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**Do SPACs create value? A comparative analysis
with after listing IPOs performance**

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ABSTRACT

In view of the increased interest demonstrated by companies and financial markets in SPACs over recent years, this research attempts to assess whether this specific listing route outperform or underperform traditional IPOs in the post-listing phase. Given the research methodology applied by Gleason et al. (2006), Datar et al. (2012), and Kolb and Tykvová (2016), the empirical analysis utilizes both Wilcoxon rank-sum Test and t-Test. Additionally, it implies multivariate regression analysis for all the dependent variables studied. All the statistical methods are developed over a timeframe that considers three years after company's listing. The results from the analysis of 72 SPAC IPOs and 650 traditional IPOs listed in different countries between 2010 and 2020 indicate that the decision between opting for an IPO or a SPAC listing carries significant weight, primarily due to the observable trend where IPOs tend to outperform SPACs concerning market-based multiples within three years after becoming public. Factors influencing performance metrics like EBITDA Margin, ROIC, and ROE are different, including considerations of leverage and industry impact. Interestingly, there are no consistent and statistically significant distinctions between IPOs and SPACs regarding ROE. When examining size-based variables such as Operating Cash Flow and Total Assets for companies listed via traditional IPO and SPACs, noteworthy patterns emerge. However, these differences do not achieve statistical significance. This outcome may be attributed to the recent surge in SPAC listings, which has attracted companies exhibiting size characteristics more in line with those traditionally associated with IPO firms. Consequently, this study refrains from asserting that IPO-listed companies are substantially larger than their SPAC-listed counterparts, contrary to prior research findings. SPAC companies tend to carry more debt as stated in the previous literature. Moreover, leverage's influence on financial performance is intricate, and its effects vary across different market multiples. At the end, the results derived from both descriptive statistics and multivariate regressions provide valuable insights into the performance of IPOs and SPACs, with IPOs demonstrating a more consistent advantage. Nonetheless, it is essential to acknowledge and consider all the inherent limitations within the model.

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LIST OF ABBREVIATIONS

AMEX – American Stock Exchange

DLP – Direct Listing Process

EBIT – Earnings Before Interest and Taxes

EBITDA – Earnings Before Interest Taxes Depreciation and Amortization

EV – Enterprise Value

GAAP – Generally Accepted Accounting Principles

IAS – International Accounting Standards

IFRS – International Financial Reporting Standards

IPO – Initial Public Offering

NASDAQ – National Association of Securities Dealers Automated Quotation

NDA – Non-Disclosure Agreement

NYSE – New York Stock Exchange

OLS – Ordinary Least Squares

OTC – Over-The-Counter

OTCBB – Over-The-Counter Bulletin Board

PE – Private Equity

PIPE – Private Investment In Public Equity

RM – Reverse Merger

ROA – Return On Assets

ROE – Return On Equity

ROIC – Return On Invested Capital

SEC – Securities and Exchange Commission

SPAC – Special Purpose Acquisition Company

SU – Self Underwritten

UK – United Kingdom

US – United States

VC – Venture Capital

WMW – Wilcoxon-Mann-Whitney

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INTRODUCTION

When considering the possibility to become listed, companies weigh several factors that may influence their decision to transition from a private to a public status. These determinants can be categorized into financial, strategic, and organizational.

Financial considerations play a significant role in the decision-making process of going public. By offering shares to the public, companies can raise substantial capital to finance various initiatives such as expansion plans, research and development activities, acquisitions, and debt repayment. The injection of funds through the listing process can provide the necessary resources to achieve growth objectives that may have been difficult to attain solely through internal financing or private funding sources. Going public enables companies to establish a liquid market for their shares, facilitating future capital-raising activities. In fact, publicly traded companies can access additional funding through secondary offerings, such as follow-on equity issuances or debt offerings. These opportunities enhance the company's financial flexibility and allow for the execution of future strategic plans.

Strategic considerations also influence a company's decision to go public. Increased visibility and enhanced brand recognition are among the benefits that can arise from a public listing. Public companies often enjoy greater exposure, media coverage, and public awareness, which can contribute to attracting new customers, business partners, and potential talent. Furthermore, a public listing can enhance a company's credibility and reputation, fostering trust among stakeholders, including customers, suppliers, and investors. Going public can also facilitate strategic partnerships and collaborations. Public companies may have increased bargaining power when negotiating with potential partners, enabling them to pursue joint ventures, strategic alliances, or licensing agreements that can bolster their competitive advantage and market position.

Additionally, a public listing may increase opportunities for mergers and acquisitions, as companies can utilize their publicly traded shares as a form of currency for transactions.

Organizational factors should not be overlooked when evaluating the decision to go public. Public listings often necessitate a rigorous examination and streamlining of internal processes and corporate governance structures. Companies are required to adhere to more stringent financial reporting and disclosure requirements, ensuring transparency and accountability to shareholders and regulatory entities. Going public can incentivize companies to implement robust corporate governance mechanisms, aligning the interests of management with those of shareholders.

Moreover, becoming publicly traded often introduces a wider range of stakeholders and heightened scrutiny from the investment community. This increased external oversight can act as a catalyst for improved operational efficiency, corporate performance, and adherence to best practices.

Prior literature mostly concentrated on IPO (Initial Public Offering), which was the most common going public route until a few years ago. Nevertheless, companies increased venturing into alternatives for accessing public markets overtime, as outlined in the first paragraph of the first chapter. One such non-traditional approach, Special Purpose Acquisition Companies (SPACs), has experienced a significant rise in popularity since 2017.

The dissertation is developed along three chapters. The first chapter discusses the development of SPACs, related with their history, as well as the mechanisms of their operation. It also inquires about the most relevant issues related to this method of listing, taking an analytical approach towards the relationships between the actors involved around SPACs. The second chapter opens with a description regarding the market situation analysed from 2010 until today. It then highlights the pros and cons in choosing this method over a traditional IPO process. The chapter concludes by unfolding the literature review, then taken up and compared with the subsequent empirical analysis. The third and final chapter, contains the research and the answers found to the question the thesis aims to highlight: do SPACs create value for companies in the years after listing? The analysis is developed by making a comparison in terms of market multiples and economic performance ratios, with the values recorded by companies listed through traditional IPO, and those registered by SPACs, over a time horizon of three years from the date of listing. Drawing on what has been done in the past literature by Gleason et al. (2006), Datar et al. (2012), and Kolb and Tykvová (2016), the research employs both the t-Test and the Wilcoxon rank-sum Test. To further strengthen and deepen the analyses, the methodology employed involves the successive use of multivariate regressions, performed on a year-by-year basis for each dependent variable identified, through the use of multiple independent variables. The study is conducted on a sample of 72 SPACs and 650 IPOs listed between 2010 and 2020, in different countries around the world.

CHAPTER 1

COMPREHENSIVE ANALYSIS OF SPECIAL PURPOSE ACQUISITION COMPANIES: BACKGROUND AND IN-DEPT INSIGHTS

1.1 Different routes to become a listed company

Companies have two primary methods to make their shares available for trading on the public exchange: the traditional Initial Public Offering (IPO) and the Direct Listing Process (DLP). In a traditional IPO, the company generates new shares, which are then underwritten and offered to the public for purchase. Conversely, some companies choose to pursue a direct listing as a means of going public. With a direct listing, the company does not issue new shares; instead, it facilitates the sale of existing outstanding shares directly to the public, without involving an underwriter.

Two methods that have harvested considerable attention are Reverse Merger (RM) and Special Purpose Acquisition Company (SPAC). These approaches offer unique opportunities for privately held companies to achieve public status and raise capital, avoiding the more traditional IPO and DLP.

A Reverse Merger involves a privately held company acquiring a publicly traded company to gain access to the public markets. By merging with an already-listed entity, the privately held company becomes a majority shareholder in the resulting combined entity.

On the other hand, SPACs have emerged as a distinct vehicle for companies seeking to go public. A SPAC is a shell company that raises capital through an IPO with the sole purpose of acquiring or merging with an operating company within a specific timeframe, typically two years. Unlike a traditional IPO, where the operating company goes through the lengthy and rigorous process of going public, a SPAC provides a quicker route to the public markets. Investors in the SPAC contribute funds, and once a suitable target company is identified and the merger is completed, the operating company becomes publicly listed.

1.1.1 Initial Public Offering

The most common method to become a listed company is through an IPO process. An Initial Public Offering is a process wherein a privately held company issues its stocks to the general public for the first time. This offering provides companies with an opportunity to raise capital from public investors. The capital raised is typically allocated towards debt repayment, company growth initiatives, increasing public awareness, or allowing existing shareholders to sell some or all of their shares. The

IPO process enables initial investors to realize a return on their investment, while also providing secondary investors with an opportunity to purchase shares of the company.

There are two different options to be pursued structuring an IPO: the primary offering and secondary offering. A primary offering signifies the first-time release of stock to the public by a private company, which infuses new funds into the firm.

On the other hand, a secondary offering refers to the sale of a substantial quantity of shares of a publicly traded company on the secondary market. It involves the transfer of ownership for existing shares and does not result in dilution of the shares held by current shareholders. This type of offering occurs when private shareholders, executives, or other early investors associated with the company opt to sell their shares. It is important to note that the issuing company does not directly gain from the sale of these shares. However, the transaction enhances the liquidity of the company's shares in the market.

In general, an Initial Public Offering may involve both the two components (Skaff, 2020).

The conventional process of an IPO initiates with the step of selecting an investment bank (the global coordinator) or a pool of investment banks (the joint global coordinators) that will collaboratively work as underwriters with the company throughout the entire process. The lead underwriter assembles an underwriting syndicate, consisting of investment banks, which are then responsible for selling shares to individual and institutional investors. Once the underwriters are chosen, the due diligence process and regulatory filings works start.

Subsequently, the involved parties establish their mutual commitment. There are two primary types of underwriting arrangements that can be agreed: firm commitment and best efforts agreement. In a firm commitment, the issuer sells the entire issue to an underwriting syndicate, headed by the lead underwriter, and then the syndicate resells the shares to the public. The underwriters earn on the spread between the price paid to the issuer and the price received from investors when the stocks are sold. This agreement ensures the company a predetermined amount of capital from the offering, since the syndicate bears the risk of not being able to sell the entire issue. On the other hand, a best efforts agreement does not provide a fixed return guarantee, the underwriters make their “best effort” to sell securities at an agreed-upon offering price, but the company bears the risk of the issue not being sold.

Once the type of underwriting is agreed, the issuing company enters into an engagement letter with the underwriter. This letter binds the company to reimburse the investment bank for all the expenses incurred during their provision of services. Moreover, the engagement letter includes the gross spread,

which indicates the profit derived from the transaction by calculating the difference between the price at which the shares are sold to the public and the price paid by the underwriter.

The next stage in the IPO process involves the letter of intent, which serves as a formal commitment from the investment bank to undertake all necessary actions for the issuance. Simultaneously, it establishes an obligation for the issuing company to disclose all relevant information to the underwriter throughout the process.

Furthermore, the parties reach an agreement on terms that grant the underwriter an overallotment option of up to 15%. This overallotment option, commonly referred to as the greenshoe option, empowers the underwriter to issue an additional amount of 15% of the entire emission. The purpose of this feature is to stabilize the price of the IPO in situations where demand for the company's shares experiences fluctuations. Typically, if the market price of the stock falls below the offer price, the underwriters may incur losses. In such cases, they can purchase shares at a lower price, thereby stabilizing the market price. This repurchases action reduces the supply of shares available on the secondary market, resulting in increased demand and subsequently driving up the price. Consequently, heightened demand can lead to a surge in the market price of the stock. On the other hand, if the market price rises above the offer price, the underwriter cannot repurchase shares at the prevailing market price without incurring losses. This is where the greenshoe option becomes advantageous. By exercising the greenshoe option, the underwriter will place a greater number of shares and the issuer's share structure will be changed accordingly. From this point of view, the exercise of the greenshoe represents an additional method of remuneration for the underwriters, since the proceeds of the operation result from the total number of securities placed on the market (FTA Online News, 2006).

The registration process involves the submission of relevant documentation to the competent authorities for their review and approval. This comprehensive filing provides with essential information regarding the IPO, including financial statements, details about the management team, insider ownership, existing and potential legal matters, as well as the intended ticker symbol to be assigned.

Accompanying the registration statement is the prospectus, which serves as a summary document provided to potential investors who either purchase or express interest in acquiring the newly issued security. Additionally, the company's private filings are included as part of the registration submission. These private filings offer to the authority the access to historical information about the company that has not been disclosed to the public.

Once the IPO is approved, the process is almost completed. The next stage involves determining the effective date, which marks the day when the security will be made available to the public on the selected exchange. In preparation for this, the underwriter and the company thoroughly evaluate the collected information and collaboratively determine the price per share and the precise number of shares to be sold. The price set for the IPO determines the amount of capital that the issuing company will raise through the offering. Several factors come into play when establishing the IPO price. These include the insights and outcomes obtained during the roadshow, prospects, and expectations for the company, as well as the prevailing conditions of the market.

After the stock has been issued, the underwriter assumes various key responsibilities, which encompass delivering analyst recommendations, conducting after-market stabilization activities, and fostering increased demand for the stock.

1.1.2 Direct Listing Process

The Direct Listing Process has gained significant attention from companies, investors, and shareholders, particularly due to notable instances such as Spotify and Slack recently opting for this approach to go public. In a direct listing, a company can list its stock on the public market without undertaking the conventional underwritten route.

Unlike a traditional IPO, specifically the primary IPO, a direct listing could be pursued only through the resale of securities held by current shareholders rather than the issuance of new shares. In a direct listing, prospective buyers have the possibility to purchase shares directly from willing existing shareholders who wish to sell their stake.

An additional fundamental difference is that there is no predetermined quantity of shares available, and there is no set IPO price. This notable distinction lies in the provisions concerning pricing. In a direct listing there is no price range specified on the cover of the preliminary prospectus, commonly known as the "red herring" (Pitts et al., 2020). Instead, the cover page of the preliminary prospectus outlines the method by which the opening public price will be determined. The prospectus provides details on how the opening price is established based on the buy-and-sell orders gathered by the stock exchange from broker-dealers and how the market for the sales will be structured. Relevant information may include the recent high and low prices from private transactions involving the company's stock sale. Notably, in the direct listings of Spotify and Slack, the stock exchange reference price and opening price were determined only after the registration statement was declared effective (Spotify Technology S.A., Prospectus and Comment Letter, 2018, February 28; Slack Technologies Inc.,

Prospectus and Comment Letter, 2019, April 26). In such cases, reference prices were linked to private secondary trades and served as a reference point for potential investors.

Comparable to a conventional IPO, the DLP involves several stakeholders and participants who play crucial roles in preparing the necessary filings, coordinating with the stock exchange, determining the stock price, and managing the overall process. In a direct listing, since there is no underwritten offering, the role of underwriters is absent; however, investment banks play a significant role as financial advisors. Similar to an IPO, investment banks are typically involved in tasks such as drafting and reviewing the prospectus, assisting in the creation of materials for potential investors, and conducting the due diligence process.

Since there is no underwritten offering or book-building process, investment banks do not have a direct role in soliciting interest or evaluating aggregate demand. Unlike in an underwritten IPO, where investment banks are responsible for equity investor engagement, in a direct listing, the company itself takes the lead in conducting investor outreach. Investor relations and senior management within the company play a crucial role in this process. Companies like Spotify and Slack organized online and public "investor day" events (Spotify Technology S.A., Investor Day, 2018; Slack Technologies Inc., Investor Day, 2019), which served as a means to educate both existing and potential investors. While investment banks may offer assistance in preparing the content for these events, they must not be involved in running the engagement and investor education processes.

While a direct listing presents an alternative approach to the traditional IPO, it is useful to carefully evaluate the similarities and differences between the two. Several factors need to be considered, including:

- i. Capital needs: assessing whether the company requires additional capital;
- ii. Shareholder base: evaluating the diversity of existing shareholders and their willingness to sell;
- iii. Marketing strategy: considering the advantages of a targeted marketing campaign typically associated with an IPO, appealing to potential IPO investors;
- iv. Book-Building and stock allocation: balancing the benefits of traditional book-building and stock allocation methods in an IPO versus the dispersed buyers and sellers in a direct listing;
- v. Public profile and analyst education: considering the existing public profile of the company and the necessity or advantages of an extensive equity research analyst education process, commonly employed in a traditional IPO;

- vi. Fees and Transaction Costs: assessing the associated fees and transaction costs involved in each process.

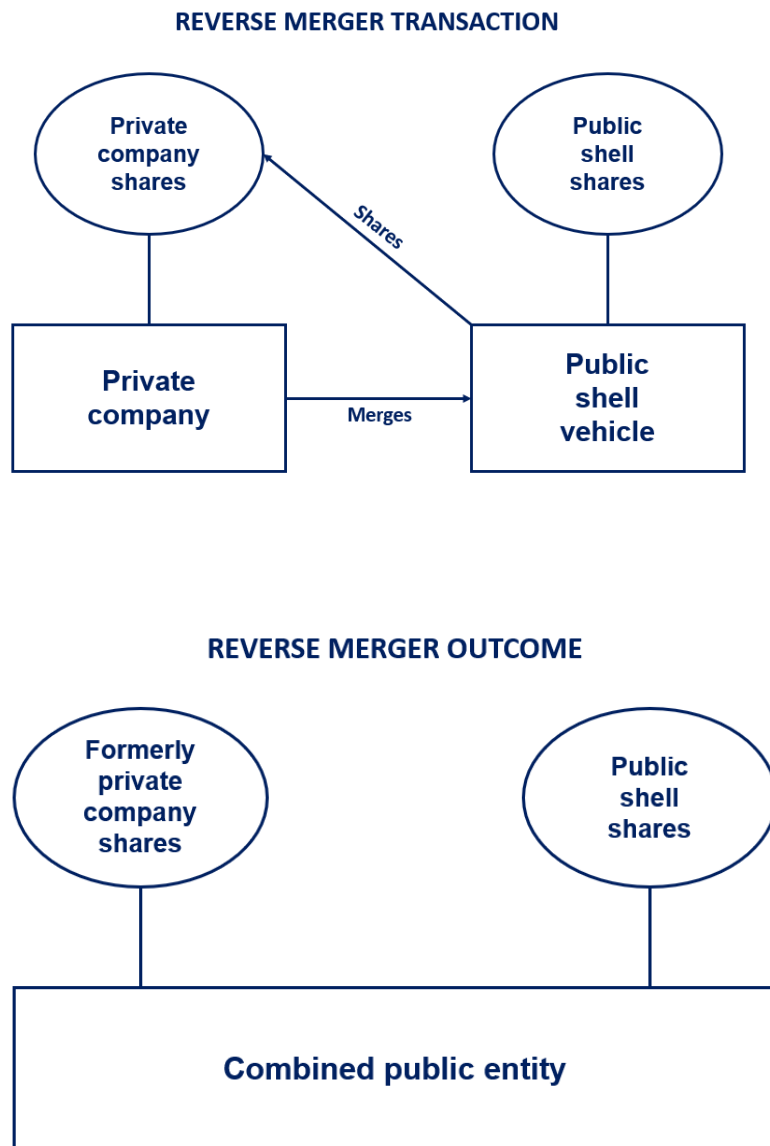
In general, companies that are well-established and possess a large amount of capital tend to be more suitable candidates for a direct listing. Such companies may not strictly rely on the capital-raising aspect of an IPO and have an established business model, as well as investor base to support trading upon listing (Pitts et al., 2020). While there are additional factors and considerations, the decision ultimately rests on the unique circumstances, objectives, and capabilities of the company in navigating either process.

1.1.3 Reverse Merger

Reverse Mergers offer an alternative way for private companies to access the public markets, bypassing the costly and time-consuming registration process associated with an IPO. Typically, public shell companies serve as the vehicles for executing Reverse Mergers. The Securities and Exchange Commission (SEC) defines shell companies as entities with minimal or no operations and assets. Some shell companies maintain SEC filings, with their shares registered on public exchanges, primarily the Over-the-Counter Bulletin Board (OTCBB) (Pollard, 2016).

The transaction structure entails the public shell assuming the role of the legal acquirer and accounting acquiree, while the private operating company assumes the position of the legal acquiree and accounting acquirer. The public shell issues a significant number of shares to the shareholders of the private company in exchange for their shares in the private company. To ensure the shareholders of the private company retain controlling ownership of the consolidated firm following the acquisition, an adequate number of shares of the legal acquirer are issued.

Figure 1: Reverse Merger transaction and outcome



Source: Personal elaboration

Subsequently, consolidated financial statements must be presented. Although these financial statements will be attributed to the public company, they essentially represent a continuation of the financial statements of the private company/accounting acquirer. In some instances, Reverse Mergers are coupled with a Private Investment in Public Equity (PIPE) financing. This involves a private placement of shares, wherein investors commit to purchasing a specified number of shares from the company at a predetermined price.

1.1.4 Special Purpose Acquisition Company

The past decade has seen SPACs become increasingly popular alternatives to go public. A Special Purpose Acquisition Company is a unique form of a publicly traded investment vehicle that raises capital through an Initial Public Offering with the sole purpose of acquiring an existing private company within a specified timeframe. SPACs provide an alternative route for private companies to access public markets, bypassing the traditional Initial Public Offering process. The structure of a SPAC involves a blank-check company that pools funds from investors, and once a suitable target is identified and acquired, the acquired company merges with the SPAC, allowing it to become a publicly listed entity.

SPACs are established by a group of individuals known as "sponsors" who also provide a limited amount as of initial capital, typically between the 3-5%, invested in warrants. These SPACs are subsequently offered to the public through an IPO, structured in a way that results in the sponsors and the public investors, also called approximately 20% and 80% of the shares, respectively.

After the completion of the IPO, the management team of the SPAC undertakes the mission of identifying a suitable target company and effectuating a "business combination" with it. This combination can take various forms, including a merger, an acquisition, or an asset acquisition.

SPACs have a predetermined lifespan, typically around two years. If, within this timeframe, a suitable target company cannot be identified or if the support of the shareholders cannot be obtained for the proposed business combination, the SPAC must be liquidated, and the funds invested by the public investors must be returned proportionately based on their respective shareholdings. Conversely, if the business combination is successfully executed, the SPAC will continue its operations as a regular publicly traded company.

As I stated above RM and SPAC are alternative financing methods that allow private companies to become publicly traded. Each method presents distinct benefits and limitations. The Special Purpose Acquisition Company operates as a publicly listed entity specifically designed to raise funds through an Initial Public Offering with the primary objective of acquiring a private company within a predetermined timeframe. On the other hand, a traditional RM involves two existing companies, without all SPAC distinctive features, where a private company acquires a public shell company. One key distinction between SPACs and RMs is that SPACs offer a significant cash injection and valuable guidance to the private company through a proficient management team, whereas RMs do not provide such financial support and expertise (Dimitrova, 2017). Additionally, RMs typically entail lower costs and a faster process compared to SPACs, however, they may be associated with reduced regulatory

scrutiny and limited information availability for investors. On the other hand, SPACs tend to provide investors with greater confidence in the financial stability of the company, as they undergo more comprehensive due diligence before being listed.

The aim of this chapter was to give an introduction about the four different routes companies can follow to be listed. Considering SPACs distinctive characteristics, as well as its advantages and the disadvantages, that will carefully be explicated further in the elaborate, the purpose of this study is to empirically determine if this method is able to effectively create value for companies after the IPO.

1.2 SPAC origins and history

1.2.1 Blank check companies and rule 419

The model of today's SPACs takes its origins from that of the blank check companies which gained notoriety due to a series of scandals involving fraudulent activities targeting retail investors in the 1980s. These companies issued penny stocks¹ that were traded on secondary markets with limited public oversight. Within this framework, the investors in blank check companies entrusted their capital to brokers to invest it in a completely discretionary manner in M&A transactions deemed profitable. It is intuitable, however, how the absence of rules prepared to protect investors facilitated the use of such companies to carry out fraud and deception to the detriment of savers.

The widespread fraudulent activities in the penny stock market during that time led in 1990 to the implementation of the Securities Enforcement Remedies and Penny Stock Reform Act, also known as the Penny Stock Act, by the US Congress, in which it was requires the SEC to prescribe rules to extend regulatory authority over persons engaged in penny stock activities (Congress. Gov., 1990). These regulations aimed to enhance the regulation of securities offerings by penny stock companies, introducing stricter oversight and protective measures for small investors. It was in particular Rule 419 that marked a substantial downsizing in terms of quantity of blank check companies in the market (Garramone, 2020).

¹ A penny stock typically refers to the stock of a small company that trades for less than \$5 per share. Though some penny stocks trade on large exchanges such as the New York Stock Exchange (NYSE), most trade via over-the-counter (OTC) transactions through the electronic OTC Bulletin Board (OTCBB) or through the privately-owned OTC Markets Group. (CFI Team, 2019).

Rule 419 posed challenges for legitimate blank check issuers, particularly with regard to PSRA section 505, which imposed restrictions on penny stock investors and liquidity (Murray, 2017). Notable provisions were introduced to regulate the handling of capital raised through public offerings. These provisions mandated that the funds obtained from the offering be held in an escrow account, which served as a designated bank account. Similarly, it was required that the securities issued be deposited into a separate account within the same bank as the escrow account. The deposited funds remained inaccessible to the promoters until the time of executing the business combination, subject to obtaining investor approval. Shareholders who disagreed with the transaction were granted the right to withdraw their investment, along with the entitlement to receive the original capital amount plus interest, after deducting certain expenses.

One possible solution was to establish larger blank check companies that did not qualify as penny stocks, thereby circumventing the application of Rule 419. However, this approach carried inherent regulatory risks. A more favourable alternative emerged by creating non-penny stock blank check companies that incorporated similar safeguards to those prescribed by Rule 419. This approach mitigated regulatory risk while avoiding the more stringent trading restrictions applicable to penny stocks, resulting in the formation of Special Purpose Acquisition Companies.

SPACs provide comparable safeguards to Rule 419 offerings, including limitations on the use of offering proceeds, restrictions on warrant exercise prior to a business combination, and granting stockholders the right to withdraw their funding if they dissent from the proposed business combination.

Both SPACs and Rule 419 blank check firms allocate a significant portion of their funds to a trust or escrow account. In the case of Rule 419 offerings, after deducting underwriting expenses, 90% of the proceeds must be deposited in the trust account, while the remaining 10% is allocated for the purpose of identifying a suitable business combination. Similarly, SPACs also place a majority of the raised capital in a trust account. However, as SPAC issuances grew in size, a smaller portion of the public offering was necessary to cover search costs, often significantly less than 10%, resulting in a higher percentage being placed in the trust account.

Unlike Rule 419, which permits the exercise of warrants prior to a business combination, SPAC warrants can only be exercised after a business combination has taken place. This distinction is crucial in safeguarding the funds of stockholders from being appropriated by warrant holders before a business combination occurs. Additionally, it prevents warrant holders from exercising their warrants

to acquire additional voting stock prior to the business combination, especially considering that the exercise price is often lower than the liquidation value.

In addition, there are several distinctions between Rule 419 offerings and SPACs concerning business combination rules, including target size, voting, and time limits. With regards to target size, Rule 419 stipulates that the target firm's net assets must be at least 80% of the offering proceeds, whereas SPACs typically require the target firm's net assets to be at least 80% of the SPAC's net assets.

In terms of time limits, Rule 419 firms are subject to a strict eighteen-month deadline to finalize a business combination or face liquidation. On the other hand, SPAC promoters have the flexibility to set their own deadline, which can extend up to two years in some cases. Furthermore, SPACs often include extension options if a target firm has been identified but the business combination has not been completed within the specified timeframe.

1.2.2 First-generation SPACs: 1992 - 1999

In the early 1990s, small firms that did not meet the requirements for a traditional Initial Public Offering began seeking ways to access the stock market to expand their operations. It was within this regulatory and economic context that the concept of today's Special Purpose Acquisition Companies emerged, thanks to the efforts of David Nussbaum, CEO of investment bank EarlyBirdCapital Inc., and the law firm Graubard Miller.

The fundamental idea behind these new SPACs was to create an innovative investment vehicle that would surpass the limitations imposed by Rule 419, while simultaneously adhering to the regulatory framework established by the Securities and Exchange Commission (SEC) to provide investor protection. This approach aimed to gain regulatory approval and rebuild trust among investors. For instance, one important aspect was the requirement to deposit a significant portion of the funds raised during the IPO phase into an escrow or trust account.

By adopting this approach, SPACs sought to offer investors a vehicle that went beyond the constraints of traditional blank check companies, providing more regulatory oversight and enhancing investor safeguards. These SPACs aimed to create a balance between flexibility and regulatory compliance, offering a promising alternative for companies seeking to access public markets and investors looking for potential investment opportunities.

The inception of SPACs can be traced back to November 1992, with the establishment of Information Systems Acquisition Corp., the first official SPAC. Its IPO took place in 1993, priced at \$6 per share.

Although it did not meet the current standard of \$10 per share for SPACs, it surpassed the threshold of being considered a penny stock. Similar to other early-generation SPACs, it traded over-the-counter (OTC) as it was not eligible for listing on stock exchanges.

The success of Information Systems Acquisition Corp.'s IPO and subsequent merger marked the initial phase of SPAC development. Over the following years, from 1993 to 1994, David Nussbaum, launched a total of 13 SPACs, of which 12 successfully completed mergers (Greenspan, 2021).

However, the popularity of SPACs waned, as the IPO market gained momentum in the late 1990s and began offering financing opportunities to smaller growth companies through traditional IPOs, such as Amazon that went public on May 1997. This decline can be attributed to the Dot Com bubble, which diverted attention and capital away from SPACs, since during their initial rise, SPAC investors were predominantly retail customers of small investment banks who were attracted by the potential of SPAC sponsors to unearth unconventional growth companies, and this is significantly different from the nowadays investors' base. Nussbaum with EarlyBirdCapital, and other small and mid-sized investment banks, underwrote approximately 70% of SPACs as late as 2014, since bulge bracket banks entered the market only in the second generation.

1.2.3 Second generation SPACs

In 2003, the regulatory landscape for SPACs underwent significant changes. The SEC implemented rules that required SPACs completing a business combination to file all the information regarding the operating company gone public by filing a traditional registration statement (Huff, 2019).

The American Stock Exchange (AMEX) became the first exchange to allow SPACs to list, without requiring operating history, but with specific requirements such as minimum market value thresholds of \$50 million and \$75 million for larger SPACs. Moreover, SPACs were required to complete at least one merger or acquisition within three years of their IPO, valued at a minimum of 80% of the net value of the trust funds. Approval by the majority of public shareholders was necessary for the business combination, and dissenting shareholders had the option to redeem their shares for a pro-rata portion of the trust funds.

During the 2000s, SPACs achieved notable success. In 2007, SPACs reached their peak, accounting for nearly 22% of all IPOs and raising over \$12 billion (Kolb & Tykvová, 2016). Hedge funds played a significant role in this surge of capital, as retail investors were less involved. During this year Liberty Acquisition Holdings Corp. raised over \$1 billion in its SPAC IPO in December 2007,

resulting the first billion-dollar SPAC (Liberty Acquisition Holding Corp., 2017, December 6). Hedge funds played a significant role in this surge of capital, as retail investors started to be less involved.

However, the housing bubble burst and the subsequent credit crunch in 2008 had a detrimental impact on SPACs and the global economy at large. Nevertheless, NASDAQ as well as NYSE, began allowing SPACs to list in the same year. SPACs seeking a NASDAQ listing were required to hold at least 90% of the gross proceeds from the IPO in escrow. The business combination had to be completed within 36 months and valued at least 80% of the deposited funds. Approval from public stockholders and a majority of independent directors was mandatory for the business combination. NASDAQ also enforced regular market value listing criteria, with the NASDAQ Capital Market setting a minimum market value of \$50 million for new listings and the NASDAQ Global Market allowing listings for firms with a market value of \$75 million. The NYSE had its own set of requirements, including an aggregate market value of \$250 million, with at least \$200 million being publicly held. A business combination had to be concluded within three years.

Throughout the evolution of SPACs, various groups of sponsors and investment banks restated upon the legal structure. Amendments were made to the tender offer, and the per unit offer price was raised to \$10 per share, while warrants were adjusted from \$7.50 to \$11.50. During this period, EarlyBirdCapital, and in general small and mid-sized investment banks lagged in terms of innovations and the growth of average IPO proceeds per offer. By 2007, the average IPO proceeds of 74 SPACs stood at \$238 million, while EarlyBirdCapital's four offerings averaged \$66.3 million (Greenspan, 2021). The increase in the price offered per share, as well as in the warrants attracted the interest of the bulge bracket banks. By 2007, Merrill Lynch, Deutsche Bank, and Citigroup had managed SPAC offerings on a larger scale compared to the first or early second generation. It was not until 2016 that top-tier underwriters, such as Goldman Sachs and Morgan Stanley, became involved in SPACs.

1.2.4 Third generation SPACs and the SPAC boom

The third generation of SPACs, which emerged after the Global Financial Crisis, adopted a structure that is commonly seen in today's SPACs. These SPACs offered units priced at \$10 with accompanying \$11.50 warrants and utilized a tender offer. However, they still retained the requirement for a shareholder vote due to listing rules. Similar to the late-second generation, a group of hedge funds emerged as dominant players in the market.

Redemption rights in SPACs were initially limited to a portion of the initial investment (approximately 85%). However, from 2015 onwards, these rights were expanded to allow investors to redeem 100% of their initial investment, with interest, regardless of their vote for or against a transaction (D’Alvia, 2023). While public investors have the option to redeem their shares, they may still retain their public warrants in the hope of purchasing shares of the merged entity at a discounted price after the business combination. However, this is contingent upon the new shares reaching the warrant's strike price, typically set at \$11.50. If the new shares fail to reach this price, public investors will find themselves "out-of-the-money," rendering the warrants worthless. The terms of warrants can vary significantly across different SPACs, so public investors need to exercise caution. Therefore, it is crucial for public investors to stay vigilant and not miss any notice of redemption, as failing to exercise within the given period could render the warrants essentially useless.

Despite the challenges faced during the Global Financial Crisis, SPACs experienced a significant proliferation in subsequent years. They raised substantial amounts of capital, with proceeds reaching \$10.0 billion, \$10.7 billion, and \$13.6 billion in 2017, 2018, and 2019, respectively, accounting for nearly 20% of all IPO proceeds each year. The momentum continued into 2020, when SPAC offerings rise steeply, raising over \$80 billion in 248 SPAC IPOs. The trend persisted in the first quarter of 2021, with an astonishing 298 SPAC IPOs raising over \$96 billion.

1.3 Main players involved

1.3.1 Sponsors

SPAC sponsors are individuals responsible for initiating and organizing the formation of a SPAC. They play a crucial role in bringing together the necessary resources, expertise, and capital to establish the SPAC and pursue its objectives.

Promoters typically have a deep understanding of the financial markets and possess extensive experience in deal-making, such as investment banking, private equity, or consulting. They leverage their industry knowledge, networks, and reputation to attract investors and build confidence in the SPAC's potential for success.

The responsibilities of SPAC promoters encompass various key activities. They identify market opportunities and potential target companies for acquisition, conduct thorough due diligence to evaluate the suitability of potential targets, and negotiate business combinations that align with the SPAC's investment strategy. Promoters also collaborate with legal and financial advisors to ensure compliance with regulatory requirements and navigate the complexities of the transaction process.

Throughout the SPAC lifecycle, promoters actively engage with institutional investors, retail shareholders, and other market participants to generate interest and support for the SPAC. They communicate the investment thesis, strategy, and potential benefits of participating in the SPAC, effectively acting as ambassadors for the company.

Moreover, SPAC promoters commit their own capital, investing in SPAC warrants with a value of around 3–5% of the IPO proceeds, which amount is also placed into the trust account, as I cited before, to demonstrate their confidence in the SPAC's prospects and align their interests with those of the shareholders. This financial investment underscores their commitment to creating value for all stakeholders involved.

1.3.2 Investors

SPAC investors provide capital to support the formation and operation of a SPAC with the expectation of participating in the subsequent business combination.

As I mentioned earlier, from second generation SPACs, investors are typically institutional investors, such as private equity firms, hedge funds, venture capital firms, and Investment Banks. They possess significant financial resources and expertise in evaluating investment opportunities. Still nowadays retail investors may also participate in SPAC offerings, contributing to the overall investor base.

SPAC investors carefully assess the credibility and track record of the SPAC's promoters, as well as the proposed investment strategy and target industries. They conduct thorough due diligence on the SPAC's management team, past performance, and the viability of the business combination. Institutional investors, in particular, may leverage their expertise and resources to analyse the financial and operational aspects of potential target companies.

Throughout the SPAC process, investors closely monitor the progress of the SPAC's search for a target company. They assess the market conditions, regulatory environment, and the likelihood of successful business combinations. Upon the announcement of a potential target, investors evaluate the transaction's terms, financial prospects, and the potential for long-term value creation.

Investors are attracted to SPACs due to their unique investment structure and potential for high returns. By investing in a SPAC, investors gain exposure to a pool of capital held in a trust account, which is specifically allocated for the future acquisition of a target company.

Investors participating in a SPAC offering receive two types of securities: common stock, typically priced at \$10 per share, and warrants that grant them the option to purchase shares in the future at a

predetermined price, typically \$11.50 per share. The inclusion of warrants plays a crucial role in aligning the risk between SPAC sponsors and investors. By offering additional potential gains to early investors, warrants serve as an incentive for their subscription. Considering that warrants incentivize investors, since provide additional upside, the greater the number of warrants issued, the higher the perceived risk of the SPAC (Bazerman & Patel, 2021).

Once the SPAC sponsor announces a definitive agreement with a target company, original investors have the choice to proceed with the transaction or withdraw their investment and receive a refund along with interest. Even if they choose to withdraw, investors retain ownership of their warrants. This unique feature of SPACs provides investors with a risk-free opportunity to evaluate an investment in a private company.

1.3.3 PIPE financing

In the typical process following IPO, the SPAC sponsor engages in negotiations with various potential target companies regarding a potential merger. If there is mutual interest, the sponsor enters into formal negotiations with the target after signing a non-disclosure agreement (NDA). During this stage, SPAC sponsors may opt to raise additional capital by offering PIPE financing to select institutional investors. PIPE financing involves accredited or institutional investors purchasing stock directly from a public company at a price below the market value.

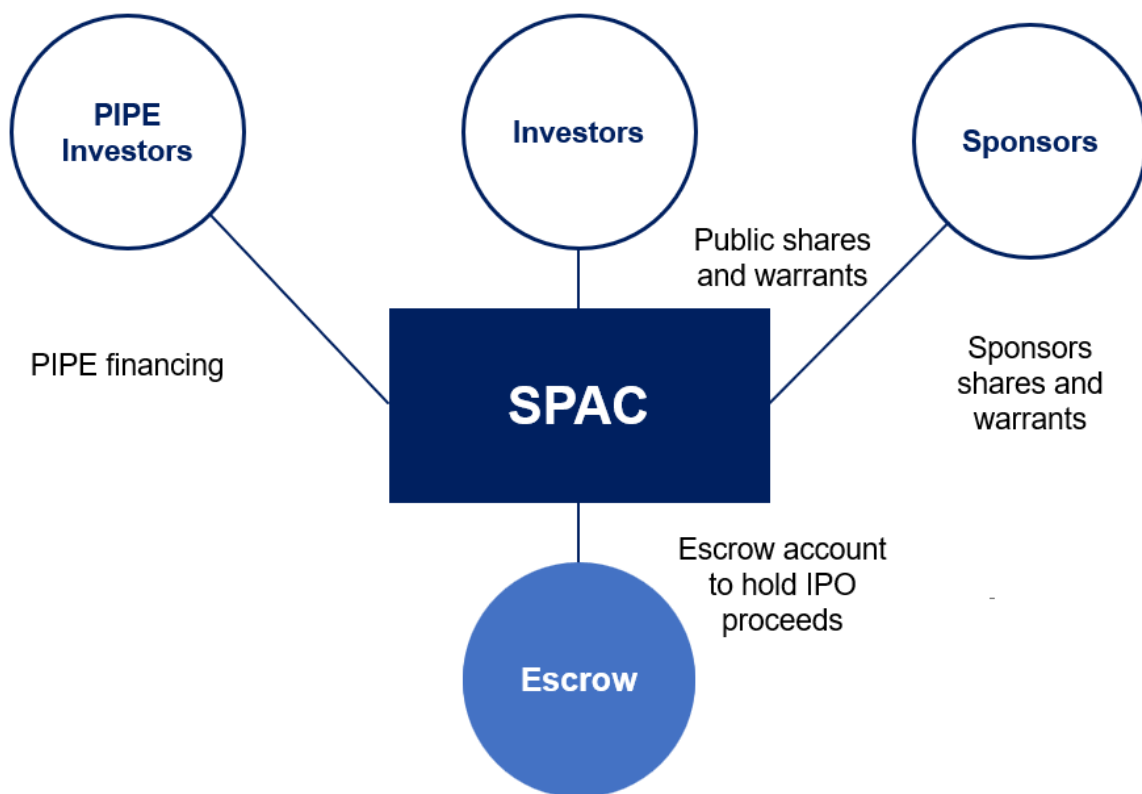
PIPEs offer companies a more expedient and cost-effective alternative to traditional secondary offerings due to less stringent regulatory requirements. They enable companies to raise funds more quickly. While PIPE investors generally commit to investing on terms similar to IPO investors, they are typically unable to redeem their shares from the trust account as their investment is contingent upon the completion of the business combination.

The capital raised through PIPE financing serves multiple purposes. Firstly, a SPAC that secures a significant PIPE investment can provide a larger cash offering to potential target companies. Furthermore, the additional cash infusion from PIPE participants creates a cash cushion, ensuring a minimum amount of available funds as PIPE proceeds are not subject to redemption. Moreover, the involvement of sophisticated institutional investors, who possess non-public information, and their willingness to invest on similar terms as IPO investors can enhance investor confidence in the viability of the SPAC, reducing the likelihood of share redemption.

PIPE investors' participation can help alleviate concerns among SPAC shareholders, acting as a "backstop" against shareholder redemptions (Feng et al., 2023). Essentially, PIPE investments mitigate the risks associated with completing the IPO and potentially prevent adverse selection by public investors, increasing the likelihood of successfully closing a business combination (Fagan & Levmore, 2022). However, it is important to note that PIPE financing comes with costs and may result in a gains dilution for other investors in the event of a successful performance by the SPAC.

To summarize, Sponsors will first set up a holding company to be responsible for holding the founder shares and warrants of the SPACs. Sponsors will then sell the public shares and public warrants to the market investors in the IPO process. After the IPO, SPACs will enter a trust agreement to appoint a trustee to hold the IPO proceeds. After the IPO if additional funds are considered to be necessary, PIPE finance may be proposed to PIPE investors.

Figure 2: Capital structure of a SPAC



Source: Personal elaboration

1.4 Lifecycle of a SPAC

1.4.1 SPAC foundation and IPO

The process of establishing a SPAC, initiates with the formation of a public company by the sponsors, along with the prospective board members. The SPAC acts as a dedicated vehicle intended to merge with a private company, thereby facilitating its transition into a publicly traded entity while providing specialized support throughout the process.

To enable the formation of the SPAC, the sponsor takes on the responsibility of financing the initial set up costs, the expenses related to the IPO, and the operational costs until the business combination. In return for this financial commitment, the sponsor is granted preferred shares, also known as founder shares, which confer specific rights and privileges, and warrants that entitle the sponsor to participate in future capital increases.

The next step involves conducting a roadshow aimed at institutional investors. This roadshow is under the direction and guidance of the SPAC's Board of Directors. The purpose of this roadshow is to present the investment opportunity to potential institutional investors, showcasing the value proposition of the SPAC and its potential.

Subsequently, the SPAC proceeds with its IPO, wherein it raises equity by issuing SPAC shares and warrants to both institutional and private investors. The issuance of SPAC shares allows investors to gain ownership in the SPAC itself, while the warrants provide them with the option to purchase additional shares in the future at a predetermined price.

After the IPO, the entire proceeds from the offering are deposited into a dedicated escrow account. The establishment of the escrow account serves as a protective measure, ensuring that the raised funds are securely held and only utilized for the intended purpose, which is to finance the subsequent merger with the private target company.

Following the successful completion of the IPO and the establishment of the SPAC, the last step in the first stage involves listing the SPAC on the selected Exchange. This listing allows for the opening of regular trading of the SPAC's shares and warrants, enabling investors to buy and sell these securities in the secondary market.

1.4.2 The business combination

In the process of operating a SPAC, the management and the Sponsors engage in a meticulous evaluation of potential target companies suitable for a merger or acquisition. This evaluation process involves carefully assessing various target companies to identify those that align with the SPAC's strategic objectives and growth prospects.

If the evaluation indicates the need for additional capital to facilitate the merger or acquisition, a capital increase is considered. This increase is typically achieved through a PIPE transaction, or within a debt injection directly in the SPAC. The PIPE transaction involves selling shares directly to institutional or accredited investors at a price below the market value, providing an efficient way to raise additional funds.

The various methods used to implement the business combination are:

- i. the purchase of target shareholdings;
- ii. the purchase of company branches;
- iii. the merger between the target and SPAC.

The business combination can be completed in any way, including a mixture of the aforementioned methods, even though the latter is generally thought to be the expected result of the corporate combination (Gigante, Conso, & Bocchino, 2020).

After identifying the target company and securing the necessary capital, the management presents the proposed target company to the SPAC's owners. A crucial step in this process is the shareholders' vote, which takes place during an extraordinary general meeting. The shareholders' approval is a pivotal factor in determining the outcome of the merger or acquisition with the target company.

Investors have two options:

- i. approve the business combination;
- ii. exercise the withdrawal right.

It is also important to note that the right to vote and the right to redeem shares do not conflict with one another. As a result, any shareholder has the option to vote in favour of the chosen target purchase while also exercising their right to withdraw their investment and get a profit.

Once the proposed merger or acquisition is approved by the shareholders, the SPAC owners are presented with three options:

- i. retain shares as a shareholder of the combined company: SPAC owners have the option to hold onto their shares in the newly merged entity. By retaining shares, they become shareholders of the combined company, participating in its growth and potential success;
- ii. sale of shares on the stock exchange: alternatively, SPAC owners can choose to sell their shares on the stock exchange. This option provides liquidity, allowing them to realize any gains they have accrued during the process;
- iii. use of the right of buyback (sale of the shares to SPAC for the initial value): in certain cases, a SPAC owner may opt to exercise the right of buyback. This involves selling their shares back to the SPAC at the initial value, essentially reversing their investment if they are not satisfied with the proposed deal.

In addition to the above options, the investor keeps the warrant received during the IPO as compensation for taking on the risk associated with investing in the SPAC.

1.4.3 De - SPAC transaction or liquidation

The final step of a SPAC process involves formal completion of the merger or acquisition, resulting in the dissolution of the SPAC and the utilization of funds from the escrow account to purchase the target company. After that, the private target company is officially a publicly listed entity.

Following the completion of the merger or acquisition, the ticker or symbol associated with the SPAC is adjusted to reflect the transition, and the listing is transferred to the newly acquired target company.

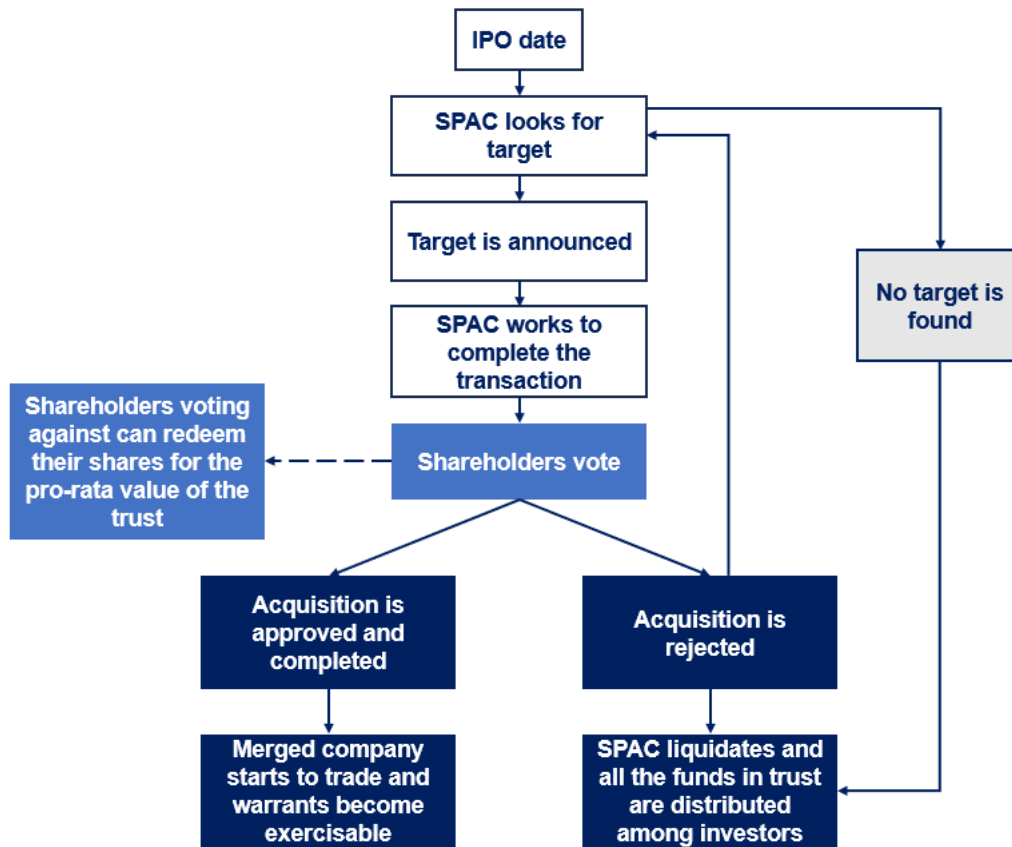
As a result of the transition, existing shareholders of the SPAC now face a decision: they have the option to sell their shares or remain as shareholders of the newly listed company.

Sponsors, who plays a significant role throughout the SPAC process, are subject to a lockup period after the completion of the merger or acquisition. Typically lasting for six months or longer, the lockup period restricts the Sponsor from selling their shares in the newly listed company during this period. This lockup is implemented to demonstrate the Sponsors' commitment to the long-term success of the merged entity and to align their interests with the interests of other shareholders.

In scenarios where a transaction does not occur within the predetermined timeframe, which is typically two years after the IPO, the SPAC faces liquidation. This means that if the SPAC management is unable to identify a suitable operating target company or if the proposed transaction does not gain the necessary support from investors, the SPAC is liquidated. As a result, the IPO proceeds are returned to the investors, and the process comes to an end.

In such situations, sponsors, who initially invested seed capital to launch the SPAC, faces the risk of losing their entire initial investment.

Figure 3: Representation of a characteristic SPAC cycle



Source: Personal elaboration

1.5 Accounting for SPACs

1.5.1 Applying IFRS

The accounting for the transaction depends on which entity is regarded as the acquirer for accounting purposes (i.e., the accounting acquirer). The identification of an accounting acquirer is crucial, since any transaction that satisfies the criteria for a business combination is subject to IFRS 3², and when using IFRS 3 Business Combinations the accounting acquirer determines which net assets should be valued at their acquisition date fair values and which net assets should be valued at their pre-combination carrying amounts. As a result, it influences goodwill and net assets recognized as of the purchase date for the combined firm.

- i. The acquirer is typically the entity that transfers the cash or other assets or incurs the liabilities in a business combination that is predominantly accomplished through cash, assets, and debt. Consequently, when a SPAC buys a company for cash only, the SPAC is typically the accounting acquirer.
- ii. In case of business combination that is mainly realized through the exchange of stock interests, the entity that issues its equity interests is often the acquirer, but in in circumstance in which the business combination is completed following a Reverse Merger, the issuing entity is the accounting acquiree. For instance, the private entity may arrange for the public entity to purchase all of its current shares in return for new shares that the public entity issues. Given that, the private entity is the accounting acquirer, and the public entity is the accounting acquiree.

If it is determined that the SPAC is the accounting acquirer, the acquisition of control over the target is recorded in accordance with IFRS 3 as a business combination. The SPAC recognizes the identifiable assets acquired, the liabilities, and any non-controlling interest in the target under the acquisition method as of the acquisition date. The SPAC also accounts the goodwill generated by the target's acquisition. Regarding SPAC's assets and liabilities, these are carried at their pre-combination values without being revalued.

In case the target is the accounting acquirer, the transaction is not recorded as a business combination, and the merged entity's financial statements are a continuation of the target's prior financial

² IFRS 3 establishes principles and requirements for an acquirer in a business combination. The core principles in IFRS 3 are that an acquirer measures the cost of the acquisition at the fair value of the consideration paid; allocates that cost to the acquired identifiable assets and liabilities on the basis of their fair values; allocates the rest of the cost to goodwill; and recognises any excess of acquired assets and liabilities over the consideration paid profit or loss immediately. (IFRS Foundation, 2023).

statements. Such a transaction is recorded in the SPAC's consolidated financial statements as a continuation of the target's financial statements (Ernst & Young, 2022, July 26), together with the target's issuance of shares and re-capitalization of the target's equity. This share issuance essentially amounts to an equity-settled share-based payment transaction in which the target receives the SPAC's net assets, usually cash, as well as the SPAC's listing status. In this context, SPAC accounting falls under IFRS 2³ for which considering equity-settled share-based payments, a company measures the goods and services received, and the related increase in equity, directly at the fair value.

Regarding the accounting for financial instruments, shares and warrants typically fall under the IAS 32⁴, and in this case are accounted as financial liabilities in the balance sheet of the combined entity. But in the event that the SPAC falls under the IFRS 2, and if the shares or warrants are issued at a nominal price in exchange for goods and services, then, generally, there would be a share-based payment arrangement and the same accounting rule will be applied.

1.5.2 Applying U.S. GAAP

As for IFRS the principal step is to identify the accounting acquirer. The post-transaction accounting treatment for the combined entity depends on how the merger is structured, which can be classified into three main methods:

- i. a business combination;
- ii. an asset acquisition;
- iii. a reverse recapitalization.

To determine the accounting acquirer and acquiree, the guidelines are provided by ASC 805⁵, specifically by ASC 805-10-55-12 and ASC 805-10-55-13. The first one, takes into account various

³ IFRS 2 specifies the financial reporting by an entity when it undertakes a share-based payment transaction, including issue of share options. It requires an entity to recognise share-based payment transactions in its financial statements, including transactions with employees or other parties to be settled in cash, other assets or equity instruments of the entity. It requires an entity to reflect in its reported profit or loss and financial position the effects of share-based payment transactions, including expenses associated with transactions in which share options are granted to employees. (IFRS Foundation, 2023).

⁴ IAS 32 specifies presentation for financial instruments. The recognition and measurement and the disclosure of financial instruments are the subjects of IFRS 9 or IAS 39 and IFRS 7 respectively. (IFRS Foundation, 2023).

⁵ Under GAAP, ASC 805 refers to the acquisition method, and reflects the principle that when an entity (the acquirer) takes control of another entity (the target), the fair value of the underlying exchange transaction is used to establish a new accounting basis of the acquired entity. Furthermore, because obtaining control leaves the acquirer responsible and accountable for all of the acquiree's assets, liabilities and operations, the acquirer recognizes and measures the assets acquired and liabilities assumed at their fair values. (Ernst & Young, 2023, June 29).

factors, including the composition of the combined entity's board of directors and executive management team, the amount of non-controlling interest, combined entity's voting rights, and the terms of equity interests exchange, while the second one considers the size of assets, revenues, and earnings of each entity (Singer, 2023).

When the SPAC is identified as the accounting acquirer, the combined entity will account for the transaction using the acquisition method as either a business combination or an asset acquisition (ASC 805-10-25-1). According to the acquisition method, the acquirer values the acquiree's net assets at fair market value and distributes a portion of that value to non-controlling interest. Any excess of consideration over the net assets' fair market value is recorded as goodwill. In some rare circumstances, where the target company does not meet the requirements of a "business", the acquirer accounts for the transaction as a "purchase of assets" and values the acquired assets at fair value on the purchase date.

If the combined entity determines that the SPAC is the accounting acquiree, it must follow the reverse recapitalization method outlined in ASC 805-40-45-1 to -2. Under this method, the basis of the combined assets and liabilities is the carrying value of the target company's assets and liabilities, along with the cash proceeds and securities raised by the SPAC during its foundation. Previous non-controlling interests, retained earnings, common stock, and other equity components are proportionately reduced before the transaction's consummation. The common equity plus the additional paid in capital, which form the contributed capital, is then calculated as the sum of the net proceeds received from the SPAC, and the target company items.

Regarding the classification and treatment of share issuances and warrants, typically, SPACs commonly issue two classes of equity: Class A and Class B. To attract third-party investors, the SPAC offers units at a fixed price, such as \$10 per unit, which usually includes a Class A share and a fractional warrant. This warrant entitles the holder to acquire Class A stock at a predetermined exercise price, commonly \$11.50 per share.

Class B shares are issued to the sponsors as compensation for their efforts in establishing the SPAC. Additionally, the sponsors have the option to acquire warrants at a specified price, usually \$1.50 each, which grants them the right to purchase shares of Class A stock at the exercise price of \$11.50 per share.

From an accounting perspective, both classes of stock are generally considered equities (Singer, 2023). Class A shares can be liquidated by the SPAC if it fails to complete the intended merger or

can be redeemed by the holders exercising their right. Thus, their classification for accounting purposes can be either liabilities or equities, but in most cases, they are classified as equities.

On the other hand, Class B shares are typically not redeemable. In case the merger is unsuccessful, these shares will hold no value, and the holders will not receive any proceeds. However, if the merger is successful, the Class B shares will be classified as permanent equity.

1.6 SPAC distinctive features

1.6.1 Incentives for investors: public warrants and rights

To enhance their appeal to public investors, SPACs often issue additional securities that grant holders the right to acquire additional shares of common stock. These securities, which I already mentioned before, typically take the form of warrants, and give holders the option to purchase one or a fraction of one share at a predetermined price. Warrants are intended to be exercised after the completion of the business combination.

Even shareholders who choose to convert their shares into a pro rata portion of the trust account and exit the SPAC have the opportunity to retain their warrants. In the event that share prices increase, these shareholders can still profit from the warrants. However, if the SPAC liquidates, warrants become worthless.

The separate trading of SPAC shares and warrants allows investors to create different risk profiles. SPAC shares typically exhibit limited volatility prior to the completion of the business combination since the SPAC primarily functions as a cash account during this period. Shareholders have the option to sell or redeem their SPAC shares at a price close to or equal to the initial investment, while retaining the warrant that offers potential upside, effectively eliminating risk. Thanks to features such as the trust account, redemption rights, and warrants, investing in a SPAC until the completion of the business combination is considered a risk-free investment with an option.

Commonly observed warrant allocation ratios in the market are 1:1 and 5:10 (warrants per common share), with the latter being more prevalent among SPACs listed from 2017 onwards (Gigante, Conso, & Bocchino, 2020).

Recent SPACs are exploring the issuance of the so called “rights” as a means to attract more investors and differentiate themselves from other SPACs (Okutan Nilsson, 2018). These “rights” entitle shareholders to receive one-tenth of a SPAC share upon the consummation of the business combination, and unlike warrants, shareholders are not required to make any payment to receive these

shares. Rights can also be traded separately, and even shareholders who convert their shares can retain them. However, if the business combination fails to materialize, the rights expire without value.

1.6.2 Incentives for sponsors: equity compensation, sponsor warrants, waivers and lock-up

SPAC managers do not receive management or finder's fees as compensation. Instead, they expect to be rewarded through SPAC equity. Prior to the IPO, the sponsors purchase shares in a private placement, known as founder shares, at a nominal cost. This gives them a substantial ownership stake in the SPAC's equity. The shares sold during the IPO are referred to as public shares, distinguishing them from the founder shares.

After the IPO, the founders typically hold approximately 20% of the total outstanding shares (or slightly less if the over-allotment option is exercised) (Jenkinson & Sousa, 2018). This 20% serves as compensation for the sponsors' efforts in identifying a target and completing a business combination. All founder shares are placed into an escrow account with the underwriter, who votes these shares alongside the majority of public shareholders regarding any proposed acquisition.

It is important to state that founders have the option to purchase public shares in the market, and in such cases, the rights associated with these shares are the same as those held by the public. The founder shares are usually subject to a lock-up period of three years following the IPO. If the SPAC fails to acquire a business within the specified timeframe and is liquidated, the founders do not participate in any distribution of liquidation proceeds for the shares acquired before the IPO. Therefore, the value of their stake in the SPAC relies entirely on the successful completion of a business combination. This creates strong financial incentives for the sponsors to pursue an acquisition, regardless of whether it is the optimal choice, as their compensation is contingent upon completing such a transaction.

Hence, a crucial aspect of the SPAC structure is that public shareholders have the authority to decide whether to approve a proposed acquisition or not. Their approval or rejection of the transaction holds significant weight in determining the outcome.

Sponsor warrants are crucial in bring into line sponsors objectives with those of public investors. The SPAC sponsors invest a portion of the IPO proceeds through SPAC warrants, typically around 3-5%. These funds are placed into the trust account, and if the business combination is successful and the share prices rise after the acquisition, the SPAC management can generate additional profit by acquiring shares from the company at a price lower than the market value. However, if the business

combination fails to materialize, the warrants will expire without value, resulting in a loss for the management, as for investors warrants. The sponsor warrants may also have a lock-up period. This arrangement ensures that the management has a vested interest in the SPAC's success and aligns their interests with those of the public investors.

In addition, sponsors voluntarily give up their redemption and liquidation rights for the shares obtained through the private placement. This ensures that the management cannot exit the SPAC by converting their shares into a proportionate share of the trust account or receive any compensation through liquidation proceeds in the event of project failure. As the trust account is exclusively reserved for public shareholders, sponsors not only forgo any compensation but also risk losing the funds they contributed to the trust account through the purchase of warrants.

To further safeguard against potential value-decreasing conduct by the management, sponsors are typically required to retain their SPAC shares for a specified period following the completion of the business combination. These shares are usually placed in escrow and released to the sponsors after a designated timeframe, often one year after the business combination (Okutan Nilsson, 2018). Nevertheless, it is important to note that SPAC sponsors are not typically expected to remain involved with the SPAC post-acquisition, even though such involvement could potentially benefit the SPAC's performance.

1.6.3 Trust account, redemption, and liquidation rights

Ensuring that the funds raised through the IPO are utilized for their intended acquisition and not for other purposes is of dominant importance to investors in SPACs. There is a risk that a suitable target may not be identified, or a business combination may not materialize due to several factors such as lack of shareholder support.

To mitigate these risks and develop investor confidence, SPACs have implemented measures such as placing at least 90% or more of the IPO proceeds into a trust account. A study conducted by Lakicevic et al., indicate that the average amount placed in the trust account is approximately 97% of the gross IPO proceeds (Lakicevic, Shachmurove, & Vulcanovic, 2014) and in more recent SPACs, this figure can reach 100% or slightly more due to the contributions made by sponsors for the issuance of warrants. Underwriters also agree to defer a portion of their fees until after the completion of the business combination, allowing a higher percentage of the IPO proceeds to be allocated to the trust fund (Rodrigues & Stagemoller, 2012). Listing requirements, which are already described precedent,

further ensure that the target entity's fair market value corresponds to at least 80% of the funds held in the trust account, safeguarding the interests of public investors.

The funds in the trust account are only released for the purpose of completing the business combination or redeeming shares if necessary. Until the business combination is finalized, the company's working capital needs are met using a portion of the IPO proceeds or funds from sponsors related to the warrants that have not been placed in the trust account, as well as the interest generated by the funds in the trust account, since the trust typically invests in short-term government securities and so earns interests (Jenkinson & Sousa, 2011).

In the event that no suitable target is found by the end of the SPAC's term, or if the proposed target is not in line with public shareholders expectations, the SPAC must dissolve, and the funds in the trust account are distributed back to the public shareholders in proportion to their shareholdings. Consequently, the failure to complete the business combination poses limited risk to public investors, as they are guaranteed to receive back, with interest, more than 90% of their initial investment.

Once the business combination is announced, public shareholders have the opportunity to review the business plan proposed by sponsors and, at their discretion, choose to convert their shares into cash and receive a proportionate portion of the amount held in the trust account through redemption or conversion rights, thereby exiting the investment. This flexibility provides public investors with the assurance that they can exit the SPAC without incurring significant losses until the completion of the business combination. However, it is important to consider the opportunity cost of the time during which the funds are held in the trust account. Redemption rights can be exercised at the time of shareholder vote or tender offer, as detailed further in the subsequent paragraph.

1.6.4 SPAC potential drawbacks for long - term value creation

The SPAC structure initially appears to offer public shareholders a risk-free investment opportunity until the completion of the business combination, due to the trust fund, redemption rights, and liquidation rights. Aligning sponsors interests with those of shareholders is a key objective of the management remuneration system and the safeguards against potential misconduct. Although this structure appears to be focused on the pre-acquisition phase, there may be space to improve it by addressing the value dilution issue encountered by non-redeeming shareholders as well as encouraging a longer-term sponsors approach in value creation.

Shareholders who redeem their shares receive their entire part of the money held in the trust account, with interest, since those funds are invested in short-term government securities, but excluding deferred underwriter's costs. These shareholders also keep their bonus share rights and warrants, maintaining the opportunity to profit from the shares of the company after the merge.

While these methods give shareholders the assurance that they can evaluate the proposed business combination and withdraw their interests at any time, the risk of dilution is transferred to the shareholders who do not use their redemption rights (Ignatyeva, Rauch, & Wahrenburg, 2013).

The number of outstanding shares will decrease if certain shareholders choose to exercise their right to redemption, but the number of shares held by the SPAC sponsors will stay the same. Before the IPO, the sponsors purchase their shares, which are then placed in escrow, for that reason, the exercise of public shareholders' redemption rights has no impact on the number of these shares. The percentage of shares held by the sponsors relative to the remaining public shareholders will no longer be the theoretical 20–80% upon the exercise of redemption rights because the sponsors will instead hold a larger portion of the total outstanding shares, increasing the dilution for the remaining public shareholders.

The execution of warrants might have another dilutive consequence. Warrants will become exercisable following the consummation of the business combination, and as previously noted, even stockholders who redeem their shares may exercise their warrants. In this way, warrants can also reduce the share value of post-SPAC shareholders. The advantages from the company combination must exceed the value dilution in order for the deal to be profitable for the non-redeeming shareholders. Increasing the cash held by the vehicle, for instance through PIPE financing, can mitigate the detrimental consequences of redemption rights. 'Backstop Agreements' with investors who promise to buy SPAC shares during the business combination are another solution used in some SPACs.

Regarding potential conflicts of interests with sponsors, one distinctive feature of SPACs is that promoters are compensated for finding a target and completing the deal, but not necessarily for adding value to the merged company after the business combination. Even though there is typically a lock-up period of one year following the merger, the 20% equity is normally transferred to sponsors. In other words, they may receive compensation regardless of the outcome of the business combination, and the subsequent performance of the company. This raises the risk that they may be inclined to conclude any deal rather than the optimal one, although such risks are typically disclosed in registration statements.

To address this issue, it could be beneficial to introduce a compensation component that incentivizes sponsors to adopt a longer-term perspective. Drawing from the private equity perspective, management compensation typically comprises three categories:

- i. management fees;
- ii. "carried interest," which is a portion of the fund's profits;
- iii. other deal-related fees, such as transaction or monitoring fees.

Carried interest, in particular, is a performance-based compensation often set at 20% of the fund's income. As carried interest is distributed upon exit, usually after investors have received their initial investment back along with a pre-agreed return, known as the hurdle rate, typically 8% (Hudson, 2014). Its purpose is to align the interests between fund managers, known as general partners, and investors by incentivizing them to achieve better returns on investment. Consequently, private equity managers have a stronger motivation to add value to the businesses in which the fund invests.

After the completion of the business combination, linking the SPAC management compensation mechanism to the performance of the company, and subsequently in the share price, may encourage a longer-term approach to value creation. Recent examples indicate that the SPAC industry may be exploring compensation plans that reward sponsors not only for closing the deal but also for post-acquisition company performance through an increase in share value. A specific example was the management compensation plan of Italy1 Investment SA, an Italian based SPAC, where sponsors would have received one-third of their total compensation six months after the business combination was completed, another one-third if and when the average market share price increased by 10% above the unit IPO price, and the remaining one-third if and when the average market share price rose by 20% above the unit IPO price (Italy1 Investment S.A., 2012, April 26).

CHAPTER 2

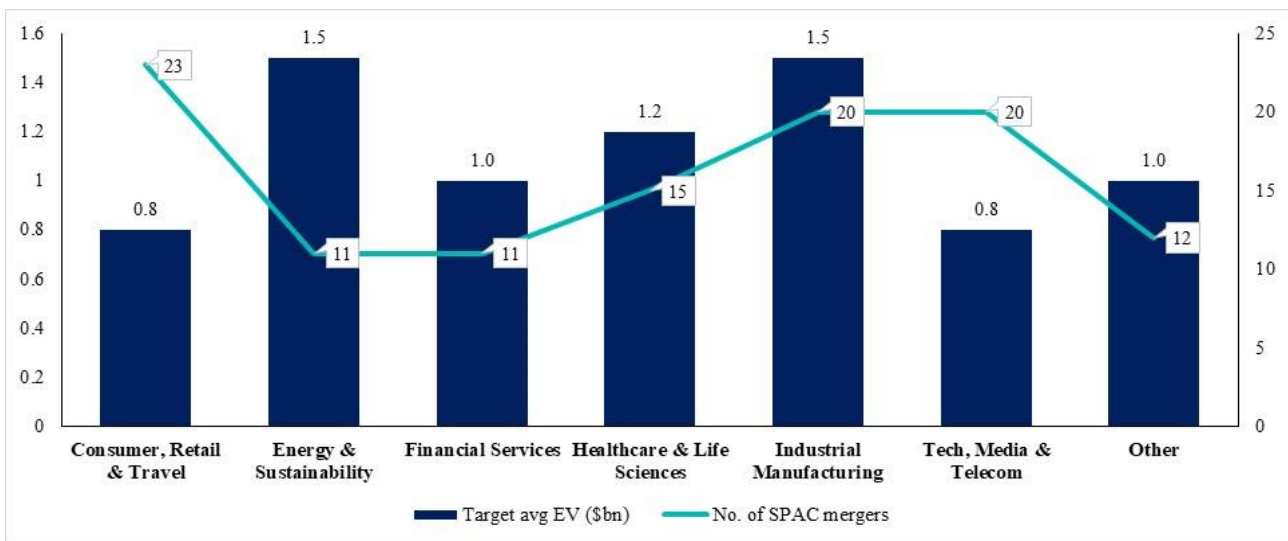
Understanding pros and cons for SPACs

2.1 Evidence from the market

Over the past decade, SPACs have experienced remarkable growth. This upward trajectory can be attributed to several factors, including a steadily expanding economy throughout the 2010s. Additionally, the turbulent conditions in the financial markets over recent years have rendered SPACs as attractive safe havens, especially during the disruptive times brought about by the COVID-19 pandemic (Mazur et al., 2021).

Notably, between 2018 and 2020, when the current SPAC surge gained momentum, with the “SPAC boom” the most substantial deals in terms of both size and volume were observed in sectors such as industrial manufacturing, and energy & sustainability. This trend was partly driven by the appeal of forward-looking industries like electric vehicles and space tourism (KPMG, 2021).

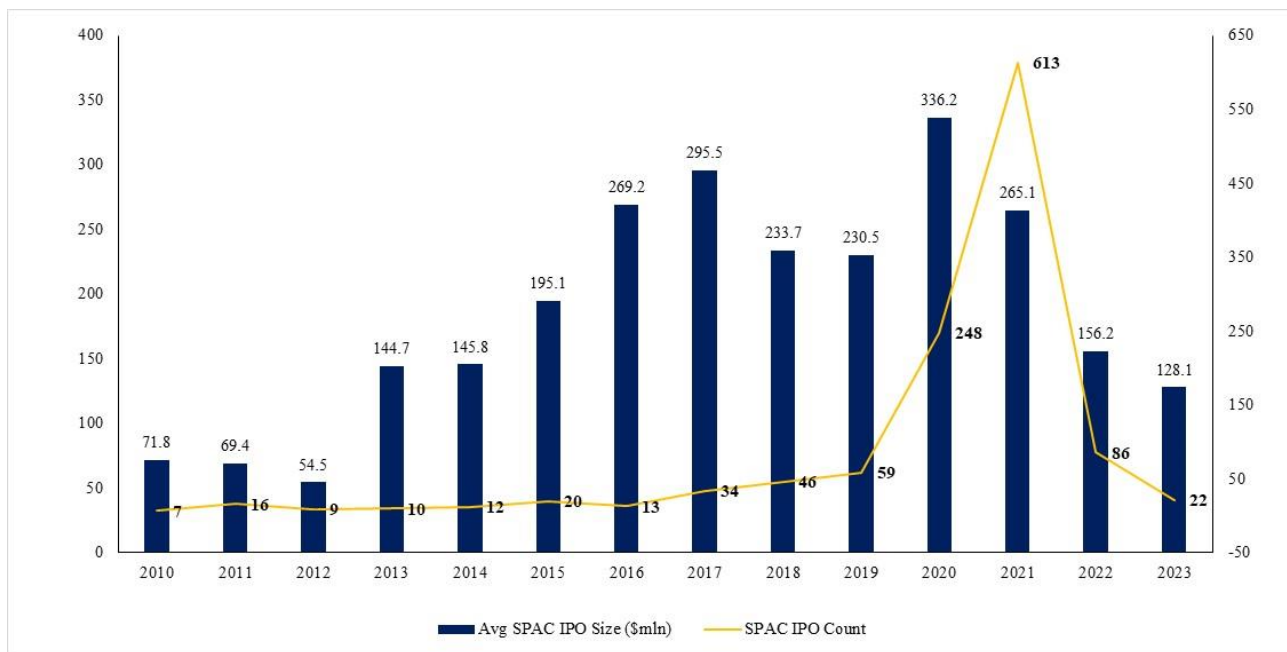
Figure 4: Number of SPAC deals and average enterprise value between 2018 and 2020 for selected industries



Source: Personal elaboration based on KPMG, Capital IQ, Thomson ONE, SEC filings, and SPAC Insider

The graph below summarizes the number of SPAC IPOs, and the average SPAC IPOs size between 2010 until now as of September 2023. As we can see the number of deals seems to be unrelated with the deal size.

Figure 5: Number of SPAC IPOs and average SPAC IPOs size between 2010 and 2023



Source: Personal elaboration based on SPAC Data, SPAC Analytics, and SPAC Insider

For what concerns the SPAC market crash post 2021, after which SPAC IPO activity reverted to pre-2020 levels, it was mainly related to the overall turbulent macroeconomic scenario, driven by inflation, and central banks' policies. In 2022, global equity markets encountered a series of tough challenges, contributing to a tumultuous year for investors. These challenges encompassed soaring inflation rates, the tightening of global monetary policies, pandemic-related lockdowns, the ongoing conflict in Ukraine, and an energy crisis that gripped Europe (PWC, 2022). These collective factors raised considerable concerns about the possibility of a global economic recession.

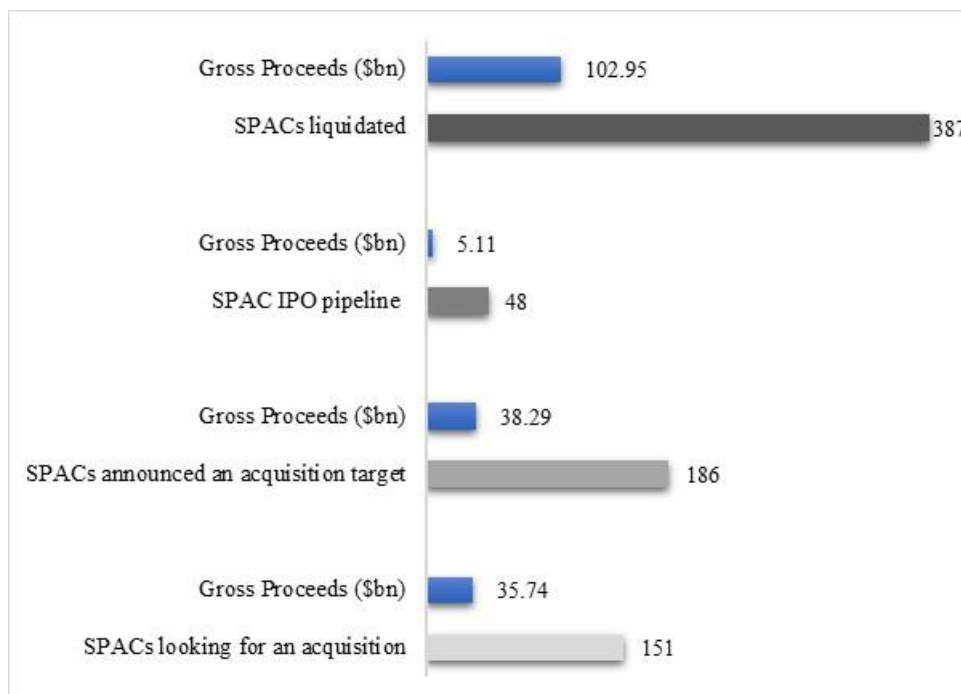
As a consequence of these turbulent conditions, many of the world's major stock indices experienced substantial declines, with notable examples including the S&P 500, which saw a significant decrease of 19%. Market volatility remained persistently high throughout the year, disrupting various activities in the equity markets, including IPOs.

In particular, this period posed notable difficulties for SPACs. A substantial portion of these entities encountered challenges in identifying suitable merger targets for completing transactions. Even when suitable targets were identified, the overall deal environment proved to be exceptionally demanding. This included a substantial volume of share redemptions, as well as considerable obstacles presented by the PIPE and debt markets. These hurdles combined to create significant impediments to the successful execution of SPAC deals during this period.

As we entered 2023, market sentiment was profoundly influenced by growing apprehensions regarding inflation. There were heightened concerns about the nature and duration of interest rate adjustments by central banks, with severe recession soared.

Despite the prevailing pessimism in the market for the year 2023, there are indications of a gradual recovery underway. This resurgence in market activity is particularly evident in the increased number of IPO filings and the resurgence of SPACs vehicles looking for an acquisition. As of today, September 2023, there are 151 SPACs actively searching for a target.

Figure 6: Number of liquidated SPACs, SPACs in pipeline for IPO, SPACs that announced an acquisition target, and SPACs looking for an acquisition, with their respective gross proceeds



Source: Personal elaboration based on SPAC Data, SPAC Analytics, and SPAC Insider

Optimistically, the market is looking for signs of inflationary pressures subsiding, which would provide central banks with the flexibility to implement more measured interest rate adjustments. Additionally, this scenario envisions economic recessions being relatively shallow and of short duration. The outlook for market sentiment and the potential revival of the IPO market in the future depend on the release of tangible information or decisive measures by central banks. Clearly a materially more pessimistic scenario will signify opening much more challenges for IPOs during 2024 and over.

For private companies contemplating a merger with a SPAC, it can be beneficial to conduct an analysis of recently completed transactions. However, it's essential to recognize that there are advantages and disadvantages associated with each approach. Deciding which path to pursue requires a careful evaluation of the current SPAC landscape to determine if it aligns with company's objectives. If the decision leans towards a SPAC merger, the next critical step is to identify the most suitable SPAC sponsor that aligns with company's specific criteria and goals.

2.2 Direct comparison with IPOs

2.2.1 Advantages for SPAC target company

An essential capability inherent to SPACs lies in their capacity to navigate through volatile market circumstances. This feature serves as a valuable reassurance for private companies seeking to go public, particularly in times of economic uncertainty. The crucial distinction lies in the safeguard that funds raised through a SPAC merger provide. These funds become secured as soon as the merger agreement is finalized, effectively separating them from the unpredictable fluctuations of the market.

Related to prevailing market conditions, the IPO route necessitates determining the price at the time of listing, which can be greatly influenced by volatility. Conversely, when opting for a SPAC merger, companies gain a unique advantage in terms of pricing negotiation, since it takes place prior to the transaction's finalization, which could be significantly rewarding.

One significant advantage that SPACs extend is their swiftness in facilitating a company's transition to the public market, especially when compared with the conventional IPO process. The pace at which a SPAC merger unfolds is contingent upon various factors, including negotiations between the SPAC and the target company, the shareholder approval procedures, and the expediency of the competent Authority review. Typically, a SPAC merger can be executed within the span of four to six months (Pinedo & Best, 2021). In stark contrast, a traditional IPO process can often extend for more than a year (Cendrowski et al., 2012).

Differing from IPO, SPAC sponsors exhibit a unique capacity to secure supplementary capital through the additional raise of funds concluding the issuance of debt instruments or by engaging in PIPE transactions with additional investors. These backstop debt and equity plays a pivotal role in ensuring the successful execution of the transaction, even in scenarios where some SPAC investors opt to redeem their shares. Such financial resilience is a noteworthy feature of SPACs, contributing to their attractiveness.

The enhanced capital opportunities describe above, are also supported by a potential cost reduction for lower marketing costs. Unlike traditional IPOs, which typically require exhaustive efforts to garner investor interest through extensive roadshows on public exchanges, SPAC mergers present a more streamlined approach. Although raising capital through PIPE transactions may necessitate targeted roadshows to attract specific investors, SPAC mergers, in general, operate with a distinct advantage. They do not inherently rely on generating substantial investor interest in public exchanges, thereby offering a more efficient and tailored path to the merger process.

An additional advantageous is the access to the expertise, since SPAC sponsors frequently comprise seasoned financial and industrial experts, endowed with a wealth of experience and extensive networks. Leveraging their well-established connections, sponsors can facilitate access to invaluable management know-how. They may offer strategic guidance and support or even assume important positions on the board of directors, adding a layer of operational acumen to the merged entity. At the end, they may bolster the SPAC merger's prospects for success and effective post-transaction management.

2.2.2 Disadvantages for SPAC target company

SPACs, despite their advantages, are accompanied by several notable drawbacks. Firstly, the allocation of 20% SPAC equity to sponsors represents an indirect cost for the acquired firm, emphasizing that the process of going public is not a free ride (Warren, 2022). In addition, the 20% equity stake, complemented by warrants, that grant sponsors with the opportunity to acquire additional shares, would potentially lead to shareholding dilution.

Secondly, engaging with SPACs introduces some risks. Although SPAC mergers can realize rapidly, they are not immune to delays or, in some instances, they may not materialize at all. The destiny of merger deals is often contingent on the SPAC shareholder vote, a factor that can lead to the abandonment of proposed mergers. Moreover, target companies renounce a degree of autonomy when entering into agreements with SPACs, given that SPACs typically operate with their in-house

management teams. In alignment with traditional IPOs, post-merger, the shares of acquired companies are subjected to lock-up periods, frequently spanning up to one year. During this period, the target company is restricted from divesting its SPAC shares.

Regarding potential redeeming shareholders, In the event that redemptions exceed initial expectations, this can create uncertainty in terms of available cash (KPMG, 2021). Consequently, SPACs may need to seek additional funding through PIPE financing to bridge the resulting capital shortfall.

It's worth noting that in a SPAC merger, the timeline for transitioning to a public company status can be significantly compressed. While SPAC sponsors may provide assistance during the merger process, the target company typically shoulders the primary responsibility for preparing the necessary financial documents and establishing key functions associated with public companies. These functions may include investor relations and the implementation of robust internal controls. All of this must be accomplished within a much tighter timeframe compared to the more extended preparations often associated with traditional IPOs.

Related to the compressed timeline of SPACs, the financial due diligence is likely to be performed at narrowed scope. It's important to note that the SPAC process often involves a more streamlined approach to financial due diligence when compared to the stringent requirements of a traditional IPO. While this shortly process can expedite the merger, it also comes with certain considerations. The reduced scope of financial due diligence may, in some cases, carry the risk of inadequate assessment, potentially leading to issues such as financial restatements, misevaluation of businesses, or even legal disputes.

2.3 Literature review

The purpose of this literature review is to assess the academic research regarding SPACs, specifically, to analyse the previous literature regarding shell companies' structure and performance and their comparison with more traditional IPO routes.

The academic interest among SPACs raised around 2007, and increased along with the SPAC popularity, since from 2007 thereafter it became more and more common for companies as a method to be listed.

For the purpose of the study, I will focus also on a few papers that emphasis on Reverse Mergers and their direct comparison with IPOs, since from a structural and theoretical point of view, the papers' purpose, as well as their methodology, is in line with the scope of this thesis. Then I will present the previous literature about SPACs and IPOs comparison, since the goal of my research is to determine whether SPACs companies perform better or not, from a market and operating perspective, compared to IPO companies, after the listing. Lastly, I will introduce one paper that analysed post-IPO operating performances, given that the followed approach is based over different timeframe as this research implied.

The first time a different method to be listed was compared with IPO was in 2002, in which Augusto Arellano-Ostoa and Sandro Brusco studied the reasons behind some companies prefer a Reverse Merger to an IPO. Using a sample of 52 RMs, they implemented a three-period model highlighting that high quality firms tend to prefer IPOs rather than low quality firms that choose RMs instead (Arellano-Ostoa & Brusco, 2002). The quality was measured by the probability of having profitable investments in the future that would be able to grow companies and their operations, specifically it was related to the probability of getting a positive net present value, deriving from the funded project, at time two. They supposed that to finance the project the company should have entered the market, and consequently, would have had to choose between a RM or an IPO. The model was able to predict that, on average, a company with higher probability to undertake the project preferred to consider a traditional IPO, while companies with lower probability, chosen the RM. Empirically supported, this thesis was underlined by the fact that the model was also able to predict that RM companies were unlikely to raise capital after the listing. In the end, they found that, between 1990 and 2000, 32.6% of firms were delisted on U.S. stock markets after being listed through a RM process.

In 2006 Gleason et al. studied the differences among the characteristics of firms using Reverse Mergers and self-underwritten (SU) IPOs as an alternative to the traditional underwritten IPO (Gleason, Jain, & Rosenthal, 2006). They used a sample composed by 119 RMs listed on the

NASDAQ stock exchange and 22 self-underwritten IPOs listed on the NYSE covering a period from 1986 to 2003. The authors initially conducted an analysis of univariate statistics and did not discover evidence supporting the hypothesis that companies utilizing RMs or SU IPOs were notably smaller in size than those opting for traditional IPOs. Subsequently, by implying a multivariate logit analysis which considered the Ratio of cash and cash equivalents to Total Assets, ROA, ROE, and the ratio of Debt to Total Assets, they determined that firms listed without traditional IPO tend to be less profitable, accompanied by a larger amount of debt, declines in profitability, and balance sheet liquidity, as well as a significantly higher volatility. Regarding profitability levels, measured by ROA, and ROE, all the three groups studied showed negative ROAs, while just RMs and SUs had negative ROEs the year prior to going public. Nevertheless, it is important to note that RMs and SUs exhibited significantly lower ROAs. The results were significant at 1%, and 5% levels. Over the second year after the listing RM and SU companies showed a larger decline in ROA (at 1% level), and in ROE (at the 10%) in the first year after, when compared to IPO firms. Regarding leverage and size, RMs and SUs had significantly more debt, and used to be smaller (at 1% level). For what concerns multiples, they analysed the Price to Book and the Price to Sales. The Price to Book of RMs and SUs showed a decline in the first two years, but the result was not statistically significant, while Price to Sales experienced a decline in the first year both in mean and median which were significant at 5%, and 1%.

The third study that tried to compare RMs with traditional IPOs was implemented by Adjei et al. in 2008. They examined the motivation behind using a RM instead of an IPO and analysed the survival of RM and IPO companies once listed (Adjei, Cyree, & Walker, 2008). They used a logistic regression (logit) model composed by 286 RMs and 2860 IPOs between 1990 and 2002, to compute the probability that a private company would have been inclined to be listed through RM instead of a traditional IPO. Following this approach, they were able to determine results in line with Arellano-Ostoa and Brusco research, in fact, they found that firms characteristics between companies that preferred a RM rather than an IPO, were extremely different, since results showed that smaller, younger, and poorer performing companies prefer RM. Additionally, 42% of RMs in their sample were delisted, compared to 27% of IPOs. They implemented their model using Size (measured as the natural logarithm of total assets), Age, ROA a year before the listing (to measure companies' performance), and hot market dummy as independent variables, setting the dependent variable to zero for IPO and one for RM. The mean in Total Assets value, to measure the size of companies, resulted in \$136.3 million for RM sample versus \$674.9 million of IPO sample, statistically significant at 1% level. Also, the mean in $ROA_{(t-1)}$ was in line with the same evidence as the previous study made in

2002, with the RM sample that showed a 0,08 against 0.145 of IPO sample, at 1% level. Additionally, it was observed that private companies, on average, went public at different stages in their development. Specifically, the average Age of private firms at the time of going public was 7.9 years for RMs and 13.3 years for the control sample involving IPOs. This finding held statistical significance at the 1% confidence level. Conversely, the coefficient associated with a dummy variable used to describe market activity in the model did not yield statistical significance. The study also employed a multivariate analysis, utilizing a logistic model with a binary dependent variable. In this model, a value of one represented a RM, while zero signified an IPO. In alignment with the univariate analysis, the researchers noted that the coefficient for Total Assets, was negative and statistically significant ($p < 0.0001$). This suggests that smaller firms had a higher likelihood of opting for the RM route. Similar results were obtained when considering factors such as the company's operating history and ROA, with both variables demonstrating statistical significance ($p < 0.0001$). This indicates that younger companies and those with lower performance metrics were more inclined to select the RM method. Consequently, the findings from the multivariate model consistently supported the hypothesis that smaller, younger, and lower-performing firms displayed a preference for RMs over IPOs.

An additional paper that it is worth to mention came from Pollard, who was interested in determining whether the earnings quality of companies that became listed through RM was better or worse than that of companies listed through traditional IPO. Using a sample of 1825 RMs from 2001 to 2011, composed by several earnings indicators such as: earnings persistence, earnings predictability, cash persistence, cash predictability, and accrual quality, he found that, on average, RM companies exhibit lower earnings quality than IPO companies (Pollard, 2016). The research was carried out by implying several equations that considered earnings persistence and predictability, as well as cash persistence and predictability, by dividing them in different independent variables.

The first time SPACs performances was posed into comparison with IPOs ones, was in 2012 with a research paper coming from Datar et al. They compared 156 firms that chose to be listed through SPAC vehicles with 794 IPO firms, in the 2003-2008 timeframe. The analysis was focused on the characteristics, as well as the changes in operational performance and stock market returns in the years following the listing (Datar, Emm, & Ince, 2012). It was divided in three empirical approaches, implying both univariate and a multivariate probit regression model: firstly, they compared financial and operating metrics, secondly, the changes in operating performance after one year from listing were examined, and thirdly, they focused on the stock returns after the listing over several holding periods. For the first analysis they used five variables considering Total Asset Turnover, Operating

Profit Margin, ROA, Operating Cash Flow to Assets, and Sales in which IPOs outperformed SPACs, except in the case of Total Asset Turnover where samples showed the same level, with results comprised from 1% to 10% significance. Regarding the second analysis they found that overall, the only results that were statistically significant were about ROA, that explained a downward trend both in SPACs and IPOs. But at time zero, the listing moment, SPAC firms were all below the industry median for the five measures accounted, differently from IPO companies that explained a favourable momentum. In conclusion, when examining growth opportunities, the authors employed the P/E ratio as a metric. Nevertheless, their analysis did not reveal any substantial disparity between IPOs and SPACs. For what concern the stock market performance, analysed 1-month, 3-month, 6-month and 1 year after the listing both SPACs and IPOs underperformed, showing negative excess returns, but the underperformance was significantly more evident for SPAC companies. Considering the differences, as well as their points of contact, in RMs and SPACs accounted before, it is interesting to trace a line among the papers I mentioned. In fact, the results obtained by Datar et al. were comparable to those evidenced both by Gleason et al., and by Adjei et al., given that at the end of Datar et al. analysis they could state SPAC firms are smaller, carry more debt, invest less, and have minor growth opportunities.

In 2016 Kolb and Tykvová, using a sample of 127 SPAC acquisitions and 1128 IPOs, from 2003 to 2015, carried the conclusion that, by analysing long-term abnormal returns, SPAC companies showed significant underperformance if compared to IPO firms, the industry, as well as the market (Kolb & Tykvová, 2016). Firstly, to see if there were differences between SPACs and IPOs characteristics, they implied a Wilcoxon-Mann-Whitney Tests and a t-Test, considering market-specific variables, deal-specific variables, and firm-specific variables. For market-specific variables, using the S&P 500 return in the six months preceding the deal announcement as proxy for market volatility, SPACs tended to be more popular in turbulent market environments, with significance at 1% level. For deal-specific variables they noted that the Cash Out ratio for SPACs were greater than that of IPOs, at 1% level. For the third cluster of variables, they considered ROA, Market to Book Asset Ratio, Debt Ratio (given by Total Debt on Total Assets), Size (measured by Total Assets), Venture Capital (VC), and Private Equity (PE) involvement. ROA for SPACs showed that growth seemed to be lower than that of IPO firms, at 1% level, with an average of 3.2% in IPOs versus 1.4% in SPACs. Also, Market to Book Assets Ratio resulted to be lower in case of SPACs (3.3 in IPOs; 1.4% in SPACs). For what concerns Debt and Size, SPACs resulted to be highly leveraged and smaller, at 1% level, continuously with precedent paper that I already analysed (46.6% in IPOs versus 60.7% in SPACs for what concerns leverage; and \$923.1 million compared to \$334.9 million for Total Assets). Regarding VC

and PE involvement, measured by stake, was much greater in IPOs (33.1% in IPOs vs 14.2% in SPACs for VC; 20.8% in IPOs vs 12.6% in SPACs for PE), in both cases with 1% significance. Secondly to confirm the likelihood of a SPAC acquisition, they employed a logistic regression model with dependent variable equal to 0 for IPO companies and 1 for SPAC firms, aggregating SPACs and IPOs on the basis of both Regions and industries. The results obtained were in line with the precedent univariate analysis, for all the three clusters of variables, except for the Cost of Debt (included in market-specific variables), that caused to be negatively correlated with SPACs, since the higher the cost of debt, the lower the probability of SPAC acquisitions.

The last paper I would like to mention came from the 2007 when Coakley et al. studied post-IPO performances over 590 UK companies listed between the 1985 and the 2003 on the London Stock Exchange. Unless they found statistical evidence that operational performance decline after the IPO, they study concluded that performances decline is guided by a dramatic underperformance during the 1998-2000 bubble years (Coakley, Hadass, & Wood, 2007). Following the conclusion of their research, the bubble years underperformance is mainly explained by wrong market timing, as well as by low firms, and their venture capitalists, using investor sentiment as an advantage to be financed. They implied two different methodologies for their test. The first one was a univariate regression based on the Wilcoxon rank-sum Test with the null hypothesis that the distribution of operating performance is equal both in non-venture and venture-backed IPOs. The second methodology was to perform a cross section regression coefficients taking into account heteroscedasticity. They included the latter by developing the model through Ordinary Least squares (OLS), in order to correct standard errors. To measure the operating performance of companies in the model the researchers considered the Ratio of Operating Cash Flow to Total Assets, measuring operating performance from the fiscal year before the IPO, until five years post-IPO, using only the median as measure. Their results showed that, UK IPOs experienced a statistically significant decline with the median in operating cash flow to total assets decreased by 1.52% from the year prior the IPO until five years post-IPO, with a 1% significance. Unless they found these significant results, they specified that the decline is driven by IPOs issued during the bubble years since these showed a -12.57% in their operating performances. To further strengthening their analysis Coakley et al. developed a cross-section regression considering the change in operating cash flow deflated by total assets as the dependent variable. As independent variables they implied a series of proxies for VC involvement and reputation, accompanied with a dummy variable to define VC-backed and non-VC backed IPOs. To represent the impact of operating performance they considered the variables Turnover/Assets and EBIT / Assets, then including control variables such as the age of the company at the issuing date, as well as the Market

Capitalization of the company. Finally, they included dummy variables: period dummy bubble, and industry dummy to test whether the company was High-Tech, or Services related. Overall, they found the evidence that the initial return coefficient was significantly negative at 5% confidence level, and that high IPOs initial returns are affected by investor sentiment driving an operating performance decline post-IPO. Finally, they concluded by affirming that the High-Tech dummy's coefficient is markedly negative at the 1% level, highlighting the underperformance of these IPOs during the bubble years. The EBIT / Assets interaction with the Services dummy is the only other significant coefficient that is relevant and significant at the 10% level.

CHAPTER 3

EMPIRICAL ANALYSIS

3.1 Model, methodology and data

3.1.1 Choice of the model and methodology

In the preceding chapters, a comprehensive examination of SPACs has been conducted, unravelling their complexities including advantages and drawbacks. Indeed, SPACs present an enticing prospect for sponsors with their compensation mechanisms often proving highly convenient. Nevertheless, the path of SPACs has been nothing short of remarkable, witnessing an exponential growth year over year. This upward trajectory, however, was abruptly interrupted by the Equity Capital Markets crash of 2022, which cast a shadow not only on SPACs but also on traditional IPOs. These challenges arose from a complex macroeconomic landscape, marked by inflationary pressures and geopolitical conflicts, resulting in an inherently volatile market environment.

Within this intricate context, this empirical chapter intends to pursue a thorough investigation. It endeavours to answer a fundamental question: are SPACs advantageous for companies seeking to be listed compared to traditional IPOs? To unravel this question, two-phased empirical research will be conducted, integrating market-based multiples and operating performance analysis. This scrutiny will extend over a three-year post-listing horizon, enabling an understanding of medium-long term dynamics. The aim of this comparative analysis is to provide valuable insights into the efficacy of the SPAC route in the landscape of company listings. Moreover, it will strive to discern whether the characteristics of SPACs, particularly their size and leverage, have evolved in comparison to earlier studies.

As mentioned in the literature review, earlier research suggests that companies who decide to go public through an alternate route to IPOs, particularly through a SPAC, tend to set themselves apart from the competition for their poorer quality. In particular, SPACs seem to be more appealing to younger, smaller, highly leveraged, and less profitable companies. Additionally, prior empirical findings have shown that the frequency of SPACs rises during periods of higher volatility.

While previous studies were predominantly concentrated on structural characteristics of companies employing shell vehicles versus those opting for a conventional IPO route, this examination shifts the spotlight to outcomes. It aims to ascertain whether the SPAC mechanism genuinely serves as an advantageous route for companies, by focusing on the analysis of post-listing performance of SPACs compared to traditional IPOs, with the goal to bridge a critical gap in the existing literature. Significantly, this analysis benefits from a dataset spanning from 2010 to 2023, to take into account

the evolution that has occurred in terms of SPACs characteristics, which have undergone their widest diffusion in recent years.

Based on the papers cited in the literature review, the analysis is developed through a two-phased approach. The first methodology implies univariate statistics and given that the research primarily interest is to discern whether there exist disparities in performance between distinct types of listings, the statistical significance assessments conducted for the univariate sorts rely on both the t-Test and the Wilcoxon-Mann-Whitney (WMW) rank-sum Test. These tests are based on the null hypothesis that the distributions of market-based multiples, operating performance metrics, company size, and leverage levels are equivalent for two categories of firms: those that have undertaken a conventional IPO and those that have opted for a SPAC IPO. In line with the research published by Gleason et al. (2006), Datar et al. (2012), and Kolb and Tykvová (2016), the empirical analysis utilizes both Wilcoxon rank-sum Test and t-Test to provide a more comprehensive analysis, especially because, after conducting a skewness test, it resulted the majority of variables distributions to be abnormal. Additionally, since the sample is large, WMW Test will help with larger standard deviations in certain variables.

The table below contains all the variables studied in the univariate analysis.

Table 1: Univariate statistics variables, unit, definition, and source

Variable name	Unit	Definition	Source
Market based variables			
<i>EV / EBITDA</i>	n.a.	Multiple of Enterprise Value to EBITDA	Refinitiv SDC Database
<i>EV / Revenues</i>	n.a.	Multiple of Enterprise Value to Total Revenues	Refinitiv SDC Database
<i>EV / EBIT</i>	n.a.	Multiple of Enterprise Value to EBIT	Refinitiv SDC Database
<i>P / Diluted EPS</i>	n.a.	Multiple of Price to Diluted EPS	Refinitiv SDC Database
Performance Based variables			
<i>EBITDA Margin</i>	n.a.	Ratio of EBITDA on Total Revenues	Refinitiv SDC Database
<i>ROIC</i>	n.a.	Ratio of Return on Invested Capital; computed as NOPAT divided by Invested Capital	Refinitiv SDC Database
<i>ROE</i>	n.a.	Ratio of Return on Equity; computed as Net Income divided by Shareholders Equity	Refinitiv SDC Database
Size based variables			
<i>Operating Cash Flow</i>	\$mln	Represents the total Operating Cash Flow after tax and financing activities	Refinitiv SDC Database
<i>Total Assets</i>	\$mln	Represents company Total Assets	Refinitiv SDC Database
Leverage based variables			
<i>Total Debts / Total Assets</i>	n.a.	Ratio of Total Debts on Total Assets	Refinitiv SDC Database
<i>Total Debts / Total Equity</i>	n.a.	Ratio of Total Debts on Total Equity	Refinitiv SDC Database

Source: Personal elaboration

The first three variable are market-based, since they account for market multiples, with the study conducted over a three-year period, from the year after the listing one, to the third year after the listing year, respectively (t+1), (t+2), and (t+3). The purpose is to determine whether SPAC companies show higher multiple compared to those of IPOs after became public, or vice versa.

Performance based variables are used to consider if there are significant differences between operating performance ratios accounted by SPACs with those of IPOs, after the listing. As for market-based variables, this section implies a three-year period, which is exactly the same, respectively (t+1), (t+2), and (t+3), after the listing year. Contrarily with previous literature, this research does not

consider Return On Assets (ROA), while divides the study among EBITDA Margin, ROIC, and ROE, to better assess the proposition that lower quality firms, in terms of operating performances, tend to pursue the SPAC as a listing choice, rather than the IPO.

For what concern the third cluster of variables, these are used to verify and compare the results obtained by previous papers regarding the differences in size between SPAC, and IPO firms. Specifically, regarding Operating Cash Flow, Datar et al. (2012) stated, using the Wilcoxon rank-sum Test, that IPOs outperform SPACs at 1% significance level. This variable is thereby considered to assess if, after eleven years from that study, there have been changes in that finding. Related to Total Assets, it has been way more studied in the past, with empirical evidence coming from Arellano-Ostoa and Brusco (2002), Gleason et al. (2006), Adjei et al. (2008), Datar et al. (2012), Kolb and Tykvová (2016); with all of whom that stated IPOs were larger in terms of Total Assets, compared to SPAC companies. Also in this case the study was conducted over a three year period, but differently from market-based, and performance-based ratios, the analysis starts at the year (t), representing the year of listing, proceeding over (t+1), and (t+2). This choice is related to the fact that the research has the additional goal to assess whether there have been changes in structural characteristics at the moment of listing. Additionally, all the cited literature analysed these ratios at listing year, and therefore to better comparison, it starts at time (t).

Leverage based variables account for the comparison in leverage degree between the two types of listed companies. The studied variables are two: Total debts / Total Assets, and Total Debt / Total Equity, with the one largely analysed in the past as for Total Assets, from the same authors cited above, who derived the conclusion that greater leverage is associated with SPAC IPO firms. The second variable is considered to analyse more in deep this particular aspect from an equity-based perspective. As for size-based variables the research starts at time (t).

To further model the comparison between SPAC and IPO performances post listing, the empirical analysis employs a second methodology, specifically a multivariate regression model with market-based variables, and performance-based variables as dependent variables. The choice of this specific model is guided by several factors; first of all, it permits to strengthening the analysis by consider several potential relationships between dependent and independent variables, since the outcomes may be influenced by several factors simultaneously. Secondly, it provides a comprehensive analysis of the interplay among variables, to assess how each independent variable contributes to variations in each dependent variable while considering the influence of other factors. Lastly, it can determine whether specific independent variables have significant effects on dependent variables and quantify

these effects involving significance. The tests are based on the null hypothesis that each independent variable has no effects (has a coefficient of 0).

The multivariate regression framework is specified as follows:

$$Y_i = \beta_0 + \beta_1 \text{LnOpCF}_i + \beta_2 \text{LnTA}_i + \beta_3 \text{LEV1}_i + \beta_4 \text{LEV2}_i + \beta_5 \text{ListingYear}_i \\ + \beta_6 \text{ListingRoute}_i + \beta_7 \text{Industry}_i + \beta_8 \text{Country}_i + \varepsilon_i$$

where Y_i is represented respectively by *EV / EBITDA*; *EV / Revenues*; *EV / EBIT*; *P / Diluted EPS*; *EBITDA Margin*; *ROIC*; and *ROE*.

Dependent variables vary from (t+1), to (t+2), to (t+3); while independent variables start from (t); to (t+1); until (t+2). Every dependent variable contains multiple values both from IPO companies and SPAC companies, and every regression is performed separately for any dependent variable within a specific timeframe. For any Y_i at time t+1 (t+2; t+3), independent variables are settled to time t (t+1; t+2) respectively. Additionally, every regression performed is significant at 1% level, or at least at 5% level of confidence ($P > F$).

The table below summarize all the dependent and independent variables implied in the multivariate analysis.

Table 2: Multivariate statistics variables, unit, definition, and source

Dependent Variables			
Variable name	Unit	Definition	Source
Market based variables			
<i>EV / EBITDA</i>	n.a.	Multiple of Enterprise Value to EBITDA	Refinitiv SDC Database
<i>EV / Revenues</i>	n.a.	Multiple of Enterprise Value to Total Revenues	Refinitiv SDC Database
<i>EV / EBIT</i>	n.a.	Multiple of Enterprise Value to EBIT	Refinitiv SDC Database
<i>P / Diluted EPS</i>	n.a.	Multiple of Price to Diluted EPS	Refinitiv SDC Database
Performance Based variables			
<i>EBITDA Margin</i>	n.a.	Ratio of EBITDA on Total Revenues	Refinitiv SDC Database
<i>ROIC</i>	n.a.	Ratio of Return on Invested Capital; computed as NOPAT divided by Invested Capital	Refinitiv SDC Database
<i>ROE</i>	n.a.	Ratio of Return on Equity; computed as Net Income divided by Shareholders Equity	Refinitiv SDC Database
Independent Variables			
Variable name	Unit	Definition	Source
Size based variables			
<i>Ln OpCF</i>	\$mln	Represents the natural logarithm of total Operating Cash Flow after tax and financing activities	Refinitiv SDC Database
<i>Ln TA</i>	\$mln	Represents the natural logarithm of Company Total Assets	Refinitiv SDC Database
Leverage based variables			
<i>LEV1</i>	n.a.	Ratio of Total Debts on Total Assets	Refinitiv SDC Database
<i>LEV2</i>	n.a.	Ratio of Total Debts on Total Equity	Refinitiv SDC Database
Deal specific variables			
<i>Listing Year</i>	Years	Company listing year	Refinitiv SDC Database
<i>Listing Route</i>	Dummy	Dummy variable that assumes 0 in case of IPOs and 1 in case of SPACs	Personal elaboration
<i>Industry</i>	Multinomial variable	Multinomial variable that assumes one different value from 1 to x for every different Industry in the sample	Personal elaboration
<i>Country</i>	Multinomial variable	Multinomial variable that assumes one different value from 1 to x for every different Country in the sample	Personal elaboration

Source: Personal elaboration

For size-based and leverage-based variables, they are used to assess if there is a correlation between size and leverage with market-based and performance-based dependent variables. Specifically, LnTA, and LEV1 have been implied in the literature by Arellano-Ostoa and Brusco (2002), Gleason et al. (2006), Adjei et al. (2008), Datar et al. (2012), as well as Kolb and Tykvová (2016); to verify the hypothesis that smaller and highly leverage firms opt for a SPAC IPO rather than a traditional IPO. In that specific case LnOpCF, LnTA, LEV1, and LEV2, are used to see whether differences in terms of size and leverage are related with post IPO valuation and operating performance.

Regarding deal specific variables Listing Year, is a multinomial variable that consider the year in which the company was listed to account for every correlation between different timeframes, since both the number of SPACs, and IPOs, and consequently the related amount of data, increased in the second half of the sample.

Listing Route is a dummy variable that assumes 0 if the company was listed through a traditional IPO, and 1 if the company became public via SPAC. It serves to verify eventual relationship to further strengthen the proposition of the univariate analysis that market-based, as well as performance-based variables are significantly different between IPO and SPAC firms.

Industry is another multinomial variable that assumes one different value ranging from 1 to x for every different industry in the sample, since those can be related with values registered in market multiples, and in operating performance as well.

The last independent variable Country follows the same logic behind Industry, since considering a value from 1 to x, it evidences eventual correlation with dependent variables.

3.1.2 Sample of data

The data sample comprises a total of 72 SPACs and 650 IPOs from different Countries as well as different industries, that were listed during the period from 2010 to 2020. As this analysis investigates the performance of these companies over a three-year period following their listing, the data range has been extended up to August 2023 to accommodate this timeframe. The data used for the independent variables in the analysis include accounting data available as of the year of listing.

The sample and their relative data utilized for this study were sourced from Refinitiv SDC Database, verifying the reliability and accuracy of the information. For the purpose of this research, certain types of transactions were excluded from the sample. This exclusion encompassed Reverse Merger transactions, as well as Take-Private transactions. Additionally, to maintain the sample's relevance,

only companies that were still listed as of the data collection period were included, ensuring that the analysis focuses on active market participants.

The table below include the list of all countries present in the sample after deleting deals for missing data or outliers.

Table 3: Countries included in the sample

Countries	
<i>Australia</i>	<i>Morocco</i>
<i>Bangladesh</i>	<i>Netherlands</i>
<i>Bermuda</i>	<i>New Zealand</i>
<i>Brazil</i>	<i>Norway</i>
<i>Canada</i>	<i>Pakistan</i>
<i>Cayman Islands</i>	<i>Philippines</i>
<i>China</i>	<i>Poland</i>
<i>Denmark</i>	<i>Portugal</i>
<i>Egypt</i>	<i>Romania</i>
<i>Finland</i>	<i>Russia</i>
<i>France</i>	<i>Rwanda</i>
<i>Germany</i>	<i>Saudi Arabia</i>
<i>Ghana</i>	<i>Singapore</i>
<i>Guernsey</i>	<i>South Africa</i>
<i>Hong Kong</i>	<i>South Korea</i>
<i>Hungary</i>	<i>Spain</i>
<i>India</i>	<i>Sweden</i>
<i>Indonesia</i>	<i>Switzerland</i>
<i>Ireland</i>	<i>Taiwan</i>
<i>Israel</i>	<i>Thailand</i>
<i>Italy</i>	<i>Tunisia</i>
<i>Japan</i>	<i>Turkey</i>
<i>Lithuania</i>	<i>United Arab Emirates</i>
<i>Luxembourg</i>	<i>United Kingdom</i>
<i>Macau</i>	<i>United States of America</i>
<i>Malaysia</i>	<i>Vietnam</i>
<i>Malta</i>	<i>Virgin Islands</i>
<i>Mexico</i>	

Source: Personal elaboration based on the data sample retrieved from Refinitiv SDC Database

The figure below shows the sectors involved, with sector clusters, and their denominations retrieved from Refinitiv SDC Database.

Table 4: Industries by listing route included in the sample

Industry	IPO company	SPAC company
<i>Academic & Educational Services</i>	1	n.a.
<i>Basic Materials</i>	52	6
<i>Consumer Cyclical</i>	108	11
<i>Consumer Non-Cyclicals</i>	22	3
<i>Energy</i>	11	n.a.
<i>Financials</i>	48	10
<i>Healthcare</i>	94	6
<i>Industrials</i>	107	8
<i>Real Estate</i>	29	8
<i>Technology</i>	170	18
<i>Utilities</i>	8	2
Total	650	72

Source: Personal elaboration based on the data sample retrieved from Refinitiv SDC Database

The majority of deals are from Technology sector, accounting for 26.15% in IPOs, and 25.00% in SPACs; followed by Consumer Cyclical: 16.62% in IPOs, 15.28% in SPACs; and Industrials: 16.46% in IPOs, 11.11% in SPACs. Notably, Healthcare for IPOs, and Financials, as well as Real Estate for SPACs, are well represented, considering 14.46% of Healthcare deals in the IPOs sample, 13.89% of Financials, and 11.11% Real Estate listings in the SPACs sample.

3.2 Results and findings

3.2.1 Univariate statistics

The table presented below summarized completely the statistics of the panel for what concern univariate analysis. Results are divided in three different clusters, the first one represents the full sample, the second one SPAC firms, while the third one IPO firms. On the right are showed final results obtained through both the t-Test and the Wilcoxon rank-sum Test.

The level of significance is explained as follows: * $p < 10\%$; ** $p < 5\%$; *** $p < 1\%$.

Considering market-based variables, specifically EV / EBITDA, IPO firms present higher valuation in all the years analysed, from the first year after the listing (t+1) to the third year after the listing (t+3). Specifically, in (t+1) it could be noticed a mean (median) of 13.99x (16.39x) for IPOs, with SPACs showing a mean (median) of 8.73x (4.94x). The results obtained are all statistically significant at 1% level for both the t-Test and the Wilcoxon rank-sum Test, except for the latter at (t+3), which is significant at 5% anyway.

For what concerns EV / Revenues multiple, unless IPOs show higher multiples for both mean and median within the three years observed, no significant difference could be stated in the t-Test and in the WMW Test as well.

Regarding EV / EBIT multiple results are in line with those obtained for EV / EBITDA multiple. In (t+1) IPOs present a mean (median) of 17.05x (16.98x), compared to 9.98x (4.67x) of SPACs. The mean (median) of IPOs in (t+2) is 17.19x (25.87x), with SPACs showing a mean (median) 10.66x (7.39x). In (t+3) the trend is similar with IPOs presenting a value of 17.20x (16.70x) in mean (median), while SPACs reveal a mean (median) of 11.15x (7.31x). The results obtained are statistically significant at 1%, unless a 5% significance in (t+1) and (t+2) according to the Wilcoxon rank-sum Test.

The last multiple interpreted is P / Diluted EPS, which is extremely significant at 1% level in all the three years for both the t-Test and the WMW Test. In (t+1) the values displayed are 23.12x (16.57x) in mean (median) for IPOs, and 13.18x (-15.94x) for SPACs. In (t+2) it could be evidenced a mean (median) of 23.63x (28.80x) for IPOs, versus 13.58x (-4.13x) for SPACs. In the last year (t+3) IPOs are valued 25.17x (18.58x) in mean (median), contrarily to SPACs, which represent a value of 15.45x (4.85x).

Therefore, it can be confirmed that, from the univariate analysis and except in the case of EV / Revenues, IPOs outperform SPACs in terms of market multiples during all the three years after listing.

The second cluster starts with the analysis of the EBITDA Margin which indicate significance just for the first and for the second year after listing, but only at 10% level, with the third year that becomes insignificant. More precisely, for the first year IPO firms display a mean (median) of 16.06% (13.47%) compared to 9.53% in mean (median) for SPAC companies. As discussed above, the significance level is at 10%, however, the WMW Test, does not confirm a significant difference between the two sample. For the second year the confidence level is still at 10% with IPOs reflecting a 14.46% (10.68%) in mean (median), confirmed by both the t-Test and the Wilcoxon rank-sum Test.

In the second cluster the only variable that constantly indicates significance over the considered period is the ROIC. By going into details, during the first year (t+1) IPOs reflect a mean (median) of 13.48% (25.93%), compared to 7.54% (10.87%) in mean (median) reflected by SPACs. In the second year of analysis IPOs present a mean (median) of 9.03% (15.14%) compared to 6.03% (4.71%) presented by SPACs. For the last year IPO companies still outperform SPACs, accounting a mean (median) of 7.90% (14.66%), versus 5.25% (8.30%) in mean and median respectively.

For the last performance based variable, ROE, since it can be confirmed that, not even the only significant difference represented by the Wilcoxon rank-sum Test in the first year is verified by a significant difference in terms of means from the t-Test, the null hypothesis that SPACs and IPOs present differences in the marginality of net income on equity could not be rejected in none of the three years following listing.

Univariate analysis for performance-based ratios, displays that, there are not so much evidence as for market-based variables in differences between IPOs and SPACs after listing. Apart from ROIC, and EBITDA Margin in the first and second year (just at 10% level).

The next group of variables is represented by Operating Cash Flow and Total Assets. For size-based variables, as well as for leverage-based variables, as I stated previously in the methodology section, the analysis begins at listing time (t) to analyse the main findings with the results present in past literature, and then compare them. As regards the analysis of Operating Cash Flow, this appears to be higher in all three years considered: (t), (t+1), (t+2), for companies listed via traditional IPO. Nonetheless, there appears to be no significance within the time horizon considered, to the detriment of a 5% significance in the WMW Test, which is then not confirmed by the t-Test.

Analysing the results obtained for Total Assets for all three years considered, they appear to be higher in companies listed through IPO. Confirmation of the differential comes from the Wilcoxon rank-sum Test, which returns a significance of 1% for the year of listing (t), 5% for the following year (t+1) and 5% for last year analysed (t+2). In this particular case, considering that the variable assumes a highly abnormal distribution, it is possible to reject the null hypothesis that there are no differences between companies listed via SPAC and those listed via IPO for the Total Assets variable. By contrast, the differences are not found in the means of the two samples, as the t-Test is not significant for all three years studied, probably because in the recent year with the SPAC boom, this route attracted way more company, among which, those with size characteristics more in line with IPO companies. Consequently, compared to past evidence, reported by Arellano-Ostoa and Brusco (2002), Gleason et al. (2006), Adjei et al. (2008), Datar et al. (2012), as well as Kolb and Tykvová (2016), it is not possible to confirm that IPO firms are substantially larger than SPAC firms.

The last cluster of variables analysed aims to determine any differences in the degree of leverage between companies listed through a traditional IPO or through a SPAC. As for the size-based variables, the analysis starts from the year (t) of the company's listing and develops for the years (t+1) and (t+2). For both the Total Debts / Total Assets ratio and the Total Debts / Total Equity ratio, discrepancies between values recorded in medians and those recorded in means, are found throughout the period considered. This could be mainly explained by the data sample dimension as well as the extremely skewed distribution. In any case, the Wilcoxon rank-sum Test appears to be significant for both ratios analysed, from time (t) to time (t+2), with the exception of Total Debts / Total Equity at time (t). The difference present in the means, allows to establish a position in line with that of the previous literature, specifically by Arellano-Ostoa and Brusco (2002), Gleason et al. (2006), Adjei et al. (2008), Datar et al. (2012), as well as Kolb and Tykvová (2016). Companies listed via traditional IPO present a considerably lower degree of leverage than companies listed via SPAC, with a significance returned by the t-Test of 1%, with the exception of Total Debts / Total Equity at time (t), significant at 5%. Accurately, the means in Total Debts / Total Assets for time (t), (t+1) and (t+2) is respectively 24.62%, 17.81%, 18.24% for IPOs; compared with the means in SPACs which are 38.00%, 34.57%, 32.72%. Lastly, regarding Total Debts / Total Equity for the period analysed, it reflects 50.89%, 38.42%, 39.15% as means for the IPO sample, versus 75.26%, 79.85%, and 72.94% accounted by SPAC companies.

Table 5: Results obtained implying the univariate analysis

Variables	Full Sample (N=722)			SPAC firms (N=72)			IPO firms (N=650)			t-Test	WMW Test
	Median	Mean	Stdev	Median	Mean	Stdev	Median	Mean	Stdev	Value	Value
Market based variables											
<i>Ev / EBITDA (t+1)</i>	10.55	13.46	10.22	4.94	8.73	12.31	16.39	13.99	9.84	3.4552***	2.597***
<i>Ev / EBITDA (t+2)</i>	11.31	12.95	12.63	3.02	6.65	27.13	21.78	13.70	9.29	3.9717***	2.636***
<i>Ev / EBITDA (t+3)</i>	10.64	12.69	9.28	13.01	8.91	12.27	14.36	13.12	8.80	3.0334***	2.342**
<i>EV / Revenues (t+1)</i>	1.98	3.50	4.02	0.51	3.43	4.15	2.83	3.51	4.01	0.1293	1.063
<i>EV / Revenues (t+2)</i>	1.80	3.13	3.46	0.60	3.28	4.26	2.49	3.12	3.38	-0.3201	0.857
<i>EV / Revenues (t+3)</i>	1.78	3.22	3.69	0.59	3.16	3.87	1.80	3.23	3.68	0.1172	1.00
<i>EV / EBIT (t+1)</i>	14.38	16.34	11.20	4.67	9.98	14.40	16.98	17.05	10.57	4.0894***	2.65***
<i>EV / EBIT (t+2)</i>	15.47	16.45	12.43	7.39	10.66	21.60	25.87	17.19	10.56	3.5808***	2.024**
<i>EV / EBIT (t+3)</i>	15.65	16.60	11.42	7.31	11.15	14.90	16.70	17.20	10.82	3.3363***	2.03**
<i>P / Diluted EPS (t+1)</i>	17.91	22.18	17.41	-15.94	13.18	23.24	16.57	23.12	16.45	3.6111***	3.362***
<i>P / Diluted EPS (t+2)</i>	17.91	22.52	17.50	-4.13	13.58	23.62	28.80	23.63	16.28	3.9279***	3.837***
<i>P / Diluted EPS (t+3)</i>	19.06	24.21	19.56	4.85	15.45	22.94	18.58	25.17	18.94	3.1241***	2.704***
Performance based variables											
<i>EBITDA Margin (t+1)</i>	14.00	15.44	26.19	4.05	9.53	47.78	13.47	16.06	22.76	1.8084*	1.278
<i>EBITDA Margin (t+2)</i>	12.00	13.90	25.51	10.28	8.65	29.55	10.68	14.46	25.01	1.7202*	1.824*
<i>EBITDA Margin (t+3)</i>	12.00	12.75	32.04	33.03	7.49	67.30	12.01	13.38	24.79	1.4758	0.552
<i>ROIC (t+1)</i>	10.00	13.00	13.26	10.87	7.54	6.77	25.93	13.48	13.58	2.771***	3.569***
<i>ROIC (t+2)</i>	6.50	8.72	10.48	4.71	6.03	11.14	15.14	9.03	10.37	2.2259**	2.382**
<i>ROIC (t+3)</i>	5.00	7.63	8.95	8.30	5.25	8.00	14.66	7.90	9.01	2.252**	2.64***
<i>ROE (t+1)</i>	11.00	4.55	32.05	5.58	2.40	20.61	34.59	4.76	32.94	0.5206	2.271**
<i>ROE (t+2)</i>	7.00	2.49	26.41	5.10	3.42	18.06	17.93	2.39	27.21	-0.313	1.499
<i>ROE (t+3)</i>	6.00	3.24	21.82	3.15	3.67	15.40	18.01	3.19	22.43	-0.1731	1.512
Size based variables											
<i>Operating Cash Flow (t)</i>	5.08	30.40	322.85	9.18	20.44	109.11	143.49	31.37	336.49	0.2306	-0.408
<i>Operating Cash Flow (t+1)</i>	4.59	24.93	146.90	10.12	12.53	134.24	194.34	26.27	148.25	0.6995	-0.193
<i>Operating Cash Flow (t+2)</i>	5.24	27.90	186.71	1.75	19.00	127.22	280.47	28.88	192.19	0.3986	-2.071**
<i>Total Assets (t)</i>	72.83	692.14	4436.30	152.61	650.85	898.23	1358.04	696.46	4653.97	0.0725	-4.146***
<i>Total Assets (t+1)</i>	88.08	687.90	3843.52	159.14	638.01	1049.22	1586.02	693.31	4032.54	0.1075	-2.288**
<i>Total Assets (t+2)</i>	95.28	736.42	3799.80	158.59	703.24	1175.56	2236.93	740.07	3984.82	0.073	-2.054**
Leverage based variables											
<i>Total Debts / Total Assets (t)</i>	21.00	26.19	26.31	3.86	38.00	48.06	23.36	24.62	21.43	-3.8720***	-2.470**
<i>Total Debts / Total Assets (t+1)</i>	12.00	19.43	25.56	3.53	34.57	49.13	18.70	17.81	20.99	-4.9589***	-4.005***
<i>Total Debts / Total Assets (t+2)</i>	13.00	19.64	21.11	6.41	32.72	30.59	14.23	18.24	19.35	-5.1949***	-4.026***
<i>Total Debts / Total Equity (t)</i>	32.00	53.19	66.12	5.16	75.26	95.27	63.22	50.89	62.00	-2.4157**	-1.137
<i>Total Debts / Total Equity (t+1)</i>	18.00	42.39	61.78	6.78	79.85	94.18	30.83	38.42	55.97	-4.8204***	-3.735***
<i>Total Debts / Total Equity (t+2)</i>	16.00	42.46	61.38	9.74	72.94	92.81	31.45	39.15	56.04	-4.2699***	-2.249**

* p<0.10, ** p<0.05, *** p<0.01

Source: Personal elaboration based on the results obtained in the t-Test and Wilcoxon rank-sum Test

3.2.2 Multivariate regressions

First Year after listing

The results related to the regressions for the year (t+1) after listing are presented below, with the dependent variables at the time (t) representing the listing year, as discussed in the methodology.

The level of significance is explained as follows: * $p < 10\%$; ** $p < 5\%$; *** $p < 1\%$.

Ln OpCF (t)

Regarding the first variable used as a regressor, it appears to be significantly correlated with the multiples: EV / EBITDA, and EV / Revenues, both at the 5 percent confidence level. For the first multiple analysed, the correlation is negative, thus indicating a likely decrease in the latter as Operating Cash Flow increases. In contrast, in the case of EV / Revenues, the correlation is positive, thus indicating an association between an increase in Operating Cash Flow and an increase in the multiple studied. In the case of EV / EBIT and P / Diluted EPS, Ln OpCF (t) has no significant coefficients to predict any relationship with the multiples ($p < 0.1$). With respect to the economic performance variables: EBITDA Margin, ROIC and ROE, the correlation is positively significant at the 1% confidence level, indicating that as Operating Cash Flow increases, likely increases in these ratios are associated.

Ln TA (t)

The second independent variable used within the model, Ln TA (t), shows correlation exclusively with one of the multiples analysed, EV / EBITDA. The coefficient is found to be positively correlated and statistically significant at 5%. Thus, an increase in Total Assets is associated with an increase in the aforementioned multiple. Regarding the performance indicators, EBITDA Margin has no significant correlation with Total Assets ($p < 0.1$), while ROIC and ROE have a significant negative correlation at 1%, so an increase in Total Assets is associated with an expectable decrease in ROIC and ROE.

LEV1 (t)

For the third independent variable analysed, LEV1 (t), the results found are in contrast, or uncorrelated with those of the univariate analysis. Specifically, LEV1 is found to be significantly correlated at 1% with the multiples EV / EBITDA, EV / Revenues, and EV / EBIT. For all three cases described, the correlation is positive: an increase in the Total Debts / Total Assets ratio is associated with an increase in the multiples. Regarding P / Diluted EPS there is no significant evidence ($p < 0.1$). The performance ratios appear to be all associated with the dependent variable, with distinct significance: 1% for EBITDA Margin, 5% for ROIC, and only 10% for ROE. In the case of EBITDA Margin and ROE the relationship is positive, while in the case of ROIC it is negative. It is therefore possible to say that a lower degree of leverage is associated with a higher ROIC, as shown in the univariate analysis, where companies listed through IPO have a lower degree of leverage and a higher ROIC.

LEV2 (t)

As with the other leverage variable LEV1, the Total Debts / Total Assets (t) ratio exhibits a correlation with market multiples, except for the EV / EBIT multiple. But unlike the other leverage ratio, all multiples exhibit a negative and significant coefficient at 1% for EV / EBITDA, 5% for EV / Revenues, as well as EV / EBIT, respectively. Hence, in this specific case, an increase in the Total Debts / Total Equity ratio (t) is associated with a decrease in the multiples mentioned at (t+1). The study thus reinforces the proposition highlighted in the univariate analysis that higher leverage, represented in this case by the Total Debts / Total Equity ratio, is associated with lower multiples. LEV2 shows no correlation with any ratio of economic performance, with the exception of ROE, with negative and significant correlation at 5%.

Listing Year (t)

The variable Listing Year is shown to be positively correlated with the multiples EV / EBITDA, EV / Revenues, and P / Diluted EPS, while it does not exhibit a coefficient of significance toward the other dependent variables studied. For all the multiples mentioned above, the correlation is positive, but only at the 10% level, so it is possible that, as the years go by in the range considered from 2010 to 2020, companies listed in years trending toward 2020 may have recorded higher values for the above multiples.

Listing Route (t)

The Dummy variable, represented by the values 0 for IPOs and 1 for SPACs, confirms the results obtained through univariate analysis, being significantly correlated with the multiples EV / EBITDA, EV / EBIT, and P / Diluted EPS, respectively at 1% for the first, 5% for the second and 10% for the third. Consequently, an increase in the Dummy, leads to a decrease in the mentioned multiples. In the economic performance ratios, there is a negatively correlated coefficient significant at 1%, indicating that for an increase in the binary variable there is a decrease in ROE.

Industry (t)

The multinomial variable industry is found to be positively associated with the multiples EV / Revenues, at 1% significance, and P / Diluted EPS, at 5% significance, as well as with EBITDA Margin, at 1% significance. It is therefore possible to express that these indicators are strongly impacted by the industry in which the company operates, the year after listing.

Country (t)

The other multinomial dependent variable has correlation coefficients with the multiples EV / EBITDA, EV / Revenues, and P / Diluted EPS, at 1% for the former and 5% for the other two multiples, respectively. The mentioned multiples are thereby significantly impacted by the country in which the target company operates the year after the listing process. In the comparisons of economic performance ratios, the variable has no significance coefficients to predict any relationship.

Table 6: Results obtained for the first year of regressions analysis, with dependent variables at time (t+1) after listing, and independent variables at time (t), representing the year of listing

	Ev / EBITDA (t+1)	EV / Revenues (t+1)	EV / EBIT (t+1)	P / Diluted EPS (t+1)	EBITDA Margin (t+1)	ROIC (t+1)	ROE (t+1)
<i>Ln OpCF (t)</i>	-1.325** (0.02800)	0.442** (0.04600)	-0.363 (0.61700)	1.109 (0.34300)	0.0321*** (0.00100)	0.0339*** 0.00	0.0616*** 0.00
<i>Ln TA (t)</i>	1.483** (0.02400)	-0.171 (0.46900)	0.972 (0.20300)	-1.004 (0.40800)	-0.00888 (0.38700)	-0.0353*** 0.00	-0.0523*** 0.00
<i>LEVI (t)</i>	15.27*** (0.00700)	7.506*** (0.00100)	17.73*** (0.00700)	15.83 (0.12700)	0.330*** 0.00	-0.177** (0.02100)	0.186* (0.07800)
<i>LEV2 (t)</i>	-4.443*** (0.00400)	-1.129** (0.05000)	-3.987** (0.02300)	-4.119 (0.15500)	-0.028 (0.22000)	0.0238 (0.23500)	-0.0700** (0.01100)
<i>Listing Year</i>	0.359* (0.06600)	0.119* (0.09700)	0.211 (0.34400)	0.678* (0.06300)	0.00385 (0.23800)	0.00152 (0.56500)	-0.00074 (0.84700)
<i>Listing Route</i>	-6.496*** (0.00100)	-0.662 (0.37100)	-5.461** (0.02100)	-6.379* (0.09500)	-0.02 (0.55000)	-0.0296 (0.31500)	-0.101*** (0.00900)
<i>Industry</i>	0.275 (0.10100)	0.180*** (0.00400)	0.29 (0.14000)	0.652** (0.04100)	0.00780*** (0.00600)	0.000591 (0.79600)	-0.00239 (0.47500)
<i>Country</i>	-0.119*** (0.00100)	-0.0277** (0.02300)	-0.0508 (0.22000)	-0.151** (0.02000)	-0.000377 (0.48300)	-0.000545 (0.23500)	-0.000405 (0.53500)
P > F	0.0000	0.0000	0.0258	0.0329	0.0000	0.0000	0.0000
N	310	326	279	292	338	305	333
R ²	0.108	0.103	0.062	0.057	0.148	0.113	0.131

p-values in parentheses

* p<0.10, ** p<0.05, *** p<0.01

Source: Personal elaboration based on the results obtained

Second year after listing

Subsequently, the results related to the regressions for the year (t+2) after listing are presented, with the dependent variables at the time (t+1) after the listing year, as mentioned in the methodology.

The level of significance is explained as follows: * $p < 10\%$; ** $p < 5\%$; *** $p < 1\%$.

Ln OpCF (t+1)

In the second year after the listing (t+2), the findings obtained by employing the regression coefficients at the year after the deal (t+1), turn out to be different from those studied previously for the dependent variable Ln OpCF. Specifically, the highlighted correlations with market multiples and with respect to EBITDA Margin are no longer present ($p < 0.1$). The positivity of the coefficients and their respective significance (at 1%) toward ROIC and ROE ratios remain, indicating that even in the second year after listing an increase in Operating Cash Flow is likely to lead an increase in ROIC and ROE.

Ln TA (t+1)

Unlike in year (t+1), in year (t+2) the positive correlation coefficient is present not only with EV / EBITDA but also with EV / Revenues, at 1% and 5%, respectively. The other multiples analysed, as well as EBITDA Margin continue to lack a significant correlation coefficient ($p < 0.1$). ROIC and ROE, consistent with the previous year of analysis, are negatively associated with Total Assets at 1%.

LEV1 (t+1)

The correlation trend shown by the variable LEV1 (t) with market multiples at (t+1), is also reflected in the second year of analysis (t+2), again finding itself in contrast to the univariate analysis regarding the evidence found with respect to EV / EBITDA, EV / Revenues, EV / EBIT. In fact, the ratio Total Debts / Total Assets (t+1) shows a positive and significant correlation at 1% for all three cases mentioned. Regarding the economic performance ratios, the relation found in the previous year with EBITDA Margin lapses, while a negative and significant correlation coefficient at 1% is confirmed with both ROIC and ROE. Indicating, that even in the second year since the listing, companies with lower leverage are associated with those with higher ROIC, finding confirmation from the univariate analysis.

LEV2 (t+1)

Also for the second dependent leverage variable LEV2 it is possible to show similarities with the previous year, as there is a negative correlation coefficient between the regressor and the multiples analysed. Compared with the previous year, the correlation toward the multiple EV / Revenues is absent, while the strong negative correlation with EV / EBITDA, and EV / EBIT, both at 1% significance level, is confirmed. LEV2 (t+1) as with LEV2 (t) shows no significant correlation with economic performance ratios. But, as shown in the previous year, an increase in Total Debts / Total Equity, reflects a decrease in market multiples as found in the univariate analysis.

Listing Year (t+1)

The results found in the second year of analysis (t+2) are exactly the same as those deduced from the analysis performed on the previous year (t+1), except that the significance for the EV / EBITDA, and EV / Revenues multiples increases to 5%.

Listing Route (t+1)

The IPO / SPAC Dummy continues to confirm both the results obtained in the previous year and the evidence presented in the univariate analysis, being significantly associated with the EV / EBITDA, EV / EBIT, and P / Diluted EPS multiples. In addition, the significance ratio is 1% for all of the mentioned multiples. Regarding the results from the analysis of economic performance ratios, there are negative correlations not only with ROE, but also with EBITDA Margin, the former with 1% significance, the latter with 5% significance.

Industry (t+1)

The results recorded appear to be quite in line with the regressions performed for the previous year. Specifically, there remains positive correlation at 1% significance with EV / Revenues multiple, with P / Diluted EPS multiple, both of which at 1% significance, and with EBITDA margin at 5% significance. In addition, there is a positive correlation coefficient against EV / EBITDA, significant at 5%.

Country (t+1)

The multinomial variable Country, as for the first year of analysis, shows a negative correlation with the multiples EV / EBITDA, and P / Diluted EPS at 5% for both. Additionally, it shows a negatively correlated relationship with EV / EBIT, but just at 10%.

Table 7: Results obtained for the second year of regressions analysis, with dependent variables at time (t+2) after listing, and independent variables at time (t+1) after listing

	EV / EBITDA (t+2)	EV / Revenues (t+2)	EV / EBIT (t+2)	P / Diluted EPS (t+2)	EBITDA Margin (t+2)	ROIC (t+2)	ROE (t+2)
Ln OpCF (t+1)	-0.431 (0.38800)	-0.0962 (0.56900)	-0.318 (0.63200)	-0.125 (0.89400)	0.0132 (0.17700)	0.0246*** 0.00	0.0396*** 0.00
Ln TA (t+1)	0.928* (0.08800)	0.366** (0.04400)	0.494 (0.49000)	-0.231 (0.82500)	0.0136 (0.20400)	-0.0226*** 0.00	-0.0270*** (0.00500)
LEVI (t+1)	19.91*** (0.00100)	5.180*** (0.00300)	38.77*** 0.00	12.6 (0.25600)	-0.0598 (0.54600)	-0.173*** (0.00100)	-0.253*** (0.00500)
LEV2 (t+1)	-4.277*** (0.00800)	-0.311 (0.54100)	-6.054*** (0.00800)	-3.569 (0.26700)	0.048 (0.10700)	0.0158 (0.30900)	0.0406 (0.13200)
Listing Year	0.466** (0.01200)	0.131** (0.03200)	0.215 (0.38700)	0.590* (0.08900)	0.00435 (0.23100)	0.00038 (0.83200)	0.00082 (0.80200)
Listing Route	-5.048*** (0.00300)	-0.218 (0.70800)	-10.86*** 0.00	-15.68*** 0.00	-0.0848** (0.01400)	-0.0151 (0.35000)	-0.0814*** (0.00600)
Industry	0.327** (0.03700)	0.270*** 0.00	0.317 (0.13300)	0.920*** (0.00200)	0.00791** (0.01000)	-0.000618 (0.68100)	-0.000787 (0.77700)
Country	-0.0776** (0.01200)	-0.0122 (0.21300)	-0.0754* (0.06900)	-0.135** (0.02000)	0.000389 (0.50100)	0.000299 (0.29700)	0.000639 (0.22400)
P > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
N	349	368	315	318	372	350	380
R ²	0.109	0.161	0.158	0.114	0.102	0.159	0.118

p-values in parentheses

* p<0.10, ** p<0.05, *** p<0.01

Source: Personal elaboration based on the results obtained

Third year after listing

At the end are presented the results concerning the last year (t+3) of the multivariate regression analysis, with the dependent variables at the time (t+2) after the listing year, as stated in the methodology section.

The level of significance is explained as follows: * $p < 10\%$; ** $p < 5\%$; *** $p < 1\%$.

Ln OpCF (t+2)

In comparison with the previous two years of analysis (t+1 and t+2), the results obtained at the third year after listing (t+3) turn out to be partially different. Although the presence of positive and 1% significant coefficients for the performance variables ROIC and ROE remains constant, a negative correlation toward the EV / EBITDA multiple, with a significance of 1%, re-emerges as for the year after listing (t+1). In addition, there is a further negative correlation with another market multiple, P / Diluted EPS, significant at only 10%. The strong correlation with EBITDA Margin recorded in the first year of the study remains absent.

Ln TA (t+2)

As in the previous year of analysis (t+2) there is a strong positive correlation at the 1% level with the EV / EBITDA and EV / Revenues multiples. In addition, Total Assets remain strongly related at the 1% level to the economic performance ratios ROIC and ROE, confirming that, according to the study conducted, an increase in Total Assets is associated with a decrease in the two aforementioned indicators.

LEV1 (t+2)

The last year of analysis (t+3) seems to confirm the evidence recorded in the previous two years (t+1 and t+2) regarding the strong positive correlation with the market multiples EV / EBITDA, EV / Revenues and EV / EBIT, continuing to reflect a contrast with the results derived from the univariate analysis. Relative to performance ratios, the only correlation that is present is with ROIC, toward which it continues to show a strong negative correlation, significant at 1%. Thus, confirming that an increase in the debt ratio of Total Debts / Total Assets is associated with a decrease in ROIC.

LEV2 (t+2)

As in previous years (t+1 and t+2) there is no significant correlation coefficient toward ratios analysing economic performance. In contrast, there remains a negative and significant correlation with market multiples. In the third year, the association with the EV / Revenues multiple, significant at 5%, present in the first year, returns. It remains the negatively significant correlation with EV / EBITDA at 5%. That observed in the previous year of study (t+2) with respect toward EV / EBIT decays. Consequently, it is possible to state that generally an increase in the Total Debts / Total Assets ratio is correlated with a decrease in market multiples (as also confirmed in the univariate analysis), but the proposition is verified for all years only with respect to the EV / EBITDA multiple.

Listing Year (t+2)

In contrast with the findings about the previous years of analysis (t+1 and t+2), there is no significant correlation coefficient with the Listing Year variable in the third and final year of analysis.

Listing Route (t+2)

In the third year of analysis (t+3), listing through SPAC or through IPO turns out to be decisive with regard to the multiples mentioned in the previously investigated years (t+1 and t+2), in fact there remains a strong negative correlation coefficient toward the EV / EBITDA, EV / EBIT, and P / Diluted EPS multiples, significant at 1% for the first two and 5% for the third, respectively. So, it is possible to confirm the fact that the choice of listing method is strongly correlated with the values presented in the studied multiples in the years following the deal. Regarding the analysis related to performance indicators, the Dummy variable continues to demonstrate negative correlation with ROE, and EBITDA margin as well, at the 5% confidence level. It also denotes a significant correlation coefficient, but just at 10%. with ROIC.

Industry (t+2)

The results obtained in the last year of analysis (t+3) for the multinomial variable Industry differ slightly from those found the previous years. In fact, the previously verified correlation with the P / Diluted EPS multiple is not present, as for the correlation with the EV / EBITDA multiple. Nevertheless, the strong 1% correlations with EV / Revenues, and EBITDA Margin, at the 5%

confidence level, respectively, remain in place. As a consequence, could be derived that these variables are found to be strongly impacted by the reference industry.

Country (t+2)

The last dependent variable considered, presents results that differ somewhat from those recorded in the previous two years of analysis (t+1 and t+2), with the negative correlation presented in case of EV / EBITDA disappearing, while the negative correlation coefficients with EV / EBIT (t+3) and P / Diluted EPS (t+3) multiples at the 5% confidence level remain, with the latter thereby proving to be the variable most related to the company's Country of reference. Finally, it is possible to show a negative correlation coefficient toward EBITDA Margin, which was not present in previous years of analysis.

Table 8: Results obtained for the third year of regressions analysis, with dependent variables at time (t+3) after listing, and independent variables at time (t+2) after listing

	Ev / EBITDA (t+3)	EV / Revenues (t+3)	EV / EBIT (t+3)	P / Diluted EPS (t+3)	EBITDA Margin (t+3)	ROIC (t+3)	ROE (t+3)
Ln OpCF (t+2)	-1.425*** (0.00600)	-0.0515 (0.76900)	-0.715 (0.30800)	-2.118* (0.07100)	0.0159 (0.35400)	0.0258*** 0.00	0.0323*** 0.00
Ln TA (t+2)	1.818*** (0.00200)	0.541*** (0.00800)	0.807 (0.29700)	1.394 (0.28300)	0.00388 (0.84400)	-0.0234*** 0.00	-0.0244*** (0.00400)
LEVI (t+2)	12.23** (0.02300)	5.727*** (0.00600)	16.96** (0.02000)	-4.039 (0.75900)	-0.0134 (0.94100)	-0.142*** (0.00800)	-0.0276 (0.72700)
LEV2 (t+2)	-3.766** (0.01900)	-1.275** (0.04700)	-2.856 (0.18900)	1.373 (0.75400)	0.0319 (0.54700)	-0.00141 (0.92900)	-0.0235 (0.31800)
Listing Year	0.103 (0.54700)	0.00536 (0.93000)	-0.0274 (0.90500)	0.321 (0.40800)	0.00126 (0.83600)	0.00137 (0.40700)	0.000858 (0.74500)
Listing Route	-4.345*** (0.01000)	-0.961 (0.14600)	-7.441*** (0.00100)	-8.296** (0.04200)	-0.128** (0.02600)	-0.0268* (0.08400)	-0.0555** (0.02700)
Industry	0.197 (0.18700)	0.296*** 0.00	0.09 (0.65800)	0.000584 (0.99900)	0.0135** (0.01100)	0.00152 (0.30000)	0.0037 (0.10800)
Country	-0.0449 (0.10700)	-0.0185* (0.06400)	-0.0741** (0.04600)	-0.151** (0.01700)	-0.00234** (0.02000)	0.000298 (0.26800)	0.000399 (0.35800)
P > F	0.0004	0.0000	0.0026	0.0867	0.0113	0.0000	0.0000
N	372	399	338	341	418	377	417
R ²	0.075	0.15	0.069	0.04	0.047	0.2	0.092

p -values in parentheses

* p<0.10, ** p<0.05, *** p<0.01

Source: Personal elaboration based on the results obtained

RESEARCH LIMITATIONS

Firstly, the study faced challenges in obtaining a more extensive dataset for SPACs. This limitation arises from the fact that, within the 2010–2020 timeframe under examination, a significant number of SPACs were delisted, thereby reducing the available data pool. Consequently, the sample size for SPACs remained smaller in comparison to that of IPOs. This disparity in sample size may have introduced some bias into the analysis and impacted the statistical robustness of the results.

Secondly, while the data sample has been meticulously screened to eliminate outliers, there remains the possibility that certain variables exhibit slightly skewed values. These values could have influenced the outcomes of both the descriptive statistical analysis and the multivariate regression models, potentially affecting the overall findings.

Another limitation is related to the use of market multiples as performance indicators. Market multiples, being market-based, are susceptible to fluctuations in market sentiment. They may not fully capture the intrinsic value of companies, as they are influenced by various external factors and investor perceptions. Consequently, any conclusions drawn from the analysis must be interpreted within the context of market dynamics.

Additionally, the regression models employed in the study do not incorporate a market volatility index among the independent variables. This index would have allowed for the consideration of different market volatilities in the countries involved in the study, weighted according to their relevance. The absence of such a variable may have overlooked the potential impact of market volatility on the performance of both IPOs and SPACs.

CONCLUSIONS

In light of the SPAC boom during preceding years, the research was primarily motivated by the question: does the post-listing performance of SPACs surpass that of traditional IPOs? This inquiry stems from the escalating interest in SPACs within both financial markets and academic circles.

Most studies, including those cited in the literature review, were interested in determining the structural differences between companies listed through SPAC and those listed through IPO, or at least, were concerned in analyse few ratios that accounted partially the economic performance.

Moreover, it's worth noting that research focusing on post-listing performance tends to be concentrated on the analysis of share price movements. While share price is undoubtedly a crucial metric, it represents just one side of the broader value creation process occurring within public companies. As a consequence, this narrow perspective is likely to fail in capturing the full spectrum of factors contributing to a firm's post-listing performance.

Therefore, the study endeavours to bridge this gap by delving into a comprehensive analysis of post-listing performance. By scrutinizing a wider range of financial and economic performance indicators over a multi-year period, the thesis aims to provide a more holistic and nuanced perspective on the comparative performance of SPACs and IPOs post-listing.

The research was conducted by analysing a sample comprising 72 SPACs and 650 traditional IPOs, listed between 2010 and 2020. These companies address from various Countries and operates across a spectrum of industries. The methodology was a twofold approach, with the first section involving the application of the Wilcoxon rank-sum Test and the t-Test, while the second phase employed multifaceted multivariate regressions. The analysis was conducted over a three-year period following companies' respective listings, shedding light on the comparison between key financial metrics and factors, trying to determine which route results in better performance.

In the univariate analysis, IPOs consistently outperformed SPACs in terms of market multiples during the three years after listing. Thereby the investigation into market-based metrics, including EV to EBITDA, EV to Revenues, EV to EBIT, and P to Diluted EPS, unveils a recurring trend. The descriptive statistics indicate that IPOs exhibit higher valuations in all these multiples, underlining their superior performance. The multivariate regressions generally support the descriptive statistics, indicating that certain factors like Operating Cash Flow and Total Assets have significant correlations with market multiples in some cases, but the overall trend of IPOs outperforming SPACs is consistent.

Regarding economic performance ratios, the univariate analysis revealed that IPOs have higher EBITDA Margin and ROIC compared to SPACs, with some significance variations over the years. Multivariate regressions confirm the positive correlation between certain independent variables, and economic performance ratios, specifically the natural logarithm of Operating Cash Flow (Ln OpCF), the natural logarithm of Total Assets (Ln TA), and the first leverage variable (LEV1), represented by the ratio of Total Debts on Total Assets. More significantly, the multivariate regressions highlight the trend of IPOs holding an edge in ROIC. However, there are no significant differences in ROE between IPOs and SPACs, which aligns with the univariate analysis.

Leverage, as represented by the ratio of Total Debts / Total Assets (LEV1) and Total Debts / Total Equity (LEV2), exerts a multifaceted influence on post-listing performance. Univariate analysis indicates significantly that IPOs have lower leverage, as for what determined in the previous literature, while multivariate regressions show that the relationship between leverage and market multiples is intricate, with LEV1 exhibiting positive correlations with some multiples and LEV2 showing negative correlations with market multiples. These results suggest that the impact of leverage varies across different financial metrics. Moreover, LEV2 discover significant correlations with economic performance ratios, supporting the notion that lower leverage is associated with higher ROIC.

For what concerns the other variables implied as dependent in the regression model, accounted in the second methodology developed in the research, these reveal specific relationships with financial metrics. For instance, Listing Route (the Dummy variable that assumes 0 for IPOs or 1 for SPACs) consistently affects various multiples and ROE. Industry and Country also exhibit correlations with certain multiples.

At the end, the choice between IPO and SPAC is pivotal. From the combination of descriptive statistics and multivariate regression results, it is evident that IPOs tend to outperform SPACs in terms of market-based multiples during the three years after listing. The performance metrics, such as EBITDA Margin, ROIC, and ROE, are influenced by various factors, including leverage and industry, but there are no consistent significant differences between IPOs and SPACs in terms of ROE.

The analysis of size-based variables, including Operating Cash Flow and Total Assets, revealed notable trends in the context of companies listed through traditional IPO and SPACs. Yet, it's important to note that these differences did not translate into significant variations in the means of the two samples, as the t-Test did not yield statistical significance. This outcome may be attributed to the recent surge in SPAC listings, attracting companies with size characteristics more aligned with those

of IPO firms. Consequently, this study cannot conclusively affirm that IPO-listed companies are substantially larger than SPAC-listed counterparts, in contrast to prior research findings.

Additionally, leverage (LEV1 and LEV2) plays a complex role in determining financial performance, and its impact varies across market multiples. Furthermore, lower leverage is associated with higher ROIC, if considering the results obtained with LEV2.

In summary, the results of both descriptive statistics and multivariate regressions offer valuable insights into the performance of IPOs and SPACs, with IPOs that appear to have a more consistent advantage. However, it's essential to consider all the limitations accounted previously.

SUGGESTIONS FOR FUTURE RESEARCH

Future research could significantly enhance the scope of this study by taking into account the influence of market volatility in similar models. Delving how external market dynamics impact the performance of both SPACs and IPOs would undoubtedly yield valuable insights into their adaptability and resilience in ever-changing financial landscapes.

Furthermore, the analysis could be extended beyond the three-year post-listing period scrutinized in this study. Enlarging the timeframe for assessing the performance of these companies might uncover more profound trends, potential anomalies, and the long-term persistence of any performance disparities, should they exist.

A sector-specific approach could also be employed to unravel how industry-specific factors shape post-listing performance. Different industries often exhibit varying degrees of susceptibility to market conditions, potentially leading to distinct patterns in terms of valuation multiples, profitability, size, and leverage.

To provide a more holistic view of post-listing performance, researchers might consider incorporating qualitative data. Factors like management quality, corporate governance practices, and business strategies could be evaluated alongside quantitative metrics, offering a nuanced understanding of the multifaceted drivers influencing performance disparities.

Finally, it may be worth to expanding the comparative analysis to encompass other listing methods, such as Direct Listings and Reverse Mergers. This broader perspective could give more evidence on how diverse routes to market entry impact a company's subsequent performance, allowing for a more comprehensive evaluation of listing strategies.

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