subjects involved in the SPAC can obtain substantial returns, usually lead to the creation of a multiplicity of interests. Shareholders who strongly believe in the merger project need often to hope that it will occur without speculative obstacles, such as pressure from Sponsors to complete an unsuitable merger. This may occur as a result of the Sponsor's potential interest in reselling the stake they will obtain in the new entity, resulting from the business combination, as well as the use of warrants obtained from the promoters at a deep discount. These are therefore further problems concerning dilution of capital and divergence of interests, giving rise to a multitude of possible scenarios in terms of return for shareholders, as will be illustrated in the remainder of this paper.

[48] Levine, M. (2020, July). SPACs Aren't Cheaper Than IPOs Yet. *Bloomberg Opinion*.

1.3 Comparison with Traditional Initial Public Offering

At the beginning of this paper, and repeatedly throughout this chapter, it was stressed how SPACs represent an alternative to the classic process of listing on the stock exchange for private companies, the Initial Public Offering. As a result, it is clear that shell companies have as their ultimate objective the listing of the target company, so the merger process between them is a means of achieving this target. Moving then from the point of view of the target company, it is essential to analyze the actual differences between the two listing phenomena, since, although SPACs can be a very attractive option, especially in recent years following the outbreak of the Covid pandemic, it is not always certain that it doesn't hide some negative facets for which certain categories of private companies should not prefer a traditional IPO.

Therefore, in this last session of the first chapter, an overview of the IPO listing process will be provided, in order to make a first comparison with the SPAC business combination; moreover, the pros and cons of both processes will be defined, also outlining which variables come into the game in the context of a company quotation. Finally, a juxtaposition of their legal treatments will also be performed, focusing on the listing requirements for a private company (with particular reference to SEC regulations), and comparing them to the disclosure requirements of the SPAC merger process. All this will be useful to contextualize the main differences between the two phenomena, both to understand the logic behind a choice for a target company, and to introduce the final discussion in terms of trade-off between costs and revenues that will be performed in the third chapter.

1.3.1 Structural differences and benefits

In order to make an effective comparison between SPAC merger and traditional IPO, from the point of view of the company that intends to go public, it is worthwhile to provide a synthetic overview of the processes involved in Initial Public Offerings. This will ensure that the complexity, the players involved, and the structure of the process can be better grasped.

From the moment that a private company makes the decision to go public, it begins a process that can be divided into four stages[49]:

1. IPO Planning. This is the first phase in which the company tests its actual ability to go public, through diagnosis and evaluation of its operations and network. In this stage the business units are also prepared and harmonized and the fiscal and functional aspects of all levels of the

[49] Source: Guide to going public. Strategic considerations before, during and post-IPO". (2018). *Ernst and Young topics*.

company are optimized, including lock-up provisions for shareholders. Finally, risk management and infrastructure systems are also implemented in order to meet certain regulatory requirements (such as compliance with local security law, an appropriate governance model or the refinement of forecasting and budgeting models).

2. IPO Preparation. This is one of the most delicate and fundamental phases for the listing of a company. In this step, the company's business plan and equity story are developed in order to refine the company's preparation for public presentation and to obtain initial feedback on pricing. To do so, it is crucial that the company hires experienced and professional advisors, so that it can create the best possible external team and ensure the success of the IPO. The first to be selected is the Leading Investment Bank (also known as the Global Coordinator), which will be the fulcrum of the listing process, as it will act as the underwriter, i.e. it will be the intermediary that subscribes the shares that will be issued by the company, and then allocates them to the investor following the Book Building process (it mentions that underwriting can actually be both first comm and best effort). Hence the importance of this professional figure both in terms of risk and pricing of the operation. Another set of essential advisors are also engaged, including compliance lawyers, bookrunners who are fundamental in roadshow processes alongside the underwriter, but also of course accountants, tax specialists and financial PR. They will contribute to the company's due diligence processes, which begin at this very stage, culminating in the analysts' final presentation of implemented valuations and business plans, thus giving rise to the pre-marketing phase.

3. IPO Transaction. This section is the one that leads to the final IPO. Here, all parties involved carry out organized work to ensure a successful listing within the parameters established in the pre-marketing phase. To ensure this happens, a number of developments are critical. First, the financial information and filing processes are prepared, leading to the drafting of the listing prospectus, which must be approved by the regulator (such as the SEC in the US). In addition, following the announcement of the "Intention to Float" to the public, the targeting of investors and finally the Book Building process is carried out[50]. In this process, underwriters,

[50] In the Book Building, the Investment Bank tries to find out the price at which the investors are going to bid and also the volumes they are going to buy, through meetings specifically organized in the roadshow phases. Book Building is not the only pricing method employed in practice, although it is the most widely used. In fact, different practices can be established such as Single-price auctions, in which the bid price will be the lowest among those offered, or Discriminatory auctions, in which to the winning bidders are allocated share packages at the price they have offered. In addition, Fixed-price bids can be directly provided, in which the company declares the volume and the price it will offer, without negotiation; obviously in this case there may be the risk of over or underpricing.

bookrunners and financial PR perform an essential role, in conjunction with the management of the company being listed, for the establishment of a demand curve and price estimates, through direct meetings with selected investors (in the roadshow phases) with respect to the company's needs. The purpose of this phase is the establishment of a book of demand, based on the feedback obtained from potential investors, and then the establishment of a final IPO offer. In order to ensure the successful collection of large orders, advisors must necessarily seek capital with the right market timing, which is why the presence of Investment Bank and financial professionals is crucial, since a private company very often would not be able to cope with such complexities without external professional support.

4. Aftermarket. This last step begins with final admission to listing. This day marks the beginning of life as a public company for the newly listed entity and the support of the advisors remains fundamental, both in order not to succumb to the euphoria of public trading and to guarantee the correct stabilization of the listing prices, which tend to have so-called "pops" (thus, price alterations), in the first days and weeks following the stock market launch. In order to control this situation, it is necessary to collect investor reports, as well as continuous market research and compliance with high-quality external disclosure reporting.

From this first overview of the IPO process, it is clear that it is not free of complexity, quite the opposite, so if a private company decides to undertake this path of listing, it should necessarily possess the appropriate economic and intellectual means. From this statement, a first comparison with a SPAC merger could be extracted, since in such a case, the target could circumnavigate certain tortuous and bureaucratic issues typical of the IPO process (since, precisely, the target becomes public "simply" with the incorporation of the listed shares of the SPAC). Moreover, the existence of Sponsors who, as has been said, are usually outstanding financial operators, could be instrumental in providing the necessary support for the completion of the business combination and therefore for the creation of value for the company resulting from the merger. Clearly, the presence of professional advisors such as the Investment Bank is not missing even in the SPAC merger, but a private deal such as this one, certainly foresees a customization of the entire process to the benefit of the private target that intends to avoid the complications of the IPO process. In any case, the support that the Sponsor is able to guarantee to the target during the business combination, varies from case to case and certainly depends on the actual expertise and interests of the Sponsors themselves for the purposes of the merger, as will be seen later.

Another yardstick could be the speed of execution of the deal compared to the traditional IPO. It has been said that, generally, the De-Spacing process concludes in about four months or slightly more, always varying from case to case. An IPO, on the other hand, takes between 12 and 18 months[51], due to the lengthy procedures described above. In particular, a longer and more meticulous due diligence is often required than for a SPAC merger, since the IPO is an operation open to the public, and therefore also takes greater requirements and disclosure obligations imposed by the authorities for admission to listing, as will be seen shortly. Naturally, this last aspect is not necessarily a defect, since the intention is to guarantee maximum security on the evaluations of companies in the markets, but it clearly lengthens the listing process. From this it might be thought that for companies needing a quick listing, the merger with SPAC could be a very valid alternative, but it is still necessary to analyze all the underlying dynamics of such a choice. For example, proxy votes for the shareholders' approval of a SPAC, could slow down the process a lot; hence, recently, the practice of providing a tender offer regulation, for the purchase of the shares of reluctant shareholders, has been growing in order to reduce the timing of the transaction. This is a sign that even the timing factor should be analyzed on a case-by-case basis, depending on the complexity of the entity involved and the transactions themselves.

Although those just mentioned are fundamental aspects for the choices of going public, as well as a comparison between SPAC merger and IPO, there are other essential factors that a private company should consider in this context.

First of all, it would be necessary to analyze three types of variables capable of influencing the failure of a listing process, namely the market-specific, deal-specific, and firm-specific variables[52]. Let's look at them specifically:

- Market-specific. In this case, two fundamental variables must be taken into consideration, market volatility and the cost of debt. Clearly, the greater the market volatility, the fewer the opportunities for success of an IPO, while the merger through SPAC is less affected by this circumstance. This is because the business combination is a private transaction, as has been said many times, and in a certain sense the listing of the SPAC itself is also private since the investors are usually pre-identified. In any case, private companies tend to be more willing to go public through SPACs in adverse market conditions, considering that the price at which

[51] Lambert, J. (2021, January). SPAC insights. Why so many companies are choosing SPACs over IPOs. The pros and cons of going public through a SPAC merger rather than an IPO. *KPMG SPAC Intel Hub*.
[52] Kolb, J., Tykvovà, T. (2016, July). Going public via special purpose acquisition companies: Frogs do not turn into princes. *Journal of Corporate Finance*, 40(C), 84-85.

the operation will take place is defined in the draft, keeping in mind that the shell company has already in the trust account the necessary liquidity (or at least undertakes to find it, under penalty of failure of the operation), for the combination and does not have to collect it from the market, as is the case with the IPO. On the other hand, the other market-specific variable to be considered is the cost of debt. SPACs can raise additional funds also through debt securities to perform a combination, which obviously does not happen in the case of an IPO. At times when there are high interest rates on the market and cost of debt increases, SPACs may be less willing to complete merger operations, to the advantage in this case of traditional IPOs.

- Deal-specific. Oftentimes, in the context of a listing process, it is important to focus on what motivates shareholders to approve such a transaction. This is important because the choices related to the trading of the company's shares post-quotation, will clearly affect the price and volumes of public securities, especially in the case of the disposal of significant stakes. From the point of view of shareholders who plan to carry out a "cash-out" operations, SPACs often offer a more attractive option, given that, following the business combination, they are generally freer to liquidate their shareholding and, at the same time, to exercise the warrants held. Such maneuvers are much more limited in the case of a traditional IPO, due to lock-up agreements, which usually amount to about 180 days[53]. Obviously, the greater the possibility that a substantial number of shareholders will sell their stakes in the company, the greater the possibility of instability and price variability.

- Firm-specific. In this case, there are 3 important components that a company must monitor when making a listing decision. The first is the combination of profitability and growth opportunities. Profitability can be estimated in terms of Return On Assets, defining the ratio between EBIT (Earnings Before Interests and Taxes) and average total assets of the company. Growth opportunities can be evaluated with the market-to-book asset ratio, generally approximated by Tobin's Q formula[54]. If these values are "undersized", that is, respectively with EBIT and market values of the company of exiguous value compared to that of the assets in the balance sheet, the SPAC could be considered "low-quality firms", and SPACs might be

[53] Source: Knowledge, *Corporate Finance Institute*.

[54] "The Q ratio, also known as Tobin's Q, equals the market value of a company divided by its assets' replacement cost. Thus, equilibrium is when market value equals replacement cost. At its most basic level, the Q Ratio expresses the relationship between market valuation and intrinsic value. In other words, it is a means of estimating whether a given business or market is overvalued or undervalued". Source: *Investopedia*.

seen as a sort of "back-door" compared to the IPO. The latter could reveal to be unsuccessful, since investors could perceive the low current and prospective quality of the companies in question, underestimating even the listing price; it could instead be different through a business combination with a SPAC, since, if the Sponsor or the management have a positive evaluation or any type of interest in the target, they could be willing to pay a premium on the consideration of the merger, providing also a technical support after the completion of the transaction. The second firm-specific variable to consider is the debt ratio, i.e., the ratio of liabilities to assets of a firm. Obviously, this variable can also be assessed in terms of leverage, through the well-known D/E ratio. Intuitively, a massive recourse to debt of a private company is an aspect that could negatively influence both a listing through IPO and one through SPAC merger. On one hand, such a company could be too risky from the point of view of IPO investors, while, on the other hand, this could also be unattractive from the point of view of the directors of a SPAC, particularly in the case where they wished to have recourse to debt instruments for the purposes of completing the merger (therefore to collect further liquidity in addition to the issue of new shares or, as has been said, to PIPE investments). This would obviously occur, because there would be a risk of increasing the debt ratio of the target too much, which is already highly indebted. The third and final aspect relates to the inherent characteristics of the company, is its size. A company of relatively small size, which translates into less cash availability, may not be able to manage the listing process through IPO, due to the limited possibility of being able to bear the burden of the high fixed costs of this process, which could become prohibitive. Therefore, the most sensible choice would fall on the combination with a SPAC, given the lower level of fixed costs (at least theoretically), expected in a deal of this type. However, this subject will be analyzed more specifically at the end of the third chapter.

Finally, a last element of comparison between listing via SPAC and IPO, concerns the feature that perhaps more than others is generally recognized as more favorable to the SPAC merger, namely the certainty of the listing price.

The fact that the pricing of an IPO is established only the day before the listing takes place, seems to be an unfavorable element for companies that are looking for proceeds target already before the official launch on the stock exchange. In fact, the underwriter who takes charge of pricing the shares during the IPO, at the end of the Book Building process is generally able to provide a range of trading prices for the newly issued shares, which can also be seen in the prospectuses published by the companies (generally right on the first page). This price range is the result of both intrinsic evaluations

of the company in the due diligence process and, as mentioned, of the orders collected during the roadshow phase. On the other hand, in the SPAC sphere, the consideration of the merger and the conversion ratios between the SPAC and target shares are already known a few weeks before the day set for the merger, with the approval of the draft and the forms required by the disclosure obligations (such as the Super 8-K in the USA). It must be pointed out, however, that although the practice of SPAC merger processes guarantees more favorable time margins for the targets with respect to the IPO, the certainty of the price is almost always subject to certain agreements established between Sponsor, target, and PIPE investors. This can potentially create problems in terms of defining the amount of net cash that the target will receive from the SPAC, all depending, inevitably, upon the number of shares that are redeemed and that affect the proceeds of the trust account.

In this context, the provisions set out in the merger agreement between the SPAC and the target become essential, in relation to the funds with which the shell companies must raise additional capital to reach the "minimum cash amount" of the merger. These additional funds are mainly raised through PIPEs or through the waiver of an ownership stake by the Sponsors. The problem is that, frequently, these turn out to be only partial remedies and such difficulties in raising the necessary capital, over a certain time frame, do not rule out the risk of the target company withdrawing from the merger.

1.3.2 Distinctions between projections legal treatments

After having analyzed the main differences between IPO and SPAC merger, this paragraph wants to focus on one of the main reasons why SPACs have aroused great interest among financial operators. Specifically, reference is made to the treatment of forward-looking statements[55], also known as projections, published in connection with business combinations during De-Spacing in the USA.

This legal aspect is interesting because, leaving aside the differences purely related to the disclosure requirements in the IPO prospectus or in the merger documentation (respectively with the completion of Form S-1 for IPOs and Super 8-K for SPACs in the US), the projections are a fundamental element for the perception that investors will have of a company that goes public.

[55] "The term "forward-looking statement" means— (A) a statement containing a projection of revenues, income (including income loss), earnings (including earnings loss) per share, capital expenditures, dividends, capital structure, or other financial items; (B) a statement of the plans and objectives of management for future operations, including plans or objectives relating to the products or services of the issuer; (C) a statement of future economic performance, including any such statement contained in a discussion and analysis of financial condition by the management or in the results of operations included pursuant to the rules and regulations of the Commission; (D) any statement of the assumptions underlying or relating to any statement described in subparagraph (A), (B), or (C); (E) any report issued by an outside reviewer retained by an issuer, to the extent that the report assesses a forward-looking statement made by the issuer; or (F) a statement containing a projection or estimate of such other items as may be specified by rule or regulation of the Commission". Source: Private Securities Litigation Reform Act of 1995, 15 U.S. Code § 78u–5 (1995).

The basic assumption is that, communicating projected financial data to investors is always a good thing, providing signs of economic stability of the company. Clearly, such practices have historically led to situations where the information published in statements about a company's future profitability has turned out to be misleading or not properly in line with earnings expectations. The consequence was often lawsuits from investors against the management of companies that had disclosed such documentation.

The tipping point of projections regulation was therefore an almost natural consequence, and in 1995 the US Congress introduced the Private Securities Litigation Reform Act (PSLRA), which provided a safe harbor from liabilities regarding the publication of forward-looking statements in private transactions under security laws[56].

Essentially, this meant that the management of companies disclosing forward-looking financial data in private transactions, for the sale of shares, could not be prosecuted unless there was proven fraud in altering certain information to make the offer more attractive to investors. Obviously, at the time, this provision did not extend to blank check companies that issued penny stocks but, considering that SPACs created during the 1990s did not issue such securities and foresaw the sale of shares in the De-Spacing phases, it allowed the directors of SPACs to have this legal "protection". Moreover, the provisions of the PSLRA do not even apply to statements issued at listing through traditional IPO processes. The reason for this is intuitively that attracting capital from IPO investors by publishing projections and mentioning the possibility that they might not materialize, did not give investors the opportunity to sue.

Given this background, forward-looking statement provisions have therefore become a winning key for SPAC mergers, especially for target companies seeking to address information asymmetry issues in attracting capital during public company transaction processes.

Clearly, even the ability to be able to publish projections without great risk has its negative facets in the SPAC world. First of all, it can create disadvantages on two fronts: firstly, in the case of the so-called "low-revenue" companies, i.e. those companies still in an embryonic start-up phase, which do not have any real possibility of publishing attractive projections for investors during the merger phase; the second aspect, instead, as can be easily guessed, refers to the publication of too aggressive forward-looking statements, in other words, excessively far-sighted on the future profitability of the company. In this case, naturally, if these expectations do not become real, the shareholders who

[56] Source: Levine, M. (2021, April). Maybe SPACs Are Really IPOs. *Bloomberg Opinion*.

participated in the merger would find themselves with considerable losses, due to loss of credibility and a consequent devaluation of the company's shares.

Within this scenario, therefore, it is questionable whether the safe harbor that is guaranteed to the projections of the target during De-Spacing, is actually a useful tool, or whether it is actually only a means to increase the interests of management, to the detriment of unsuspecting investors. In this regard, it is interesting to mention a recent publication by the Acting Director of the Corporation Finance Division of the SEC, John Coates, who expressed doubts about the safe harbor functionality of forward-looking statements for SPACs. In fact, the focus of the Director has been to pose a question about the empirically observable consequences of these instruments, focusing specifically on the implications they have on the Due Diligence processes[57]. Effectively, it raises the doubt about whether the possibility of leveraging a protection for the parties involved in their publication (i.e., the Sponsor, private investors, and the management of the target company) could affect the correctness and meticulousness of the due diligence processes of the target. This issue is then even more emphasized if one pursues an alignment between SPAC and IPO as a means of listing a private company, an alignment that, looking at the numbers of the last two years, seems to be lacking considering the boom that SPACs have had in attracting capital.

Clearly, Coates' declaration was only a statement, so it did not have the legal validity, but it certainly raised many doubts among analysts and investors, so an alignment of this provision between SPAC and IPO is not excluded in the future. Nevertheless, nowadays, projections' safe harbor still plays at the advantage of De-Spacing operations, especially since, during IPOs, it is not forbidden to publish forward-looking statements in the Book Building phase, but the responsibility for their truthfulness falls entirely on the subjects who have issued them; this certainly does not encourage to take such risks, but it also entails a lower attractiveness of the listing process from the investors' point of view.

[57] Coates, J. (2021, April). SPACs, IPOs and Liability Risk under the Securities Laws. *U.S. Securities And Exchange Commission website*.

CHAPTHER 2. Risks associated with investing in SPACs

The first chapter has been focused on structuring an operational framework for SPACs, defining the genesis, and functioning of these companies, and finally comparing them with the traditional IPO in order to identify the variables to be analyzed in the final phase of the paper. On the other hand, in this second section, the purpose is to narrow down the field of investigation in order to extract the components which explain the scope of this study, namely, to define the risks associated with investing in SPACs which affect the performance of its shareholders. All will be backed by empirical evidence in this regard.

In the first two paragraphs, an analysis will be undertaken aimed at drawing a first distinction between qualitative and non-qualitative SPACs, trying to identify the variables defining the profile of a shell company during its operations, also studying one of the main risks associated with this type of investment, dilutive effects.
In the last paragraph, finally, the post-merger returns of non-redeeming shareholders and sponsors will be analyzed, devoting a section also to scenarios of returns for shareholders of SPACs burdened by high redemption rates. To do so, the methodologies for the calculation of returns will be specifically addressed (which themselves incorporate the cost structure in a SPAC).
Studying the returns of the reference sample, it will be possible to lay the foundations for the analysis of the trade-off between costs and benefits of the investment in SPACs, which will be addressed in the third chapter.

2.1 High Quality vs Low Quality SPAC

This first section of the second chapter will then introduce the analysis of the risks associated with investing in a SPAC. In this regard, the main focus will be to identify an initial distinction between shell companies defined as qualitative and non-qualitative. In order to do so, the focus will lie on three crucial factors (already mentioned in the first chapter), regarding the structure of SPACs, namely the reliance of shareholders on the Sponsor, the identification of a target company with the appropriate size and the impact of share redemptions with the subsequent importance of PIPE investments for the purpose of the business combination.

Concerning the topic of entrustment to Sponsors, section 2.1.1 will address the issue of the distinctive characteristics of a promoter, referring to the effectiveness of two key elements, i.e., the personal

experience of those who establish such companies and the breadth of the network of such individuals, also providing evidence of these aspects on the achievement of certain SPAC objectives, such as the performances, fundraising ability, and speed of merger execution with targets.

In the second session of this paragraph, it will be addressed the issue related to the $10 threshold for the stock trading of both the SPAC and the new entity resulting from the business combination. Specifically, empirical evidence will be provided about the impact of the Enterprise Value of the target company on the success of the merger, thus reiterating the targeting theme mentioned in paragraph 1.2.4, according to which a general rule to cope with dilutive risks, would be to identify targets with an EV about 3-5 times higher than the IPO proceeds of a SPAC.

In the last session, instead, data regarding redemptions observed in the reference sample, prior to the merger dates, will be reported, as well as PIPEs volumes, and the impact of these variables on the success of a SPAC will be investigated.

The ultimate aim of this first paragraph will therefore be to provide a first yardstick in the context of investment choices in Special Purpose Acquisition Companies.

2.1.1 Entrusting Sponsors

In this paragraph the theme of the quality of the SPAC Sponsor will be addressed. In this regard, it might be asked why reference is made to trust in the Sponsor; this is an important aspect since the SPAC itself is set up and promoted by them, who are the protagonists not only in the first phase of IPO, indispensable to raise capital for the business combination, but also in the identification of a target, the raising of new capital and, ultimately, the execution of a potentially successful merger.

It should not be forgotten that the structure of SPACs, as outlined in the first chapter, provides for the possibility of redeeming their shares for shareholders who do not approve the business combination. For this reason, it is intuitive that the needle of the scales in the success of a SPAC is still the shareholders themselves, who can decide the fate of the company by not approving the merger and leading to the liquidation of the company, but also by reducing the volume of cash available in the trust account as a result of redemptions.

From this framework, it is clear the crucial role of the Sponsors, who are called upon to bring benefits to the SPAC, as a result of their skills, experience, and linkages with the capital market. Reference to trust is made since the investors in a SPAC do not have control or management, so the operational and financial dynamics are in the hands of the promoters and the board that is usually appointed by the latter.

In paragraph 1.2.2, we have described those who historically have been the promoters of a SPAC, i.e., former CEOs of Investment Banks or large corporations, as well as former managers of Private Equity or Hedge Funds and so on. For them, demonstrating a successful track record and a certain notoriety in the financial world is crucial to gaining the trust of both SPAC investors and the entire staff of the target company. In this regard, two specific factors have been identified in this analysis to define the risk of investing in a SPAC, linked to the quality of the Sponsor and therefore to define the extent to which investors place (or should place) trust in them.

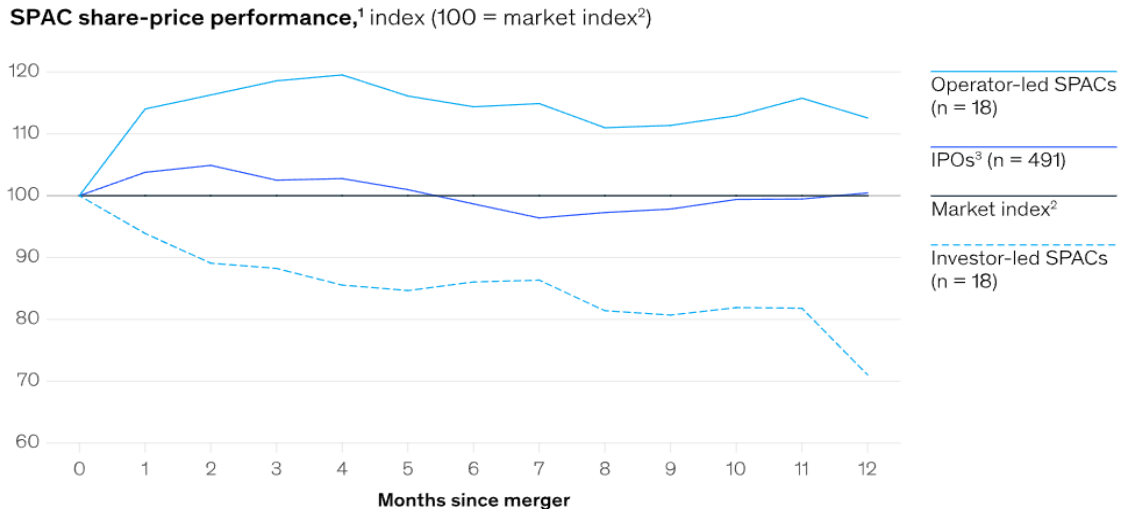
Sponsor Background

One of the biggest risks involved in investing in a SPAC is that of trusting Sponsors who might pressure the completion of a value-destroying business combination. This can occur against the large return that Sponsors can get from their 20% stake and the warrants they signed when the company was listed. Since the Sponsors are subject to lock-up clauses, as mentioned in the first chapter, essentially their instruments generate value only after the merger and if it does not take place, the promoters risk being left with instruments in their hands with no value. Reflecting also on the recent increase in volumes traded by SPACs in global markets, this concern could become even more acute, given the theoretical greater access to capital or greater interest shown by target companies.

It is not by chance that reference is made to the fact that the Sponsor must be trusted, so analyzing the background and characteristics of those who set up a SPAC becomes an essential step. In this regard, it is very interesting to analyze the results of a recent McKinsey & Company study on the personal characteristics of some SPAC Sponsors. From a sample composed of about 36 SPACs, active between 2015 and the end of 2019, with proceeds of at least 200 million dollars and at least one year of activity on a stock exchange, it emerged that the companies whose leadership was represented by subjects with past "C-suite" operational experience[58], thus defined Operator-led SPACs, have actually outperformed by about 40% the so-called Investor-led SPACs, hence those whose promoters had only purely financial or investing experience. In addition, this data shows that the Operator-led SPACs also outperformed, over this time span, the reference market index (in this case the S&P 500 sector) and the newly-traded companies via IPO.

[58] "C-suite" refers to professionals who hold the most important positions in a company, whose job title usually begins with the letter "C" standing for "Chief", such as CEO, CFO, COO and so on.

Figure 5: Operator-led SPAC outperformed others.



Source: McKinsey & Company. (2020, September). "Earning the premium: A recipe for long-term SPAC success".

In addition, the empirical evidence provided by McKinsey, has brought to light another piece of data that is very relevant to the purposes of this analysis, namely that Operator-led SPACs are also able to identify more effectively (around 30% more) the industries in which they are targeting, compared with Investor-led companies.

Clearly, these results are suitable for the analyses carried out in this paper, since they testify that Sponsors with proven professional experience and who demonstrate remarkable track records (especially those who have been part of important institutions or financial intermediaries), have statistically registered significant results also in the promotion and management of SPACs. And this is even more relevant if the results obtained are compared with SPACs managed by less experienced subjects. This evidence is of absolute importance with regard to investment choices in a SPAC, as it underscores the influence that certain types of Sponsors can bring to the success of the company, and thus to the completion of a business combination with a profitable target, which translates into better performance and lower risks for the shareholders of the SPAC itself who decide not to redeem their holdings.

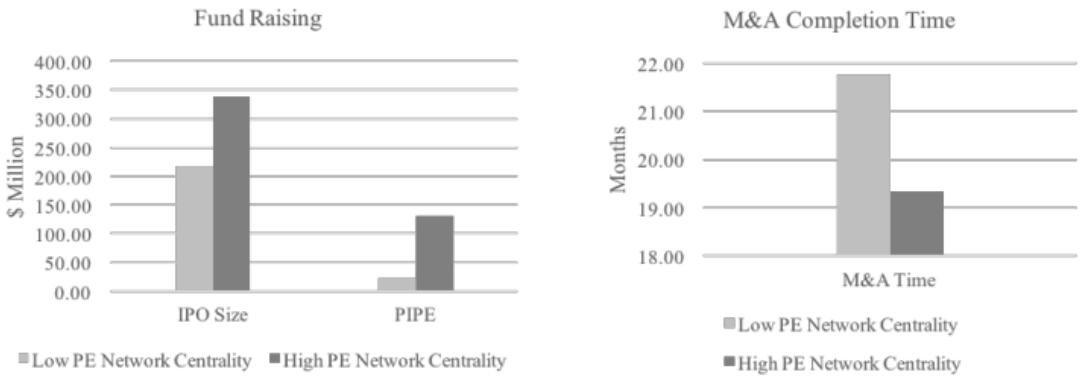
Breadth of the Sponsor's network

This second area of analysis addresses another fundamental peculiarity of the promoters of a SPAC, namely their connections with investors and market participants, defined by the structure of their network. One wonders, therefore, why it may be crucial for the Sponsor to have a dense network of connections. In this paper has been touched several times the concept of insufficiency of funds in the

trust account (caused by redemptions), to implement the business combination and to meet the minimum cash threshold often established with a target. In this context, the role played by the Sponsor is therefore of vital importance on three fronts: firstly, the ability to reach as many investors as possible in order to increase the IPO proceed and therefore the initial availability of cash in the trust account; secondly, the greater effectiveness of the fundraising processes in proximity to the merger in order to attract PIPE investments; finally, the last aspect is that of the speed of finding a target and completing the deal, keeping in mind the time limits that a SPAC has.

In this context, another recent research, this time by a team of professors from the finance department of the University of Hong Kong, called "SPAC IPOs and Sponsor Network Centrality", is instrumental in the analysis of this paragraph. In this study it is highlighted how a well-structured network of Sponsors of a SPAC, guarantees easier access to funds both during the initial listing and in the search for PIPEs. In addition, also in this case it is shown how a greater qualitative contribution of Sponsors also gives benefit in terms of rapidity of identification and merger with a target.

Figure 6: Efficiency of PE Network Centrality in SPAC processes.



Source: Chen, L., Fangzhou, L., Michaely, R., Shihua, Q. (2021, June). "SPAC IPOs and Sponsor Network Centrality".

The reference sample is composed of 390 SPACs from 2003 to the end of 2020 and has been constituted by Hong Kong professors in order to differentiate between Sponsors with a high degree of connections from those with a lower degree, comparing their performance. Specifically, the model was built to examine the interactions between Sponsors and Private Equity operators, who historically have greater access to potential funding at IPOs and PIPEs and also have greater skills in targeting private companies. In addition, studies by Dimitrova et al. (2017) and Gahng et al. (2021), outline an affinity of characteristics between SPAC Sponsors and General Partners of PE funds, in terms of similarities between 20% promotion and carried interest respectively, but also in terms of management of investment funds aimed precisely at targeting, although the ultimate goal is different

(in SPACs a merger is sought, while in PE funds there is a settlement in the management of private companies followed by a specific exit strategy).

These elements justify how the evidence of a network of this sort is an excellent index of the quality of the SPAC Sponsor, even though it is not obviously the only source of access to the capital market for them. Effectively, such analysis reports that, Sponsors with a high level of PE connections, can be qualified as "high quality", managing to raise about 1.5 times more proceeds at IPO than Sponsors with a less dense network, as well as managing to attract about 5 times more PIPE investments than "low-quality" Sponsors. In addition, Sponsors with a greater centrality of PE network, record a speed of completion of business combinations about 10% faster than those less connected.

The evidence provided by this data, therefore, is useful in confirming how investors in a SPAC should not only first test the quality of the Sponsors to whom they place their trust but should also create expectations consistent with the data and past track record of the promoters, if any. All of this, it being understood that the world of SPACs, as well as that of deals and the financial world in general, does not have specific recipes for success determined by the quality of an operator and even the least experienced Sponsors could achieve excellent performance. Nevertheless, in trying to mitigate the risks of such an investment this is a first crucial aspect on which this paper wants to put the accent.

2.1.2 Target Enterprise Value and the "10$ threshold" dilemma

Going on with the issue of identifying qualitatively valid SPACs, in this paragraph the focus shifts to a further crucial element for the success of shell companies, namely the relationship between the Enterprise Value of the target company and the size of the SPAC, with reference to the impact on the share price of the new entity resulting from the business combination.

First of all, it is good to explain why there is a reference to a "10$ dilemma". The fact that the SPAC is listed via IPO at $10 per share means that its shareholders perceive this price as a real threshold both for evaluating the company's performance and for identifying dilutive effects. This highlights that, the trading of the SPAC well below $10, can both be understood as a problem, and as an incentive to redeem shares, considering that the redemption takes place precisely at the IPO price of $10.

Moving on to the topic of the target Enterprise Value, in paragraph 1.2.4 of the first chapter, it was stated that a general rule of thumb for SPACs, is to identify a target that has an EV approximately 3-5 times greater than the one of the SPAC, i.e., the cash held in the trust account generally including IPO proceeds, Sponsor contributions and interest generated by the investment in government bonds of the entire account. It has also been explained that this generic rule derives from empirical evidence

for which, in that case, the merger would be more effective, in particular in terms of absorption of dilutive effects and stability of income always in the case of a high rate of redemptions.

Obviously, this is not a rule that must always be followed in the targeting phase, specifically in view of the fact that, at the time of the IPO of the SPAC, a target and its relative size are usually not yet known. Having said that, in this phase of analysis, whose intent is to give evidence of the characteristics of qualitative SPAC, data relating to recently concluded business combinations have been matched, in order to compare the size of the target and the SPAC itself, to verify the possible truthfulness of the "3-5x" rule by observing the price level of the new entities after a certain period of time.

The motivation that led to the choice of this comparison is driven by the idea that, given the inherent characteristics of a SPAC merger and the influence of the choices of Sponsors and boards in the targeting phase, a SPAC managed qualitatively should be able to identify a target of the right size and this should be reflected in the post-merger average trading price not below the $10 threshold. Clearly, considering elements such as the dynamism of the market, the complexity of an M&A deal and the danger of redemptions in a SPAC, the possibility of not finding this affinity can never be excluded; in the following paragraph, in fact, the issues relating to dilutive effects will be specifically analyzed.

Table 1: Implications of the relationship between Target Enterprise Value and SPAC size.

	30 days after merger	1Y after merger	April 20, 2022
n	45	45	45
NewCo with an average share price < $10	20	16	19
TARGET EV / SPAC IPO < 3x and avg. price < $10	11	9	10
TARGET EV / SPAC IPO > 5x and avg. price < $10	2	1	3
Percentage of companies traded below $10 and sized out the 3-5x range	65,00%	62,50%	68,42%

Source: Personal processing.

The benchmark sample consists of 45 SPAC mergers occurred in the United States (which, as mentioned at the beginning of this paper, is the market with the highest volumes, thus ensuring a

larger sample for the analysis), from early 2019 to late 2020, and whose companies resulting from the business combination are listed on Nasdaq. The reason why the business combinations that took place in this timeframe were chosen is to have consistent historical data on the price trends of these companies, and recent, despite being a decidedly medium-term period of analysis, so the entire study will be based on that temporal assumption. In this way, this sample provides the possibility of observing the variation in prices over at least one year and up to 3 years for mergers that took place at the beginning of 2019. Then, all the data that have been analyzed, have been extracted both from the SPAC Research database (one of the most comprehensive providers of SPAC-related information available), regarding data of completed deals, and from Bloomberg as regards daily prices of the NewCo's for the periods taken into consideration in the analysis.

The analysis has been developed with the following logic, first of all, the Target EV / SPAC IPO multiples have been calculated for each business combination, by comparing the Enterprise Value of the target companies at the day of the merger with the proceeds of the related SPAC, in order to verify if each company fell within the range 3-5x or not. Afterwards, the daily prices of all NewCo of the sample have been extracted, from the day of the business combination with their SPAC, up to the current days (specifically the last day of observation is April 20, 2022). These daily prices have been retrieved in order to calculate the average trading prices in 3 different timeframes, namely 30 days after the merger (which, as will be shown later, is the reference period for the exercise of warrants in all the companies in the sample, being a common practice in the US), 1 year after the merger and finally from the day of the business combination until April 20, 2022. The final purpose of this analysis has been to find out how many companies were on average traded at a price below $10 per share throughout the reference period and then to verify how many of them did not fall within the famous 3-5x range in their business combination, to provide evidence of the truthfulness for the rule under investigation.

Observing the data shown in *Table 1*, it can be seen that, in all three reference periods, about 65% of the companies that have been negotiated at a price below $10 per share, have also been found to be outside the 3-5x range; specifically, the average multiple for companies below this range has resulted to be 2,0x, while for those exceeding the range the average multiple has resulted to be 9,6x. Observing these data, therefore, it could be thought that the "3-5x" rule may actually have an empirical basis, considering that the majority of companies below the threshold actually turned out to have a size that seemed too exiguous or excessive with respect to its SPAC.

The conclusions that can be drawn from this first analysis are therefore that, effectively, among the companies that performed less well, most were significantly outside the EV/SPAC IPO range to

which the general rule refers. Nevertheless, it should be stressed that this rule does not appear to be, an indispensable factor in the context of a business combination, since there are elements in the sample that suggest returns that are not directly correlated to the sizing factor. For example, it should not be forgotten that, in the context of a SPAC merger, the latter can significantly increase the cash delivered to the target, compared to the proceeds of its own IPO, by accessing PIPE financing (in the sample, companies have been found whose multiple was as high as 14x or 16x, and they did not have average trading prices below $10). In addition, it should also be kept in mind that average trading prices observed over a medium-term period (maximum 3 years) are being considered, and beyond that time frame some companies may bring out appreciable strengths from the market (and vice versa), but market trends (such as that of the "SPAC bubble"), also play an essential role in the level of trading. Anyway, the empirical evidence about the "3-5x" rule just shown, definitely seems to give concrete proof about its veracity.

Essentially, the variables to be taken into consideration for the evaluation of the performance of shell companies shareholders' investments are not limited to these, since, as will be seen in the next paragraph and in the third chapter, probably the most important role in determining returns for shareholders is played by the dilutive effects and the average costs sustained by a SPAC, but the targeting factor already seems to be a rather important yardstick for evaluation.

2.1.3 Redemptions and importance of PIPEs

The last element that is addressed regarding the distinction between qualitative and non-qualitative SPACs concerns the issue of redemptions, which, as has been emphasized several times previously in this study, is a factor of absolute cruciality in the success of a SPAC and its merger.

It has been chosen to deal with this subject in this paragraph starting from the assumption that, generally, in a SPAC, the more the management is not able to retain investors with adequate targeting strategies (such as to presage a success of the operation and therefore an excellent trading of the new shares), the more the IPO investors will decide to redeem their shares in order to avoid potential losses. In this paragraph, data on PIPE investments have been purposely included in order to create evidence of their usefulness for the conclusion of the business combination with the target company. It should be remembered that, in almost all deals, the SPAC and the target agree on a "minimum cash treshold", which, although it can be renegotiated before the conclusion of the merger, is a clause that necessarily determines the success of the operation, and which is set up precisely to guarantee a cash contribution in line with the projections of the merger project. Therefore, the higher the redemption rate in the SPAC, the more the Sponsor will need new sources of financing including, first and

foremost, PIPEs, otherwise there would be a risk of failure of the business combination and liquidation of the SPAC.

In order to provide concrete evidence of the effects of the redemptions and the contribution generated by the PIPEs, for the sample described in the previous paragraph (which will be the reference for this study), data relating to shares redeemed and shares issued to PIPE investors at the time of the business combination, have also been collected. The data concerning the redemptions have been taken, for all 45 SPACs of the sample, once again from the databases of SPAC Research, while the data related to the PIPEs have been extracted from the merger prospectuses filed with the SEC by the companies and published on the filing database website of the latter, with public access, called EDGAR.

The first evidence provided in this analysis relates precisely to the SPAC's IPO proceeds and the related redemption rates observed in the sample.

Table 2: SPAC IPO proceeds and Redemptions.

	SPAC IPO Proceeds ($mln)	Percentage of shares redeemed
Mean	$ 329,69	40,78%
Median	$ 299,40	40,00%
25th percentile	$ 199,60	0,00%
75th Percentile	$ 403,70	77,40%

Source: Personal processing.

As can be seen from *Table 2*, median levels of redemptions were around 40% for U.S. SPACs listed on Nasdaq during the relevant periods (i.e., to recall, between early 2019 and late 2020). SPACs where no shares have been redeemed by IPO investors have also been detected, but in some cases the redemption rate has even exceeded 90%. Specifically, in the sample, it has been found that about 24% of the observed SPACs exceeded 80% redemptions at the time of the decisive vote on the merger with the target, while only in 26% of the cases the shareholders decided not to redeem their shares. Although shareholders' choices to withdraw their investment is not an uncommon occurrence, the fact that on average the US SPACs recorded these levels of redemption in that period is not a positive sign, as it means that almost half of the shareholders on average do not have confidence in the success of a merger with the identified target, which generates two main problems. The first problem, which is probably the most worrisome for non-redeeming

shareholders, relates to dilutive effects resulting in high redemption rates. As will be seen in paragraph 2.2.2, the more shares are redeemed, the more the level of participation in the share capital of the Sponsors increases, which further increases the already existing gap in terms of potential profits in favor of the promoters themselves, considering that for such shareholdings they have paid a relatively small amount compared to the $10 per share paid by IPO investors. The second issue concerns the decrease in proceeds held in the trust account. As it is known, one of the purposes of the trust account is to return capital to shareholders who exhaust their confidence in the SPAC project (or in the liquidation of the company, if it occurs); the problem is that the main purpose of the trust account would actually be to keep safe the capital that the SPAC would have to inject into the target during the merger, so the redemption rate is exactly the extent to which the proceeds to be allocated to the business combination decrease, prior to the deal itself.

Keeping this last issue in mind, if one considers that the median value of the proceeds collected by the SPACs in the sample, during their IPOs, is about 300 million dollars, while the observed median Enterprise Value of the target companies was about 1.6 billion, it is even more understandable the negative effect that redemptions create, even in less severe cases. Clearly, as has been discussed above, SPACs tend to identify larger target companies (which is why the famous "3-5x" rule has been addressed), and this happens very often in M&A transactions, but the problem is that SPACs are the only companies to provide (for the protection of their investors), the possibility of redeeming their stake at the time of the vote on the deal, and often this can prove to be a drawback in the cases of the most promising mergers.

In addition, redemption levels are also influenced by market trends and the resulting risk aversion of investors. In fact, starting from the end of the third quarter of 2020, the period in which, as will be seen in the third chapter, the SPAC bubble that lasted until about the middle of 2021 arose, equity redemption levels declined. Effectively, in the last period of the reference sample, the lowest rates of shares redeemed have been observed, and not surprisingly it has been decided to refer to a sample that could provide historical data related to the pre-Covid pandemic period. In any case, the redemptions issue still remains a burden that SPAC shareholders must take into consideration when weighing their investments.

The second step of the analysis in this paragraph therefore concerns the estimation of the impact of PIPE investments in the completion of business combinations.

Table 3: PIPE Investments

	PIPE / SPAC IPO	PIPE / TARGET EV
Mean	136,37%	26,13%
Median	57,87%	15,81%
25th Percentile	27,25%	9,01%
75th Percentile	111,11%	35,71%

Source: Personal processing.

The data reported in *Table 3* provide fairly clear evidence of the use of PIPE investments in the mergers of the companies in the sample.

The first data, relative to PIPE capital in relation to the proceeds of the SPACs, are certainly of great importance and cannot fail to catch the eye. An average ratio of around 136% is found, which is justified by an average PIPE raising of almost 400 million dollars, compared to an average IPO raising of around 330 million for the SPACs in the sample. Obviously, observing the median value and the percentiles, one can realize that there is a fair amount of variability, but even in the least striking cases, the use of these sources of financing is truly massive. This can only be the consequence of two phenomena: the first, as already mentioned, is the extremely destructive effects of redemptions on the cash available in the trust account for the merger; the second, is the size of the target companies that, even in the case of low levels of redemptions, generates recourse to financing from third party investors.

Consequently, observing the data relating to the ratio between PIPEs and the Enterprise Value of the target companies, it can be noted that, on average, these investments contribute around 26%, which is a very significant contribution. Naturally, PIPEs are not the only sources of financing within a business combination. SPACs often also issue convertible debt instruments or recur to the use of Forward Purchase Agreements or the issue of non-voting preference shares (defined as Class B shares), which, however, do not fall within the scope of this study since PIPEs are the most popular instrument in SPAC mergers. Finally, it must be considered that usually PIPE shares do not generate dilutive effects, because these shares do not decrease the percentage of shareholding held by the IPO investors of the SPAC, but rather guarantee them a participation in a larger target company, so that, proportionally, those non-redeeming shareholders maintain the same monetary value of participation, with the advantage of being part of a greater company's shareholding. This,

on the other hand, does not happen with the exercise of warrants and with the participations of the Sponsors, defined as Founder Shares, which may generate real dilutive effects as will be seen shortly. Moreover, to increase the perception of the importance of PIPE Investments, there is a further factor, namely that, in most cases, to these investors are issued shares at the same price of the SPAC IPO, i.e., 10$ per share, and this is what it has been possible to observe in all the companies of the sample. Obviously, it may happen that, in situations of extreme necessity, PIPE shares may also be issued at a discount against the $10 threshold, depending on the current (and expected) share price at the time of the business combination. In that case there would clearly be dilutive effects as the new shares would be issued at a lower price than those sold to IPO investors, but this has not been the case in the sample for this study.

2.2 The burden of dilutive effects

After discussing the distinguishing features between qualitatively and non-qualitatively managed SPACs, this phase of the second chapter will finally discuss the effects of one of the major risks in investing in Special Purpose Acquisition Companies, namely dilutive effects.

When talking about dilutive effects, it is meant any element that is capable of detrimentally affecting the stake of non-redeeming shareholders in a SPAC, before and after certain relevant events. Obviously, the focus will be on those shareholders who decide not to redeem their shares because they are the players most involved in the processes of SPACs and are also those who would see a return on their investment once the business combination is completed. On the other hand, investors who, voting against the merger, redeem their shares, in addition to recovering their entire investment, retain the possibility of trading or exercising the warrants which are not extinguished in the event of redemptions. This, as will be seen shortly, may cause damages by drastically increasing the number of shares outstanding and diluting the participation of the remaining shareholders involved in the merger project. In addition, another source of dilution is the Founder Shares, i.e., the shares allotted to the Sponsors of the SPACs just prior to the IPO, against a minimum investment (usually $25,000), but which represent about 20% on average of the SPAC's shareholder base. In addition to the differences in terms of the modalities for granting social shareholdings, Founder Shares are capable of creating dilutive effects in the face of high rates of redemptions.

The intent of the next two paragraphs, therefore, is to provide evidence, through actual data, of the destructive potential of such dilutive effects on non-redeeming shareholders of SPACs.

2.2.1 Warrants

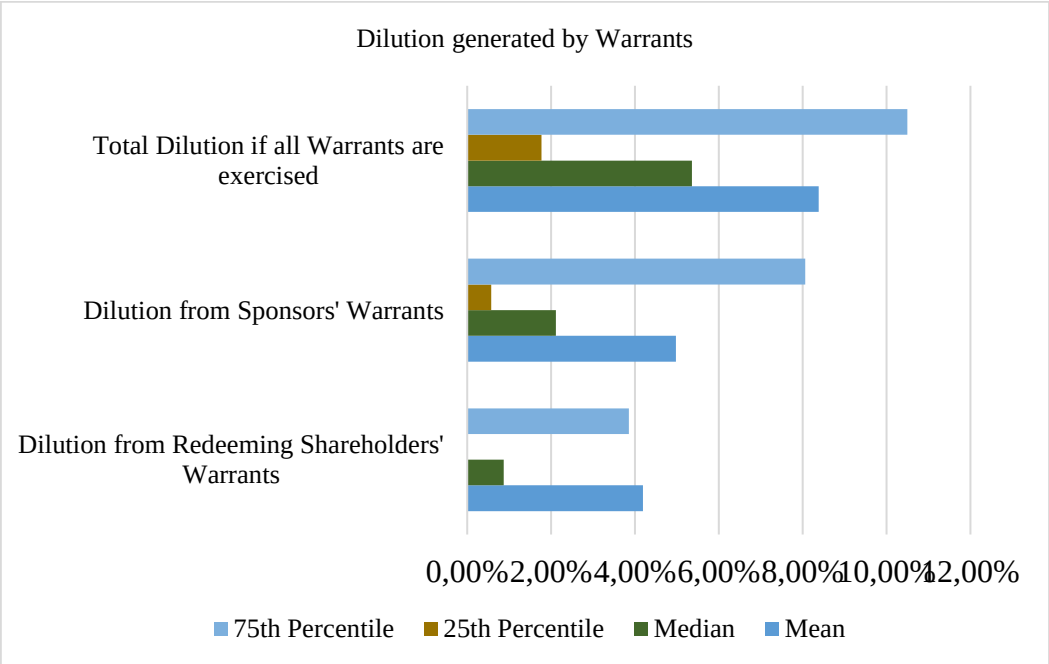
As has been described in the SPAC structure analysis, during the first chapter, a distinctive element of these companies is the issue of warrants, instruments through which the owner has the right to convert an entire unit into an ordinary share either of the SPAC or of the company resulting from the business combination. The warrants are precisely issued in conjunction with IPO of the SPAC and are part of the entire unit issued, in which there is an ordinary share of the SPAC itself and a warrant or a fraction of it (usually there is an issue of a share and a fraction of warrants that varies between one third, one fifth or one half, and rarely the ratio is one to one with the shares). The reason why warrants are issued is to provide an incentive to subscribers of SPAC shares, specifically because of the risk of investing in a company aimed at merging, but which has not yet identified its target at the time of its IPO (the so-called "blank check"). The main problem lies in the fact that warrants can create dilutive effects on two fronts. The first is the one in which the holders of warrants are also former shareholders of the SPAC who, after redeeming their shares prior to the merger, decide to continue to hold these instruments and exercise them once the business combination has been completed. This means that, proportionally, the monetary value (in terms of dollars per share) of the stake of non-redeeming shareholders, which is conferred to the target upon merger, decreases against the deterioration of the proceeds of the trust account leaving, however, the possibility for the holders of the warrants to convert them into shares of the NewCo, thereby diluting the shareholding of non-redeeming stockholders. The second front, instead, is the exercise of warrants by the Sponsors. In fact, during the SPAC IPO, they directly purchase a certain amount of warrants. Although this is done to increase the involvement Sponsors in the project (in view of the investment in warrants which is often used to pay the underwriting fees), this gives to them the possibility of acquiring new shares in the NewCo, further diluting the participation of shareholders.

It is no coincidence that, since it is not possible to know in advance how the warrants holders will behave once the merger is complete, often in the section of the IPO prospectuses of SPACs, in which certain possible dilutive effects are estimated, the following sentence is reported: "*Such calculation does not reflect any dilution associated with the sale and exercise of warrants, including the private placement warrants, which would cause the actual dilution to the public stockholders to be higher, particularly where a cashless exercise is utilized*"[59]. This undoubtedly gives an idea of the actual dilution risk of these instruments.

[59] Abstract from the IPO prospectus of SPAC Landcadia Holdings II, dated May 2019, published on the EDGAR Filing Website of the Securities and Exchange Commission.

In this regard, the intention of this analysis is to provide concrete data on the effect of the exercise of warrants in the reference sample described in the previous paragraphs. As just mentioned, not being able to know the decisions of the holders of these instruments, it was decided to construct fictitious scenarios in which all warrants are exercised, both those of redeeming shareholders and those of Sponsors, but not the ones of non-redeeming shareholders, so as to be able to estimate the maximum dilutive effect in each case. Clearly this is a rather strong assumption, considering that the non-redeeming shareholders themselves have the possibility of exercising their warrants to counteract the dilutive effects increasing their stake in the company, but also considering both the lock-up clauses on the exercise of these instruments and that, in many cases, when the shares exceed a certain price threshold, the warrants can be redeemed by the company itself (this will be addressed when talking about returns for both shareholders and Sponsors). In any case, the objective of this study remains that of estimating all the possible risks of investing in a SPAC, also highlighting the worst-case scenarios.

Figure 7: Worst-case dilution scenario triggered by warrants.



Source: Personal processing.

The logic by which this analysis has been performed is as follows. First of all, data have been collected regarding the number of shares issued at the SPAC's IPO and the number of warrants issued both to the SPAC's shareholders and those purchased by the Sponsors during the IPO itself. These data have been extracted from the listing prospectuses of each single SPAC, available on the Securities and Exchange Commission's EDGAR website, where all mandatory filings of public

companies are reported. Subsequently, all data relating to the outstanding shares of the companies resulting from the mergers were extracted from Bloomberg, on the day of the deals closing, in order to assess the impact of both the exercise of warrants and redemptions on the percentage of the stake held by non-redeeming shareholders in the NewCo, specifically caused by the increase in outstanding shares number deriving from the exercise of these instruments. Finally, assuming that only the shareholders who redeemed the SPAC shares and the Sponsors exercised their warrants following the business combination, the three scenarios that can be seen in *Figure 7* have been devised, thus estimating the dilutive impacts.

The results shown in *Figure 7* reveal the percentages of dilution generated by these phenomena, and mean, median and percentile values have been reported as usual. Looking directly at the total dilutive effects, the overall warrants held by redeeming shareholders and Sponsors generate on average 8,4% dilution and the 75th and 25th percentiles are around 10,5% and 1,7% respectively. Obviously, the results are influenced by two main factors, the first one is the number of warrants issued at the time of the IPO of the SPAC; the more warrants are issued, the greater the potential dilutive effects they may have. The second factor, on the other hand, lies in the impact of the redemptions, since the higher this rate is, the more the non-redeeming shareholders of the SPAC will find themselves in a minority position in the shareholding of the NewCo, getting more sensitive to the potential dilutive effects due to the issue of new shares. In fact, the highest values, going even beyond the 75th percentile, are recorded in cases where SPACs have undergone high rates of redemptions. Obviously, having calculated the dilutive effects affecting the shareholders of the post-merger companies (considering that, in most cases, the warrants are exercisable only 30 days after the business combination), it must be reiterated that these values are also influenced by the number of outstanding shares observable in the NewCo, which are subject both to the participation held by the shareholders of the target, and to the capital increases. In this regard, the values observed on the day of the merger have been taken as a reference and have been varied only by to the number of warrants that can be exercised case by case.

In conclusion, an average value of total dilution equal to around 8% may not seem extremely dilutive and, if compared to the values that will be shown in the next paragraph (when talking about the effects of Founder Shares), they are actually not so high. Nevertheless, two critical points must be kept in mind: firstly, is that even modest values of dilution can provoke harmful effects for shareholders if they have a minority stake in companies with high capitalization; the second critical point instead lies in the fact that, as will be seen in the last chapter, describing the trade-off between costs and benefits

for non-redeeming shareholders of SPACs, these values contribute to substantially increasing the costs incurred in such investments.

2.2.2 Founder Shares

After addressing the dilutive effects generated by the exercise of warrants, this session discusses the second major problem associated with the structure of SPACs, namely the disruptive effect of the Founder's Shares on the dollar value of the SPAC shareholders' stakes upon high redemption rates.
As described in the first chapter, the typical structure of SPACs provides for the allotment to the Sponsors of shares which, usually, represent around 20% of the shareholding of the SPAC at the time of its IPO. The peculiarity of this provision is that the Sponsors, prior to listing on the stock exchange, contribute to the company's share capital a rather small amount of cash if compared to the investments during the IPO; we are talking about average values that are around 25 thousand dollars as pointed out above. Essentially, given that the Sponsors do not directly receive compensation for setting up the company, this participation, which can be considered at zero cost compared to the investments of shareholders, is their consideration for the responsibilities linked to the success of the SPAC.

The difference in terms of monetary investment will be more relevant in the next paragraphs, in which the returns between non-redeeming shareholders and Sponsors will be compared; in this part, instead, the focus is on the dilutive effects generated specifically by Founder Shares.

Unlike the effects caused by the exercise of warrants, Founder Shares do not generate an increase in the number of shares, since the Sponsors receive their stake before the IPO, and in the event that they subscribe additional stocks, to increase the share capital of the SPAC, this generally occurs at a price in line with that of the IPO, in order to avoid further dilutive effects. For these reasons, in this case the dilution is directly linked to the level of redemption found in the SPAC just before the merger, since the more shares are redeemed, the more the participation of the Sponsors proportionally increases. If it is true that this happens also for non-redeeming shareholders, however, the real problem is that the redemptions obviously decrease the size of the SPAC trust account, and this causes a decrease in the dollar value of the shares held by non-redeeming shareholders, precisely because the residual percentage of Founder Shares has basically no monetary value. All of this, indirectly, also potentially causes negative effects on the success of the business combination, since in the face of high redemptions rates, also the monetary value that the SPAC is able to confer to the target (therefore the value of the residual shares themselves), is also reduced.

In order to conduct this analysis, all data relating to the amount of Founder Shares, Shares issued during the IPO, redemptions and the percentage of proceeds allocated to the trust accounts (which

usually, as already mentioned, are almost always around 100%, since the proceeds relating to investments in Sponsors' warrants are used to pay the underwriting fees) have been extracted from the IPO prospectuses of the SPACs published on EDGAR. After gathering the data, the following estimates have been carried out on the reference sample: first of all, the level of shareholding of the Sponsors at the time of the IPO and after the redemptions of the SPAC shares; next, the monetary values (in dollars) of the individual shares of the SPAC shareholders before and after the redemptions have been calculated, in order to assess the losses in value caused by the reduction in the proceeds of the trust account; finally, the dilutive impact of the Founder Shares on the dollar value of the shares of non-redeeming shareholders has been computed, weighting the latter's shareholding with that of the Sponsors and dividing this value to that of the residual trust accounts, ultimately determining the percentage change between pre and post redemptions.

Table 4: Founder Shares dilution effects.

	Sponsors' Shareholding after Redemptions	Share Dollar Value lost after Redemptions	Share Value Dilution from Founder Shares
Mean	42,29%	$ 1,23	14,66%
Median	36,07%	$ 0,66	7,72%
25th Percentile	22,33%	$ 0,0	0,0%
75th Percentile	55,99%	$1,97	21,98%

Source: Personal processing.

A first data point that should be emphasized, which has not been reported in *Table 4*, is that the average ownership represented by Founder Shares in the 45 SPACs in the sample has resulted to be equal to 22,33%, which coincides with the 25th percentile of the first column. Specifically, it should be noted that all of the 25th percentiles in *Table 4* refer to those cases in which, in the sample, there have not been any redemptions prior to the business combination.

The first item to be analyzed refers precisely to the first column of the graph. As can be seen, keeping in mind that, on average, the Sponsors hold a stake slightly greater than 20% of the SPAC listing, it can be noted that, in the face of redemptions (which have been seen to be on average around 40% in this sample), this value rises to around 42%, while the median value is slightly lower, around 36%. What is most striking is that the 75th percentile shows values greater than 50%, and in the sample,

there have also been some cases in which the percentage of Founder Share stakes has exceeded 90% (naturally, in cases with very high redemption).

Clearly, merely observing the increase in the shareholding of the Sponsors can be not very useful if considered on its own, although it should be noted that, in a number of cases, the Founder Shares guarantee the Sponsors very substantial stakes in the face of high redemptions. In fact, the main problem lies in the dilution caused by such shares upon high rates of redeemed shares, since, as explained above, Founder Shares decrease the monetary value of the non-redeeming shareholders' shares.

Indeed, in the second column of *Table 4*, it can be observed that, on average, the non-redeeming shareholders of the SPACs in the sample lost about $1,23 per share. Considering the impact of the non-monetary value shares of the Sponsors, it was possible to observe an average dilution of about 14% which, if added to the potential negative effects generated by the warrants (see paragraph 2.2.1), suggest potential high costs for non-redeeming shareholders.

Finally, in order to better conceive the problem in question, it is sufficient to consider that the monetary value of the SPAC shares, prior to the conclusion of the merger with the target, should be a measure of the value of the shares that is transferred to NewCo. Therefore, if, due to the dilutive effects just analyzed, the shares lose value even before the merger, the projections on the success of the investment in a SPAC worsen.

These problems will be highlighted in the following paragraphs, addressing the theme of returns and the cost-benefit trade-off in the third chapter.

2.3 Post-merger returns analysis

After dealing with the qualitative aspects of SPACs and the potential dilutive effects, this second chapter concludes with an analysis of the post-merger returns for non-redeeming shareholders and Sponsors. The ideas of the following paragraphs are twofold. The first is to analyze the performance of the investments of the players just mentioned, in order to provide evidence of the gap between the risks they incur; this will be done by comparing the performance of NewCo, in different time frames, with the threshold price of $10 of the SPAC listing (incorporated into the monetary value of the IPO investment of the SPAC shareholders), also including the impact of the exercise of warrants. To do so, all the daily prices of NewCo starting from the day of the business combination to April 20, 2022, have been extracted from Bloomberg. Then, the returns (calculated by the method that will be

described shortly showing the ROI formula), have been divided into 4 different time frames, namely: 1) the day of the merger, taking as reference the threshold of $ 10 of the SPAC IPO, and comparing it with the closing price of NewCo at the day of the business combination; 2) 30 days after the business combination which, as reported in all the sample merger prospectuses, has been set as the deadline of the lock-up period for the exercise of warrants. Obviously, the basic assumption in the calculation of returns will again be that all warrants will be exercised, in an attempt to provide the best possible scenarios for the players involved; 3) after exactly one year from the business combination; 4) observing prices up to the present day, in order to have as broad a picture as possible and also to provide evidence of the variability of returns based on market trends observed in the last 3 years (in this way, it will also be possible to understand the influence that the SPAC bubble has had on the companies in the sample). Finally, all the above data will be summarized by providing, as usual, the average values, medians, and percentiles, allowing for a more intuitive analysis.

Then second purpose of this analysis, on the other hand, will be to lay the foundations for the analysis of the trade-off between costs and benefits that will be addressed in the third chapter, following the analysis of the direct and indirect costs of the SPAC processes for shareholders. Furthermore, in this section, the concept of the potential value-destroying effect of high redemption rates in SPACs will be reiterated, including providing a return scenario for cases in the sample where a high number of shares have been redeemed prior to the business combination.

2.3.1 Non-redeeming Shareholders' returns

The first analysis carried out concerns the estimate of the returns of non-redeeming shareholders of the SPACs in the sample, who, following the business combination, received, the shares of the target company which had gone public, based on exchange ratios.

In order to compute the returns, the following formulas have been used, naturally based on the concept of ROI (Return On Investment):

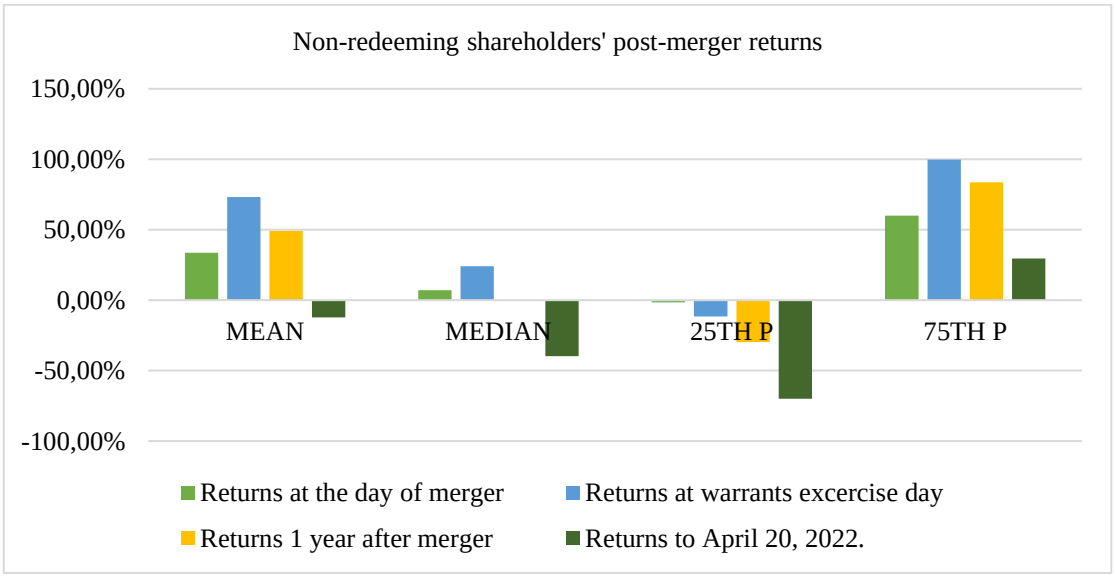
$$\textit{Non-redeeming shareholders' ROI at the end of the merger day} = \frac{(\textit{n of shares owned} * \textit{share price } t) - \textit{shareholders' SPAC IPO investments}}{\textit{shareholders' SPAC IPO investments}}$$

$$\textit{Non-redeeming shareholders' ROI at warrants exercise day} = \frac{(n\ of\ shares\ owned * share\ price\ t) + warrants' dollar\ return\ - shareholders' SPAC\ IPO\ investments}{shareholders' SPAC\ IPO\ investments}$$

Obviously, to determine the values of the returns that will be shown in *Figure 8* (and in the next paragraphs), averages of the daily percentage changes in returns have been calculated, precisely using the ROI formula. Therefore, "*share price t*" in the ROI formula shown, refers to the price on the observed day. Subsequently, in order to report the empirical evidence in the following graphs, the mean, median, and percentile returns in the reference periods have been calculated for each company, and finally on total sample.

Naturally, by mentioning shareholders' SPAC IPO investments, reference is made to the investment of SPAC shareholders at the time of the IPO (who are the subjects of this analysis, specifically those who remain involved in the merger project without redeeming their shares). So, it refers to the number of shares subscribed multiplied by the IPO reference price, which is taken as the threshold for the analysis of returns in this study, i.e., the $10 per share.

Figure 8: Non-redeeming shareholders' returns.



Source: Personal processing.

As can be seen from *Figure 8*, the average values of the returns, up to one year after the completion of the business combinations, seem to be quite strong, particularly in the scenarios in which the exercise of the warrants by the non-redeeming shareholders of the SPAC has been assumed. This is

intuitively a great benefit for the SPAC IPO investors since they do not pay a premium for the warrants, but rather receive them in the subscribed unit at $10 at the time of the IPO; therefore, for values that exceed the strike price of $11,5 (but remain below $18, the threshold for the redemption of the warrants by the companies in the sample), this represents added value. Later it will be seen that for Sponsors the warrants taken individually do not have the same benefit. Moreover, as will be seen at the beginning of the third chapter, for more than half of the companies in the sample, the euphoria of the "SPAC bubble" between the fourth quarter of 2020 and the beginning of 2021, played an important role in raising equity prices, including those of NewCo.

The main problem (which is intuitable by observing the bars in the graph), however, lies in two elements. The first one is that, with the exception of a few companies that fall into the highest percentiles, estimating the returns of the companies up to April 2022, almost all of the average and median trading values are below the $10 threshold. This seems to be a problem for the non-redeeming shareholders of the SPACs who, if they had remained involved in the post-merger companies for a period of at least 3 years, would not have recorded positive returns on their investments at the moment. It is clear that, from the moment of the business combination onwards, companies are also subject to market pressures and trends, but since there have been cases in which the price of NewCo has collapsed to 1 or 2 dollars (even for several months), it is clear that this is a symptom of an unsuccessful investment, in which the target identified by the Sponsors did not have the hoped-for potential.

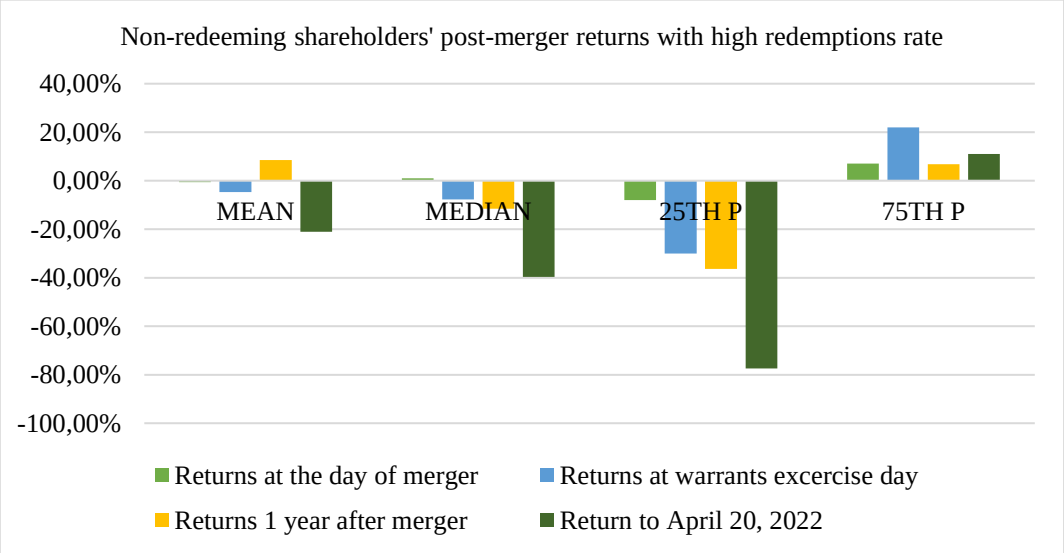
The second main problem recorded in the analysis of the sample instead, is the glaring difference between the average and median values within the first year of the single mergers. Suffice it to say that the average values of returns calculated one year after the business combinations are around +49.12%, while the median values are -0.50%. This essentially means that there have been some cases which have positively influenced the estimate of the average values, thanks to the remarkable trading volumes generated by certain targets once they have gone public (and also thanks to the effect of the relative warrants); however, the companies situated in the middle of the distribution (precisely in the median values), in reality have recorded returns which are considerably lower than the average values, and mainly influenced by the hypothesis of the exercise of warrants.

At this point, therefore, it remains to investigate this last problem, which, as will be illustrated in the next paragraph, can be identified in the negative effects generated by SPACs which recorded high rates of redemptions before the mergers.

2.3.2 Influence of high redemption rates on SPACs' shareholder returns

In order to better understand the differences, in terms of returns, found among the companies in the sample (and therefore for the relative non-redeeming shareholders), it has emerged as propaedeutic to analyze the scenarios identified for the SPACs that have recorded high rates of redemptions prior to the business combinations.

Figure 9: Non-redeeming shareholders' returns in case of high redemption rates.



Source: Personal processing.

After focusing on those cases in which the SPACs have recorded high rates of redemption (thus also eliminating from the analysis those cases in which the shares redeemed represented a relatively insignificant percentage of the SPAC shares, below 10%), Returns On Investments have been calculated using the same formula indicated in the preceding paragraph, also for the aforementioned events.

Observing *Figure 9*, the first glance already suggests why, in the cases illustrated in *Figure 8*, the median values of the returns of non-redeeming shareholders differed significantly from the average values. Specifically, it should be noted that, out of the reference sample of 45 SPACs, 27 of them recorded significant share redemptions. Even more important has been the evidence showing that, in these 27 cases, mainly negative returns for shareholders have been recorded in all the time frames investigated, with the exception of the average values one year after the business combinations, where a +8.54% was recorded. On the other hand, only for companies falling within the highest percentiles of the distribution, the average quotations of the periods analyzed have recorded significantly positive

values. Moreover, in these circumstances, the hypothesis of exercising warrants at the expiry of the lock-up period for non-redeeming shareholders, rarely has turned out to be a good choice, with median values of returns equal to -7.70%. This means that only shareholders involved in mergers with extremely profitable targets have been able to leverage warrants to increase their profitability, in the face of high pre-merger SPAC redemption rates.

In the light of what has been seen so far, it is always necessary to stress that, the correlation between events such as redemptions in SPACs, as well as certain dilutive effects analyzed above, do not automatically affect the returns of non-redeeming shareholders once the mergers have been concluded, since it is always necessary to consider both the quality of the business of the target and the reactions of the market to the merger projects (which may not always be in line with the projections estimated by the redeeming shareholders of the SPACs). From this, it is natural that the presence of profitable investments can be recorded. Furthermore, another element to be considered is also the duration set by the shareholders about their investment, since, in the reference sample, SPAC merger dated at most at the beginning of 2019 have been analyzed, and the influence of the SPAC bubble has also contributed to increase the volatility of the trading prices of the shares of the shell companies themselves, until mid-2021; this, evidently, may have also affected the trading volumes of the companies in the first post-merger periods.

In this context, however, when investigating the returns of shareholders who have been involved in SPACs burdened by high redemption rates, the results obtained suggest that the assumptions made in the previous paragraphs on the effects of redemptions appear to be effective.

2.3.3 Sponsors' returns

To conclude the analysis of the returns of SPAC shareholders after business combinations, it is necessary to analyze the evidence found in the sample regarding the returns of the Sponsors of the SPACs, thus comparing them with those of non-redeeming shareholders.

Also in this case, the returns have been calculated considering the amount of shares redeemed in the SPACs before the mergers, case by case. A notation to be pointed out, in estimating the profitability of Sponsor investments, is that, generally, the sale of Founder Shares (but not the exercise of warrants) is more limited than those of traditional SPAC shareholders once the business combination is concluded. Usually the lock-up period for Founder Shares reported in the IPO prospectuses of SPACs and in the merger drafts, is set at one year from the business combination. These provisions, clearly, are established to align the interests of the Sponsors as much as possible with those of the shareholders

of both the SPACs and the target companies, in order to avoid that the Founder Shares are exploited as a mere source of profit with few risks, rather than as a means of remuneration for the efforts made by the Sponsors themselves.

In this regard, in the analysis carried out, five different scenarios have been reported. The first relates to the hypothetical returns of the Founder Shares at the closing of trading on the day of the merger; this value is reported for the sole purpose of showing it because, as mentioned above, the lock-up clauses present in the cases in the sample prevent Sponsors from immediately selling the shares. The second and third scenarios are instead relative to the returns of only the warrants; those instruments for Sponsors have the same time limitations as the non-redeeming shareholders of the SPACs, so they can only be exercised 30 days after the merger. Since these are the only "tools" with which the Sponsors of the sample would have been able to generate returns before the sale of the Founder Shares, it has been decided to report scenarios relating to two different time frames, the first 30 days after the business combination, and the second after one year (to show, on average, in which case it would have been more convenient for the Sponsors to exercise these tools). Finally, the last two scenarios that have been analyzed are the returns after one year from the deal (therefore after the end of the lock-up period) and those observed considering an investment up to the current periods (again April 2022).

In this way it has been possible to generate a complete overview of the trend also of the profitability of the Sponsors' investments, basing the analysis always on the daily closing prices of NewCo in the aforementioned time periods.

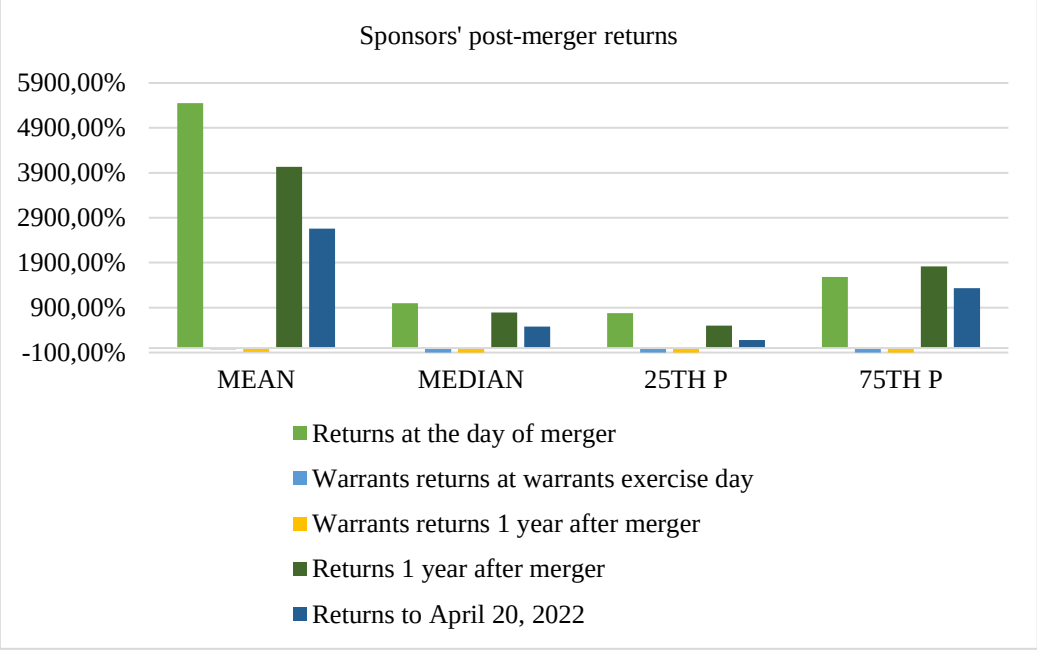
Below are shown, first of all, the ROI formulas used to calculate, respectively, the returns of the warrants and the total investment of the Sponsors. Again, the final returns shown in the graph, have been computed using the same logic as those of non-redeeming shareholders, which is explained in paragraph 2.3.1, following the ROI formulas image.

$$\textit{Sponsors' warrants ROI} = \frac{\textit{Warrants dollar value at exercise day} - \textit{Sponosrs' investments in warrants}}{\textit{Sponsors' investments in warrants}}$$

$$\textit{Sponsors' total investments ROI} = \frac{(\textit{n of Founder Shares} * \textit{share price t}) - (\textit{investments in Founders Shares} + \textit{investments in warrants})}{\textit{investments in Founders Shares} + \textit{investments in warrants}}$$

Obviously, in the calculation of ROI for Sponsors, it is worth noting that the investment in warrants is distinct from that in Founder Shares. This is because, unlike the units purchased by the IPO investors of the SPACs, as has also been pointed out above, Sponsors receive the Founders Shares prior to the IPO, at the time of incorporation of the SPAC, and these shares obviously do not include warrants. After that, at the IPO, Sponsors generally purchase a certain amount of warrants, and the proceeds are almost entirely devoted to paying underwriting fees and other operating expenses, with the remaining proceeds being invested in the trust account. Therefore, in order to calculate the total amount invested by the Sponsors, in addition to the sum paid for the subscription of the Founder Shares (approximately 25 thousand dollars), it is necessary to also consider the expenses for the purchase of warrants, which can amount to several million dollars, on a case-by-case basis.

Figure 10: SPAC Sponsors' returns.



Source: Personal processing.

The results found in the reference sample, just by observing *Figure 10*, speak for themselves. The only negative returns are those recorded for warrants, considering the average prices of NewCo 30 days after and one year after the merger. In fact, in paragraph 2.3.1, it has been pointed out that the impact of the exercise of warrants for Sponsors would have been different. There are two reasons for

this. The first one is both the strike price of the exercise of the warrants (fixed at $11,5 per share in all the companies in the sample), and the threshold price for the redemption of the warrants (fixed instead always at $18 per share). This means that warrants only generate returns if share prices are around the above range. The second cause is that the Sponsors generally invest millions of dollars only for the purchase of the right to exercise a certain amount of warrants, since they are not incorporated in the Founder Shares, so these instruments are profitable only if the price of the shares of NewCo is slightly below $18 per share.

Considering, however, that it is possible to decide not to exercise the warrants at the end of the lock-up periods (recording in that case a loss of 100% of the investment in such instruments, as shown in the graph), the Sponsors hold the main resource in the conversion of the Founder Shares (paid very little) into NewCo shares. They therefore have great value even when the trading price of the shares is below the well-known $10 threshold, since the latter is not the price paid by the Sponsors to receive the shares, but is the price paid by the IPO investors of the SPAC. It is reiterated that the promoters of the SPAC invest insignificant amounts, compared to the shareholders of the SPAC, to receive millions of shares of the company. Therefore, it is clear that, if the business combination concludes and the SPAC is not liquidated (the latter would be the only scenario in which SPACs' promoters would lose all investments in Founder Shares and warrants), Sponsors have a great potential for gain.

In fact, from *Figure 10*, it can be noted that, the average values of the returns for Sponsors, after one year from the mergers and those observed in April 2022, are respectively around +4035,36% and +2655,46%, while the median values (relative to the cases in which the SPACs have suffered high rates of redemptions), are around +790,37% and +480,28%. Exorbitant figures.

From these analyses it can therefore be concluded that non-redeeming shareholders are much more subject, in addition to the costs deriving from dilutive effects to the trend in the trading of NewCo shares which, in order to generate profitable investments, should necessarily be around prices above $10 per share. When this does not happen, and when the SPAC does not contribute a substantial amount of cash to the merger (due to redemptions), these shareholders incur losses. A different matter, as has just been demonstrated by investigating the results of the sample analysis, applies to Sponsors, who generally have a very high profit margin.

Such evidence will be useful in the study of the trade-off between costs and benefits in the third chapter, whose objective will be to reach a conclusion about the effective profitability of investments in SPAC, trying to understand which players, based on available data, bear the costs inherent in the SPAC model.

CHAPTER 3. Trade-off between costs and returns of SPACs. Empirical evidence.

The first two chapters introduced all the elements necessary to establish a framework for analyzing the SPAC model, from defining the structure, to investigating the risks associated with such investments, while also providing empirical evidence of the returns observed in the reference sample.

In this last chapter, the ultimate objective will then be to arrive at an empirical determination of the actual profitability of investments in SPACs for non-redeeming shareholders, outlining conclusions precisely regarding the trade-off between costs and returns. To get there, the analysis will be divided into four sections.

The first paragraph will address the "SPAC bubble" that burst in mid-2020, which persisted until around the first quarter of 2021, as a result of the effects generated by the Covid pandemic in global financial markets. The goal will be to understand the reasons behind the bubble and the specific effects it generated on the SPAC IPO and SPAC merger market. The causes that then led to the decline of the bubble will also be outlined.

Next, the second section will be devoted to outlining the reference samples of the analysis, recalling that of the SPAC mergers analyzed in the second chapter and introducing the sample of traditional IPOs. At this point it is understood that the latter are the alternative investment model to that of SPACs and will provide a yardstick for the final investigation of the trade-off between costs and returns.

In the third paragraph of the chapter, the cost structures of both models will be analyzed, emphasizing the evidence from the sample study regarding costs actually incurred by investors. This will be essential in arriving at the concluding investigation of the actual profitability and sustainability of non-redeeming shareholders' investments, compared to IPO investors.

In the last part therefore, the conclusion of the study will be reached by inquiring the relationship between costs and returns, seeking to understand the extent to which such investments are profitable depending on the estimated duration. For this purpose, the returns observed in traditional IPO investments will be introduced first, having already analyzed those of non-redeeming shareholders and Sponsors of SPACs in the second chapter. Finally, conclusions will then be reached regarding the trade-offs observed on the very reference samples.

3.1 Background of the recent “SPAC bubble”

The third chapter then opens with a discussion related to the recent bubble that impacted SPAC investments, following the outbreak of the Covid pandemic.

In this regard, it should be noted that, in general, the results of empirical research on a sample often tend to be influenced by variables exogenous to the model being analyzed. From this, considering that the bubble arose from around the third quarter of 2020 (until the first one of 2021), and that of the 45 SPACs in the reference sample of this study, 25 concluded the business combination starting from July 2020, it is necessary to analyze the causes and consequences of the phenomenon.

In addition, this analysis will also refer to the impact that Covid has had on the market of traditional IPOs, which, in the period of reference of the bubble, have lost market share compared to the euphoria of SPACs.

The first thing to do is obviously to briefly outline the reasons that led to the bursting of the "SPAC bubble". The Covid pandemic, starting in the early 2020s, clearly generated an abnormal situation in the markets, caused a global friction in the operations of small and large companies, right at the time of the transition of the virus to a worldwide pandemic and the institution of lockdown measures. As is often the case when faced with crises of this kind, stock markets saw a sharp increase in levels of volatility and uncertainty, highlighted by the collapse of the main stock indices and with consequent difficulties in identifying investments and means of financing for companies. It is no coincidence that, in paragraph 1.3.1, while defining the variables capable of influencing the listing processes (thus addressing the theme of the differences between traditional IPOs and SPAC mergers), the market-specific variable has also been investigated, according to which, at times of greater volatility and uncertainty, both the pricing difficulties and the cost of debt increase, in the face of increases in the interest rates of government debt and Credit Default Swaps. This provides an initial insight into the reason why traditional IPOs have suffered more from the economic crisis triggered by the pandemic.

On the other hand, the SPACs in that period began to be seen by investors (and in particular by companies wishing to go public), with a different and more optimistic perspective. Obviously, the reason for this success lies in the particular structure of SPACs, i.e. the fact that for investors shell companies began to be seen as a safer way to invest in the financial markets (thanks to the possibility of redeeming their shares, returning entirely of their investment in case of targeting failure), and for target companies SPACs started to be perceived as a safer way to be listed; this is due to the fact that the listing is done through a business combination with a private nature, theoretically ensuring a better

valuation of the company and a higher offer in the face of greater market volatility. In addition, in recent years, another factor that has contributed to an increase in interest in SPACs has been that many Sponsors have focused on identifying target companies operating in the most technological and cutting-edge sectors, such as automotive (in particular electric car manufacturers such as Nikola, included in the sample of this study), aerospace (such as Virgin, also included in this study), media & entertainment and healthcare.

After briefly introducing the causes of the phenomenon, an analysis is then made of the consequences of the "SPAC bubble", in order to understand the potential impact, it may have had on part of the sample analyzed.

First of all, a primary factor lies in the increase of the average pre-merger share price of SPACs. As discussed in the second chapter, the listing price of a SPAC just before the conclusion of the business combination, generally also affects the success of NewCo in the first period after the incorporation of the SPAC shares. Indeed, between Q4 2020 and Q1 2021, the median value of SPACs listed on Nasdaq was about $14 per share[60] following the merger announcements, thus well above the famous $10 threshold. Another element, definitely fundamental, has been the reduction of redemption rates. As has been reiterated several times when discussing the returns of NewCo, the lower the redemption rate in SPACs before the merger, the greater the contribution they make to the target in terms of cash and the lower the dilutive effects for non-redeeming shareholders. Looking at the business combinations analyzed in the reference sample, it can be seen that effectively, starting from July 2020, the average and median redemptions have been lower than those suffered by SPACs in previous periods. Specifically, average values of around 29% and median values of around 3% have been recorded. Instead, in the periods preceding the bubble, the values averaged around 57%, while redemptions of the SPACs distributed around the median values accounted for 52%, therefore decidedly higher than those at the time of bubble bursting.

The result of all this has also been an increase in PIPE investments, attracted by the euphoria created around the SPAC mergers during the bubble. In fact, in the sample, there has been a percentage increase in direct PIPE investment of about 90%, from an average of $263 million to nearly $500 million. This is a fundamental datum if one considers, once again, the benefits provided by greater PIPEs, which allow for the merger of a SPAC with a larger target, counteracting the potential dilutive effects for non-redeeming shareholders and helping to improve the post-merger returns of NewCo.

[60] Klausner, M., Ohlrogge, M., Ruan, E., *supra* note 38, 77-78.

A final statistic, again extracted from the reference sample, concerns the quotation prices of the companies generated by the business combinations that took place in the first months following the SPAC boom (which intuitively translates into higher returns for shareholders). Specifically, in the first month of trading, the NewCo's in the sample recorded average prices that stood at around $19 per share, while until Q3 2020 the level hovered around $13 per share.

A summary table of the benefits just described, generated by the "SPAC bubble" in the companies surveyed in this study, is shown below.

Table 5: Empirical evidence of the "SPAC bubble" consequences.

	Before bubble	Bubble period
Avg. Redemptions rate	≃ 57%	≃ 29%
Avg. PIPE Investment	≃ $ 263 (mln)	≃ $ 500 (mln)
Avg. NewCo price one month after the merger	$ ≃ 13	$ ≃ 19

Source: Personal processing.

As evidence of the effects of the bubble reported above, it is worth highlighting the evidence mentioned at the beginning of the above paragraph, namely, the hegemony of the SPAC IPOs over traditional ones, in the period from around mid-2020 to the end of 2021. Specifically, in the US equity market during that period, SPAC listings accounted for approximately 55% of Initial Public Offering activity, with 619 SPAC IPOs compared to 496 traditional IPOs[61]. The situation then re-established itself towards the end of 2021, in which traditional IPO volumes increased again, returning to dominance in the initial listings market.

Obviously, the data just reported portends the levels of euphoria that have been achieved around the SPAC model in recent years. Despite the boom of a particular type of phenomenon and/or investment, however, it is not necessarily true that a positive market trend (a momentum), is in line with actual long-term returns and opportunities.

The SPAC bubble then inevitably vanished around the end of February 2021. The term "vanished" means that SPAC prices since the period just mentioned have rebounded back to around $10 per share (or even less), as well as post-merger NewCo returns. This has been the result of a few specific circumstances. First and foremost, the easing of the frictions that have affected financial markets globally, with a gradual stabilization of volatility levels and interest rates (allowing new room for

[61] Newman, S., Picard, N., Wisson, M., *supra* note 30, 2-6.

traditional IPOs again). The second main element has then been the increased level of attention and scrutiny, placed by supervisory authorities such as the SEC in the US and ESMA in Europe, to prevent speculation about, respectively, the projections published within the context of business combinations, and the strengthening of investor protection regarding disclosure obligations (as previously discussed in paragraphs 1.1.2 and 1.3.2 of the first chapter).

Below a chart is shown, reporting the CNBC SPAC Post Deal Index, consisting of SPACs that have completed their mergers and disclosed their target companies on Nasdaq, and highlighting the gradual decline of the SPAC boom, just starting at the end of Q1 2021

Figure 11: SPAC boom gradual decline.

Source: CNBC. (2022, May).

To conclude, it can therefore be said that the "SPAC bubble" has certainly contributed to raising the general interest in this corporate model, nowadays considered to all intents and purposes the main substitute to traditional IPOs for private companies. Moreover, this phenomenon has been the trigger that has generated interest in the analysis of this paper, in particular for the link of these companies with M&A transactions and for the doubts raised about the relationship between profitability and risks of these investments.

3.2 Reference sample and methods used

Before delving into the analysis of costs and returns between SPACs and traditional IPOs, it is necessary to clarify the reference parameters for the selection of the sample studied, considering the relevance of the empirical nature of this analysis.

The sample of SPACs is well known. Hence, it refers to the 45 SPACs that between the beginning of 2019 and the end of 2020, previously listed on Nasdaq, have concluded a business combination, and it is obviously the reference sample of the study performed in the second chapter.

Having ascertained the SPAC sample, it is necessary to digress to the set of data collected for companies listed through traditional IPO, which will represent the yardstick for comparison with the results obtained for shell companies in terms of cost-benefit trade-off, the ultimate goal of this study.

In order for the comparison to be as consistent as possible, it has been chosen to consider IPOs that took place in the same reference period and on the same market as the SPAC mergers. In this way it is possible to analyze the outcomes of the effects produced by both market trends and the SPAC bubble in the reference time frame. In addition, it has been decided to consider companies listed through traditional IPO which had a size similar to that of the companies resulting from mergers, so with an amount of IPO capitalization close to the Enterprise Values range of target companies after the business combination. The purpose of these choices is to make the formulation of scenarios on possible investment alternatives as effective as possible.

Data on companies listed through IPOs have been extracted from Bloomberg. Forty-five traditional IPOs on the US Nasdaq have been selected (exactly the same number of SPAC business combinations previously mentioned), which occurred between January 1, 2019, and December 31, 2020. The selected companies raised proceeds averaging around $600 million, which is roughly in line with the averages observed for SPAC merger counterparts. The sectors in which the companies operate have also been taken as a criterion for selection, with preference being given to those operating in the most innovative sectors such as healthcare, media, IT services, energy, namely those most targeted by SPACs. As mentioned above, the intent is to compare entities as comparable as possible, thereby arriving at estimating a trade-off between costs and benefits of investments that are also similar to each other in terms of volumes and reference markets.

As far as the methodologies of analysis are concerned, the ultimate goal of this chapter, as well as of the entire work, is to reach a conclusion, investigating the reference samples, on the actual convenience and profitability of non-redeeming shareholders' investment in SPACs, in terms of the relationship between observed returns and actual costs incurred. Clearly, for this analysis to be as complete as possible, it is essential to analyze potential real alternative investments. Therefore, it has been chosen to analyze the returns of traditional IPO shareholders, with the same perspective as the analysis carried out in the second chapter. Thus, the basic assumption is to observe the returns (again using the ROI formula) in 4 different periods, namely one day after listing, one month after listing, then one year, and finally up to April 20, 2022, the periods observed for the returns of SPAC investors. Naturally, also in this case, averages of trading prices have been computed. The only difference, clearly, lies in the fact that for IPO investors, the analysis of the returns of warrants will not be carried out, since no warrants issues have been detected in the IPOs sampled.

Finally, the additional element introduced in this chapter, is the comparison also of the costs incurred within the two phenomena observed. Therefore, the cost analysis will focus on investigating the amount that SPAC and IPO shareholders must actually bear, then comparing the results obtained with those of the returns estimated in the 4 different time scenarios. In this way, it is assumed that the analysis can be concluded with an unbiased and objective opinion on the success of the SPAC investment.

3.3 Costs Analysis

The first step in identifying a trade-off between costs and returns is precisely that of studying the costs inherent in the SPAC model and that of the traditional IPO. The purpose of this analysis, as already pointed out above, will be to better understand the profitability of the investments of SPAC non-redeeming shareholders, comparing them to those of traditional IPOs investors, and draw the relevant conclusions through the investigation of real data observable on the selected reference samples. Clearly, in order to identify the profitability of an equity investment, it is not sufficient to only observe the results in terms of capital gains, but also the effects of costs that are necessarily incurred; this is essentially the reason why returns are calculated with the ROI formula, but as will be shown shortly, there are additional costs that are not included in the "mere" share subscription price.

The analysis of costs, in some respects, is more complex and delicate than that of returns. The study of the latter is more intuitive, since it is based on the trend of share prices in different time frames, taking as a reference (or threshold), the pricing at which investors have subscribed the equity investment (so in the case of SPACs the $10 of the initial listing, while for the traditional IPO the official listing price following the Book Building phase). Identifying the costs, on the other hand, is less straightforward because (especially in the SPAC field), there are a series of factors to consider which, almost always, arise following the investment of shareholders, and which for this reason can rarely be estimated ex-ante.

These are the reasons why the ultimate goal of this study is to identify a trade-off, in order to determine a complete picture in the evaluation of a SPAC investment and potential alternatives.

3.3.1 The real costs of SPACs

The first costs to be investigated are obviously those inherent in the SPAC model, with a specific focus on the costs incurred by non-redeeming shareholders, targeted in this study.

In the case of SPAC investments, by "costs" is not meant only the money paid by the shareholders to purchase the shares, since this essentially represents the actual investment, not the components responsible for deterioration in terms of profitability. It is one thing to spend money to buy an instrument that gives the possibility of a return, and quite another to have to deal with situations that increase the possibility of incurring losses.

This topic has been previously mentioned in the second chapter, in the analysis of dilutive effects, where it has been pointed out that this actually entails damaging consequences eroding the stake of non-redeeming shareholders in NewCo. Moreover, it has been noted that these effects are exacerbated when, in the SPAC, at the time of approval of the merger project, a high percentage of shareholders decide to redeem their holdings. In fact, in paragraph 2.3.2 it has been seen how the returns, in terms of share value over time, are much worse in cases where high rates of redemptions are recorded.

At this point, in order to define a complete overview of the costs sustained by non-redeeming shareholders of SPACs, it is necessary to add a further element that it has been possible to observe on the reference sample, that is, the part of the underwriting fees of the SPAC IPO, which is paid with the proceeds of the trust account. The reason why this factor is also being investigated is as follows. During the course of this paper, it has been underlined several times that underwriting fees are most often covered by the proceeds deriving from investments in warrants made by Sponsors at the time of the SPAC listing. Therefore, reference is made to "exceptional" proceeds, given that this is a mechanism implemented specifically to increase the involvement of the promoters in the project, and align their interests with those of the shareholders. The problem that has been noted, however, is that by looking at the data extracted from the listing prospectuses published on the SEC's EDGAR database, it has been revealed that actually not always the full amount of the underwriters' fees have been paid out of the Sponsors' investments. This means that a certain percentage of fees have to be repaid through money held in trust accounts. Notching up the trust account, however, means decreasing the cash that the SPAC confers on the target at the time of the business combination. Furthermore, in the face of a high rate of redemption (which always turns out to be the *fil rouge* of this study), this means suffering an even higher decrease in the funds held in the account, which is entirely detrimental to non-redeeming shareholders, since: 1) shareholders who redeem their SPAC stake receive their entire investment back, so no losses for them; 2) Sponsors are provided with an amount of Founder Shares received against a minimal investment, so even in the case of a merger where the target capitalizes less than it would have without redemptions, their loss is also minimal.

Going into the specifics, in the sample analyzed, the SPACs during their IPOs appear to have negotiated underwriting fees averaging around 4,4% of the proceeds of the listing (as will be seen in

the next paragraph, a lower percentage than in traditional IPOs), and which rarely went beyond 6% (6,06% was the maximum value recorded in the sample). After collecting the number of investments in warrants made by sponsors and investors affiliated with them, it emerged that these capitals have been sufficient to pay, on average, around 74% of all underwriting fees. This therefore means that the residual value is allocated to the trust account, so that on average around 26% of the underwriting fees are borne by the non-redeeming shareholders at the time of the merger.

Following the computation of the residual values of fess not extinguished by the proceeds of the Sponsors' warrants investments, it has been found that, on average, there is an effective cost for the non-redeeming shareholders of around 4,9% with respect to their investment at the time of the SPAC IPO.

At this point, having understood which factors are actually potentially detrimental for the investments of non-redeeming shareholders, it is possible, resuming the data about dilution effects shown in the second chapter, to construct a graph that shows the amount of real costs sustained by non-redeeming shareholders in the sampled companies.

Table 6: The real costs for non-redeeming SPAC shareholders.

	Dilution from Warrants	Dilution from Founder Shares	Underwriting Costs falling on non-redeeming shareholders	**Total Costs**
Mean	8,38%	14,66%	4,88%	**27,92%**
Median	5,36%	7,72%	2,59%	**15,67%**
25^{TH} Percentile	1,77%	0,00%	1,48%	**3,25%**
75^{TH} Percentile	10,50%	21,98%	4,96%	**37,44%**

Source: Personal processing.

To conclude the analysis of the costs of the SPACs, therefore, a first look can be taken at the percentages shown in *Table 6*. It has been chosen to assume as costs for non-redeeming shareholders, all those factors which, observing the sample and analyzing the structure of the SPAC, have effectively resulted harmful to the profitability of their investments. Therefore, reference is made to the dilutive effects analyzed in the second chapter, and to the portion of underwriting costs sustained by shareholders.

As can be seen from the graph, the situation is somewhat variable, meaning that, depending on whether one looks at the average, median or percentile values, the amount of costs differs markedly. Of course, almost everything is influenced by redemptions rates. At this point in the analysis, it can be said that the possibility to redeem shares before the business combination is the most critical factor in the Special Purpose Acquisition Companies model. Therefore, instead of observing the average and median values, the analysis of the percentiles could be more explanatory, since it better defines the range of possible costs sustained by non-redeeming shareholders observed in the sample. The 25th percentile essentially represents all those cases in which the rates of redemptions have bordered on zero (mainly in SPACs that have concluded the business combination amidst the bubble), in fact the total costs amount to about 3,25% of the total investment of IPO investors who have become shareholders of NewCo, so definitely quite a low percentage (even lower than the underwriting fees typically recorded). Therefore, in these cases, the SPACs would seem to be fairly balanced in terms of costs sustained (an argument that is, however, postponed to the final analysis of the trade-off with returns). The problems, naturally, emerge when the redemptions abruptly increase. The 75th percentile, reports a very high level of costs, almost 38% compared to the investment in shares SPAC (by the way, in the sample there have been even worse cases, in the face of redemptions that have gone beyond 96-97%). If this level of costs is not well supported by high returns, in turn driven by NewCo share prices above the $10 threshold, this means potentially serious losses for investors. Finally, considering that only about 26% of the SPACs analyzed in the sample reported share redemptions close to zero, this underscores how, on balance, when investing in SPACs, the risk of incurring higher than expected costs is real.

Therefore, the final analysis of the ratio between costs and returns, and the comparison with the results observed in the sample of traditional IPOs, will be fundamental.

3.3.2 Traditional IPO costs

After analyzing the cost structure identified in the reference SPAC sample, the analysis therefore continues with the investigation of the costs inherent in the traditional IPO model. Also in this case, as mentioned in paragraph 3.2, empirical evidence will be reported from the study of a sample, namely that of 45 companies (with a size similar to those of the SPAC sample), which between 2019 and 2020 have listed themselves on Nasdaq through a “classic” IPO, therefore without merging with a shell company.

The cost structure for traditional IPOs differs from that just seen for shell companies. The reasons, of course, lie in a different investment model with respect to a SPAC merger. In fact, in the case of a

traditional IPO investment, investors do not receive shares in the newly listed company upon completion of a business combination. The shares are subscribed at the time of the listing of the private company, once the price range at which the shares will be issued has been determined, following, as described in the first chapter at paragraph 1.3.1, the Book Building phase. The final issue price, on the other hand, is established just before the official launch of the company on the stock exchange. Given this structure, investors do not encounter critical factors typical of SPAC investment, such as potential dilutive effects from Founder Shares or, usually, Warrants. Obviously, even in the case of traditional IPOs, warrants may be issued at the time of listing, just as is the case in SPAC IPOs (albeit less frequently), and this can certainly cause dilutive effects there as well. In the investigated sample, analyzing the listing prospectuses published on EDGAR, however, no evidence of the issuance of warrants has been found, but only of "class A" ordinary shares. This may also be a result of the size of the IPOs analyzed, being in line with that of SPAC mergers (for a more consistent analysis as has been said), but smaller than the size of traditional IPOs in which, in the U.S. market, warrants are typically issued, hence in cases where billions of dollars are capitalized. Therefore, at smaller sizes, the typical structure of traditional IPOs usually may not include the issuance of warrants, as in the case of the sample under this analysis.

Clearly, even the structure of the "traditional" listing does not exclude the presence of costs. Being an extraordinary financial operation, the traditional IPO (as well as the listing of SPACs as blank check company), necessarily involves the intervention of Investment Banks that act as advisors and that come into play at various times, from the phase of IPO preparation to the Aftermarket, and in particular in the phases of Book Building and Underwriting of course. The fees paid to the advisors certainly represent the amount of costs directly subject to the listing through Initial Public Offering. Furthermore, typical of IPOs are also the filing fees paid to the regulatory authorities and the fees charged for official registration on the stock exchange, therefore in the sample company respectively the registration fees of SEC and Nasdaq. Obviously, there are also a series of indirect costs which fall, however, within the sphere of public companies, thus typical of all listed companies, including the NewCo emerging from a SPAC merger; therefore, costs related to regulatory compliance, annual financial reporting, or auditing, but these costs are obviously not included in the purposes of this analysis.

Below, are shown the costs relating to direct fees found in the reference sample. It is worth remembering that, on average, these fees should be between 3,5% and 7% in the US market, as reported in a recent study by PwC[62].

Table 7: Traditional IPO investment costs.

	Advisory fees	SEC filing fees	Nasdaq filing fees	**Total Costs**
Mean	7,61%	0,012%	0,014%	**7,63%**
Median	7,18%	0,011%	0,013%	**7,20%**
25th Percentile	5,14%	0,010%	0,012%	**5,16%**
75th Percentile	8,73%	0,014%	0,017%	**8,76%**

Source: Personal processing.

As can be seen from *Table 7*, expenses related to compliance with SEC requirements and for Nasdaq registration have a rather modest weight, averaging around 0,012% and 0,014% relative to IPO proceeds, respectively. In fact, these figures are usually around a few hundred thousand dollars maximum, but never reaching the levels of advisory fees.

The costs that, as can be seen from the graph, have a decidedly greater and relevant weight are precisely the fees paid to those entities responsible for the feasibility of the listing for private companies. Specifically, the first column of *Table 7*, which shows data about "Advisory fees," includes costs related to: 1) Underwriting fees, i.e., the fees agreed with the Investment Bank for the underwriting of shares that will then be placed when the company goes officially public; the most active banks obviously include the largest and most important ones such as Citigroup, Credit Suisse, JP Morgan, Morgan Stanley, Barclays, and so on. 2) Selling Concession, which is that part of the spread allocated directly to the selling group (such as managers, lead underwriters, and members of the selling syndicates), equal to the difference between the discount at which the securities are allocated to them and the final price of the IPO offering. 3) Management fees, i.e., the fees received by the lead manager and any Co-lead managers, for directing and organizing a placement syndicate.

Two elements can be noted from the analysis of these costs; firstly, that actually the fees average around 7%, as mentioned earlier, with peaks around 8%-9%. It should be pointed out that advisory fees usually decrease proportionally to the size of the IPO, as there is a tendency to leverage the volume of the offering. The second element is that, generally, traditional IPO fees tend to be higher

[62] Bellin, M., Thomson, D. (2021). Considering an IPO? First, understand the costs. PwC.

than those granted to Investment Banks in the case of the initial listing of SPACs, which average around 4%. Although this may seem to be an advantage for SPAC shareholders, it has been explained in the previous section how in reality other costs fall on the non-redeeming shareholders, mainly due to the effects of Founder Shares and Warrants, which, concretely, cause a rise in the costs actually incurred by them. This topic will be addressed more specifically in the last section by analyzing trade-offs.

A final critical element in the analysis of the traditional IPO costs, with specific reference to the effects on investors, is the issue of "IPO pops". IPO pops refer to price increases in newly listed shares that occur in the first few days following the IPO itself. These might be seen as costs, (intended as opportunity costs), by viewing them as a lack of pricing efficiency in the IPO market, since, if within a few days the share price tends to rise abruptly, one might think that in the Book Building and Underwriting phase there might have been greater efforts in trying to increase the offering price, thereby increasing the value of the newly listed company's shares. Effectively, looking at the 45 companies in the reference sample, on average, after one day from their listing on Nasdaq, pops of about +24% have been observed, with peaks as high as +50% in the case of companies falling within the 75th percentile.

At this point it is necessary to specify a fundamental aspect, in order to avoid confusing this criticality with costs that do not actually occur. The first note concerns the fact that, while pops can be seen as "money left on the table," in reality the choice not to overprice IPO shares is often voluntary. Just consider that, sudden increases in the trading price of IPO shares underscore a greater degree of liquidity in the market, hence also greater possibilities to monetize those investment (always respecting lock-up clauses, if any). In addition, the fact that the shares of newly listed companies increase in value in the first days of trading, is also a symptom of greater interest from institutional investors, which could provide the company with better access to capital (that is also one of the main reasons why a company decides to go public).

Finally, a final clarification about IPO pops is that, even when opportunity costs are considered, they tend to fall on those who owned shares in the newly listed company prior to the IPO, who, actually, could have monetized more at the time of the IPO, had the shares been priced at a level in line with the observed pops. But if the focus is shifted to the IPO investors (who are the subject of the comparison with the non-redeeming shareholders of the SPACs), here the pops actually no longer seem to be a problem, rather an advantage. This is because such investors, having subscribed to the shares at a lower price than that recorded on the stock exchange a few days later, not only have

invested a potentially smaller sum, but also enjoy greater liquidity of their investment and, as pointed out earlier, potentially more profitable monetization opportunities.

3.4 Trade-off investigation

Having also outlined the cost structure pertaining to the investment in the SPAC traditional IPO models, this last session is devoted precisely to investigating the trade-off between costs and returns of such investments. Therefore, the focus will turn to the identification of all those elements that guarantee the success and profitability of the two models, in order to determine a series of scenarios based on the samples analyzed and concentrating precisely on the comparison between the results obtained by non-redeeming shareholders of SPACs and those of IPO investors. Clearly, as repeatedly emphasized in the introduction and throughout the paper, the ultimate goal of this study is to draw a conclusion on the quality of SPAC investments, weighing the results obtained not only with the costs concretely incurred by non-redeeming shareholders, but also with market trends (given the impact of the bubble) and with the strengths of the alternative investment, encountered in IPOs of private companies.

It is worth anticipating that, the scenarios which will be identified in the last paragraph refer to the sample analyzed and that, in one way or another, there are always exceptions that deviate from the trend; when considering the period of the bubble then, this is even more evident. In fact, not coincidentally, it has been chosen to take as reference samples that also including business combinations and traditional listings precisely in the period when the SPAC bubble burst, so that the evolution of such investments can be observed up to the present day, in which the situation appears to have normalized.

Naturally, having already outlined the return scenarios for non-redeeming shareholders and Sponsors of SPACs in the second chapter, the first step in arriving at the identification of trade-offs is to introduce the observed results also in the sample of traditional IPOs.

3.4.1 Investor returns in Traditional IPOs

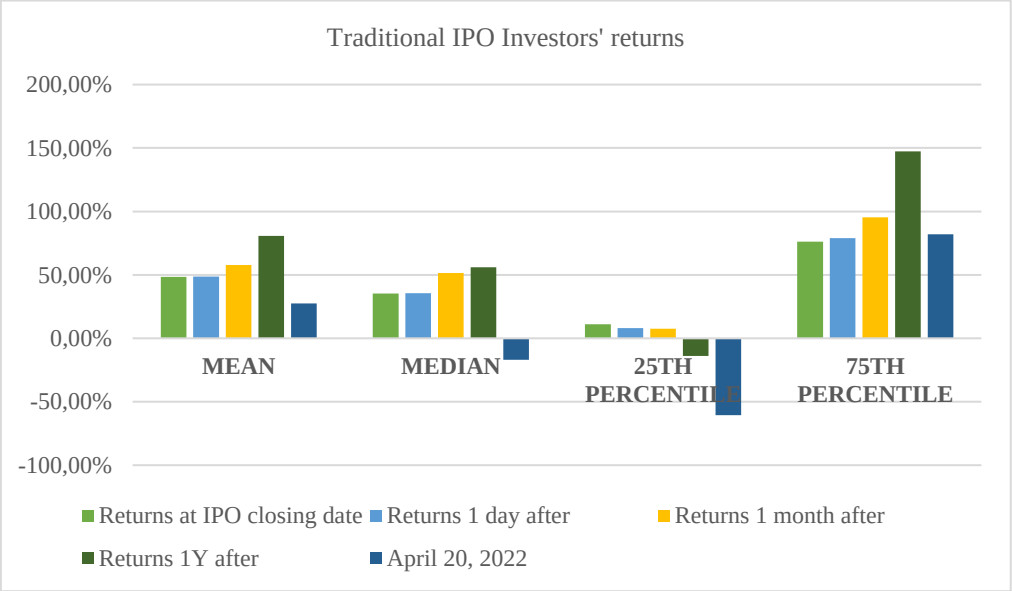
In order to analyze the observed returns for investments in traditional IPOs that occurred between 2019 and 2020, the same methodology has been used (as anticipated in Section 3.2), as the calculation of returns for non-redeeming shareholders and Sponsors of SPACs. To recap, data on the daily listing prices of newly listed companies have been extracted from Bloomberg, in order to calculate their averages for evidence of trading trends and to calculate relative returns. As reference periods, again,

the IPO day, at the closing of trading, then a month later, a year later, and until April 20, 2022, have been considered. In addition, in order to have evidence of the impact of IPO pops as well, returns on the day following the listing have also been added. The only difference from the calculation of SPAC merger returns, lies in the fact that there is no data about the exercise of warrants since, as has already been explained, usually in IPOs class A shares, meaning ordinary shares, are issued and not units including warrants for IPO investors (and this has been the case in the sample).

Finally, returns have been computed always using the Return On Investment formula (given below), and again with the same logic of calculating the returns of SPACs' non-redeeming shareholders and Sponsors, as explained in paragraph 2.3.1 of the second chapter.

$$\textbf{\textit{IPO investors' ROI}} = \frac{(\textbf{\textit{n of shares subscribed at the IPO}} * \textbf{\textit{share price t}}) - \textbf{\textit{IPO investmnt}}}{\textbf{\textit{IPO investment}}}$$

Figure 12: Traditional IPO investment returns.



Source: Personal processing.

As can be seen from *Figure 12*, the level of returns on investments in technology companies newly listed on the Nasdaq, over the reference periods, appears to be decidedly good. The average values of returns at the closing of trading on the day of the IPO, and on the following day, appear similar at +48.34% and +48.62% respectively, and the median and percentile values are also quite aligned. This means that, the period in which the greatest "pop-generated" momentum is recorded, is the very day of the companies' IPO, a trend that, generally, tends to persist throughout the next trading day as well.

The values turn out to be good even when observed one month after individual listings and after one year, whose average values are around +75% and +80% respectively. The only exceptions fall precisely in the companies distributed around the 25th percentile (in which, however, the only cases reporting negative performances are those related to one year after IPOs and observed until April 2022), and those of the median value observed up to the recent times, which records -16%. Finally, the companies distributed around the 75th percentile, record quite exceptional performances (not as extreme as those often observed for SPAC Sponsors), with peaks as high as +147% one year after the IPOs, thus roughly at the dawn of 2021 for the companies in the sample.

At this point it should of course be pointed out that, although there has been the influence of the SPAC bubble, between about mid-2020 to early 2021, this has not necessarily contributed to affecting the performance of companies that chose to list via traditional IPO. As has been explained in the first chapter, in section 1.3.1, and then at the beginning of the third (precisely analyzing the effects of the bubble), there are a number of variables that influence the choices of private companies regarding their listing. These choices precisely may relate to both the companies' own characteristics, and market variables, such as the increase in volatility after the Covid pandemic outbreak. All this, however, does not mean that once a company had decided to list at that time via IPO, then it was certainly going to encounter weak performance. The extreme interest in SPACs caused more capital to move to them, especially in the U.S. market, increasing their liquidity levels and often (not always) bringing a boost in performance, ultimately causing traditional IPOs to decline in market share. However, this has not precluded quality private companies (with innovative products and strong financials), from performing well in terms of equity trading. Investors (institutional and non-institutional), as well as market makers, while they may run into the "traps" of speculative bubbles, cannot disregard the objective analysis of a listed company, regardless of its listing method. Arguably, to be fair, the companies that decided to list via traditional IPO during the SPAC burst periods perhaps had all the prerequisite to go public without approaching a shell company (again with some exceptions, given the results), and this may have been appreciated by the market. The fact remains that if a company is deemed potentially profitable, its stock prices are the very first evidence of this.

The following section will therefore compare the returns of non-redeeming SPAC shareholders with those of IPO investors, weighting them against costs. In this way, it will be possible to draw ultimate conclusions about which of the two has performed best, based on the frameworks proposed by the reference models.

3.4.2 The ultimate comparison: SPAC Mergers vs. Traditional IPOs

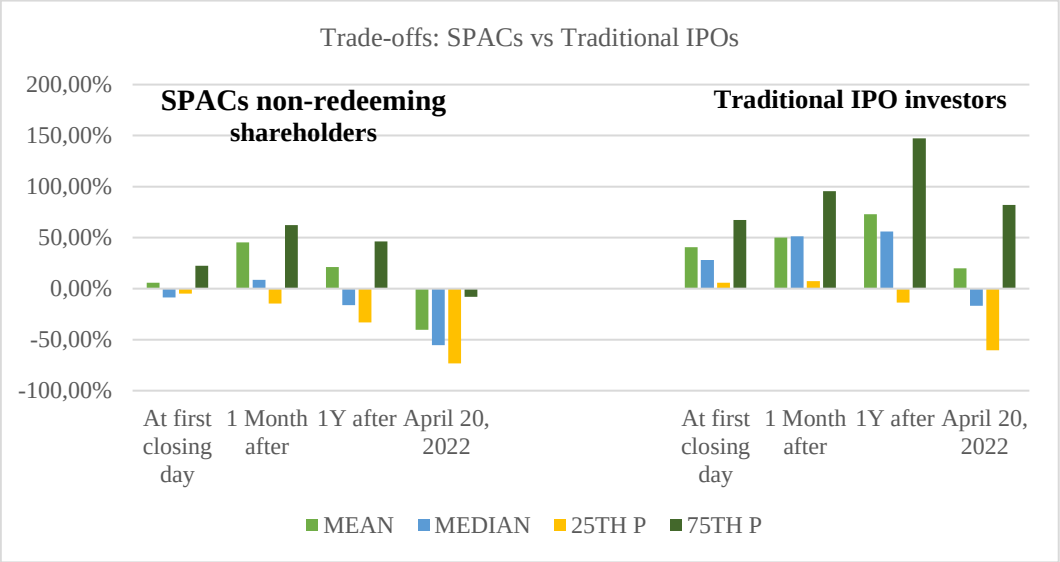
The study has finally come to an end, culminating in what is surely the most important analysis in attempting to answer the research question of whether investing in SPACs is a profitable investment for those who choose not to liquidate their shares before the merger, i.e., the non-redeeming shareholders.

Certainly, from the analysis of the returns and costs for both SPACs non-redeeming shareholders and traditional IPO investors, a reader of this study may have already guessed that there is some gap between the two reference models, particularly by looking at the cost structure. To make the analysis complete, however, it is necessary to provide direct evidence of the trade-off between costs and returns, so as to also represent a direct comparison precisely between profitability of such investments.

Before proceeding, however, it is necessary to digress briefly into the relationship there is between costs and returns in the reference samples. In particular, it should be emphasized that, the costs described in section 3.3 are fixed values, thus direct expenses (such as underwriting fees) or indirect effects (as in the case of dilutive effects in SPACs), which do not vary depending on the time frame considered but are in fact kept constant. As for returns, on the other hand, the issue is exactly the opposite. By having determined performance through the ROI formula, based on the daily prices of the investigated companies, and then calculating their position ratios dividing them into various investment durations, this implies the determination of different scenarios of observed returns over a medium-term time frame (since, in the sample companies, the analysis extends to a maximum of 3 years, from the beginning of 2019 to April 2022). All of this, of course, generates assumptions about profitability of investments that tend to vary, based on empirical data. This parenthesis is therefore meant to emphasize that this analysis has been conducted with the assumption that some variables are kept fixed (such as precisely costs, or returns on warrants over a defined period), while others change such as, precisely, stock performance.

Despite the existence of a certain amount of variability in the results, however, the purpose behind the entire analysis is to seek to understand whether indeed the structure of the SPAC model and related mergers, may actually be a viable substitute to that of investing in traditional IPOs, and, fortunately, evidence has been uncovered that can underscore an actual gap.

Figure 13: Final comparison. Trade-off between costs and returns.



Source: Personal processing.

Before analyzing the results, it should be noted that the trade-offs have been calculated precisely through the difference between the percentage returns (in the different reference periods), and level of costs, referring to those described for non-redeeming shareholders and IPO investors in sections 3.3.1 and 3.3.2, respectively. This has been possible because, costs and returns, have been estimated by considering investments in shares initially subscribed in the listings of both SPACs and traditional IPOs. Keeping in mind the previously described assumption that costs are fixed measures, while observed returns vary depending on the period under consideration, differences between them have been calculated, based on mean, median and percentile values.

The results observed in *Figure 13* speak for themselves. There is a clear difference between the potential returns, costs adjusted, for IPO investors versus non-redeeming shareholders of SPACs in the investigated samples, in favor, without a doubt, of the first ones. The following causes have been identified to explain the gap between the two models:

1) First, a much more onerous cost structure for SPAC investors. As has been shown in the relevant section, the main issue is found from the potential dilutive effects arising from the exercise of warrants of redeeming shareholders and Founder Shares. This problem is undoubtedly related to the complex structure of SPACs, which, while providing certain benefits to investors (such as the right to vote at the shareholders' meeting to approve the merger and the possibility of redeeming shares), actually hides potential risks arising from the very characteristics of such an investment. Essentially, it is like

a double-edged sword, especially considering that while underwriting expenses are often incurred, if there were no serious dilutive effects, the actual costs would be even lower than those observed in the sample of traditional IPOs. In the previous chapter, it has also been pointed out that potential dilutive effects from exercise of warrants could also be there in classic IPOs, but no issues of such instruments have been found, perhaps due to the size of the deals investigated.

2) Second, the substantial difference between the returns observed for non-redeeming shareholders of SPACs, following the merger, and for shares listed through IPOs. The causes in turn, could be varied, considering that relatively short periods have been observed, and not historical data covering 10 or 15 years, thus necessarily subject to market volatility. In any case, there are concrete explanations. Undoubtedly, in the first instance, the impact of high redemption rates in SPACs, despite the decrease in the bubble period. Indeed, evidence about the correlation between equity redemptions and the poor performance of NewCo has been reported in the second chapter. While this is not the only factor causing poorer trading performance, if only trade-offs for non-redeeming shareholders of SPACs that experienced high redemptions had been reported in *Figure 13*, only negative values would have been observed. It must also be kept in mind that such investments for such shareholders, become profitable only if share prices remain consistently above the $10 threshold (against the high costs then), so this limitation perhaps, in the case of some evidently underperforming companies, may have been an additional reason for the evidence shown in the graph.

3) The euphoria of the "SPAC bubble". As has been described in Section 3.1, between the third quarter of 2020 and the first quarter of 2021, SPACs enjoyed an unprecedented surge, gaining a lot of market share at the expense of traditional IPOs. This situation may have prompted both SPAC Sponsors to identify targets that actually were not very profitable (a thesis supported by the prices observed for some NewCo, well below the $10 threshold), and SPAC shareholders to approve such merger deals. This level of euphoria, however, has probably not been well thought out by investors, especially at a time when financial markets have been severely affected by the disastrous effects of the Covid pandemic and, in the very last few months, unfortunately, by the war in Ukraine (which certainly can be considered a "black swan" for all markets). The biggest problem, however, lies in the fact that, while the SPAC model necessarily leads to investment in a private company that may not be ready for listing, in the traditional IPO, historically, such consequences are rarer. This is because if a private company decides to go public via IPO, and undertaking a considerably more difficult path, it probably has the financial basis to do so. Not surprisingly, as has already been pointed out in Section 3.1, supervisory authorities such as the SEC in the US and ESMA in Europe, have begun to intensify scrutiny regarding the establishment of SPACs and the negotiation of related deals, in order to

increase the levels of protection for investors, aiming at increasing the quality of disclosures and containing speculation behind the use of projections. The increased scrutinization, in addition to being potential tools to protect non-redeeming shareholders from serious losses, has been, consequently, one of the reasons why the "SPAC bubble" has gradually vanished, reestablishing a balance, in terms of number of deals, between shell company IPOs and traditional IPOs.

Finally, it may be noted that, in *Figure 13*, no data have been reported about the trade-off between costs and returns for the Sponsors of the SPACs in the sample. This is not a coincidence, and the reason is very simple. The returns observed for Sponsors are so high, that even if the costs for them were much higher than those observed for non-redeeming shareholders, the returns would still be exorbitant. It is sufficient to recall some data such as, the average returns values of about +4000% one year after the mergers or, even in the worst case, the +790% average returns in the face of very high redemptions rates. Such scenarios are obviously the result of the Founder Shares' power, which, in addition to being attributed to Sponsors against a paltry investment (about $25,000 on average), are not even subject to the $10 per share threshold; intuitively, therefore, such shares give back high returns even if NewCo is traded at rather low prices.

This last digression on the Sponsors of SPACs, ends the analysis of this study, whose final verdict is as follows: while SPACs are potentially a very ingenious tool to support the listing of private companies, to date, and based on the sample analyzed, appear to be a tool that benefits the Sponsors who set them up. Non-redeeming shareholders, in most cases (with some exceptions), have to accept the risk of incurring substantial losses, either because of potential dilutive effects and if the business combination is not supported by qualitative research and reasonable projections. Therefore, traditional IPOs, to date, appear to be investments that are less prone to speculative factors, where investors have more opportunity to weigh their investment choices. Exceptions on both sides are not ruled out, usually related to the success (or failure), of the companies' business in which investors decide to participate, as well as in the face of events with a global magnitude (such as the Covid pandemic or the war between Russia and Ukraine), naturally with the awareness that increases in market volatility may affect multiple fronts.

FINAL DISCUSSIONS AND SUGGESTIONS FOR FUTURE RESEARCH

This brought the analysis about investments in SPACs to a conclusion. Through an in-depth study of a sample made up of business combinations occurred in the United States (the reference market for shell companies), between 2019 and 2020, it has been possible to study the effects of the costs actually incurred by non-redeeming shareholders, on the returns observed in different time frames. Specifically, after introducing the structure of SPACs and their regulatory framework, it has been decided to analyze the results over a medium-term period, ranging from the day after the closing of the individual deals, up to one year, finally extending the period of analysis to the present days; this last analysis has been performed in order to report evidence about the observed performance for the sample, even in the face of the inflationary (and, consequently, deflationary) effects generated by the SPAC bubble, whose characteristics have been outlined in section 3.1, at the beginning of the third chapter.

Moreover, by studying the trade-off between costs and returns also of traditional IPO investments sample as well, it has been possible to perform a final comparison between them and the investments of non-redeeming SPAC shareholders, aimed at decreeing which model, to date, is the most profitable or at least less risky.

To ensure a holistic understanding of the just completed study, it is propaedeutic to summarize the main findings. Specifically, it was found that:

- The $10-per-share threshold of SPAC listings often turns out to be a quite obvious limitation to the post-merger returns of the aforementioned investments. Considering that in case NewCo's shares are not consistently traded above that price, it is difficult for non-redeeming shareholders of SPACs to achieve outstanding results and avoid losses. However, this does not turn out to be a limitation even imposed on Sponsors' Founders Shares performance, given that they, upon founding the SPACs, receive about a 20% shareholding against a paltry investment. Therefore, even if Sponsors were to bear a high level of costs, the observable returns in the sample are so high that also high costs would not affect the very high performance of their investment. Thus, the existence of an important gap is evident.

- The cost structures inherent in the SPAC model for non-redeeming shareholders are excessively more onerous than those observable for investments in traditional IPOs. The cause, as has been pointed out repeatedly throughout the study, lies in one critical element,

dilutive effects. The dilution of capital generated by the exercise of warrants by redeeming shareholders and by the existence of Founders Shares, in the face of high rates of redemptions, causes the observable costs for non-redeeming SPAC shareholders to be about 360% higher than those of traditional IPO investors. It follows that, considering the average redemptions observed in the SPAC sample, roughly 40%, it is difficult to imagine a situation in which post-merger company returns are so high as to break down the impact of this cost structure.

- Warrants very often are not sufficient to abate the burden of dilutive effects for non-redeeming shareholders. This is in the face of 2 factors. The first element is the range within which warrants result profitable. Considering that the strike price is usually $11.5 and the threshold for redemptions of the same warrants is typically set at $18, such instruments would be truly profitable only when NewCo's prices fall within this range, after lock-up periods. The second factor, on the other hand, is that in cases where redemptions rates are excessively high in a SPAC, and redeeming shareholders decide to take advantage of the right to exercise the warrants, they would almost always increase the dilutive effects, reducing the stake of non-redeeming shareholders even more, and there seems to be no evidence to the contrary.

- The euphoria generated by the "SPAC bubble", would seem to have served only to increase the idea that shell company markets need more regulation. Although the SPAC model envisions as its ultimate purpose that of a business combination with a private target, which, in periods of increased market volatility (such as after or outbreak of the Coronavirus), would seem more palatable than an IPO, this concretely generated a level of expectation for investors that could not be confirmed, to date, with observable results. One of the main causes is sometimes inappropriate use of forward-looking statements (also called projections) on the profitability of target companies. Since it is possible to use such a tool to increase the attractiveness of investments in SPAC mergers, it often turns out to be a double-edged sword at the end of the journey, as overly positive projections about private companies that later turn out not to be ready to go public. Therefore, in traditional IPOs projections are not allowed to be used. Effectively, the SEC in the U.S. and ESMA in Europe, seem to have moved to increase disclosure requirements in merger negotiations, and this has also been the cause of the gradual decline in the interest towards Blank Check Companies (even by many banks, historically heavily involved in SPAC IPO underwriting, such as Citigroup or Goldman Sachs).

Finally, in order to consistently conclude the study, it is necessary to point out some of the limitations of the recently completed paper in order to provide a cue for future research on the SPAC topic. In this regard, 3 critical issues addressed in the course of this analysis should be mentioned.

The first one concerns the assumption made in section 2.2.1, regarding the computation of dilutive effects resulting from the exercise of warrants. In that section it has been assumed that all warrants of redeeming shareholders and Sponsors would be exercised, and not those of non-redeeming shareholders. This has been done in order to estimate the maximum dilutive effects found in the sample analyzed. Naturally, there is no evidence of how many warrants instruments have been actually exercised, these being individual holders' own choices, just as such estimates cannot be estimated solely from the analysis of outstanding shares, because of the issuances of new shares observable in Newco. One suggestion in this regard, might be to undertake a specific study of the extent to which such warrants are not exercised, or are redeemed by the companies, to estimate the impact of these choices on the costs incurred by non-redeeming shareholders.

A second critical element of this analysis is the time period of reference. It has been chosen to analyze SPAC mergers that occurred between early 2019 and late 2020 in the United States, in order to calculate the returns to fairly recent SPAC investments, while also estimating the impact of the "SPAC bubble." This implies that the maximum investment duration investigated is about 3 years (until April 2022), for business combinations occurred in early 2019. Since this is a medium-term period, a future study might expand the analysis to a long-term period, perhaps up to 10 years, in order to provide evidence about the profitability of such investments in the long run, to confirm or refute the thesis of this study, about the cost burden for non-redeeming shareholders of SPACs. Furthermore, extending the analyzed duration of investments will also be useful in order to perform a linear regression between observed returns and observed redemptions rates. In fact, in this just-concluded study, it has not been practicable to obtain adequate levels of significance by performing regression analyses, precisely due to the relatively limited period of investigation, covering about 3 years. This is the reason why all calculations, including those related to the investigation of the correlation between performance and redemptions, have been executed by analyzing a variety of scenarios for each individual company in the sample, extracting all daily prices from the day of the mergers until April 20, 2022. In addition, an analysis could also be carried out on a sample of European shell companies, to compare these results to those of the U.S. sample (again, the leader of the SPAC market), and to check whether the regulatory differences and recent regulations that have occurred on the old continent, are likely to reduce significant risks for European SPAC investors.

Finally, the last limitation to be noted concerns the cost structure of traditional IPOs. As has been stated in Section 3.3.2, in the sample investigated, no warrants issues emerged during IPOs, probably due to the sizes of the deals analyzed, which, while comparable to those of merger SPACs, are below the average listings typically observed in the U.S. market. In this regard, a future analysis might be to expand the study to include more dimensionally significant IPOs, checking the issuance of warrants and building a scenario in which these instruments would be exercised, after a certain time period. In this way, evidence about dilutive effects potentially burdening even investors in traditional IPOs, might be obtained, in order to compare them with the ones observable for non-redeeming shareholders of SPACs. This could give confirmation or refutation to the argument that the costs of the latter are excessively more burdensome, and perhaps shift the focus to the impact of underwriting costs, which are typically greater in traditional IPOs compared to those of Special Purpose Acquisition Companies listings.

LIST OF TABLES

LIST OF FIGURES

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APPENDIX

Non-redeeming SPAC shareholders post-merger return

	Returns at the day of merger	*Returns at warrants exercise day*	*Returns 1 year after merger*	*Returns up to April 20, 2022*
MEAN	*33,65%*	*73,14%*	*49,12%*	*-12,31%*
MEDIAN	*7,00%*	*24,20%*	*-0,50%*	*-39,70%*
25TH PERCENTILE	*-1,60%*	*-11,50%*	*-29,80%*	*-70,00%*
75TH PERCENTILE	*60,00%*	*99,67%*	*83,70%*	*29,50%*

Non-redeeming SPAC shareholders post-merger returns in case of high redemption rates

	Returns at the day of merger	*Returns at warrants exercise day*	*Returns 1 year after merger*	*Returns up to April 20, 2022*
MEAN	*-0,63%*	*-4,67%*	*8,54%*	*-21,10%*
MEDIAN	*1,00%*	*-7,70%*	*-11,50%*	*-39,70%*
25TH PERCENTILE	*-7,95%*	*-30,05%*	*-36,30%*	*-77,45%*
75TH PERCENTILE	*7,10%*	*22,00%*	*6,85%*	*11,00%*

SPAC Sponsors post-merger returns

	Returns at the day of merger	*Returns at warrants exercise day*	*Warrants returns 1 year after merger*	*Returns 1 year after merger*	*Returns up to April 20, 2022*
MEAN	*5450,65%*	*-28,78%*	*-81,39%*	*4035,36%*	*2655,46%*
MEDIAN	*996,21%*	*-100%*	*-100%*	*790,30%*	*480,28%*
25^{TH} PERCENTILE	*779,12%*	*-100%*	*-100%*	*502,55%*	*175,56%*
75^{TH} PERCENTILE	*1583,40%*	*-100%*	*-100%*	*1820,13%*	*1331,82%*

Distribution of IPO underwriting fees in the sampled SPACs.

	Underwriting fees	*Fees paid by Sponsors investments proceeds*	*Portion of underwriting fees charged to the trust account*
MEAN	*4,39%*	*74,16%*	*25,84%*
MEDIAN	*4,79%*	*58,45%*	*41,55%*
25^{TH} PERCENTILE	*4,69%*	*51,02%*	*48,98%*
75^{TH} PERCENTILE	*5,07%*	*76,59%*	*23,41%*

Traditional IPO investors' returns

	Returns at IPO closing date	*Returns 1 day after*	*Returns 1 month after*	*Returns 1 year after*	*Returns up to April 20, 2022*
MEAN	*48,34%*	*48,62%*	*57,67%*	*80,63%*	*27,49%*
MEDIAN	*35,26%*	*35,64%*	*51,35%*	*56,08%*	*-16,88%*
25TH PERCENTILE	*11,11%*	*8,00%*	*7,44%*	*-13,78%*	*-60,53%*
75TH PERCENTILE	*76,09%*	*79,00%*	*95,45%*	*147,23%*	*81,92%*

Trade-off between cost and returns for SPAC non-redeeming shareholders

	At merger closing day	*1 month after merger*	*1 year after merger*	*Up to April 20, 2022*
MEAN	*5,73%*	*45,22%*	*21,20%*	*-40,23%*
MEDIAN	*-8,67%*	*8,53%*	*-16,17%*	*-55,37%*
25TH PERCENTILE	*-4,85%*	*-14,75%*	*-33,05%*	*-73,25%*
75TH PERCENTILE	*22,56%*	*62,23%*	*46,26%*	*-7,94%*

Trade-off between cost and returns for SPAC non-redeeming shareholders in case of high redemptions rate

	At merger closing day	*1 month after merger*	*1 year after merger*	*Up to April 20, 2022*
MEAN	*-28,55%*	*-32,59%*	*-19,38%*	*-49,02%*
MEDIAN	*-14,67%*	*-23,37%*	*-27,17%*	*-55,37%*
25TH PERCENTILE	*-11,20%*	*-33,30%*	*-39,55%*	*-80,70%*
75TH PERCENTILE	*-30,34%*	*-15,44%*	*-30,59%*	*-26,44%*

Trade-off between cost and returns for Traditional IPO investors

	At IPO closing day	*1 month after IPO*	*1 year after IPO*	*Up to April 20, 2022*
MEAN	*40,71%*	*50,04%*	*73,00%*	*19,86%*
MEDIAN	*28,06%*	*51,35%*	*56,08%*	*-16,88%*
25TH PERCENTILE	*5,95%*	*7,44%*	*-13,78%*	*-60,53%*
75TH PERCENTILE	*67,33%*	*95,45%*	*147,23%*	*81,92%*

SUMMARY

In this last session of the paper, a general summary of the issues addressed in the study just concluded will be provided.

The subject of analysis has been those investments in Special Purpose Acquisition Companies made by the so-called non-redeeming shareholders, i.e., SPAC shareholders who decide to get involved in the merger project without redeeming their shares.

Introducing SPACs, these are companies generally formed by a group of individuals, called Sponsors, who usually exhibit backgrounds in investment banks, mutual funds, or private equity. The intent of the creation of a SPAC, also called a Blank Check Company or "shell company," is to raise capital through an IPO listing of the SPAC, soon after its foundation, and then initiate a process of targeting a private company, with whom conclude a business combination. In this way, following the merger, the shareholders of the SPAC will receive the shares of the private operating company, as an effect of the incorporation of the SPAC shares with those of the target, while the latter, as a result, will become public without the need to undertake a traditional IPO, precisely because the SPAC was already listed on a stock market prior to the deal.

The interest behind this paper, namely for the analysis of SPAC investments, arose as a result of some reflections about this corporate model, which has been at the center of the global financial arena in recent years. The year 2020, in particular, has been the breakthrough year for shell companies, which, although their genesis dates back to the 1980s in the United States, have gradually regained a foothold in the markets over the past decade, proving to be the first alternative to IPOs for companies that want to go public. This is because, following the outbreak of the Covid pandemic, SPACs have been seen as a safer means of listing on the stock exchange, since they are basically aimed at a private deal, thus counteracting the volatility issues associated with IPO listings aimed, in contrast, at the public. Suffice it to say that, in the United States (the SPAC market of reference), from 64 new shell company IPOs registered at the end of 2019, this rose to 250 at the end of 2020, with proceeds increasing, concomitantly, from about $15 billion to $84 billion.

Nevertheless, SPACs are often criticized because of their particularly complex structure, and all the variables inherent in the investment and merger processes with targets. In short, all that glitters is not gold, despite the recent boost registered by such a corporate model in the face of what has thus been considered the "SPAC bubble." Particularly, some academic studies have been moved by a number of critical issues noted about shortcomings in terms of returns and quality, both of SPAC investments

and of target companies. Specifically, Jenkinson and Sousa (2011), categorized a sample of 43 SPACs into "good" and "bad," depending on the markets' reaction, in terms of share prices, following the announcement of mergers. The results of their research reported that, investors who approved the mergers of SPACs deemed "bad," suffered average returns of around -39% after 6 months and -79% after one year. Kolb and Tykvova (2016), analyzed a sample of 130 companies between 2003 and 2015, focusing on features of private companies that decided to list through merger with a SPAC, rather than through a traditional IPO. They showed how, companies that generally relied on a shell company, did not have enough qualities to guarantee them growth opportunities on par with traditionally listed companies. The studies by Dimitrova et al. (2017) and Chen et al. (2021), instead, investigated the extent to which the typical characteristics of Sponsors played a role in the outcome of mergers, finding relevant success, for those Sponsors that reported a background in Private Equity. On the other hand, with regard to the study of more recent samples, Gahng et al. (2021), reported evidence about the differences among the returns on shares held by SPAC shareholders in post-merger companies and those who exercised warrants only, where, in a sample of 210 companies, the former observed returns averaging -8.1%, while the latter +63%. Klausner et al. (2021), instead focused on the effect of share redemptions on the amount of cash that SPACs have been able to contribute to the target upon business combination, founding that, out of a sample of 47 SPAC mergers, the median value of net cash per share contributed to the targets has been $5,70 per share, even though the IPOs of SPACs were priced at $10 per share.

The ultimate goal of this study then, is to insert itself into the academic literature by reporting evidence on a topic that could not be found in the aforementioned, namely regarding an analysis of the trade-off between costs actually incurred by non-redeeming SPAC shareholders, and their post-merger returns. As has been analyzed in the paper, and as will be summarized shortly, for these shareholders, SPAC investments often have high costs related to the dilutive effects caused by instruments such as warrants and Founder Shares; effects often exacerbated by the consequences of the right to redeem investments, granted to those SPAC shareholders who do not wish to continue with the merger process. The purpose of the analysis has therefore been to provide data, by analyzing a specific sample, on the relationship between these costs and the returns observed over a specific period, finally comparing such evidence with that of a sample of traditional IPO investments. In this way, it has been possible to concretely observe the extent to which investing in SPACs is actually profitable, or whether the recent "bubble", in which they have been featured, has only been a means that has served to enrich many Sponsors, while causing losses to non-redeeming shareholders.

The **first chapter** of the paper has been devoted to the introduction of Special Purpose Acquisition Companies. In particular, the first paragraph focused on describing the genesis of SPACs, dating back to the 1980s in the United States under the name Blank Check Companies, i.e., companies that were publicly traded, without any kind of operating assets, with the sole intent of acquiring or merging with a private company. The peculiarity of such companies at the time, was that they were allowed to offer Penny Stock, namely shares of small companies traded at less than $5 a share, Over-the-counter. The area of operation of these companies was governed by the Security and Exchange Act of 1934 (Rule 3a51-1), which specifically defined the characteristics of Penny Stocks. The process of regulating Blank Checks, which culminated in Rule 419 of 1992, stemmed precisely from the fact that the promoters of such firms exploited the supply of Penny Stocks to increase their earnings, through market manipulation techniques referred to as "*pump and dump*". These strategies involved pumping the prices of such stocks, which were effectively low-valued, in order to increase issue volumes to investors unaware of the illiquidity typical of such a market. As a result, the SEC acted from the early 1990s to increase Blank Check shareholder protection by regulating the disclosure requirements inherent in such corporate models. The first action came in 1990, with the Penny Stock Reform Act, which imposed sanctions on the use of so-called "*pink sheets*", or prospectuses that guaranteed little information about the issuance of penny stocks. The legislation that gave birth to SPACs as they are understood today, however, came in 1992, namely Rule 419, which defined the main characteristics that Blanc Check Companies had to have, specifically: (1) the establishment of trust accounts for the management and security of IPO proceeds, (2) the possibility for shareholders, who did not want to be involved in the merger project, to redeem their shares, (3) the 18-month limit for Blank Check promoters to identify a target (upon penalty of liquidation of the company), and (4) the imposition of the 80% rule, i.e., that the target had to have an intrinsic value equal to at least 80% of the funds in the trust account.

The history of SPACs then, followed a rather up-and-down course starting in the 2000s, particularly due to increased regulatory impositions on disclosures and following the bursting of the dot-com bubble in which, after gaining much market share through mergers with technology companies, there was a sudden decline. In this regard, the second session of the first chapter has been devoted to an analysis of recently observed SPAC trends, including making a comparison of both the volumes and the regulatory framework of the U.S. market with the European one, which, despite gradual growth in recent years, still remains a less prolific market than overseas.

The fact that the American Stock Exchange (AMEX) became the first to list SPACs in 2005, was also one of the reasons why the US market took the lead in this area. As a result, until more recent times,

usually European operators were more inclined to list their SPACs in the U.S., given the greater liquidity of the market, but also due to greater regulatory flexibility of Small-medium Enterprises listings than the European context. Looking back at the period related to the "SPAC bubble" however, it was possible to observe a sudden increase in SPAC IPO volumes in Europe as well, with proceeds from 2020 to 2021 increasing by about nine times, from about €1 billion to €9 billion in capital raising (although in the States the figures remain much higher, with SPAC raising volumes amounting to about $150 billion at the end of 2021). In regulatory terms, on the other hand, the main European financial markets (the most active appear to be Frankfurt, Amsterdam, and London), seem to be increasingly aligning themselves with the U.S. model, in order to provide more flexibility and attractiveness to the SPAC sector; in fact, there are many similarities in elements such as shareholders' approval, targeting and time limits, and redemptions rights. However, the European market seems to have focused heavily on aspects related to disclosure requirements, for shareholder protection, about the complexities inherent in SPAC units (particularly for the exercise of warrants), probably in the face of recent developments in the shell company's market; witness the recent ESMA publications for the implementation of Directive 2014/65/EU (MiFID II).

The first chapter has also been devoted to a detailed description of the SPACs' structure, in order to better understand their functioning and critical aspects, which then turn out to be the cause of the related dilutive risks for non-redeeming shareholders, analyzed in the second chapter. The key elements of the shell companies' structure have been identified in the following characteristics:

- Founder Shares. These are the shares allocated to Sponsors of SPACs prior to the IPO as a source of remuneration for their efforts. Those shares usually amount to 20% of the SPAC's equity and are issued against quite low investments, generally around $25,000 in the US market.
- Units issued to IPO investors priced at $10. These consist of common shares and also warrants instruments (or fractions thereof), usually exercisable after a lock-up period and entitling the shareholder to subscribe for new shares in the SPAC or post-merger NewCo, at a strike price usually $11.5.
- The right to redeem shares for shareholders dissenting the merger (which occurs immediately before the De-Spacing phase), i.e., who vote against the business combination and desire liquidation of their IPO investment.
- Allocation of trust account proceeds devoted both to the liquidation of redeeming shareholders' investments, and to cash injunctions in the targets, upon the merger (so it can

already be guessed that the higher the redemptions rates, the less cash the SPAC has to complete the merger).

- PIPE investments. These are investments usually occurring before the business combination, in which Sponsors, following a phase called the "SPAC roadshow," identify accredited investors (to whom they issue SPAC shares or convertible instruments) in order to raise additional capital to complete the merger. PIPEs are critical in cases where the SPAC does not have sufficient resources to meet "minimum cash requirements" agreed with the target company.

Finally, the first chapter concludes with a structural and regulatory comparison between SPACs and traditional IPOs. Having stressed that, for a private company, merging with a SPAC is considered as one of the main alternatives to IPO listing, a comparison between the two models was appropriately introduced, highlighting some critical elements, which partially assist in explaining the final results analyzed in the last chapter. Specifically, after also introducing the structure of traditional IPOs, which is divided into 4 phases (IPO planning, IPO preparation, IPO transaction, and Aftermarket), emphasis has been placed on the main differences characterizing choices of listing via IPO or through SPAC merger. Such choices, often, fall into elements mainly related to the speed of execution of the merger deal versus the steps of the IPO process, or due to aspects related to pricing, where on the one hand there are evaluations of advisors and public investor sentiment, while on the other hand there are assessments related to due diligence processes inherent in a private transaction between the SPAC and the target; it is intuitive that, in the latter case, even if the market could identify downsides for the target company, in the private deal SPAC Sponsors might be willing to pay a premium, against certain specific interests in the company. Furthermore, it has been clarified that these aspects usually have common threads, grouped into 3 main variables, namely market-specific variables (related to the choices of private companies during periods of higher or lower market volatility), deal-specific variables (thus related to the specific preferences of the shareholders of the companies that intend to list, such as the intention to liquidate their shares) and finally firm-specific variables (i.e., related to the profitability, growth expectations and indebtedness of private companies; clearly the more a company has economic-structural difficulties, the more it will tend to rely on a private deal). Finally, the first chapter ended with a digression on a different regulatory aspect between SPAC merger and traditional IPO, namely the use of forward-looking statements, also called "projections." These are prospectuses published as part of a business combination, about the target's profitability expectations and computations, which were first regulated in 1995 by the PSLRA reform enacted by the U.S. Congress. Although they can be useful in attracting investors by providing guidance on forward-

looking calculations, they may often be inaccurate, and forecasts may not turn out to be true. This is why projections are not usually allowed in traditional IPOs, in order to protect public investors. Not surprisingly, recently, the director of the SEC's Corporate Finance Division, John Coates, publicly expressed doubts about the use of projections even for SPACs, hinting at impending regulations in this regard, which could generate an alignment in legal treatments between SPAC mergers and traditional IPOs.

The **second chapter** has been devoted to analyzing the risks inherent in SPAC investments, in order to identify those elements that could influence the cost structure for non-redeeming shareholders. Moreover, in this session of the paper, the last paragraph has been dedicated to the analysis of returns for both non-redeeming shareholders and Sponsors, in order to lay the groundwork for the final analysis of the trade-off between costs and returns. This is therefore the stage at which the analysis sample has been introduced, consisting of 45 SPAC mergers that took place in the United States between 2019 and 2020, whose NewCo are finally listed on Nasdaq.

The first paragraph of the chapter has been drafted in order to provide a distinction between SPACs that are considered "qualitative," from those deemed "non-qualitative", distinguishing them according to specific elements judged to be critical to the success of merger processes. The distinguishing elements that have been identified are 3, namely:

- Sponsor characteristics. From the study of several empirical studies, it emerged that the more the Sponsors have strong backgrounds, the more they are able not only to attract more capital into the SPAC (both in terms of IPO proceeds and PIPE investments), but also to identify a target and conclude the business combination more quickly. The elements that most characterize such "qualities" of SPAC promoters are both their "C-suite" experience, i.e., individuals who have been involved in the highest management ranks of multinational corporations or investment funds, and the breadth of their network in terms of connections with institutional entities and investors, particularly Private Equity funds.
- Relationship between the Enterprise Value of the Target and the size of the SPAC. In the world of SPACs, it is well known that there is an unofficial rule, whereby the business combination is effective (in terms of stability of NewCo's income and absorption of dilutive effects), if the EV of the Target is 3 to 5 times larger than the cash held in the SPAC's trust account. At this stage, the first empirical analysis on the sample of SPAC mergers has been addressed. By extracting from the SEC's ESGAR database, the data from the IPO prospectuses of the SPACs and from Bloomberg the daily prices of the NewCo, it has been possible to

estimate the size multiple and the average post-merger share price for 3 periods (1 month after the merger, 1 year after and until April 20, 2022). Taking as reference the $10 per share threshold of the SPAC IPO (which is the benchmark for shell companies' shareholders, both to evaluate investment performance and when deciding to redeem shares), it has been found that, in the time frames analyzed, 65,2% of the companies listed below that price were outside the 3-5x multiple, thus suggesting an actual truthfulness of the rule just described. So, the more a Sponsor is able to get within this range, the more effective the merger, according to data.

- Levels of redemptions and impact of PIPE investments. Having understood that the right to redeem shares has a rather significant impact for merger purposes, both because of the impact on the trust account and in terms of SPAC's (Sponsors) reputation, redemptions rates have been analyzed in the sample examined, through data derived from SPAC Research database, in which mergers related to the sample have been identified. It emerged that, on average, share redemptions of 40,78% have been observed and, in 10 of cases out of 45, over 90% (suggesting a clear failure of the project undertaken by the relevant shell companies). Moreover, in the study carried out about dilutive effects, which will be summarized shortly, redemptions rates will turn out to be an element that aggravates the costs incurred by non-redeeming shareholders. Finally, the impact of PIPE Investments in the investigated deals has been analyzed, by extracting from the merger prospectuses data on precisely the PIPE shares issued case-by-case. The evidence reported in section 2.1.3 of the paper, confirmed the essentiality of these fundraising instruments, showing that, on average, the PIPEs raised contributed about 26% to the cash injunctions in the targets, at the time of the mergers, and amounted to more than 136% of the IPO proceeds of the identified SPACs (this was perhaps an effect of the size of the deal, which was often greater than the trust account proceeds).

The second section of the chapter, on the other hand, has been devoted to the analysis of the dilutive effects typical of the SPAC structure, thus referring to those elements capable of negatively affecting the stake of non-redeeming shareholders and the value of their participation, following the business combination. This investigation has been crucial in order to compute, in the third chapter, the actual costs incurred by these shareholders, where it emerged that dilutive effects had the greatest impact on the performance observed in the sample. First of all, it should be emphasized that dilutive effects refer to those elements, typical of the shell companies' structure, capable of drastically decreasing the percentage of shareholding held by non-redeeming SPAC shareholders in the NewCo or, in the case of Founder Shares, reducing the dollar value per share conferred to the target; intuitively these can be

considered indirect costs capable of impacting the final investment performance, as has been analyzed in the last section.

The elements that have been specifically analyzed, deemed the main cause of dilution in SPACs, are two, namely warrants and Founder Shares. The following is a summary of the evidence from the sample:

- Warrants. As has been described in the analysis of the SPAC structure, warrants are issued in the IPO Units as well, i.e., instruments that give the holder the right to subscribe for new SPAC or post-merger company shares after a lock-up periods. These are considered "kickers," or investment incentives. Sponsors also subscribe to warrants at the time of the SPAC IPO, which are regarded as a greater involvement of them in the project, the proceeds of which are used to pay underwriting fees. The strong assumptions that have been devised to calculate the dilutive effects on the sample is as follows, not knowing the behavior of the warrants holders and intending to estimate the maximum possible dilutive effects in the sample, a scenario has been formed in which all warrants of redeeming shareholders and Sponsors only, related to shares of NewCo listed below $18 (threshold for redemptions of such instruments), would be exercised after the business combinations. Data on the number of warrants have been extracted from IPO prospectuses, while the number of outstanding shares of NewCo on the day after the merger (value taken as a reference), have been extracted from Bloomberg. The analysis reported an average dilution value of 8,4%, with peaks of 10,5% in cases of higher redemptions rates, which put non-redeeming shareholders in a minority position in the target, making them even more subject to dilution.
- Founder Shares. As for the shares entrusted to the Sponsors at the founding of the SPAC, although they do not cause an increase in outstanding shares after the merger, since they are established in a fixed number, they run into the problem of having essentially no monetary value, due to the Sponsors' low investment (about $25,000 on average). This has two specific consequences: the first is a decrease in the dollar value per share of non-redeeming shareholders in the face of high rates of redemptions, since, as the trust account decreases, about 20% of Founder Shares make no monetary contribution. The second consequence is that the participation of Sponsors, again in the face of high redemptions (which has been understood to be the main detrimental element in SPAC investments), increases to very high values having already a large stake, compared instead with the participation of non-redeeming shareholders. From the analysis of the data collected from the IPO prospectuses of the SPACs in the sample, it has been possible to observe that, on average after redemptions, the shares of

non-redeeming shareholders lose about $1,23 per share compared to the entire SPAC's shareholding (which includes Founders), caused by a reduction in the trust account. This, intuitively, negatively affects the merger since the SPAC has less value to allocate to the target. Moreover, considering that on average the Sponsors' stake rises from about 22% to 42,29% after redemptions, it has been possible to estimate average dilutive effects of 14,66%, as loss of stock value for non-redeeming shareholders.

In the last chapter, as will be summarized shortly, it has been noted the enormous impact these dilutive effects had on the costs incurred by the shareholders in the sample under analysis.

Finally, the second chapter has been concluded with the analysis of returns for non-redeeming shareholders and Sponsors, in order to lay the foundation for the trade-off analysis in the third chapter. Returns have been computed, for both of them, by calculating daily returns on a company-by-company basis using the ROI formula, which is the difference between the amount earned and the investment made, all divided by the investment. Earnings, on their behalf, have been computed by multiplying the shares owned by non-redeeming shareholders and Sponsors, times the daily price observed in NewCo (prices that have been appropriately extracted from Bloomberg for all companies and for all days of the sample periods). In addition, returns on warrants have also been calculated, for a day set as the end of the lock-up period, on which it is assumed that all these instruments are exercised, obviously taking into consideration the $18 a share threshold for redemptions of the latter. Investments, on the other hand, have been estimated as follows: for shareholders, by referring to the investment in SPAC Units, so as to weight the returns with the threshold of $10 per Unit paid at the time of the SPAC IPO; for Sponsors, on the other hand, both investments in Founder Shares and the purchase of warrants at the time of the IPO have been considered, as outlined in the section on dilutive effects. Finally, after calculating the ROIs for non-redeeming shareholders and Sponsors of all companies in the sample, the mean, median, and percentiles have been derived in 4 reference periods: 1 day after the merger, 1 month after (assumed as the end of the lock-up period in which both warrants are exercised and typically Sponsors are allowed to divest their holdings), 1 month after and until April 20, 2022, the last day of analysis.

The evidence extracted such analysis can be summarized as follows: the gap, in terms of returns, between non-redeeming shareholders and Sponsors, is truly exorbitant. Effectively, the exercise of warrants, assumed on a given day (for the purpose of setting up a notional scenario, following the principle of dilution calculation), turned out to be more convenient for shareholders, given that Sponsors invest millions of dollars only for such instruments and considering the redemption

threshold of warrants at $18 per share. However, the problem falls in the fact that, non-redeeming shareholders are much more sensitive to the price level of NewCo than Sponsors. In fact, the former invest $10 a share essentially in the SPAC, so if the target, after the merger, is not traded at higher prices, they cannot make profits. Sponsors, on the other hand, although they may suffer losses from warrants, invest very small amounts for Founder Shares, and once these are converted into NewCo shares, they may experience insane profit margins. The average value of returns for them, observed one year after the business combinations in the sample, amounts to more than 4000% and more than 2600% until recent times, figures almost unimaginable. For non-redeeming shareholders the matter is different. Although it has been possible to observe positive returns (such as a +49% one year after the mergers), these values must then be compared to the actual costs incurred (analysis made in chapter three). Moreover, in most cases, the returns observed up to April 2022 are negative, which does not bode well for the success of the business combination. In addition, a specific analysis of returns for non-redeeming shareholders of SPACs experiencing high redemption rates, has also been provided in the paper. In those cases, negative returns have almost exclusively been observed, which effectively makes valid the assumption that the right to redeem SPAC shares is actually a source of high risk for those who decide to get involved in the merger project.

The third and final chapter has been the culmination of this study, with the aim of finally investigating the trade-off between costs and returns for non-redeeming shareholders of SPACs, finally comparing the results to those of the traditional IPO investment sample. The structure of the latter session has been built by first introducing the causes and effects of the "SPAC bubble," which had an influence for some companies in the analyzed sample. After that, the analysis methodology and the sample of traditional IPOs have been introduced, before delving into one of the most important sections of this study, the cost analysis for non-redeeming shareholders of SPACs and traditional IPO investors. Finally, after a digression on the returns observed in the sample of the latter, trade-offs have been investigated, drawing conclusions on the empirical evidence.

Regarding the "SPAC bubble", which has been identified in the period between the third quarter of 2020 and the first quarter of 2021, the main causes and consequences surveyed are listed below.

- *Causes*: the outbreak of the Covid pandemic generated global economic frictions, causing an increase in financial market volatility, resulting in the collapse of major stock indices and an increase in the cost of debt (triggered in turn by an increase in interest rates on government debt and Credit Default Swaps). SPACs in turn, began to be seen as a safer investment vehicle for both investors in private companies (due to redemptions mechanisms) and the targets

themselves, thanks to the M&A processes inherent in the structure of shell companies (less prone to volatility than an IPO). In addition, Sponsors have increasingly shifted their focus to innovative and in vogue sectors, such as electric automotive, energy, healthcare, or media.

- *Consequences*: the repercussions of such situations can be seen as a kind of "momentum" for investments in SPACs. In addition to an increase in listing prices recorded in the "bubble period," for both SPACs and post-merger NewCo (in the sample, companies merged from July 2020, experienced a +46% increase in trading price, through February 2021), decreases in redemptions rates have also been noted; companies merged in the "bubble period" experienced about 30% fewer redemptions than companies whose business combination dates back to the pre-bubble. Finally, as a result of such "euphoria", PIPE Investments also increased, from about $263 million, to about 500, which also benefited deal closing.

The bubble was then set to fade in the dawn of 2021, both due to a re-stabilization of market volatility levels (in which traditional IPOs gradually recovered market share) and increased scrutiny by regulators such as SEC in the US and ESMA in Europe, in order to strengthen controls and sanctions for investor protection on disclosure.

Following the bubble analysis, the traditional IPO sample has been introduced, consisting of 45 companies, specifically selected to be treated as comparable with the SPAC merger sample. The selection criteria have been: IPO proceeds in line with the size of the SPAC business combinations; same listing market (the Nasdaq); same reporting period, so IPO occurred from January 1, 2019, to December 31, 2020; and finally, a selection has been made to obtain an alignment of the operating sectors of the companies about to list as well. Data concerning IPOs, in terms of listing prices and underwriting, have been extracted from Bloomberg, while information about the instruments issued, and their terms, have again been extracted directly from the prospectuses published by the companies on SEC's EDGAR database. This section also explained the analysis methodologies with respect to the returns on investments in traditional IPOs, which have been exactly the same as those employed for the returns of non-redeeming shareholders outlined in the second chapter (thus calculation of daily ROIs for shareholders of each company, then calculation of mean, medians, and percentiles for the 4 reference periods analyzed, concluding with estimates over the entire sample). The only difference falls in warrants, since, in the sample, for private companies listed with IPOs, no warrants issues have been found, probably because of the size of such transactions; indeed, in the United States, warrants in traditional IPOs are generally issued against estimated larger raising volumes, perhaps several billion dollars. Of course, this also had implications for cost calculations, as there has been no evidence of dilutive effects.

The next step has then been the analysis of the costs incurred by non-redeeming shareholders of SPACs and traditional IPO investors, which are crucial to the final calculation of empirical evidence on trade-offs and thus the actual profitability of such investments. A summary of the main findings related to the cost investigation is then given below.

- *Non-redeeming SPAC shareholders costs*. The analysis of such costs is more complex than that of returns. The reason lies in the fact that, in this case, by costs, is not meant the amount paid by shareholders for SPAC Units, but rather the elements capable of affecting the final performance of the investment. In this regard, it has been assumed that, for these investors, the actual cost structure incurred includes the dilutive costs observed in the sample (reported in chapter two) and an additional element that has been noticed in the course of the analysis, namely, a percentage of the SPAC's IPO underwriting fees, being paid out with trust account proceeds, since the Sponsors' investments in warrants have often not been sufficient to pay off the full amount. Considering then that the redeeming shareholders receive back their entire investment, it is evident that these costs are also borne indirectly by the non-redeeming shareholders, due to the resulting erosion of the trust account. On average, from the sample, it has been noted that, as a result of redemptions (which remains the common thread in the SPAC cost structure), outstanding underwriting fees had an impact of 4.88%, reduced to 1.48% in the 25th percentile, related to cases with lower share redemptions. Then adding these sums to the dilutive cost estimates, observed in chapter two, gave an average cost of 27.92%, a very high value indeed. Of course, in cases where there have been few shares redeemed before the merger, the actual observed costs drop sharply to about 3%. This emphasizes even more the level of risk, for non-redeeming shareholders, backing the peculiarity of redemptions in SPACs.
- *Traditional IPO investors costs*. In this case, the estimation of costs has been more straightforward, both because there has been no evidence of warrants issuance (and thus potential dilution) and because the instrument of redemptions does not exist in an IPO. The costs analyzed then concerned advisory fees, including underwriting fees (paid, of course, to the Investment Bank responsible for the Book Building phase), selling concession and management fees. In addition, costs related to SEC and Nasdaq filings have also been calculated, which are mandatory to be listed and operate as a public company, and also impacting the share subscription of a traditional IPO (although their impact has been quite marginal). The final result showed an average total cost for the sample of 7.63%, significantly lower than those just reported for SPACs, but with a lower variance (the 25th percentile is

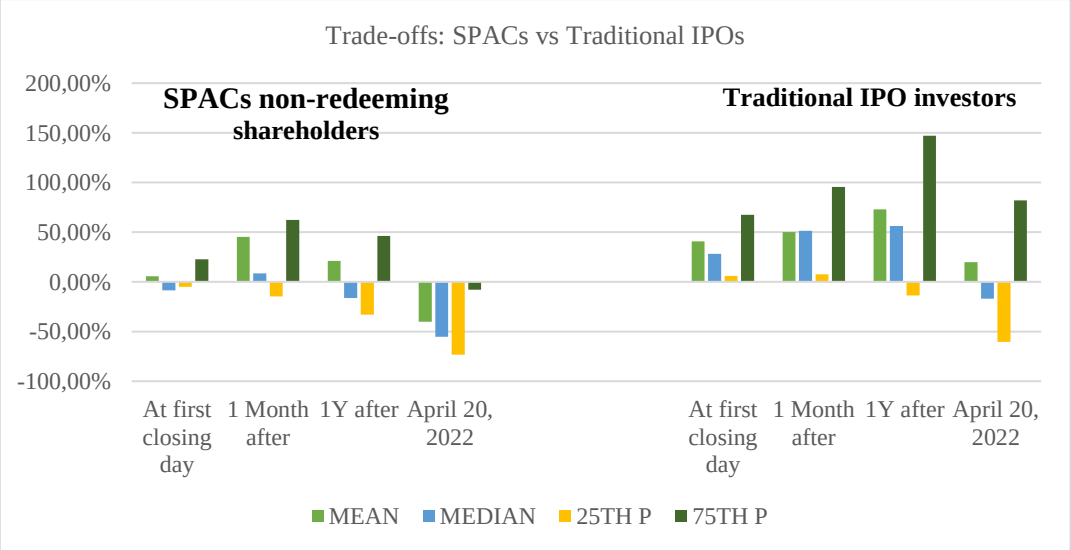
5.16%), obviously due to a more linear and standard structure of such transactions, compared to the De-Spacing phase.

The last step of the paper has therefore been the investigation of the trade-off between costs and returns for both non-redeeming SPAC shareholders and investors in traditional IPOs.

In the last paragraph of the third chapter, naturally, evidence about the returns on the sampled traditional IPO investments has been first reported, using the methodology aforementioned, then calculating ROIs by having the companies' daily prices (for the entire time frame analyzed), extracted from Bloomberg. The results, not surprisingly, have been significantly better than the post-merger returns of non-redeeming SPAC shareholders. After one year from IPOs and through April 2022, the returns have been about +80% and +27%, respectively, and very few have been negative returns, mostly related to the 25th percentile.

At this point, it has been possible to analyze the **trade-offs**, whose final representative graph is shown below.

Figure 13 from the paper: Final comparison. Trade-off between costs and returns.



Source: Personal processing.

The results scouted out are already quite clear by looking at the graph. Returns for non-redeeming SPAC shareholders, observed up to April 20, 2022, are about -40%; for investors in traditional IPOs, on the other hand, they are about +19%. In addition, it is also possible to notice a certain constancy of returns over the time frame analyzed for the latter.

Finally, at the end of the last paragraph in the paper, it has been pointed out that the trade-off for SPAC Sponsors has not been included in the graph. The reason is very simple, returns for the Sponsors in the sample, reported at the end of the second chapter, have been so high that, a comparison with the costs they have incurred (mainly Advisory Fees), would make basically no sense. The gap between Sponsors and non-redeeming shareholders in SPACs is quite glaring, which raises doubts about whether such special-purpose corporations, despite regulatory evolutions since 1990s in the U.S., are still a much more profitable (and less risky) vehicle for the former rather than the latter.

At this point, at the end of the paper, it has been possible to outline the **main findings** of the study, briefly summarized below:

- It is evident that the cost structure is more onerous for non-redeeming shareholders of SPACs, whose main cause, of course, lies in capital dilution, the effects of which are abruptly increased in the case of high redemptions rates.
- The returns of companies listed through traditional IPOs have been much more stable, probably because such companies were financially and operationally more prepared to go public, while many targets of SPAC mergers are presumed to have acted prematurely, probably driven by the euphoria of the momentum. Evidence of this is share prices, for prolonged periods, well below the $10 threshold paid by investors for SPAC Units.
- The euphoria of last year's SPAC boom seems only to have highlighted a need for more regulation of the SPAC structure, particularly on the use of projections and thus disclosure requirements for shareholder protection. Not surprisingly, the SEC and ESMA have recently increased their scrutiny and sanctioning activities.

Finally, to conclude, **suggestions for future research** have also been reported, based on some limitations of the study just completed, in order to make the analysis even more consistent with the actual economic circumstances related to such financial phenomena.

The first point concerns the assumptions in the second chapter regarding the exercise of warrants, which create dilution. A future study might estimate the extent to which such warrants alleviate the onerous cost structure for non-redeeming shareholders when not exercised (although it is very complicated to identify the choices of holders of such rights over time). In addition, another critical element related to warrants has also been pointed out in the findings for traditional IPOs. Having noticed that no issuance of warrants has been found in the sample analyzed, a future study might also specifically focus on the dilutive effects caused by these instruments in companies listed through

IPOs, instead of through SPAC mergers, and then make a final comparison on the dilutive effects. A final suggestion then, concerns expanding, in the future, the time frame of analysis, perhaps to a decade or more. In this study, a medium-term analysis has been performed; an investigation of a longer-lived sample, might provide a way to check the profitability of investments of non-redeeming shareholders even in the long term, also considering the recent impact, in addition to Covid, of the war in Ukraine. Nevertheless, the analysis just concluded has been able to provide evidence about the low profitability of such investments when compared to costs, underscoring the critical issues related to redemptions rights.