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Special Purpose Acquisition Companies: A Comparative Analysis of Structural and Performance Differences Between the U.S. and European Markets

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1. Introduction

1.1. Research Context

The process of accessing public markets has long been a crucial milestone for many companies seeking to secure capital for growth, expand their investor base, and unlock new development opportunities. Traditionally, Initial Public Offerings (IPOs) have served as the primary and standard method for firms seeking public listings. However, over the past decades, alternative pathways have emerged, providing companies with greater flexibility and new strategic advantages, leading to a growing shift towards non-traditional listing methods.

In recent years, one of the most relevant alternatives to traditional Initial Public Offerings (IPOs) for taking a company public has been the Special Purpose Acquisition Company (SPAC). A Special Purpose Acquisition Company (SPAC) is a publicly traded blank-check company, without any underlying business operations, that is set up for the sole purpose of raising capital through an initial public offering (IPO) and subsequently identifying, acquiring, or merging with a privately held operating company (Kolb and Tykvová, 2016). Within a specified timeframe, after which the SPAC is subject to liquidation, it must execute a business combination commonly referred to as the de-SPAC transaction with a privately held target company, allowing the latter to become publicly listed. SPACs raise capital largely from public equity investors and have the potential to reduce risk and accelerate the IPO process for the privately held target companies, often offering more favourable terms compared to other listing methods. As a result, this alternative listing method provides a broader range of companies with greater financing opportunities by facilitating access to public markets and larger financing resources (Bazerman & Patel, 2021).

Originating in the 1990s as an evolution of their Blank Check Company[1] predecessors, SPACs have experienced notable growth over the past two decades, reaching an

[1] According to 15 U.S. Code § 77g(a)(1), a "blank check company" is defined as "any development stage company that is issuing a penny stock and that—(A) has no specific business plan or purpose; or (B) has indicated that its business plan is to merge with an unidentified company or companies." Source: Cornell Law School, Legal Information Institute. Retrieved from: https://www.law.cornell.edu/definitions/uscode.php?def_id=15-USC-1323493479-457386068.

unprecedented peak in 2020 and 2021. During this period, U.S.-listed SPACs raised substantial amounts of capital, with proceeds reaching $ 83,38 billion and $ 162,50 billion in 2020 and 2021, respectively, accounting for nearly 50% of all IPO proceeds in the United States in each of those years (SPAC Analytics). The European SPAC market also followed the upward-sloping trajectory of its U.S. counterparts, experiencing notable growth, although on a significantly smaller scale and inferior magnitude, with approximately 35 SPAC IPOs taking place across European exchanges in 2021, raising roughly $8,5 billion, a nine-fold increase in SPAC issuance compared to the previous year (White&Case, 2022).

Both literature and empirical research suggest that the growing popularity and increasing relevance of SPACs as an alternative listing method can be attributed to several advantages over traditional IPOs. These advantages include greater access to industry expertise through the initial sponsors, the benefit of upfront pricing, a shorter time to listing, lower marketing costs, and the possibility of raising additional capital through PIPE investments. However, despite the remarkable expansion and increased popularity of SPACs as an alternative listing method, there are still ongoing debates in the literature regarding their overall effectiveness and long-term sustainability. Key concerns include investor protection, given that company sponsors might not stay on board long after the business combination, shareholding dilution, a narrower scope of financial due diligence, and potential capital shortfall from high redemption rates, all of which may adversely affect post-business combination performances and investor returns (Klausner et al., 2021).

Given the growing relevance of SPACs as an alternative listing method and the ongoing academic debates regarding their effectiveness and long-term viability, this thesis aims to provide a comprehensive analysis and comparison of the market structure and post-business combination performance of SPACs in both the U.S. and European capital markets. The objective of this research is to examine and describe the market structure and dynamics of the SPAC ecosystem, analysing both their key financial and governance characteristics, and by assessing their effectiveness as capital-raising and investment vehicles. From this perspective, the present study seeks to contribute to the existing literature on SPACs by providing additional insights and empirical evidence through a

comparative analysis of the market structure and post-business combination performance of these vehicles across both the U.S. and European capital markets.

1.2. Research Objectives and Thesis Structure

The purpose of this thesis is to explore the structure, dynamics, and post-business combination performance of SPACs through a comparative analysis of the U.S. and European capital markets, with the final objective of contributing to the ongoing academic debate on their long-term sustainability and effectiveness as alternative listing vehicles. The present analysis also seeks to provide an updated and in-depth overview of the distinctive characteristics, structure, and recent developments within the SPAC ecosystem in both the U.S. and European capital markets, offering a timely examination of the dynamic and transformative period that has reshaped the SPAC market in recent years, particularly in light of the speculative SPAC IPO Boom, evolving regulatory landscape, and shifting investor sentiment. In this perspective, the thesis aims to examine the current SPAC market landscape in both the U.S. and European financial markets, highlighting recent trends in the number of SPAC IPOs, including the volume of proceeds raised through this listing method, target sector preferences, the main stock exchange of listing, and the average time required to complete a de-SPAC transaction. In addition, one of the main objectives of the following empirical analysis is to address the growing concerns surrounding the efficiency of the SPAC structure and its associated regulatory framework, as well as their implications for public investors, particularly after the de-SPAC transaction. Specifically, among others aspects, the analysis aims to investigate the performance of SPACs by examining the impact on investor returns of several features characterizing this alternative listing vehicle, including in particular potential conflicts of interest arising from misaligned incentives among the various stakeholders, the potentially detrimental effects of warrants and redemptions through dilution, the disproportionally high sponsors promote, and the time required to complete the business combination, all of which may negatively affect performance and long-term return for investors.

Specifically, this thesis is structured as follows:
Chapter 1 introduces the research context, outlines the purpose of the study, and presents the structure of the thesis, offering a clear understanding of its scope, objectives, underlying rationale, and methodological approach.

Chapter 2 offers a comprehensive overview of the theoretical framework of SPACs, providing their definition, describing their key features, outlining the historical evolution from their first appearance to the present, detailing their lifecycle through all associated phases from formation to the listing of a privately held company through the de-SPAC transaction, and examining the main stakeholders involved in the process, along with their respective roles, responsibilities, and interests. Through this comprehensive overview, the chapter aims to familiarise the reader with this alternative listing vehicle, allowing for deeper insight into its evolution, mechanisms, characteristics, and associated processes, with the objective of laying the theoretical foundations necessary for a critical understanding of the aspects explored in the following research.

Chapter 3 examines and explains the core structural characteristics of SPACs, offering a detailed analysis of both their associated advantages and disadvantages for the different stakeholders involved across all the phases of the SPAC lifecycle. The chapter begins by outlining the key benefits of SPAC instruments, including, among others, faster access to public markets, pricing certainty, access to additional capital, and enhanced flexibility for investors; then, it critically explores the major associated risks, such as ownership dilution, misaligned financial incentives, and conflicts of interest; and finally, it examines the costs and performances associated with SPAC transactions, reviewing the key findings from existing academic literature. This chapter aims to provide a more in-depth and comprehensive understanding of the underlying mechanisms that shape SPAC transactions, highlighting the most critical aspects characterizing both their strategic appeal and critical weaknesses, which are necessary for the empirical analysis presented in the subsequent part of the thesis.

Chapter 4 examines the prevailing academic literature on SPACs, presenting the main findings, empirical evidence, and critical concerns regarding this alternative listing

method in a chronological order. Even if the related academic research is still relatively recent, the body of literature has significantly expanded in recent years, driven by the growing popularity and adoption of SPACs, as well as by the structural and legal transformations they have undergone and the increasing concerns raised among scholars, regulators, and market participants. This chapter is intended to help the reader acknowledge the most widely debated areas of analysis concerning SPACs, while also highlighting the evolution of the findings and the key trends that have emerged in the literature over time.

Chapter 5 provides an empirical analysis of the structural developments of the SPAC market in both the U.S. and European financial markets. The examination is conducted through a comparative analysis between two samples of SPACs selected from the U.S. and European capital markets, selected by including those that completed their IPO between January 1, 2019 and March 31, 2025, and whose country of incorporation and primary stock exchange of listing are located in the United States and Europe, respectively. This analysis aims to provide an updated overview of the evolution and trends of Special Purpose Acquisition Companies across the two markets, by examining on a year-by-year basis, the number of SPAC IPOs, the volume of proceeds raised, the distribution of SPACs across the primary stock exchanges, the sectoral distribution of target companies, and the average timing to complete a SPAC transaction.

Chapter 6 embodies the empirical examination of the post-business combination performance patterns of SPACs in both the U.S. and European capital markets through a comparative analysis, with the objective of evaluating the returns investors may obtain by holding shares in the combined company. For the purpose of the analysis, the samples of SPACs that completed the business combination are further divided into sub-samples, firstly on the year of the IPO, and secondly according to the time taken to complete the de-SPAC transaction. This examination aims to provide additional and updated insights into the post-merger performance of SPACs across the two markets, assessing their ability to underperform or outperform the broader market, and evaluating the impact of factors such as the IPO timing during the SPAC IPO Boom of 2020 and 2021 and the time to complete the business combination.

Finally, *Chapter 7*, the conclusion, summarizes the thesis and the key findings that emerged from the empirical analyses conducted throughout the study, and discusses the major implications and broader considerations surrounding this alternative listing method.

2. Theoretical Framework of SPACs

2.1. Definition and Key Features

Special Purpose Acquisition Companies (SPACs) are investment vehicles, often referred to as blank checks or shell companies, with neither revenues nor operating history, set up by a team of promoters ("Sponsors") specifically to raise capital through an Initial Public Offering ("IPO") for the purpose of merging with or acquiring ("Business Combination") a privately held operating company within a set timeframe, ultimately resulting in the target company becoming publicly listed.

SPACs are set up by sponsors or promoters, who are individuals or organizations providing both the high-risk capital required for the SPAC's formation and operation, as well as the knowledge, expertise, reputation, and proprietary deal network within specific industries to execute valuable business combination transactions. The sponsors, who serve as the management team of the SPAC, are responsible for providing the initial capital required to cover the operating expenses associated with SPAC's formation and management, while also identifying, evaluating, and proposing a suitable target company, as well as negotiating the terms of the potential business combination. In return for sponsoring the SPAC in its pre-IPO stage, investments, and efforts, sponsors typically receive a significant equity stake, often referred to as "Founder Shares", which grants them approximately 20% of the SPAC's shares post-IPO.

The Initial Public Offering takes place without prior disclosure regarding the potential target company to be acquired in the following business combination. However, in some cases, the SPAC may disclose in the prospectus certain selection criteria, such as the

specific business sector, industry, geographic region, or characteristics of the target company it intends to focus on (Berger, 2008).

The investor base involved in SPACs is primarily composed of institutional investors, including hedge funds, pension funds, mutual funds, and private equity firms, with a growing participation of retail investors. Given the limited amount of information available to evaluate their investment decision in SPACs, investors must primarily rely on the assessment of the experience, reputation, and track record of the sponsors and management team, as well as the investment and acquisition criteria disclosed in the prospectus.

In the Initial Public Offering, the SPAC issues "units" consisting of both common stock and warrants, which allow investors to purchase additional shares at a predetermined price once the business combination is completed (typically at a premium). The funds raised through the IPO process are held in an interest-bearing trust account, to which sponsors cannot have access until shareholders approve the merger, ensuring that investors retain the right to receive their pro rata shares of the funds held in the trust account if they choose to exit before the business combination or if the SPAC fails to complete it within the set timeframe (Baird, 2024). The SPAC IPO marks the beginning of the screening period, during which the sponsors typically have approximately twenty-four to thirty-six months to identify, select, evaluate, and propose a privately held operating company as the target for the business combination. Once the target is selected, SPAC shareholders are required to vote on the proposed business combination and the associated privately held target company at the general meeting.

If approved, the target company merges with or is acquired by the SPAC and becomes publicly traded through the de-SPAC transaction, while common shareholders who abstained or voted against the business combination are entitled to redeem their shares for their pro rata portion of the proceeds held in trust. Otherwise, if more than a predefined percentage of shareholders vote against the business combination and exercise their redemption rights, the de-SPAC transaction fails to close, requiring the sponsors to select and propose another target company, which has to be approved by the shareholders within the remaining timeframe. Conversely, if the SPAC fails to complete the business combination within the defined period, it undergoes liquidation, all the funds are returned to the original investors, and the sponsors lose their risk capital (Berger, 2008).

2.2. Background and History of SPACs

Special Purpose Acquisition Companies (SPACs) originated in the United States, being direct descendants of the "blank check companies" that gained prominence in the 1980s (Cumming et al., 2014). The Securities Act of 1933 defines a blank check company as "a development stage company that has no specific business plan or purpose or has indicated that its business plan is to engage in a merger or acquisition with an unidentified company or companies, or other entity or person" (SEC, 2007). In the 1980s, due to weak regulatory oversight, blank check companies were widely used for fraudulent activities within the penny stock market, often serving as vehicles for "pump and dump" schemes, a fraudulent practice in which the price of a security is inflated through false, misleading, or exaggerated statements and information before being sold at the expense of unsophisticated investors (Riemer, 2007). In this context, blank check companies were promoters of penny stocks listed on the Over-the-Counter (OTC) Market, promising high returns and value to non-expert investors, despite offering poor guarantees and an unclear purpose, and between 1987 and 1990, approximately 2,700 blank check offerings took place (Shachmurove & Vulanovic, 2017; Heyman, 2007).

In response to the substantial increase in the magnitude and frequency of fraud and corruption in the securities market, and with the objective of protecting investors and restoring investor confidence, the US Congress enacted the Penny Stock Reform Act of 1990 (PSRA). This reform directed the Securities and Exchange Commission (SEC) to impose stricter regulations on blank check companies, introducing rigorous disclosure and management requirements focused on transparency, use of proceeds, and investor protections. After six months, the SEC proposed Rule 419[2], requiring IPO proceeds and securities to be held in escrow accounts, prohibiting their early trading, and imposing an eighteen-month time limit for completing an acquisition or returning funds to investors. Moreover, it also mandated the full disclosure of escrow terms, granted investors the right to rescind their investments, and required that the acquisition must account for at least

[2] 17 C.F.R. § 230.419 (2024). This rule imposes stricter restrictions on blank check companies requiring all the funds raised in the IPO to be held in escrow until a suitable business combination target is identified. Retrieved from https://www.law.cornell.edu/cfr/text/17/230.419

80% of the funds held in escrow (Vota, 2022). As a result, the Rule 419 led to a significant reduction in the number of blank check companies in the market, setting the foundation for the modern SPAC framework. As noted by Greenspan (2021), the history and development of SPACs can be divided into four distinct periods, each characterized by significant changes in the structure, regulatory environment, and overall market perception of this alternative listing method.

First Generation SPAC, 1992 - 1999

In the mid-1990s, as the US economy began to improve and recover from the recession of the late 1980s, the companies started to grow at an increased pace, as well as the importance and potential benefits of public offerings. It was in this context that the first SPAC was established in 1992, conceived as a hybrid blank check company designed by David Nussbaum and David Miller[3] that complied with most of Rule 419 restrictions of the SEC, but without being effectively subjected to the regulation itself since it did not fall within the statutory definition of penny stocks, thereby achieving a technical exemption from it.

The strategy of adopting most of the restrictions of Rule 419, even without being subject to the regulation, was implemented both to ensure investor confidence and to enhance the attractiveness of SPACs to investors, as well as to avoid regulatory burdens by maintaining credibility with securities regulators. This first generation of SPACs provided investor protection by placing IPO proceeds in escrow accounts (except for a small portion used to cover operational expenses) and by ensuring investors' right of rescission once the acquisition was announced. However, in contrast to Rule 419's restrictions, SPACs were granted 24 months to complete the business combination, and their securities were permitted to trade before the acquisition was finalized, providing investors with greater flexibility. The first SPAC, Information System Acquisition Corporation, went public in 1993 at $6 per share and traded on the OTC market, as it was not eligible for exchange listing, being classified as a "Specified Purpose Acquisition

[3] The concept of SPACs originated in 1993, credited to David Miller, the head of Graubard Miller's Corporate and Securities group, and his NYU Law School friend, investment banker David Nussbaum. Together they created an alternative route for private companies to access public capital. Retrieved from https://www.graubard.com/blog/2025/02/who-invented-spacs/

Company[4]". Following this, between 1993 and 1994, Nussbaum launched thirteen SPACs, twelve of which successfully completed a business combination, thereby demonstrating the viability of the SPAC model to the market and helping to reshape its negative reputation from the 1980s (Riemer, 2007). During the mid-to-late 1990s, despite their initial success, SPACs experienced a gradual decline and near disappearance despite the promising start, mainly caused by both the favourable market conditions that facilitated easier access to capital markets through traditional IPOs and the expansion of the Dot Com Bubble (Greenspan, 2021).

Second Generation SPAC, 2003 – 2011

A second generation of SPACs emerged in 2003 as the traditional IPO market weakened and companies faced increasing challenges in raising capital, leading to a growing interest in alternative listing methods, particularly in the wake of the internet boom. The second generation started with the IPO of Millstream Acquisition Corporation and is best characterized by the beginning of SPAC listing on the AMEX, New York Stock Exchange, and NASDAQ, as well as by the involvement of hedge funds in exploiting the mechanisms of shareholders voting to engage in greenmail, a practice where investors threaten to block a proposed transaction unless paid to withdraw their opposition. As a consequence, to address the greenmail issue, the SEC approved an exchange rule in December 2010, allowing SPACs to conduct a tender offer in lieu of a shareholder vote on a proposed transaction (Securities and Exchange Commission, 2010).

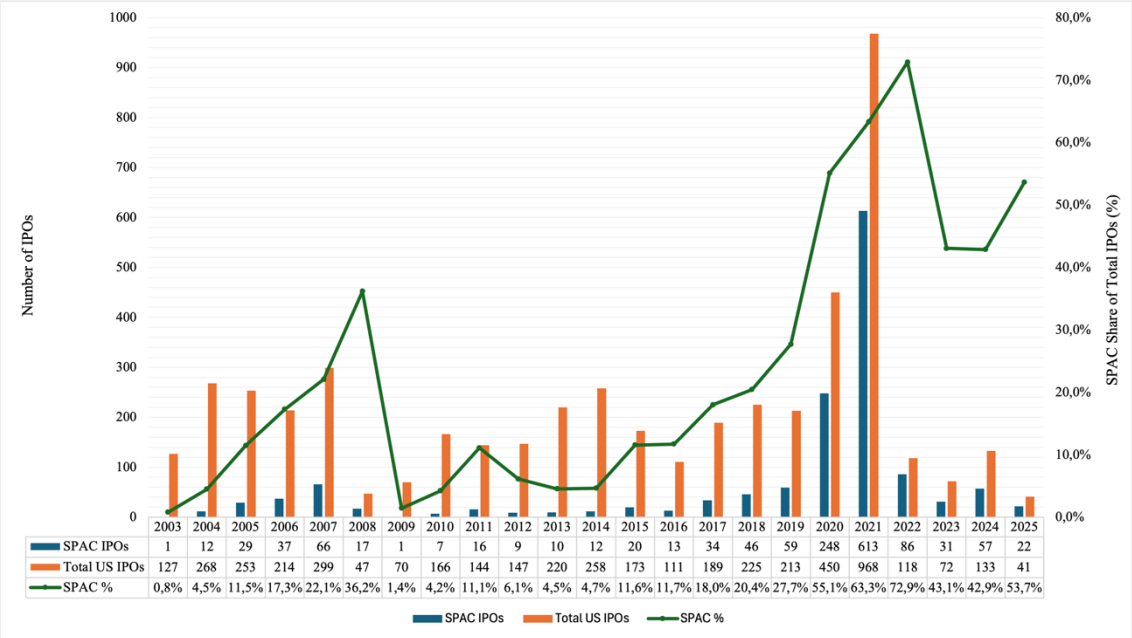
As shown in *Figure 1*, from just one SPAC IPO in 2003 to 66 SPAC IPOs in 2007, accounting for approximately 22% of all US IPOs that year, SPACs raised approximately $18.1 billion in proceeds over four years (SPAC Analytics), demonstrating their relevance as an effective and credible alternative to traditional Initial Public Offerings. In this period, while early SPACs were underwritten by small and specialized investment banks, their growing relevance also attracted major Wall Street firms such as Merry

[4] The concept of "specified purpose acquisition companies" (SPACs) was introduced in 1992 by David Nussbaum, supported by the law firm Graubard Miller, as an evolution of blank-check companies offering greater investor protections and complying with most of Rule 419 restrictions. See Riva & Provasi (n.d.), Evidence of the Italian Specified Purpose Acquisition Company. https://doi.org/10.22495/cocv16i4art6

Lynch, Deutsche Bank, and Citigroup, which have increasingly managed SPAC offerings (Riemer, 2007).

Following the global financial crisis of 2008, this second wave of SPACs came to an end, and for approximately a decade, SPACs remained a niche investment structure with limited public awareness. However, structural changes and regulatory adjustments provided stronger investor protections, greater flexibility, and broader institutional participation, laying the groundwork for a third generation of SPACs and their resurgence in 2017.

Figure 1:SPAC IPOs vs Total IPOs in the U.S.[5]



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
SPAC IPOs	1	12	29	37	66	17	1	7	16	9	10	12	20	13	34	46	59	248	613	86	31	57	22
Total US IPOs	127	268	253	214	299	47	70	166	144	147	220	258	173	111	189	225	213	450	968	118	72	133	41
SPAC %	0,8%	4,5%	11,5%	17,3%	22,1%	36,2%	1,4%	4,2%	11,1%	6,1%	4,5%	4,7%	11,6%	11,7%	18,0%	20,4%	27,7%	55,1%	63,3%	72,9%	43,1%	42,9%	53,7%

Third Generation SPAC, 2012 – 2016

The third generation of SPACs emerged after the Global Financial Crisis, adopting the common structure seen in today's SPACs, which offered $10 units with $11.50 warrants and conducted a tender offer, while still retaining the shareholder vote due to listing rules. This generation was also characterized by the increasing presence of the "SPAC Mafia[6]"

[5] Own graphic elaboration of data from SPAC Analytics, n.d.

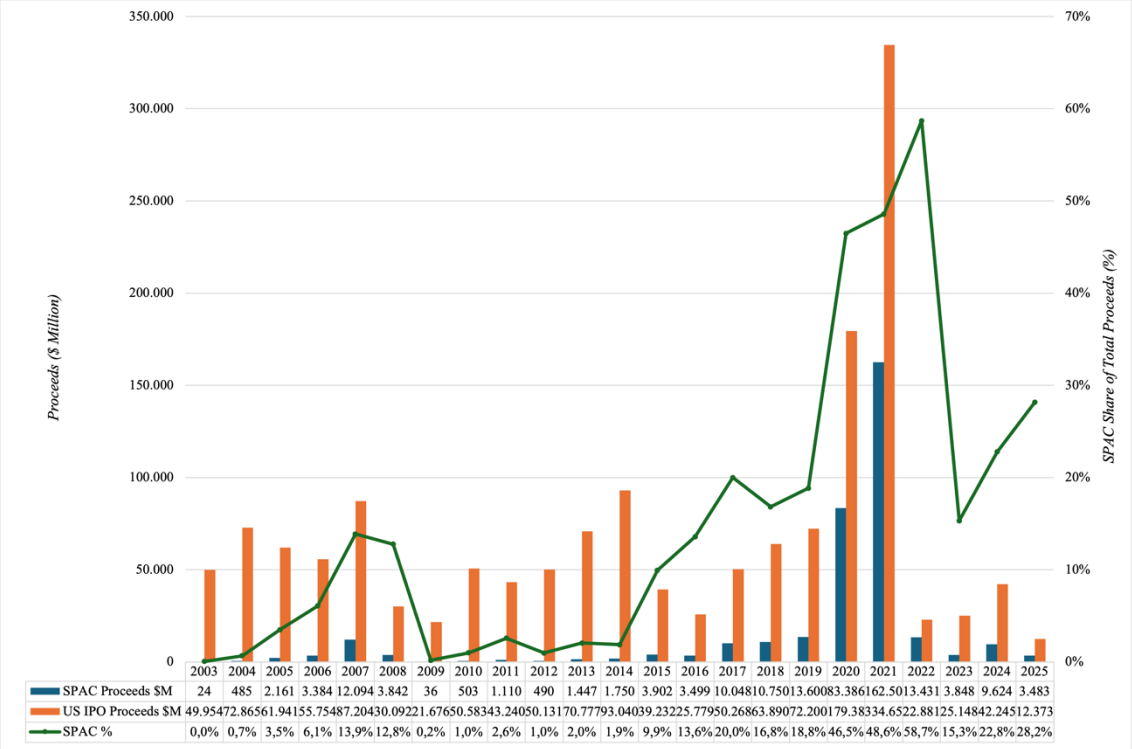
[6] The term "SPAC Mafia" informally refers to a group of hedge funds known for exploiting SPAC warrant-based trading strategies, by securing near-risk-free returns above treasury rates by purchasing SPAC units during IPOs and later redeeming or selling the shares. See Klausner, Ohlrogge, & Ruan (2021).

group of hedge funds, which leverages the unique features of SPAC units to pursue investment strategies that offer them both downside protection and upside potential. After a period of stagnation for SPAC transactions, in 2016 the SEC approved the NYSE's rule change and the adjustments to listing standards that allowed SPACs to be listed on the NYSE, a practice that had been restricted since 2011 (Greenspan, 2021). This, combined with structural changes and regulatory adjustments, provided stronger investor protections, greater flexibility, and broader institutional participation, laying the groundwork for a third generation of SPACs and their resurgence in 2017.

Fourth Generation SPAC, 2017 – 2021

By the beginning of 2017, the two top investment banks, Goldman Sachs and Morgan Stanley, began underwriting SPACs, and the NYSE changed its rules to allow tender-only SPACs to list, therefore creating the right environment for a significant expansion of SPAC offerings. Moreover, from 2017 onward, SPACs became increasingly attractive to investors as trust accounts began holding 100% of IPO proceeds, guaranteeing a full return of capital, while warrants offered additional incentives to purchase SPAC units at the IPO. As shown in *Figure 2*, in 2017, 2018, and 2019, the SPACs market grew significantly, raising $10.0 billion, $10.7 billion, and $13.6 billion proceeds respectively in each year, accounting for nearly 20% of total IPO proceeds annually. This positive trend peaked in 2020 and 2021, with SPACs raising $83.38 billion and $162.50 billion, respectively, accounting for approximately 50% of all IPO proceeds and representing the peak of the SPAC bubble.

Figure 2:SPAC IPO Proceeds vs Total U.S. IPO Proceeds and Share[7]



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
SPAC Proceeds $M	24	485	2.161	3.384	12.094	3.842	36	503	1.110	490	1.447	1.750	3.902	3.499	10.048	10.750	13.600	83.386	162.500	13.431	3.848	9.624	3.483
US IPO Proceeds $M	49.954	72.865	61.941	55.754	87.204	30.092	21.676	50.583	43.240	50.131	70.777	93.040	39.232	25.779	50.268	63.890	72.200	179.383	334.652	22.881	25.148	42.245	12.373
SPAC %	0,0%	0,7%	3,5%	6,1%	13,9%	12,8%	0,2%	1,0%	2,6%	1,0%	2,0%	1,9%	9,9%	13,6%	20,0%	16,8%	18,8%	46,5%	48,6%	58,7%	15,3%	22,8%	28,2%

This unprecedented growth and positive trend in SPAC IPOs were primarily driven by a combination of monetary and fiscal stimulus, low interest rates, and surging public markets, all of which created ideal conditions for SPAC proliferation (Chaudhari, 2025). The market volatility following the COVID-19 pandemic further increased uncertainty in capital markets, leading many companies, especially those in high-growth and capital-intensive industries such as technology, biotech, and consumer sectors, to pursue SPAC mergers rather than opting for traditional IPOs. This shift occurred mainly in response to an increasing demand for greater price certainty, reduced exposure to market fluctuations, and a quicker public listing, while enabling companies to secure a much-needed capital influx more efficiently (Kanamalla, 2021). Another possible explanation for the surge in SPAC offerings can be attributed to a combination of institutional demand and speculative mania, fuelled by many inexperienced investors turning to financial speculation in SPACs as a form of entertainment during the pandemic, along with the increasing involvement of the previously mentioned SPAC Mafia (Greenspan, 2021).

[7] Own graphic elaboration of data from SPAC Analytics, n.d.

Finally, from 2022 to the first quarter of 2025, the SPAC market experienced a period of correction in response to the excessive deal-making frenzy of 2020 and 2021. As a matter of fact, the substantial enthusiasm and unprecedented growth that fuelled the SPAC speculative bubble, combined with the poor post-merger performance, failed deals, and widespread redemptions, have led to a normalization phase of the SPAC market. Despite the adoption of earnout components and lockup provisions in 2021 to mitigate dilution and asymmetric information, non-redeeming retail investors still appear to bear the costs of SPAC transactions, facing poor returns, while other parties benefit from more lucrative opportunities (Klausner et al., 2021).

Over the past three years, the market has been characterized by a lower but still significant number of deals, stricter investor scrutiny, and a more selective and cautious approach to SPAC transactions, as well as by the stricter regulations proposed by the Securities and Exchange Commission (SEC) covering forward-looking statements and accounting and disclosure practices regarding SPACs (Russell Investments, 2023).

Despite market volatility, SPACs remain a viable pathway to public listing, especially for companies that are not traditional IPO candidates. Enhanced regulatory oversight and investor scrutiny are fostering a more sustainable and structured environment, while recent positive trends in the number of SPAC IPOs and raised proceeds indicate resilient market dynamics.

2.3. The lifecycle of Special Purpose Acquisition Companies

2.3.1. SPAC Formation

The Special Purpose Acquisition Company (SPAC) is established by a group of sponsors, consisting of qualified and experienced professionals with a strong track record, solid reputation, and access to proprietary deal flow and sector-specific expertise, enabling them to identify, promote, and execute value-generating business combination transactions. These details about the sponsors involved in SPACs must be adequately conveyed in their prospectuses, as investors rely heavily on them when deciding whether

to invest in these alternative listing vehicles, given the absence of concrete information about the future business combination at the time of the IPO.

Sponsors invest risk capital in the form of nonrefundable payments to lawyers, bankers, and accountants to cover the initial expenses required to set up the SPAC, the costs of the IPO, and the operating expenses incurred while searching for a suitable privately held target company for the business combination. This investment of the sponsors constitutes their IPO contribution, also known as 'skin-in-the-game[8]'. In exchange for this initial capital contribution, sponsors are allowed to purchase an equity stake in the SPAC at a nominal price, known as founder shares or the promote, which consist of non-redeemable common stocks amounting to 20% of the SPAC ownership post-IPO, or, equivalently, 25% of proceeds generated by the SPAC IPO, which are held in trust accounts until the business combination occurs (Klausner et al., 2021). In addition to founder shares, sponsors often purchase warrants in private placements at fair market value immediately before the IPO. Together, these purchases represent the sponsors' at-risk capital and serve as the compensation for setting up the SPAC and supporting it while seeking a suitable privately held target company to take public, ensuring alignment of interests with public shareholders and reinforcing their commitment to SPAC's success.

Recent SPAC IPOs, like in the case of the Pershing Square Tontine Holdings Ltd, suggest that sponsors are increasingly agreeing to accept a smaller percentage of the promote, which benefits transactions by reducing the dilutive impact on public shareholders, better alignment of interests, and attracting potential merger partners (Bloomberg Law, 2020).

An important part of the SPAC's formation is the establishment of its management team and board of directors, which must comply with regulatory and exchange listing requirements. The board includes at least three independent directors responsible for oversight and investor protection, along with sponsors and industry experts with extensive knowledge and experience in both the public markets and the targeted sector.

At the time of the SPAC's formation, a fundamental document is the prospectus, which is filed prior to the IPO as part of the underwriting process, which includes the roadshow

[8] "Skin in the game" refers to the sponsors' upfront investment in the SPAC, representing capital at risk and signalling their commitment to the SPAC's success. This contribution also helps cover operating expenses, ensuring that nearly 100% of the public shareholders' capital remains in trust, enhancing investor protection (Chatterjee, Chidambaran, & Goswami, 2016).

and the pricing process aimed at attracting investor interest. The SPAC IPO prospectus must comply with applicable securities laws and, while it includes standard sections such as information on directors, securities offered, and distribution plans, it lacks the traditional disclosures typical of a standard IPO prospectus, such as detailed information about the business descriptions and detailed financial statements, since the SPAC has neither revenues nor operating history. The prospects, however, must include some specific information, including the terms of the founding shareholders' initial investment and related transfer restrictions, any target business sector or geographic area for the business combination if applicable, intended valuation methods for the acquisition, a statement regarding debt limitations prior to deal completion, details on permitted investments and use of escrowed funds, allocation administrative and working capital expenses, any limits on conversion rights, and the expiry date of any issued warrants (U.S. Securities and Exchange Commission, 2024). This key regulatory document provides an overview of the SPAC's acquisition strategy, which can be specific, focusing on a particular sector, industry, geographical region, or broad, allowing greater flexibility in selecting the target company. However, in any case, the SPAC cannot disclose a specific acquisition target at the time of its IPO, as this would trigger more stringent disclosure requirements. Given both the limited information available regarding the business combination and the absence of financial and operational history, investors primarily rely on the information conveyed in the prospectus regarding the expertise, credibility, track record, acquisition criteria, prior involvement in M&A, and connections with venture capital and private equity of the sponsors and management team when evaluating their investment decisions. Other relevant information included in the prospectus regards the experience, roles, and responsibilities of the SPAC's management team, potential conflicts of interest, compensation structures, sponsor equity ownership, material dilution risks for public shareholders, and key details regarding the de-SPAC transaction (U.S. Securities and Exchange Commission, 2024).

Finally, the registration also includes the establishment of a trust account where all the funds raised during the IPO will be held until either shareholders approve the business combination or the SPAC is liquidated. The information regarding the funds held in the trust accounts is contained in the prospectus, which outlines the intended use of these funds in the case of a business combination and the terms and process for returning capital

to investors if the SPAC fails to complete a transaction within the predefined timeframe. After that, the SPAC enters a preparatory phase leading up to the pricing date, and just before the IPO, underwriters file the final prospectus in accordance with the listing requirements of the relevant exchange.

2.3.2. The SPAC IPO

Once the registration document is approved, in compliance with the listing requirements and regulations of the relevant stock exchange and regulatory authorities, the SPAC can proceed with its Initial Public Offering. Due to their lack of underlying business operations, financial history, and complex asset structures, SPACs are subjected to a more streamlined IPO process that demands simpler regulatory scrutiny, financial statement preparation, and due diligence compared to traditional IPOs.

The IPO process of the SPAC involves an underwriting phase, which includes the roadshow and the pricing process overseen by an underwriting syndicate. Underwriters, typically investment banks, play a crucial role in assisting the SPAC throughout the listing process, structuring the offering, ensuring compliance with regulatory and exchange requirements, marketing the SPAC to potential investors, and receiving a compensation of approximately 5% to 5.5% of the funds raised during the IPO, comprising an upfront commission paid at the IPO closing and a deferred commission paid at the closing of the de-SPAC transaction.

The roadshow is organized by investment bankers or other investors to promote the SPAC and generate investor interest in the public markets. Generally, SPAC's CEO, CFO, and key executives present the investment opportunity to potential institutional investors, showcasing the investment thesis, value proposition, and strategic potential. As a result, institutional investors or other sophisticated investors express interest in committing capital and purchasing shares to participate in the SPAC's IPO, and if a sufficient base of commitment is secured through the roadshow, the IPO can proceed.

After completing the roadshow and securing investor commitments, the SPAC proceeds with the public listing on a stock exchange. The SPAC IPO is structured to offer investors units of securities, consisting of both shares of common stock, called public shares, and warrants, called public warrants, which grant holders the right to purchase an additional public share or a fraction of public share in the future at a predetermined price, typically

set at a premium to the IPO price, serving as an incentive for early investors. Initially, these SPAC units are traded as a single security, but after a specified period, common stocks and warrants can be traded separately on the exchange under distinct trading symbols. Beyond offering a more streamlined IPO process, SPACs are also priced at a fixed amount per unit (e.g., $10 per unit), regardless of market demand or valuation considerations, differing from traditional IPOs, where pricing is influenced by company valuation and investor sentiment.

At this moment, the SPAC has two different categories of shares: founder shares, also known as Class B shares, and public shares, also known as Class A shares. Founder shares are issued to sponsors at a nominal price before the IPO, typically representing 20% of post-IPO equity, and generally grant sponsors the exclusive right to elect the SPAC directors. Founder shares automatically convert into common shares upon completion of the de-SPAC transaction and are subject to a lock-up period[9] of one year after the business combination completion. On the other hand, public shares, which typically represent 80% of post-IPO equity, are sold during the IPO to institutional and retail investors at a fixed price per unit, granting them one voting right per share in shareholder meetings. Moreover, unlike founder shares, public shares include redemption rights, allowing investors to exit before the completion of the business combination by converting their shares into a pro-rata portion of the trust account proceeds, including any accrued interests.

As already mentioned, units offered to investors in the IPO include warrants, which provide investors with the right to purchase additional shares at a predetermined price (strike price), typically set at a premium to the IPO price, within a specified timeframe. Typically, warrants are structured to be cash-settled and become exercisable 30 days after the business combination or 12 months after the IPO, with an expiration period ranging from three to five years following the IPO. The detailed terms of public warrants, including their expiration and redemption conditions, can vary across SPACs and are

[9] The lock-up period represents the timeframe following the SPAC IPO during which certain shareholders are restricted from selling their shares. In SPAC IPOs, this period is typically longer compared to traditional IPOs and for target company shareholders, the standard lock-up timeframe is usually 180 days from the closing of the de-SPAC transaction. On the other hand, SPAC sponsors are subject to a one-year lock-up period, which can conclude earlier if, at any time after 150 days following the business combiantion, the stocks trade above a specified price for a specified period (Cooley, 2020; Perkins Coie, 2024).

outlined in the SPAC IPO prospectus. In the case in which the exercisable public warrants trade above a predetermined fixed price, they may become redeemable by the company for a nominal value, prompting holders to exercise them to avoid losing their value. Unlike public warrants, founder warrants issued to sponsors are not redeemable and may be net settled, featuring a cashless exercise feature where the holder receives a number of shares with a fair market value equivalent to the difference between the stock's trading price and the warrant's strike price (Clifford Chance, 2022).

The proceeds raised from the IPO, typically 90% of the gross proceeds, including the sponsor promote and the at-risk investment, are deposited into an interest-bearing trust account, which is administered by an underwriting bank, where they are invested in short-term government securities or other highly liquid money market-type instruments (Cumming et al., 2014). These funds remain inaccessible to the sponsors until shareholders approve the business combination, at which point the funds are released to finance the acquisition or merger and to redeem shares from the investors voting against the transaction, in accordance with the SPAC's prospectus. Money is also released to cover tax obligations, operational expenses, working capital requirements, or other necessary expenses, with approximately 5% of the fund raised typically allocated to upfront underwriting fees, administrative and legal costs, and securities registration fees. Conversely, if the SPAC fails to complete the combination within the specified timeframe, typically a period between twenty-four and thirty-six months from the IPO, the trust account is liquidated and the capital is returned to the public shareholders, while SPAC sponsors lose both their promote and at-risk capital.

At this point, the SPAC is still a publicly traded entity without any business operation, revenue, or assets beyond the funds held in the trust account. Moreover, since the funds are typically invested in short-term government securities[10], the SPAC's stock price is expected to remain stable and exhibit low volatility during this phase, behaving similarly to treasury bonds (Lewellen, 2009).

[10] SPACs typically invest IPO proceeds in short-term government securities, meaning relatively safe, interest-bearing instruments, whose interest is often used to pay taxes and/or other expenses (Clifford Chance, 2022).

2.3.3. Post-IPO Phase

After the IPO, the SPAC enters the target identification phase, during which the sponsors and management team conduct market analysis and research to find a suitable privately held operating company as the target to merge with or acquire. While prior to the IPO no target can be pre-selected to avoid stricter disclosure and regulatory requirements, during the formation phase, sponsors typically outline a general acquisition strategy, providing additional information regarding the sector, industry, or geographic focus for the target identification. However, this information is not binding, and the SPAC remains flexible in the target identification phase.

Generally, the selection of the target company and its related industry depends on the expertise and proprietary deal network of the sponsors and management team, who leverage their knowledge and connections to identify suitable high-potential private companies to merge with or acquire. The SPAC has a predefined limited timeframe to complete the business combination, ranging from 18 to 24 months, although some listing venues allow a maximum timeframe of 36 months or an extension of up to 6 months if the target is announced but legal or regulatory issues delay the voting phase. Extensions generally require shareholder approval, and non-approving shareholders may exercise their redemption rights at the time the extension is granted.

The SPAC's business combination must involve at least 80% of the balance in the trust account, excluding deferred underwriters' commission and taxes payable on the income earned. However, in most cases, the transaction size exceeds the funds in the trust accounts, requiring additional debt raised or issuance of new equity. There is no upper limit for the purchase price related to the transaction, however, in certain jurisdictions, an excessively large deal size may have regulatory implications, such as requiring additional compliance measures or subjecting the SPAC to investment company regulation, as in the U.S. under the Investment Company Act of 1940 (Bloomberg Law, 2020).

SPAC's sponsors will identify acquisition opportunities and negotiate the de-SPAC transaction with the potential target companies' management, covering key aspects such as the purchase price, exchange ratio, and transaction structure. Simultaneously, the due diligence process on the potential targets is initiated, involving a comprehensive and extensive review and assessment of financial, human resources, legal, tax, and operational aspects. The diligence process also involves producing a quality of earnings analysis,

preparing market research reports, analyzing the product and industry potential, conducting background checks on key executives, directors, and officers (D&O), and obtaining a fairness opinion in connection with the transaction (Bloomberg Law, 2020).

Because the SPAC sponsors receive no salary, their financial returns depend entirely on shareholders' voting behaviour and on the outcome of the business combination. As a matter of fact, if no acquisition occurs and the SPAC is liquidated, the sponsors' founder shares will become worthless and their founder warrants will expire without value, causing them to lose both their promote and at-risk capital.

This contractual structure should align interests and incentivize SPAC management to identify the "best" target company within the predefined time period available, thereby also maximizing shareholders' value (Boyer & Baigent, 2008). On the other hand, some have criticized this contractual structure, arguing that because SPAC management stands to receive a substantial compensation or, alternatively, lose their entire at-risk investment along with the opportunity costs of their time, they may face a conflict of interest that incentivizes them to propose and pursue even suboptimal acquisitions as the deadline approaches, in order to avoid SPAC's liquidation and secure their proceeds (Jog & Sun, 2007). When a preliminary agreement is reached and the potential target is identified, the SPAC publicly communicates and announces it via a regulatory filing, such as an 8-K filing in the U.S., entering the "target found" phase until the shareholders' meeting is held to vote on the proposed transaction. If shareholders approve the business combination, the SPAC enters the "acquisition completed" phase, finalizing the merger or acquisition, and the target company becomes publicly listed. On the other hand, if the acquisition is not approved or is withdrawn for any reason, the SPAC either liquidates, returning funds to public shareholders, or reverts to the "no target" phase, requiring the sponsors to identify a new potential target company for the business combination within the remaining timeframe (Cumming et al., 2014).

The business combination approval is subject to shareholder vote during the extraordinary general meeting convened by the SPAC. In this framework, the SPAC is required to provide shareholders with a proxy statement containing detailed and extensive disclosures about the proposed merger or acquisition, including relevant financial, legal, operational, and strategic information regarding the target candidate. The approval process must fulfil two requirements: firstly, the majority (more than 50%) of shareholders must vote in

favour of the transaction, and secondly, the percentage of shareholders that decide to redeem their shares must not exceed a predefined threshold specified in the prospectus, usually between 20% and 40%. At the IPO, sponsors and the other founder shareholders typically commit to voting their shares, along with any acquired public shares, in favour of the business combination, ensuring at least 20% of outstanding shares support the deal, meaning that only 37,5% of public shares are required for majority approval (Layne & Lenahan, 2018).

In the general meeting scheduled by the SPAC to decide on the business combination investors have three options: (a) approve the deal and maintain their investment in the combined entity, (b) approve the deal but still exercise their redemption rights to withdraw their initial investment plus accrued interests, or (c) vote against the deal and redeem their invested funds back with interests (Bazerman & Patel, 2021). As previously mentioned, investors voting for the proposed business combination retain the right to redeem their shares, receiving their pro rata portion of the trust account funds plus any accrued interests, net of administrative expenses, while they can either decide to retain or sell their warrants, which continue to trade independently. This phase is characterized by increased market volatility because investors assess the proposed target company and evaluate the business combination (Cumming et al., 2014).

As a result, voting outcomes can vary significantly depending on shareholders' investment sentiment, objectives, and strategies. For instance, not all SPAC investors are interested in the long-term returns of the business combination; some investors strategically participate in the SPAC IPO with the objective of leveraging the redemption option and warrant structure to secure risk-adjusted returns through both the interests earned on the trust account and the sale of warrants. This strategy allows investors to generate guaranteed returns, often at a higher yield than Treasury and AAA-rated corporate bonds, while still getting a look at the business combination. The complexity and flexibility of the structure underlying SPACs attract the interest and involvement of a broad range of investors, with some prioritizing the business combination and the associated long-term returns, while others focus on short-term returns leveraging the SPAC structure rather than the merger or acquisition itself. This context affects and creates uncertainty in the voting phase of the business combination, as investors' objectives and incentives vary significantly (Bazerman & Patel, 2021).

A high rate of shareholder redemptions presents a significant risk for the success of a SPAC transaction, as it can lead to a shortage of available funds for the initial business combination. Parties in the transaction typically negotiate either minimum cash or maximum redemption conditions, which require the SPAC to maintain a specific amount of cash to complete the business combination, implying that redemption rates must be sufficiently low otherwise the target company has the right to step out of the deal (U.S. Securities and Exchange Commission, 2024). For this reason, to mitigate these challenges and reduce uncertainty, SPAC shareholders may contribute additional equity or debt financing to the de-SPAC transaction to ensure the availability of required funds. Other measures that can help address these challenges include additional capital injections made by sponsors or the provision of supplementary funding by target shareholders who directly invest in the SPAC. To further preserve capital, sponsors can also negotiate side payments with majority shareholders in exchange for a commitment not to redeem their shares. SPACs also utilize non-redemption agreements, where a large investor commits to holding shares until the transaction is finalized, as well as forward-purchase agreements, in which investors agree to acquire a predefined number of shares before the combination is completed, with both mechanisms often used in combination (CFA Institute, 2022).

Lastly, SPAC sponsors typically seek external financing agreements with institutional investors in the form of Private Investments in Public Equity[11] (PIPE), which provide the SPAC with additional funding to cover operational expenses and working capital requirements. Generally, PIPE investors are rewarded with the conversion of their committed capital into SPAC securities once the business combination is completed (Clifford Chance, 2022).

To secure these additional funds, SPAC sponsors and management conduct a roadshow, actively proposing and marketing the potential merger or acquisition to institutional investors, private equity firms, and other strategic partners. In this phase, the roadshow conducted by SPAC sponsors serves two primary objectives. The first one is to generate interest in the public market, encouraging IPO investors to sell their shares instead of

[11] PIPEs (Private Investments in Public Equity) are private placements of shares made by institutional investors to finance the SPAC's business combination, typically executed at the time of the transaction, often priced at $10.00 per share or at a discount, and sometimes subsidized by the sponsor through side payments (Klausner et al., 2020).

redeeming them, thereby reducing the likelihood of high redemption rates and ensuring that sufficient cash remains in the SPAC. To achieve this, sponsors make significant efforts to foster interest among potential buyers of the SPAC's public shares through the roadshow and make side agreements, often undisclosed, with some IPO investors to secure their commitments not to redeem their shares. The second objective is to raise additional capital through Private Investments in Public Equity (PIPEs) to ensure sufficient funding for the business combination. While some SPACs usually establish forward purchase agreements with PIPE investors at the IPO stage, they still often seek further investment in later phases. PIPEs are typically priced at a level comparable to what public investors pay when they give up their redemption option, but unlike SPAC's IPO investors, PIPE investors commit capital with full knowledge of the target company. In certain cases, sponsors may offer additional incentives or side payments, such as discounted prices or the transfer of their own shares or warrants, to secure PIPE commitments. Even if PIPE participants commit to providing capital on terms similar to IPO investors, they are unable to redeem their shares from the trust account as their investment is contingent upon the successful completion of the transaction (Klausner et al., 2021).

Those funds secured through PIPE financing serve multiple purposes, including providing a larger cash offering to potential target companies, ensuring a minimum cash reserve since PIPE proceeds are not subject to redemption, and strengthening investor confidence in the viability of the SPAC, thereby reducing the likelihood of redemption. As a matter of fact, the involvement of sophisticated institutional investors, along with their credible due diligence and investment, helps validate the target company's valuation, enhancing investors' confidence in the transaction and positively impacting funds retention (Fagan et al., 2023). PIPE financing, however, also presents some challenges, especially in terms of dilution for existing SPAC shareholders in the case of a successful business combination, as the issuance of additional shares can impact their ownership percentage and potential returns.

2.3.4. The De-SPAC Transaction

The De-SPAC transaction represents the final phase of the SPAC lifecycle, in which the SPAC merges with or acquires the target privately held operating company, transforming

it into a publicly listed entity. The structure of the business combination can take different forms, such as a merger, capital stock exchange, asset or stock acquisition, among other transaction structures. Moreover, the transaction can also involve a single operating company, multiple businesses, financial asset portfolios, real estate holdings, or other assets (Hale, 2007).

Depending on the financing terms of the deal and the stake acquired by the SPAC, the original owners of the target company may retain a majority position, become minority shareholders, or exit the company. Typically, the target company's shareholders hold the majority stake, while SPAC shareholders and executives retain a minority ownership share. Upon completion of the business combination, the founder shares owned by the SPAC sponsors or other investors automatically convert from class B shares into class A common shares of the newly combined entity (CFA Institute, 2022). Moreover, SPAC sponsors, who play a key role throughout the SPAC process, are generally subject to a lockup after the completion of the business combination, which restricts and prevents them from selling their shares in the newly publicly listed company during a predefined period. This lockup period, typically lasting 6 months or more, is implemented to enhance the alignment of interest with shareholders and to reinforce the commitment of sponsors to the company's long-term success. Another form of incentive is the staggered promote structure, which can be implemented to tie the sponsor promote payment to the company's financial and share price performance (Cumming et al., 2014).

The board of directors of the combined entity is typically composed of SPAC sponsors, target company executives, target company shareholders, and independent directors. At the time of the de-SPAC transaction, directors are appointed, with founder shares conferring preferred voting rights. Since SPAC transactions are typically financial rather than strategic, the target company's existing directors, officers, and management generally retain their roles in the combined entity, reducing the likelihood of post-closing friction and power struggles often seen in the aftermath of strategic M&A deals (Bloomberg Law, 2020).

Once the business combination is completed, the combined entity, which typically takes the name of the target company, begins trading under a new ticker symbol and must comply with the filing and listing requirements of the chosen trading venue, as well as

the disclosure, reporting, transparency, and corporate governance obligations applicable to public companies.

Conversely, if all proposed business combinations are rejected by shareholders or if the sponsors fail to reach an agreement with a target company within the specified timeframe, the SPAC is liquidated. In this case, public shares are redeemed on a pro-rata basis, and the proceeds held in the trust account, including any accrued interest and net remaining assets, are distributed to shareholders. On the other hand, SPAC sponsors will lose their promote and at-risk capital, with their founder shares and warrants becoming worthless, receiving no compensation for the effort involved in establishing and managing the SPAC. Finally, the SPAC is consequently delisted from the trading venue and ceases its operations.

2.4. Key Stakeholders in a SPAC

The following paragraph provides an overview of the main actors involved in the SPAC process, describing their roles, interests, risks, and incentives, with the objective of offering a clear understanding of the potential implications of their interactions and behavior in shaping the structure and outcome of a SPAC transaction.

2.4.1. Sponsors

Sponsors are the key initiators of the SPAC process, typically referring to a small group of sophisticated investors or industry experts responsible for creating, organizing, and managing the SPAC. They generally appoint the SPAC's board of directors and coordinate with financial, legal, and accounting advisors, while also funding pre-merger operations and actively participating in searching for a suitable privately held target firm for the business combination. Sponsors are typically highly qualified professionals with a strong reputation, a credible track record, proprietary industry expertise, or an extensive network of contacts. Since SPACs are empty shell companies with no revenues, operating history, or underlying assets, sponsors are regarded as their primary asset, serving as the

sole signal of credibility for public investors and influencing their investment decisions by shaping confidence in the likelihood of a successful business combination, given that the target company is unknown at the IPO date (Cumming et al., 2014).

Founders generally do not receive a salary while searching for a potential target company before the business combination, but they typically receive 20% of the total outstanding shares for a nominal fee in a private placement before the IPO, known as sponsor's promote (Dimitrova, 2017). Additionally, sponsors may benefit from earnout provisions and the ability to purchase discounted warrants through a private placement at the time of the IPO, commonly referred to as founder shares, which typically account for between 3% and 7% of SPAC IPO proceeds. However, these founder shares and warrants, which represent the sponsors' at-risk capital, become worthless if no business combination takes place within the predefined time limit and the SPAC is liquidated (Lewellen, 2009). This structure creates strong financial incentives for sponsors, as their payouts depend entirely on the successful completion of the business combination and the voting behaviour of shareholders. Due to this strong incentive and the fact that sponsors can still generate significant profits even if the acquisition is value-destroying, they are highly incentivized to finalize a deal before the SPAC's expiration date, even if it means promoting suboptimal transactions. (Jog & Sun, 2007).

To mitigate such conflicts of interest, managers may agree to vote their shares in accordance with the majority of public shareholders during acquisition-related votes (Lewellen, 2009). However, sponsors generally vote in favour of proposed deals to secure their financial gains, and additionally, both sponsors and their affiliates can also purchase shares and warrants on the open market just before the shareholder vote, enabling them to influence the outcome in favour of the acquisition and subsequently sell their shares once the deal is finalized (Jenkinson & Sousa, 2009).

Berger (2008) proposes four categories into which SPAC sponsors generally fall, including:

- Accomplished Operating Executives: Experienced executives with a strong track record who seek to pursue acquisitions within their industry of expertise, looking for greater independence and financial rewards compared to working in private equity funds.

- Unfunded Financial Sponsors: dealmakers with established track records and extensive networks of contacts who seek to facilitate the raising of starting capital and remove the difficulties of securing co-investors.
- Alternative Asset Managers: Asset Managers looking to execute control transactions beyond their fund's core mandate.
- Corporates: Public companies aiming to capitalize on deal flow that holds strategic relevance but falls outside their primary business focus.

Overall, the SPAC literature presents mixed perspectives on the actual impact of specialized sponsors and management, with some suggesting that high-quality management enhances firm quality and deal success (Kim, 2009; Tran, 2010), while others argue that management experience alone doesn't guarantee improved deal outcomes due to misaligned incentives (Jog & Sun, 2007; Cumming et al., 2014).

2.4.2. Investors

The majority of SPAC investors consist of institutional investors, with hedge funds playing a dominant role alongside pension funds, private equity funds, university endowments, mutual funds, investment companies, and advisors, while the investor base also includes the general public. According to Lewellen (2009) and Cumming et al. (2014), hedge funds, which alone own around 75% of SPAC shares, together with private equity investors, represent the two main groups holding voting rights.

Investors purchase SPAC units before a target company is identified, receiving two classes of securities consisting of common shares and warrants, which grant them the right to buy shares at a predefined price in the future. Warrants play a crucial role for investors as risk mitigators, offering downside protection while also providing additional upside potential, and since they are perceived as incentives to subscribe, a large number of issued warrants increases the perceived risk of the SPAC (Bazerman & Patel, 2021).

Investors can always exercise their right of redemption and are free to choose whether to move forward with the deal and retain their shares, staying invested in the newly combined entity, or withdraw and redeem their investment, receiving a pro-rata share of the trust value with any accrued interest, if any. This also applies if no business

combination takes place within the specified time limit and the SPAC is subsequently liquidated (Jenkinson & Sousa, 2011). It is also important to note that even if investors decide to redeem their shares, they can still retain their warrants, providing them with a risk-free opportunity to evaluate an investment in a private company.

According to this structure, certain SPAC investors are not necessarily interested in the business combination itself but instead leverage the structure by redeeming their shares to obtain guaranteed returns, which often exceed those offered by US Treasury and AAA-rated corporate bonds, primarily through interest earnings, while still evaluating the business combination or selling their warrants. Klausner et al. (2021) highlight that this investment strategy attracts SPAC arbitrageurs and is mainly pursued by a group of repeat-playing hedge funds widely known in the SPAC sector as the "SPAC Mafia", which seeks to minimize downside risk while maximizing the upside potential of warrants.

However, this SPAC redemption structure and investment strategy create a significant misalignment of incentives, negatively affecting both the SPAC itself through dilution, as noted by Klausner, Ohlrogge, and Ruan (2021), and long-term buy-and-hold investors returns, as highlighted by Gahng, Ritter, and Zhang (2021), who show that redeeming investors secure an average annualized return of 23.9% on a nearly risk-free investment, while buy-and-hold investors face one-year returns of -11.3%.

Ultimately, this structure characterizing SPACs offers investors a range of investment strategies with different return profiles, risk profiles, and time horizons, allowing them to tailor their approach based on their financial objectives.

2.4.3. Underwriters

Underwriters play a crucial role in SPAC transactions, assisting sponsors in establishing the SPAC, providing proprietary knowledge, and acting as advisors to the parties involved. They carefully structure the IPO and the offering of SPAC securities to make the SPAC attractive to potential investors, serving as market-makers for SPAC units, shares, and warrants, and determining when they can be traded (Lakicevic & Vulanovic, 2013). Dimitrova (2017) reports that in 47% of deals, underwriters not only manage the offering but also serve as advisers, highlighting the multifaceted nature of their

involvement, which also includes strategic guidance and ongoing support throughout the SPAC process.

The investment banks that underwrite the SPAC process have a compensation structure that is partially contingent on the approval and closing of the business combination. Specifically, underwriters generally receive a total of 5,5% of the IPO proceeds, consisting of 2% at the time of the IPO and the remaining 3,5% upon completion of the transaction. The deferred portion of the underwriters' discounts and commissions are deposited into the trust account and released either to the underwriters upon completion of the deal or to the public stockholders upon SPAC liquidation (Hale, 2007). This compensation structure aligns the incentives of underwriters with those of SPAC sponsors with respect to the final outcome, as both parties have a financial interest in the completion of the business combination. However, this incentive can impair the independence of any advice underwriters may provide concerning proposed target companies and deals (CFA Institute, 2022). Dimitrova (2017) criticizes this aspect, finding that performance is worse when SPAC IPO underwriter fees are deferred and paid upon completion of the deal, She suggests that, while this structure results in higher initial trust values, since lower underwriting fees are deducted at the IPO date, it also creates a strong financial incentive for underwriters to support and promote any potential target, regardless of its quality, in order to finalize the deal. For the same reason, the involvement of an adviser who also serves as the underwriter appears to negatively affect long-term performance. In addition, Gahng et al. (2021) suggest that the renegotiations of the deferred part of the underwriting fee follow the same patterns as sponsors promote adjustments, as underwriters tend to forgo part of their commissions more frequently in high redemption deals to support deal consummation, although such concessions remain less frequent compared to sponsor haircuts[12].

SPAC literature has widely examined their cost structure, with particular attention to underwriting fees, to assess whether SPACs offer a cost advantage over traditional IPO. At first glance, underwriting fees may appear lower in SPACs, amounting to 5,5% compared to 7% in traditional IPOs. However, when comparing the two, it is important to consider all indirect costs and mechanisms associated with SPACs that might influence

[12] Sponsor haircuts refer to situations in which SPAC sponsors give up a portion of their predetermined compensation, such as forfeiting founder shares or private placement warrants, to encourage investors not to redeem their shares or to invest additional capital. (Gahng, Ritter, and Zhang, 2021).

this comparison. As a matter of fact, although the 5,5% underwriting fee may seem relatively low, most shares are typically redeemed before the business combination, however, underwriting fees do not adjust for redemptions as well (Klausner et al., 2021). As a result, when underwriting fees are measured in relation to the funds ultimately invested in the SPAC, they appear significantly higher, often matching or exceeding the standard 7% of traditional IPOs, with studies reporting effective costs ranging from 1% to 10% (Jog & Sun, 2007; Kim, Palia, and Saunders, 2010). Consequently, the higher the redemption rate, the lower the amount of usable capital, and the higher the effective cost of underwriting fees (Lamont, 2021).

Literature has also analyzed the impact of underwriters and their characteristic on SPACs performances, leading to mixed results. Specifically, Cumming et al, (2014) suggest that when the lead underwriters of a SPAC are considered glamour underwriters, with strong track records, and when the size of the underwriter syndicate increases, the probability of deal completion decreases, indicating that these factors may signal riskier transaction or coalitions issues for investors. On the other hand, according to Vulanovic (2016), the presence of high-quality underwriters does not necessarily increase the likelihood of SPAC survival, but greater involvement of underwriters and larger syndicates positively influence survival likelihood, as a broader network of investment banks may indicate more resources committed to the merger.

2.4.4. Target Company

Target companies involved in SPAC transactions are privately held operating firms seeking to go public, which are unknown at the IPO date or earlier, and whose search by the SPAC sponsors and management team is not subject to any formal restrictions. However, the search parameters can be business, geographical, or industry-specific, and are generally aligned with the experience of both the sponsors and management team, who typically aim to acquire private companies operating in sectors or regions where they have expertise and established networks. Importantly, the initial target must have a fair market value equal to at least 80% of the balance in the trust account, excluding deferred underwriters' fees and taxes payable on income earned (Hale, 2007), and SPACs typically target companies that are two to three times their size to mitigate the dilutive impact of

the equity structure. Although uncommon, some SPACs also attempt to acquire multiple target companies simultaneously.

According to Boyer and Baigent (2008) and Berger (2008), target companies are usually firms facing complex circumstances that make them unsuited for traditional IPOs, and for this reason, they take advantage of the SPACs structure and its related benefits to access public markets and financing more quickly than through a conventional IPO.

Target companies agreeing to be acquired by a SPAC typically seek a public listing while avoiding many of the costs, underpricing, and administrative or disclosure burdens associated with conventional IPOs. They may also want to leverage the SPAC's large cash reserves to restructure their balance sheets or fund future growth opportunities, benefit from easier access to equity or debt to finance acquisitions or other capital-intensive projects, or gain access to alternative exit vehicles, especially useful for private equity firms looking to exit their portfolio companies (Lewellen, 2009).

According to Kolb and Tykvová (2016) and Datar, Emm, and Ince (2012), firms entering public markets via SPAC acquisition are generally smaller, more highly levered, and have lower growth opportunities compared to IPO firms, as well as being less likely to receive investments from venture capital and private equity funds. Bai, Ma, and Zeng (2021) suggest that, compared to traditional IPO firms, SPAC firms are generally smaller and riskier ex-ante, but experience similar or higher growth rates after going public. Additionally, Chieng et al. (2024) and Bai et al. (2023) suggest that smaller, less profitable firms, with higher levels of asymmetric information and difficulties in meeting listing standards firms are more likely to go public through SPAC business combinations rather than traditional IPOs.

Finally, the most frequent sectors for target companies include High Technology[13], Technology, Media and Telecommunications (TMT), Industrial, Healthcare, Energy and Natural Resources, Transportation, and Financial Services.

[13] The high number of tech-focused SPACs can be attributed to the substantial presence of private technology companies at various stages of growth seeking capital, making the sector particularly attractive compared to others when identifying potential targets companies for a business combination (Williams & Rasay, 2021).

3. Economic and Structural Features of SPACs

The following chapter analyzes the structural features of SPACs, outlining the associated benefits, drawbacks, and outcomes for the various stakeholders involved in these transactions.

3.1. Benefits of SPACs

Special Purpose Acquisition Companies offer several benefits to the stakeholders involved, especially to private companies seeking facilitated access to capital via the public market, investors looking for structured investment opportunities, and sponsors aiming to maximize returns.

One of the most relevant advantages of SPACs is the faster execution compared to traditional IPOs. As a matter of fact, a SPAC merger or acquisition typically concludes within 3 to 6 months, whereas a conventional IPO process usually takes between 12 to 18 months. This accelerated timeline results from several factors, including reduced regulatory requirements, lighter scrutiny, and lower associated costs, all of which enable private companies to transition into publicly traded entities with reduced compliance hurdles compared to IPOs. As a standard practice, when going public through a traditional IPO, a company must undergo extensive due diligence and review processes to ensure transparency, accuracy, and reliability of disclosed information. However, since SPACs operate as blank-check companies with minimal or no business operations, no assets, and no revenues, the legal and regulatory efforts required for their IPO process are significantly lower, finally allowing the privately held target company, which merges with or is acquired by the SPAC, to bypass many lengthy requirements and procedures, making the public listing significantly faster (Kolb & Tykvová, 2016).

Another relevant advantage associated with SPACs is the greater pricing certainty they offer, as the acquisition price is negotiated with the SPAC before the transaction closes. This differs from traditional IPOs, where the price is defined by underwriters and remains subject to market fluctuations until the listing date. This feature of SPACs is particularly beneficial in volatile or uncertain market conditions, protecting companies from being

adversely affected by economic downturns or shifts in investor sentiment, conversely to IPOs, which are entirely dependent on market conditions at the time of listing (Forbes Finance Council, 2023). However, while SPACs provide an agreed-upon acquisition price in advance, it is important to acknowledge that this pricing certainty is not absolute, as deal terms may change before closing due to multi-party negotiations involving the SPAC, target company, public investors, and PIPE investors (Klausner et al., 2021).

Still regarding pricing advantages, private companies acquired by or merging with SPACs can often achieve higher valuations compared to traditional IPOs, which typically involve intentional underpricing to encourage an initial share-price increase (IPO "pop"), leaving founders feeling they have lost potential value. Conversely, SPACs leverage forward-looking statements[14] instead of relying solely on historical financial data and benefit from the industry-specific expertise and knowledge of SPAC sponsors, enabling a more precise valuation and accurate assessment of the business (Lamont, 2021). As a matter of fact, forward-looking projections are included in the regulatory filings and marketing materials of SPACs, describing how top management views a company's future prospects in both quantitative and qualitative terms. This safe harbor encourages public companies to share management's outlook on the future, and if the projections are based on good-faith financial forecasts and objectively reflect the management's view, trustworthy forward-looking statements can offer great value to investors, despite the inherent uncertainty. However, it is important to acknowledge that in certain situations, especially as the time limits approach, such information may stretch the bounds of trustworthiness due to misaligned incentives (CFA Institute, 2022).

Moreover, SPACs offer the opportunity to raise additional capital beyond the proceeds collected during their IPO, typically secured through various means, including debt financing or PIPEs (Private Investments in Public Equity). These additional funds not only support the post-merger growth of the combined entity by providing immediate financial resources but also ensure sufficient capital availability for the business

[14] As of July 1, 2024, SPACs no longer benefit from PSLRA safe harbor protections for forward-looking statements in de-SPAC transactions, although limited law protection may still be available under the bespeaks caution doctrine (Bloomberg Law, 2024).

combination, especially in cases where high redemption rates reduce the initial funds from SPAC investors.

Unlike traditional IPOs, SPAC mergers do not require extensive roadshows to generate investor interest on public exchanges, resulting in lower marketing effort and savings in time, resources, and money. As a matter of fact, apart from targeted roadshows required when raising PIPE funding, SPACs face lower marketing costs and reduced uncertainty since investor capital is already secured during the SPAC's IPO.

Beyond financial benefits, SPACs offer private companies access to operational expertise, as sponsors typically consist of experienced industry professionals or financial experts with extensive networks. After the business combination, SPAC sponsors often assume board positions, providing strategic guidance and driving business growth by leveraging their broad network of contacts, management expertise, and industry-specific knowledge (KPMG, 2022).

SPACs offer a more accessible route to public markets for smaller companies that might not be able to meet strict listing thresholds of traditional IPOs, simultaneously benefiting also investment banks with increased deal opportunities and additional revenue streams through fees from both SPAC IPO and advisory roles in the SPAC phases (Deloitte, 2021). Special Purpose Acquisition Companies are especially beneficial for companies facing complicated circumstances and challenges unsuited for a traditional IPO, such as requiring major recapitalization, operating in niche sectors with limited institutional following, or lacking strategic buyers. This is evident in cases like Endeavor Acquisition Corp, which helped overcome financial distress and enabled successful expansion, Aldabra Acquisition Corp, which provided financial stability in a context of market disruption, lack of strategic buyers, and regulatory constraints, and lastly, Information Services Group Acquisition which leveraged management industry expertise to drive growth. In this context, SPACs provide readily available cash to support capital structure solutions, the additional expertise of specialized management teams, flexible transaction structures, and exit opportunities for companies without clear acquisition prospects (Berger, 2008).

Among the several advantages for sponsors, SPACs provide immediate access to funding prior to negotiations with potential acquisition targets, accelerating deal closure and validating the sponsors. The public listing of SPACs provides sponsors with attractive arbitrage opportunities and enhanced liquidity, allowing faster access to capital markets and the unique potential for achieving unparalleled value escalation. Most importantly, SPACs represent a significant profit opportunity for sponsors, who receive a 20% stake in the SPAC upon completion of the business combination for a minimal upfront investment. However, this incentive structure has been criticized as it may encourage sponsors to pursue suboptimal deals solely to get the deal done and secure profits (Lamont, 2021). The substantial advantage that SPACs offer to sponsors is highlighted by Jog and Sun (2007), who, based on their sample, report that management achieves a median annualized return of 1900%, largely due to the minimal cost of acquiring founder shares at 1.4 cents per share, which are subsequently listed at $5.25 per share, illustrating how the SPAC structure provides sponsors with exceptional returns in case of a successful business combination. This pattern is consistently reflected in the literature, as Gahng, Ritter, and Zhang (2021) similarly find that, based on their sample, sponsors generate average net gains ranging from $51 million to $82 million, with total returns between 619% and 748%, further supporting that sponsors are the primary beneficiaries of SPAC transactions.

From an investor perspective, SPACs offer flexibility, transparency, and downside protection. As a matter of fact, investors can freely decide whether to participate in the business combination, as the proceeds raised during the SPAC IPO are securely held in trust accounts, enabling them to redeem their shares and fully recover their initial investment plus interest if they disapprove of the target company. This feature effectively provides a money-back guarantee that significantly reduces investors' downside risk, while also offering existing SPAC firm investors the advantage of readily available liquidity, enabling them to cash out their holdings at their discretion with flexibility (Kolb & Tykvová, 2016). This differs from investing in private equity deals, which generally involve longer commitments and restrictions that limit investors' ability to exit freely, limiting their liquidity and flexibility (Boyer & Baigent, 2007). SPAC investors also benefit from additional profit opportunities due to warrants received at the IPO, which

enable them to purchase additional shares of the entity at a predetermined price, potentially generating significant profits if the SPAC performs well. This distinctive SPAC structure provides investors with significant flexibility, enabling them to choose between pursuing stable returns by redeeming their shares and potentially selling warrants to secure guaranteed returns that exceed those offered by Treasury or AAA corporate bonds, or alternatively, seeking long-term equity ownership and potentially higher returns by retaining their shares or exercising warrants to acquire additional ownership in the newly combined entity (Bazerman & Patel, 2021).

3.2. Drawbacks of SPACs

Despite their advantages, SPACs also present several significant drawbacks that the different stakeholders involved must consider.

One of the challenges concerns the risk of overreliance on high-profile sponsors, which might be misleading, as many SPACs attract investors by leveraging their sponsors' reputations, including well-known names, prominent public figures, industry leaders, private equity professionals, and even celebrities. This can lead to misplaced confidence and failures in properly evaluating other critical risk factors, ultimately weakening due diligence and increasing exposure to financial risks. While research suggests that SPACs led by high-quality sponsors (defined as those affiliated with funds managing more than $1 billion or former top executives of Fortune 500 companies) tend to experience lower redemptions, attract larger PIPEs, and achieve higher returns post-business combination, this does not necessarily mean that there are good investments (Klausner et al., 2021). This is especially true because the SPAC structure creates strong financial incentives for sponsors, as their compensation entirely depends on the business combination's success, and because sponsors can still generate substantial profits if the acquisition is value-destroying. As a result, sponsors may be incentivized to finalize the deal before the predefined limit date, even by promoting suboptimal target companies and pursuing opportunistic behaviour (Jog & Sun, 2007). Therefore, even though strong and reputable sponsors can provide certain advantages, investors must still avoid overreliance on the

sponsors' reputation and conduct proper due diligence and careful risk assessment before making investment decisions in SPAC.

Ownership dilution represents another significant challenge in SPACs, as sponsors generally hold a 20% stake in the entity through founder shares along with warrants that grant them the right to purchase additional shares. Moreover, sponsors typically benefit from an earnout component, which serves as an incentive allowing them to purchase additional shares if the stock price reaches a predetermined target within a specified timeframe. This structure, combined with investors' redemption rights, can lead to significant dilution for existing shareholders, reducing their ownership stake and potentially impacting share value and long-term returns (KPMG, 2022). This risk of dilution is further highlighted by Klausner et al. (2021), who report that, on average, for every $10 raised from investors during the IPO, the median SPAC retains only $6,67 in cash per outstanding share at the time of the business combination.

Other structural risks are those associated with the accelerated timeline for public company readiness. As a matter of fact, while SPAC sponsors provide guidance throughout the merger or acquisition process, the target company has to bear the primary responsibility for preparing the financial disclosure for regulatory filings and establishing essential public company functions, all within a much shorter timeframe compared to traditional IPOs. This compressed timeline increases the risk of errors and regulatory challenges. In addition, the financial due diligence required in the SPAC process is less rigorous and narrower in scope compared to traditional IPOs, increasing the likelihood of financial restatements, misvalued businesses, or even legal disputes, ultimately posing the additional risk of reduced investor confidence.

One of the main challenges characterizing SPACs after the business combination concerns the management and governance risk of the new entity. Firstly, SPAC sponsors are not required to remain on the board long after the merger or acquisition of the target company and may also sell their shares just after the combination or lock-up period. This behaviour can signal a lack of long-term commitment, negatively impacting the company, investor confidence, and ultimately the share price. Another challenge regards the changes in the target company's management team following the business combination,

which can potentially disrupt leadership continuity and affect the business performance. Lastly, the target company's performance may also be affected by the diminished influence of historical shareholders, as new SPAC shareholders will gain some of the decision-making power, potentially altering the pre-existing company's strategic direction.

As previously mentioned in the earlier chapters, initial SPAC investors have the right to redeem their public shares for a pro-rata portion of the proceeds held in the trust account, plus accrued interest. This redemption mechanism creates a significant conflict of interest between IPO investors with short-term incentives and both long-term shareholders and sponsors committed to the post-business combination entity. In fact, many SPAC IPO investors often follow short-term investment strategies aimed at exercising redemption to secure risk-adjusted returns, both through interest earned on the trust account and by either selling their warrants or retaining them to secure a risk-free upside potential in the post-combination company. This strategy presents strong incentives, as it allows investors to recover their initial capital investment plus interest, generating guaranteed returns that are often greater than those of Treasury and AAA-rate corporate bonds, while still benefitting from potential future gains by exercising retained warrants if the newly formed company performs well (Bazerman & Patel, 2021). For this reason, many SPAC investors are particularly attracted to SPACs with more generous warrant allocations in the units and earlier redemption opportunities. This preference is further supported by the findings of Gahng et al. (2021), who estimated that while investors purchasing shares at the SPAC IPO and redeeming them prior to deal consummation achieve average annualized returns of 23.9%, on an essentially risk-free investment, those who choose to hold shares in the merged entity earn one-year buy-and-hold returns of -11.3%. As a consequence, investors with short-term investment strategies conflict with the long-term interests of both SPAC itself and its shareholders, and when combined with other investors who redeem their shares for other reasons, they pose significant risks to the business combination by creating capital shortfall, which adds uncertainty to the deal's success and completion. Redemptions and available cash must not exceed a specified threshold due to minimum cash or maximum redemption conditions negotiated in the transaction. However, SPAC sponsors can address this challenge through different measures, such as non-redemption agreements, forward-purchase agreements, and PIPE

financing, to compensate for the capital shortfall caused by redemptions and ensure the necessary capital for the transaction. So, while SPAC firms are not required to convince a large group of investors, as would be the case with traditional IPO, the sponsors still have to convince the SPAC shareholders who must approve the business combination, and this introduces an element of uncertainty to the transaction, as shareholders may have misaligned incentives or different investment strategies, further complicating the listing process (Kolb & Tykvová, 2016)

It is also important to acknowledge that both the SPAC and its shareholders may encounter conflicts of interest with sponsors, potentially undermining the SPAC's performance. Sponsors have a strong financial incentive to complete the business combination with a target company to secure profits from founder shares, warrants, and eventually earnout components. This incentive is particularly significant because if the SPAC fails to complete the business combination within the predefined time period, sponsors will lose their entire investment, including founder shares, the time and efforts involved in the SPAC process, and warrants, which will become worthless. This framework suggests that while sponsors clearly prefer strong and valuable transactions over weak ones, if they must choose between a weak deal or none at all, they will have a strong financial motivation to opt for the former. This misalignment of interests poses significant risks for non-redeeming shareholders, as sponsors may pursue a business combination regardless of whether it is value-creating for shareholders, instead focusing on securing the associated profits or at least recovering a part of their investment. Specifically, this conflict of interest could lead to (1) negotiating with a suboptimal or weak target company due to the absence of other valuable and viable alternatives; (2) accepting unfavourable deal terms or an inflated enterprise value with the target due to time constraints as the SPAC's deadline approaches; and/or (3) promoting suboptimal merger or acquisition to attract investors and limit redemptions, ensuring sufficient capital for deal's completion (CFA Institute, 2022).

The misalignment of incentives resulting from the SPAC also extends to its underwriters. As a matter of fact, the investment banks that underwrite the SPAC IPO have a strong financial incentive, similar to that of SPAC sponsors, to ensure the completion of the business combination, as a portion of their compensation is contingent on the approval

and closing of the transaction. Specifically, the underwriters' compensation structure consists of 2% of the IPO proceeds at the time of the IPO, with an additional 3.5% paid upon completion of the deal. This deferred portion of the underwriters' compensation aligns their incentives with those of the SPAC sponsors, as both parties have a financial interest in finalizing the business combination (Hale, 2007), raising concerns about their independence and the fairness of their role and guidance in the transaction. As Dimitrova (2017) highlights, underwriters not only manage the offering but also serve as advisers, which may lead them to promote and advocate for any proposed acquisition or merger, even regardless of its quality, in order to secure the deal and their deferred compensation (CFA Institute, 2022). Consequently, even though underwriters, their quality, and composition may have a positive impact on the transaction, as highlighted later in the literature review, it is important to acknowledge this potential conflict of interest, which has also prompted the SEC to propose rules extending the liability of SPAC IPO underwriters to the de-SPAC transaction, addressing concerns about their involvement and the protection of investors (Lee, 2022).

Additional conflicts of interest concern sponsors operating multiple SPACs or private investment fund vehicles, such as private equity or venture capital firms looking for investments similar to the SPAC. These conflicts arise when sponsors have to allocate their time and resources among multiple affiliated funds, potentially prioritizing certain investments over others, or when their funds compete for the same pool of target companies. Another potential conflict emerges when the target company of the SPAC is one of the portfolio companies owned by the sponsor's private equity or venture capital funds, positioning the sponsor on both sides of the negotiation, which can create opportunities for mutual benefits but also lead to misalignments with shareholder interests (CFA Institute, 2022).

The SPAC literature almost uniformly and consistently supports the conclusion that, on average, one of the primary drivers of SPAC underperformance and the approval of value-destroying acquisitions is the structural misalignment of incentives favouring SPAC sponsors over public investors, largely driven by the substantial returns sponsors secure if a business combination is completed, regardless of post-merger performance. Several relevant studies, including Jog and Sun (2007), Jenkinson and Sousa (2011), Howe and

O'Brien (2012), Kolb and Tykvová (2016), Dimitrova (2017), and Gahng, Ritter, and Zhang (2021), highlight that SPAC management's financial incentives are designed to prioritize deal consummation rather than long-term shareholder value, leading to a higher probability of suboptimal acquisition as the deadline approaches.

3.3. Costs of SPAC Transactions

Despite some literature arguing that going public through SPACs is a cheaper option for the target company compared to other listing methods, when considering the broader picture and including all the indirect costs in the analysis, this thesis appears less reliable. The rationale for considering listing through SPACs as relatively cheaper stems from the fact that these firms undergo less comprehensive and therefore cheaper review processes, incur lower underwriting costs, experience reduced IPO underpricing, and are not required to organize extensive road shows (Kolb & Tykvová, 2016). However, in addition to direct costs such as underwriting fees and roadshow expenses, as well as the indirect costs of underpricing, another crucial factor to consider is the indirect cost associated with dilution. Dilution costs impact SPACs through the promote shares held by sponsors, which account for a 20% stake of the issued share capital, as well as the warrants entailed in the units held by public investors and potential earnout components. These factors contribute to the overall costs of SPACs and should be included in the total cost calculation, as both warrants and promote, along with any potential earnout components, generate additional shares, thereby diluting the value of the cash delivered to the target company (Gahng et al., 2021).

Moreover, another important consideration is that underwriters' fees typically account for approximately 5.5% of the amount raised, which is lower than the 7% generally charged in traditional IPOs. However, due to the high rate of shareholder redemptions, the effective cost of underwriting commissions relative to the capital available to the SPAC can be significantly higher, as underwriting fees remain fixed while the redemptions reduce the usable capital (Lamont, 2021). This makes underwriting commissions far less favourable than they initially appear, as their relative impact increases. For instance, in

the extreme case of the Locust Walk Acquisition SPAC, the high shareholder redemption rate resulted in an underwriting commission that exceeded the amount raised through the stock market listing, reaching 122% of the final proceeds (Armstrong, 2021). Even though this is not a standard case, it demonstrates that evaluating SPAC costs solely on absolute terms is misleading. Furthermore, research shows that the average effective underwriting fee of 47 SPACs that completed the business combination between June 2019 and June 2020 exceeded 16% (Klausner et al., 2021).

Studies also support that the median cost as a percentage of cash delivered to the target is 62% when going public through a SPAC, compared to 28% in the case of traditional IPO. Specifically, this 62% consists of 33% from the sponsors' promote, 18% from all the IPO-related expenses, including underwriting and other costs, and 11% from SPAC warrant costs. These hidden costs and the opaque cost structure should not be overlooked, especially because these transactions and mergers take place at the expense of non-redeeming shareholders, who face poor returns, while other parties, such as sponsors and target companies, reap the benefits, with sponsors securing their promote compensation and target firms negotiating advantageous merger terms (Klausner et al., 2021). This evidence supports that, although considerations regarding lower SPAC costs are valid, it is crucial to account for all direct and indirect expenses when evaluating the actual costs and viability of SPACs, as their complex structure can significantly impact the overall financial outcome and the post-combination performance of the target company.

3.4. Performance Outcomes of SPAC Transactions

Performance patterns of SPACs represent another crucial risk factor that has been widely studied and analyzed in the literature, typically indicating overall underperformance and poor returns, especially after completing the business combination, which poses a potential risk factor and source of further costs for the investors. Previous research examined the performance of SPAC securities throughout their lifecycles, with a particular focus on returns on the IPO day, around the business combination announcement and deal date, as well as after the transaction. Studies consistently report

SPAC stock underperformance post-acquisition, both in terms of operating and accounting performance, particularly at the expense of non-redeeming investors. Prior analyses have also compared SPAC performances against traditional IPOs, targeted sectors, and industry peers, confirming the risks associated with SPAC transactions, which will be further examined in the subsequent chapters through the literature review. Prior research, such as Jog and Sun (2007), Gahng, Ritter, and Zhang (2021), and others, identify clear winners and losers in SPAC transactions, with sponsors consistently achieving exceptional returns, redeeming shareholders generating positive returns by redeeming their shares at the IPO price plus interest while retaining warrants for upside potential, non-redeeming shareholders experiencing poor long-term performance with negative abnormal returns post-merger, and PIPE and warrant investors generally outperforming non-redeeming shareholders.

Datar, Emm, and Ince (2012) further support this view, showing that SPACs report weaker operational and post-acquisition stock performance compared to conventional IPOs and industry peers. Post-merger underperformance is primarily attributed to high dilution, sponsors' promote, and redemptions, ultimately leading to value loss for non-redeeming shareholders, who bear the costs of this underperformance (Klausner et al., 2021; Gahng et al., 2021). Despite these concerns, some studies, such as Howe and O'Brien (2012), indicate that SPACs can generate positive short-term returns, particularly around target announcement dates, with units, shares, and warrants generally experiencing positive abnormal announcement returns. However, short-term performance analysis also shows that the longer a SPAC takes to identify and announce a target company, meaning the longer the gap between the SPAC IPO and the merger announcement, the lower the abnormal returns at the announcement date will be, suggesting that as the deadline approaches, agency conflicts between sponsors and shareholders intensify, leading sponsors to promote sub-optimal deals and hindering overall performance (Klausner et al., 2021).

Tran (2010) further supports this view, indicating that SPACs generate short-term positive returns at the deal announcement and also negotiate better acquisition terms compared to other public acquirers, benefitting from a more focused acquisition strategy and governance mechanisms such as a significant ownership stake held by management

and institutional blockholders. However, those benefits are offset by structural inefficiencies and misaligned incentives that characterize SPACs, leading to significant long-term underperformance, with returns declining further over time, due to dilution, high redemption rates, and sponsors' conflict of interest in promoting suboptimal deals as the deadline approaches to secure their promote. The consistent underperformance of SPACs in the long term aligns with findings in the literature, including Kolb and Tykvová (2016), Datar, Emm, and Ince (2012), and Bai, Ma, and Zheng (2021), indicating that firms going public through SPACs tend to exhibit structural differences compared to those pursuing traditional IPOs, as they are generally smaller, carry more financial leverage, invest less than traditional IPO firms, and have lower growth opportunities, making them inherently riskier investments and ultimately challenging their long-term success.

Lastly, as previously mentioned, one of the proposed advantages of SPACs is that they are led by specialized management teams with a strong reputation and network of contacts, which should optimize deal selection, improve merger or acquisition outcomes, and enhance SPACs' performance. However, the literature and empirical studies present mixed perspectives on the actual impact of specialized management. Kim (2009) and Tran (2010) suggest that management reputation signals firm quality, attracting investors, increasing the likelihood of deal success, and contributing to better acquisition terms, while on the other hand, Jog and Sun (2007) and Cumming, Haß, and Schweizer (2014) argue that more experienced teams do not necessarily improve outcomes due to misalignment of incentives and interests with investors.

Ultimately, in terms of performance, despite some short-term advantages, SPACs face significant structural inefficiencies and misaligned incentives that contribute to long-term underperformance, raising concerns about their viability as a sustainable and efficient alternative to other traditional public listing methods.

4. Literature Review

The following chapter reviews and examines the existing literature to provide an overview of the empirical evidence regarding the characteristics and performance of SPACs. Prior research has primarily examined the historical evolution of SPACs, the conflicts of interest and misaligned incentives within their structure, their ownership and corporate governance features, cost structure, and performance across their lifecycle, often in comparison to other public listing methods, particularly traditional IPOs. Most studies have analyzed shareholder returns at different stages, including the IPO day, the business combination announcement, the combination date, and the post-deal period. Academic research on SPACs is still in its early stages, as the first modern SPAC was established only in 2003, making it a relatively new field of study. However, the SPAC literature has expanded over the years, driven by several legal and structural changes that SPACs have undergone, as well as by the substantial growth in popularity and adoption of this alternative listing method.

The following chapter summarizes and documents the major findings from the most notable SPAC literature published between 2007 and 2024 in chronological order, providing a comprehensive understanding of SPAC transactions.

Hale (2007) describes SPAC structures and their lifecycle, supporting that this alternative listing method benefits all stakeholders, including founders, investors, and target companies. Specifically, SPACs allow management to capitalize on their industry expertise and track record, provide target companies with flexible access to a broader pool of potential public buyers, and offer investors an investment vehicle that combines upside potential with downside guarantees.

Heyman (2007) provides a historical overview of blank-check companies, outlining the regulatory framework surrounding first-generation SPACs and how they have overcome their negative reputation from the boiler room era of the 1980s. He presents SPACs as an example of legal innovation and an alternative vehicle for raising capital in public markets, exempt from the restrictive regulations applied to traditional blank check offerings, leading to their growing acceptance in mainstream capital markets activity.

Jog and Sun (2007) examine the process, characteristics, and returns associated with SPACs. Analyzing a sample of 62 SPACs that raised capital between 2003 and 2006, they provide insights into SPAC structures, performances, and potential conflicts of interest between sponsors and investors. Findings indicate that these SPACs typically announced a business combination within 13 months and the transaction within 6 months, with a median transaction value of approximately twice the gross proceeds. The analysis reveals that the median annualized abnormal return for SPAC investors is around -3%, while on the other hand, the median annualized return for management is 1900%, suggesting that sponsors benefit the most from the deal consummation.

Boyer and Baigent (2008) document and describe the growth of the SPAC industry between 2003 and 2006, analyzing 87 U.S. SPACs that completed an IPO during that period. They identify three features of SPACs as investment alternatives, highlighting that SPACs provide public investors with access to the private equity market, which was previously limited to institutional clients, offer greater transparency than private equity investments due to mandatory reporting requirements, and provide downside protection to investors through their structure and the use of trust accounts, where proceeds are held and refunded to investors if no business combination occurs. Their empirical analysis of the 87 SPACs reveals that SPACs do not exhibit significant underpricing at the IPO date, unlike traditional IPO, and that there is a positive relationship between share price and size, as well as a negative relationship between the current trust per share and the warrant price, as trust funds offer protection to investors.

Berger (2008) provides an overview of the structure of U.S. SPACs listed in the market between 2003 and 2007, supporting that SPACs are especially beneficial for companies facing complicated circumstances unsuited for a traditional IPO, such as requiring major recapitalization, operating in niche sectors with limited institutional following, or lacking strategic buyers. In this context, SPACs provide readily available cash to support capital structure solutions, the additional expertise of specialized management teams, flexible transaction structures, and exit opportunities for companies without clear potential buyers.

Lewellen (2009) analyzed the performance of 158 SPACs that conducted their IPO between 2003 and 2008, highlighting their unique financial structure and similarities to private equity funds, although less prone to selection and survivorship biases. He supports that a portfolio of SPAC resembling a public leverage buyout fund exhibits a market beta close to one despite an average leverage ratio of nearly two. In addition, he argues that SPAC shares behave like risk-free assets in the early stages of their lifecycle and that their return patterns follow a predictable yet unusual trend, showing a post-announcement four-factor alpha of 2,9% per month, which declines to -2,3% post-completion. Finally, he provides evidence of a persistent discount in SPAC prices before the business combination, attributing it to the fragmentation within SPAC's shareholder base.

Kim (2009) examined SPAC performance and the impact of management quality on overall SPAC success. Findings indicate that, compared to regular IPO firms, SPAC management teams tend to have more industry experience, and the market assigns higher value to SPACs with greater management experience through IPO underpricing. Both management experience and reputation serve as signals of firm quality, attracting more outside investors, increasing offer sizes, and attracting institutional investors, while also favorably affecting the underwriting spread and other offering expenses. Kim finds that SPACs with higher market value for management tend to take less time to complete business combinations and that SPAC IPO underpricing positively affects long-term unit price performance from the combination announcement until consummation. Finally, it emerges that shorter time-to-deal and better long-term unit price performance lead to higher abnormal returns around the business combination consummation and increased institutional interest.

Jenkinson and Sousa (2011) analyzed a sample of 58 US SPACs that completed a business combination between 2003 and 2008, highlighting a strong misalignment of incentives between the sponsors and the SPAC itself. This misalignment drives sponsors to complete business combinations even when they destroy value, with the sole objective of securing their own profits. Their study finds significant post-combination underperformance, with SPACs showing an average cumulative return of -24% after six months and -55% after one year. However, the study does not conclude that the SPAC structure is fundamentally flawed, instead, it supports that market prices at the time of the

transaction announcement serve as valuable indicators for investors. To illustrate this, the authors categorize the SPACs into “Good SPACs” and “Bad SPACs, based on whether the share price at the decision date was above or below the trust value per share. What emerged was that Good SPACs performed better, with cumulative abnormal returns of -6% after 26 weeks, while Bad SPACs recorded -34% over the same period. The study reveals that more than half of the approved deals should have been rejected, and investors who ignored the warning signals suffered losses of 39% after six months and up to 79% after a year, while those who followed market reactions secured low-risk profits. One of the possible explanations for the investors’ approval of value-destroying deals is the large volume of transactions that occurred just days before the approval vote, which the authors linked to vote-buying by sponsors or their affiliates from large investors who had already declared their intention to vote against the deal.

Tran (2010) investigates whether SPACs make better acquisitions than traditional public bidders and finds that SPACs outperform other public acquirers, generating an average four-factor excess return of 1,5% per month from the announcement to the deal date and a mean cumulative abnormal return of 1,7% around deal announcements. Moreover, the study supports that SPACs negotiate better acquisition terms, securing an additional discount of 7.6% on average compared to other public acquiring companies. According to the author, this characteristic is attributed to both SPACs’ focused acquisition strategy and the higher ownership stake held by management and institutional blockholders. The study also highlights the potential risks of SPACs, such as time constraints and compensation structures, which may incentivize managers to pursue poor deals. However, the results highlight the crucial role of both ownership structure and monitoring by independent long-term institutions, which help mitigate these risks while also providing additional benefits to the overall SPAC.

Floros and Sapp (2011) analyzed the market performance of SPAC securities compared to shell companies going public through reverse mergers. After creating a sample of 111 US SPACs conducting IPOs between 2006 and 2009, and after categorizing their lifecycle into four phases (No Target, Target Announced, Acquisition Completed, and Acquisition Withdrawn), they were able to find out that SPACs experience positive returns following target announcements, with cumulative abnormal returns of 2,97% over five days and

3,85% over 30 days. They also discovered negative post-merger returns with cumulative abnormal returns of -8,24% over the first month and -75,7% after 18 months, while on the other hand, withdrawn deals generate a positive 23,35% cumulative abnormal returns. The study also finds no evidence that SPAC managers add value, as their presence in the newly merged firm does not improve stock performance. The study concludes that SPACs perform worse than typical reverse mergers, as the latter generate higher returns, highlighting the trade-off between downside protection in SPACs and the higher potential payoffs of traditional shell company reverse mergers.

Datar, Emm and Ince (2012) analyze the long-term performance and operational performance of 156 US SPACs that conducted an IPO between 2003 and 2008, comparing them to 794 traditional IPOs from the same period. The findings suggests that SPACs operational performance is significantly lower compared to both industry peers and traditional IPOs, with one-month post-acquisition returns of -5,37%, six-month post-acquisition returns of -20,93%, and twelve-months post-acquisition returns of -38,32%. Finally, the study indicates that SPACs generally tend to be smaller, have lower growth opportunities, carry more financial leverage, and invest less compared to conventional IPOs.

Howe and O'Brien (2012) analyzed how the corporate governance and ownership structure of SPACs influence their short-term and long-term performances, by examining a sample of 158 US SPACs listed between 2003 and 2008 and splitting the sample at the median value of different governance characteristics, creating low and high governance groups. As a result, they found weak evidence of a positive impact of board independence on SPAC performance but no evidence that either institutional or managerial ownership is related to performance.

Lakicevic and Vulanovic (2013), by analyzing 161 SPACs that went public during the period 2003-2009, examined the performance of warrants, shares, and units that SPACs issued during their IPO, reporting that different SPAC securities generate different reactions in response to announcement news regarding their corporate status. The analysis highlights that while holders of all three securities realize positive abnormal returns on the merger announcement day, the strongest reaction is observed by holders of warrants,

while common shareholders react very mildly. They also support that executives, underwriters, and investors have interdependent incentives and that successful business combinations result in significant returns for founders. Finally, based on a subsample of 66 SPACs, they reported an average buy-and-hold unit return of -28% after the business combination, confirming the existing literature.

The paper of Ignatyeva, Rauch, and Wahrenburg (2013) is one of the first and among the few relevant studies to analyze SPACs in Europe, focusing on their institutional characteristics, stock behavior, governance structures, and target companies by examining a hand-collected data sample of 19 SPACs that were listed on European stock exchanges during the 2005-2011 period. One of the findings suggests that SPACs listed on European stock exchanges do not necessarily have a European focus, neither in terms of target companies' choice, nor in terms of investors or country of incorporation. These differences and choices are mainly driven by tax considerations and stock exchange regulations, especially because European SPACs are governed by different and generally less stringent regulatory standards compared to those listed on US stock exchanges. Unlike their US counterparts, European SPACs tend to conduct much larger IPOs and may execute multiple smaller acquisitions instead of a single and larger transaction. They are also more flexible and able to complete their business combination more quickly due to the lower regulatory burden of the European stock exchanges. The performance of European SPACs follows a similar downward trend to that of US SPACs but tends to perform better, with less severe negative returns, reporting an average cumulative return of -11% in six months and -14,4% in 12 months after the shareholder approval of the target company. Lastly, the study finds that SPAC stock prices strongly reflect the financial performance of the target company, especially in the post-transaction period.

Rodrigues and Stegemoller (2014) analyze and compare SPAC IPOs to regular IPOs, examining initial returns, underwriting gross spreads, and acquisition announcement returns. The emerging findings suggest that unlike traditional IPOs, SPAC IPOs exhibit minimal first-day returns, indicating low valuation uncertainty and a lower level of underpricing, consistent with their non-operating structure. The research shows that SPAC IPOs gross spreads are similar to those of non-SPAC IPOs, averaging around 7%, despite SPACs being structurally simpler and less costly to underwrite. Authors find that

SPACs experience higher acquisition announcement returns compared to traditional acquirers, signaling a greater ability to value targets and being less affected by common pitfalls of traditional acquisitions, such as overestimating synergies or the revelation of new negative information about the bidder's investment opportunity set. Finally, the study signals that higher managerial ownership, along with acquisition announcements made further from the SPAC expiration date, positively influence acquisition returns due to the incentive structure of SPACs.

Cumming, Haß, and Schweizer (2014) examine a sample of 139 SPACs that conducted an IPO between 2003 and 2008, incorporating outcome and voting data up to 2010 to identify the factors that affect the approval probability of business combinations. Their findings reveal that more experienced management teams and boards do not necessarily enhance the likelihood of combination approval, whereas younger SPAC management teams seem to have a positive impact on deal approval probability. The study also highlights how underwriting teams and their composition affect the transaction approval probability, showing that glamour underwriters and larger underwriter syndicates are less likely to be associated with successful business combinations, as they may be perceived negatively by shareholders, signaling a riskier deal or governance challenges. Regarding blockholder structure, the research indicates a negative relationship between the presence of active investors, such as hedge funds or private equity funds, and both deal approval probability and time to target announcement. Conversely, a greater concentration of voting rights among SPAC management improves both factors. In addition, the study shows that higher levels of funds in trust accounts increase the probability of deal approval, as they serve as a signal of operational efficiency. Finally, the research supports that an upward-trending and favorable market environment before proxy voting positively influences approval probability, both statistically and economically.

Kolb and Tykvová (2016) examine the viability of SPAC acquisitions as an alternative to IPOs for private firms seeking a public listing and assess their long-term performance by analyzing a sample of 127 SPAC acquisitions and 1128 IPOs during the wave of "new generation" SPACs between 2003 and 2015. Their findings indicate that SPACs are more common in volatile and harsh market conditions that make traditional IPOs less suitable, while also providing existing shareholders with higher cash-out ratios. The study finds

that firms accessing public markets through SPAC acquisitions differ significantly from those choosing traditional IPOs, suggesting that SPAC firms tend to be smaller, more highly leveraged, and have lower growth opportunities. These firms also seem less likely to attract investments from venture capital (VC) or private equity (PE) funds, as they typically prefer IPOs for reputational and signaling reasons, even though SPACs would allow them to cash out faster. The analysis of long-term performance reveals that SPAC firms experience significant underperformance compared to the market, industry, firms of similar size, firms with similar book-to-market ratios, and IPO firms. Over 24 months, SPAC firms underperform benchmark portfolios by 59%, 96%, and 85% on average, whereas IPO firms underperform by 34%, 43%, and 45% on average, and this trend is confirmed by the calendar-time five-factor model analysis.

Vulanovic (2016) analyzes a sample of 105 US SPACs that conducted an IPO between 2003 and 2013 to examine the relationships between their structural and institutional characteristics and post-merger survival and performance. The findings indicate a high post-merger failure rate of 58,09%, exceeding that of post-IPO firms, along with negative post-combination performance and average returns of -40%. The likelihood of post-merger SPAC survival increases with managerial warrant purchases at IPO, which signals commitment and lower asymmetric information and moral hazard, as well as with greater underwriter involvement and a larger underwriter syndicate, since a broader network of investment banks signals a greater resource commitment for the business combination. Conversely, SPAC survival is negatively impacted by bank financing, which signals a lack of alternative funding sources, as well as by short-term market underperformance, mergers with foreign private companies, and underwriting and deferred fees, which increase merger costs and information asymmetry. On the other hand, strong one-year post-merger returns and dividend payments increase the probability of survival.

Dimitrova (2017) examines the performance of SPACs and how their contractual features and mechanisms impact it. Dimitrova indicates that performance tends to be worse for: (1) deals that announce the transaction near the predetermined two-year deadline, suggesting low-quality deals promoted by sponsors just to secure their proceeds; (2) acquisitions with deferred underwriting fees, which incentivize underwriters to promote deals regardless of their quality; (3) Deals that barely meet the required 80% market value

threshold, suggesting a lack of truly valuable investment opportunities. Findings also suggest that sponsors' involvement in the merged or acquired firm's governance improves long-term performance, while high founder ownership deteriorates it. Finally, the study suggests that, on average, SPACs perform poorly both in terms of operating performance and abnormal returns, reporting a -51,9% four-year buy-and-hold return post-IPO, compared to an average return of 8,5% for other companies that went public in the same period, which is largely attributed to contractual misalignment and distorted incentives of SPACs.

Klausner, Ohlrogge, and Ruan (2021) provide an in-depth analysis of third-generation SPACs by examining 47 SPACs that merged between January 2019 and June 2020, just before the SPAC bubble. The study indicates that SPACs have significant hidden costs that are opaque and often underestimated, making SPAC IPOs effectively more expensive compared to traditional IPOs when accounting for redemptions, dilution, and other indirect costs. The authors also argue that the SPAC structure makes these vehicles attractive for companies, as target firms secure their value through favorable merger terms while the costs are shifted onto non-redeeming shareholders, aligning with the study's finding of a strong correlation between pre-merger net cash per share and weaker post-merger stock performance. In addition, the study emphasizes that the misalignment of incentives concerning SPAC executives further amplifies concerns, being one of the major contributors to the long-term underperformance. The study further shows that high-quality SPACs, those backed by larger funds or former Fortune 500 executives, still underperform, but to a lower extent compared to low-quality ones. This is because high-quality SPACs tend to issue less warrants, experience lower redemption, secure higher PIPE fundings and conduct higher IPOs. Overall, findings suggest that regulatory reforms are required to protect investors and to address the structural inefficiencies characterizing SPACs.

Bai, Ma, and Zheng (2021) examine the economic role of SPACs and the current market by analyzing US SPACs that completed a business combination between 2003 and 2020. Empirical findings suggest that, compared to IPO firms, SPAC firms are generally ex-ante smaller and riskier but exhibit similar or higher post-listing growth rates. The study also highlights a strong positive correlation between SPAC market activity and equity

market sentiment, which also accelerates target search and approval, reinforcing the idea that market conditions significantly influence SPAC dynamics. Additionally, an increase in litigation risks for traditional IPOs relative to SPACs shifts activity towards SPAC as a preferred route to go public. The paper suggests that further reforms should focus on aligning sponsors' incentives with those of the company, prioritizing long-term firm performance, and reducing the likelihood of short-termism, through long-term phase-in compensation structures, earnout provisions, and an optimized stock-warrant combination.

Gahng, Ritter, and Zhang (2021) provide a comprehensive and recent analysis of SPACs, incorporating data from 2010 to 2022. They first examine the cost structure of SPACs, highlighting their higher costs compared to traditional IPOs, as redemptions, sponsor promote, warrants, and underwriting fees contribute to the dilution and increased costs. They also analyzed why, despite these high costs, some firms still, choose SPACs, particularly in 2022, when the number of SPACs surpassed the number of IPOs, indicating that the attraction is mainly driven by faster transactions and regulatory advantages. The study identifies clear winners and losers in the SPAC market, with sponsors typically achieving high returns, non-redeeming public shareholders experiencing poor returns, and IPO-stage investors often generating high returns due to redemption arbitrage, benefiting from their ability to redeem shares at the IPO price plus interest while retaining warrants for upside potential. Additionally, both PIPE and warrant investors tend to outperform common shareholders. Lastly, the study examines the SPAC boom of 2020-2021, highlighting that it may lead to a surge in SPAC liquidations, with a significant number of SPACs still searching for targets, suggesting that current SPAC period investors, sponsors, and underwriters will earn significantly lower returns.

Banerjee and Szydlowski (2024) develop a model to explain the paradoxical popularity of SPACs despite their significant underperformance, highlighting that while sophisticated investors who redeem optimally can generate positive returns, buy-and-hold investors consistently experience losses. The study indicates that the misalignment of incentives within the SPAC redemption structure can lead to both underinvestment in profitable targets and overinvestment in unprofitable ones, depending on the proportion

of overconfident investors. The research also examines the impact of regulatory interventions, finding that while increased transparency and restricting access to sophisticated investors generally improve outcomes for unsophisticated investors, mandating additional disclosure and PIPE financing may have unintended negative effects. Additionally, requiring redeemable shares, rather than protecting investors, may instead benefit sponsors, suggesting that alternative structures like straight equity could lead to improved outcomes.

5. Empirical Analysis of the SPACs Market Structure in U.S. and Europe

The following chapter analyzes the structure of the U.S. and European SPAC markets to examine the key characteristics, patterns, and structural factors that have shaped the evolution of SPACs in both regions. This analysis aims to highlight the distinctive features of each market in order to explore the underlying reasons behind their divergent development and differing levels of appetite for SPACs. Furthermore, this study seeks to contribute to the academic literature concerning European SPACs, which remain significantly underexplored compared to their U.S. counterparts, and by offering an updated and comparative analysis, it aims to enhance the understanding of this alternative listing vehicle across different regulatory and market contexts, capturing its evolution in recent years, before, during and after the SPAC boom of 2020 and 2021.

5.1. Sample Selection and Methodology

This empirical analysis is based on the construction of two separate and distinct samples of SPACs, one for the U.S. capital market and one for the European capital market. The SPACs included in the analysis must have completed their IPO between January 1, 2019 and March 31, 2025, and must meet the following selection criteria:

a. The sample for the U.S. capital market includes SPACs incorporated in the United States and listed on a national U.S. stock exchange.
b. The sample for the European capital market includes SPACs incorporated in a European Country and listed on a national stock exchange within Europe.

This additional requirement, which includes both incorporation and listing within the same geographic region, ensures consistency across the regulatory, financial, and institutional frameworks under which each SPAC operates. By aligning governance rules and capital market regulation within a single jurisdiction, this approach enables a more precise comparison of how the U.S. and European ecosystems influence and shape SPAC behavior and market outcomes.

The sample collection for European SPACs also includes entities incorporated in non-EU countries, primarily referring to UK-based SPACs, which are acknowledged to exhibit consistent behavior and operate under regulatory frameworks that are comparable to those of EU-based SPACs. As a result, they can be treated as part of a single, coherent European sample without compromising the validity of the analysis focused on the European SPAC market.

For the data collection of both samples, the reference time horizon for the SPAC IPO events spans from January 1, 2019, to March 31, 2025, an interval that ensures a sufficiently broad timeframe to analyze SPAC trends in both markets, capturing data on relevant phases of the SPAC market's evolution, including:

a. 2019, the year preceding the SPAC IPO boom;
b. From 2020 to 2021, the peak of the SPAC IPO activity, also known as the SPAC Boom period;
c. From 2021 to the first quarter of 2025, the post-boom adjustment and stabilization phase.

The data have been extracted from multiple sources to enhance the reliability and completeness of the datasets, with the primary source used being LSEG Workspace (formerly, Eikon/Refinitiv Workspace), one of the leading providers of global financing and capital markets data. To complement the data collection and verify its reliability and consistency through cross-examination, additional sources have been consulted,

including the PitchBook (Morningstar) database and SPAC-specific platforms such as SPAC Research and SPAC Analytics.

Among the previously mentioned databases, the main source used for data collection has been LSEG Workspace, as it offers advanced filtering options for special-purpose acquisition companies. In order to identify all relevant SPAC IPOs within the selected timeframe and geographic scope, and to construct the initial datasets, specific filters were applied in LSEG Workspace. The filtering criteria adopted for the data collection of both the U.S. and European SPAC markets are detailed in the following tables, with *Table 1* presenting the criteria for the U.S. SPAC sample and *Table 2* for the European SPAC sample.

Table 1: Filtering Criteria and Data Collection for U.S. SPACs[15]

Filter	Number Of Observations
Issue Type: IPO	104.969
Issue Date: 1/01/2019 - 31/03/2025	24.629
Blank Check (SPAC) Involvement: True	2104
Listing: Stock Exchange Grouped by Countries: United States	1422
Issuer/Borrower Nation: United States	1220
Issuer/Borrower Country of incorporation: United States	670
Transaction Status: Live or InProgress	567

Table 2: Filtering Criteria and Data Collection for European SPACs[16]

Filter	Number Of Observations
Issue Type: IPO	104.969
Issue Date: 1/01/2019 - 31/03/2025	24.629
Blank Check (SPAC) Involvement: True	2104
Listing: Stock Exchange Grouped by Countries: European Countries	112

[15] Personal elaboration from the LSEG Workspace database
[16] Personal elaboration from the LSEG Workspace database

Issuer/Borrower Nation: Europe	103
Issuer/Borrower Country of incorporation: Europe	103
Transaction Status: Live or InProgress	94

The analysis considers the following two distinct samples, representing the U.S. and European capital markets, comprising 567 U.S. SPACs and 94 European SPACs, all of which completed their IPO between January 1, 2019, and March 31, 2025, with both their country of incorporation and stock exchange listing located within their respective geographic regions.

These samples will be used in the subsequent analysis with the objective of representing the structure of the SPAC market in both the U.S. and Europe, and of understanding their respective intrinsic characteristics. This will be achieved by examining both capital markets and, for each year within the time period under analysis, the volume and number of SPAC IPOs, their share relative to total IPO activity, the amount of proceeds raised, the distribution across national stock exchanges, the industry distribution of target companies, and the average time to deal completion.

5.2. Comparative Analysis

5.2.1. Volume and Market Trends Analysis

The volume analysis of the SPAC samples under consideration is expected to provide valuable insights, especially in light of the significant trends that have characterized the SPAC market throughout the selected time period. As a matter of fact, between 2019 and 2025, despite the financial uncertainty stemming from the economic repercussions of the COVID-19 pandemic, capital markets in both Europe and the U.S. experienced a significant flourishing in IPO activity, driven by a combination of macroeconomic factors. These trends were largely driven by a favourable market environment supported by coordinated global policy responses, including expansive monetary and fiscal policies,

historically low interest rates, surging equity markets, and the increasing momentum of technology-driven sectors. Collectively, these factors provided significant capital into the markets and created investment opportunities for both companies and investors. The SPAC segment was particularly influenced by these dynamics, experiencing a sharp rise in popularity, which reflected a broader transformation in the listing landscape. This surge attracted significant attention and led to enhanced regulatory scrutiny over SPAC transactions by the U.S. Securities and Exchange Commission (SEC) and the European Securities and Markets Authority (ESMA) in the U.S. and Europe, respectively, potentially shaping SPAC trends in capital markets. In addition, persistent geopolitical tensions and inflationary pressures have negatively affected capital markets and IPO activity, potentially impacting SPAC trends not only in terms of the overall volume of new issuances but also in their structural characteristics. For this reason, volume analysis plays a crucial role in understanding the structural developments and changing market sentiment surrounding SPACs during this period, as well as the factors that affected their evolution.

For the following analysis, the study considers the two datasets outlined in paragraph 5.1: a sample of 567 observations from the U.S. SPAC market and a sample of 94 observations from the European SPACs market. Both samples include SPACs that conducted their IPO between January 1, 2016, and March 31, 2020, and that have their country of incorporation and primary stock exchange of listing located in the United States and Europe, respectively. To ensure consistency with the analysis, the observations concerning the total number of IPOs in each market are selected using the same filtering criteria applied to SPAC IPOs, meaning that both the country of incorporation and the primary stock exchange of listing are located within the respective regions.

The volume trends of SPAC markets in the U.S. and Europe, along with their comparisons to the overall IPO market activity in their respective regions, are summarized in the following figures: *Figure 3* for the U.S. market and *Figure 4* for the European one.

Figure 3: U.S. SPAC IPOs vs. Total U.S. IPOs and SPAC Share (2019 – 1Q 2025)[17]

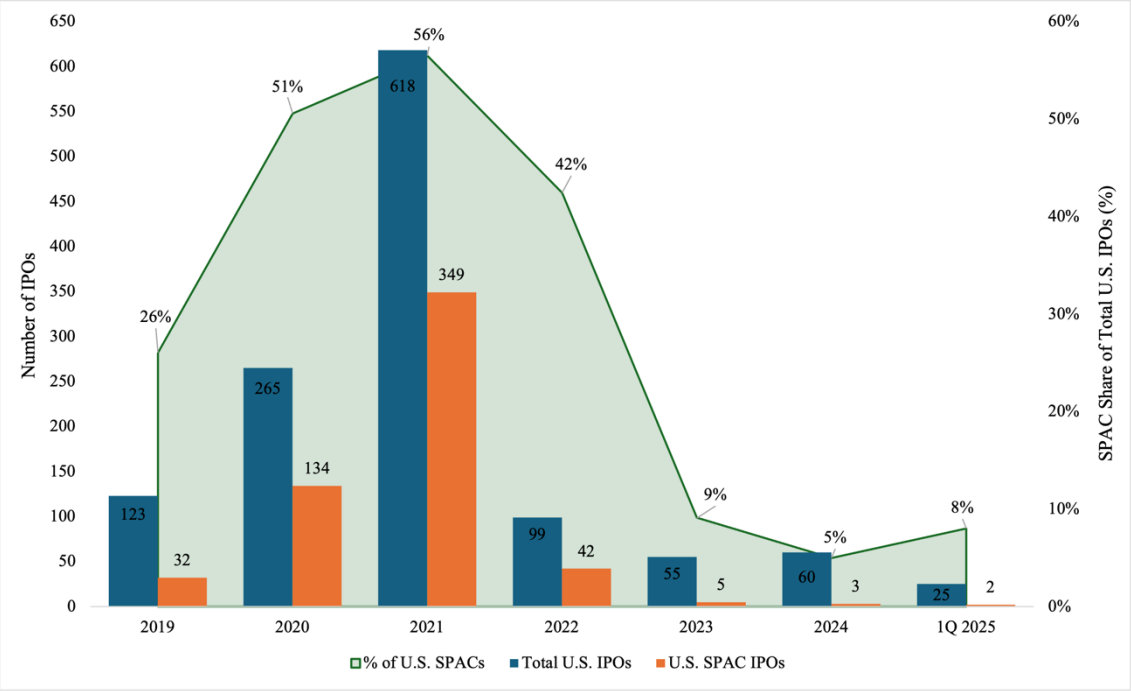


Figure 3 illustrates the annual number of SPAC IPOs in the U.S. compared to the total number of U.S. IPOs between 2019 and the first quarter of 2025, considering issuers whose country of incorporation and primary stock exchange are located in the United States. The data reveal a sharp rise in SPAC activity beginning in 2020 and peaking in 2021, followed by a steep decline from 2022 onwards.

As shown in the graph, after a moderate presence in 2019 with 32 issuances out of a total of 123 IPOs, U.S. SPAC IPOs surpassed traditional IPOs in both 2020 and 2021, accounting for 51% and 56% of the U.S. IPO market, respectively. This reflects the presence of a favorable market environment and positive investor sentiment that supported the rapid proliferation of this alternative listing method.

However, from 2022 onwards, the market experienced a significant slowdown, primarily driven by a deterioration in overall market sentiment due to increased regulatory scrutiny, evidence of poor long-term performance of de-SPACed companies, and market saturation, along with a growing number of SPAC liquidations, which raised concerns

[17] Personal elaboration from the LSEG Workspace database and PitchBook

about the overall quality of target companies and the broader presence of conflicts of interest and misaligned incentives within the SPAC structure.

As illustrated in the graph, these factors collectively contributed to a sharp decline in SPAC IPO activity, which dropped to just 42 issuances in 2022 and declined even further in the following years, accounting for only 9%, 5%, and 8% of the total U.S. IPO market in 2023, 2024, and Q1 2025, respectively.
This trend clearly highlights how SPACs transitioned from being a prominent and dominant listing method during the 2020 – 2021 boom to a marginal presence in the following years, underscoring the need to critically evaluate the structural and regulatory factors that have shaped these dynamics, which will be further explored in this chapter.

Figure 4: EU SPAC IPOs vs. Total EU IPOs and SPAC Share (2019 – 1Q 2025)[18]

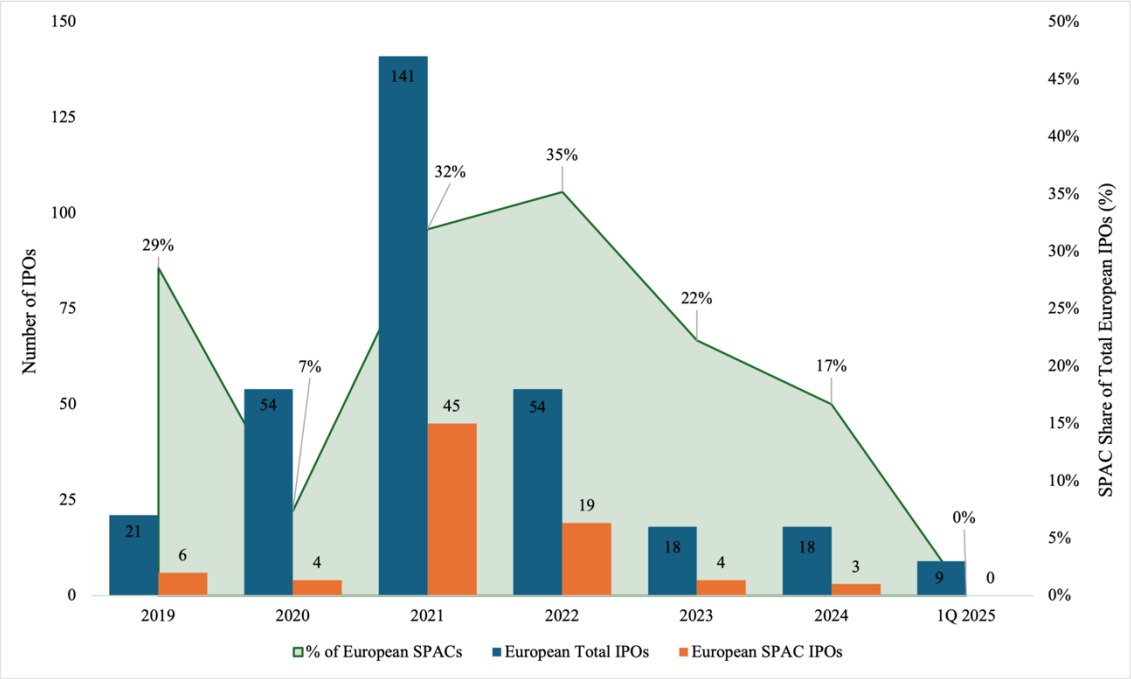


Figure 4 describes SPAC IPO activity in Europe for the same time period, revealing that the evolution of the European SPAC market followed broader global trends, but with a more moderate intensity and in a more contained way compared to its U.S. counterpart.

[18] Personal elaboration from the LSEG Workspace database and PitchBook

As illustrated in the graph, after 2019, when SPAC issuances accounted for 29% of the total IPO activity, European SPAC activity decreased in 2020, with only 4 SPAC IPOs and a market share of just 7%. This suggests that, unlike in the U.S., the European SPAC market did not immediately benefit from the initial wave of enthusiasm and favorable market conditions that characterized the early phase of the global SPAC boom.

The SPAC market activity experienced significant growth later in 2021, reaching its peak with 45 SPAC IPOs representing 32% of the total European IPOs, and maintaining momentum into 2022, with a SPAC market share of 35%. This delayed surge reflected the progressive adoption of the SPAC model within European capital markets, supported by growing interest from financial institutions, investors and experienced sponsors operating within the region, as well as from companies seeking easier access to public markets, many of whom were influenced by the spillover effect of the U.S. SPAC boom. Nevertheless, starting from 2023, the European SPAC market declined, consistent with the trends and reversal observed globally, with SPAC IPOs dropping to 4 and 3 issuances in 2023 and 2024 respectively, their share of total European IPOs falling to 22 percent and 17 percent, and still no issuances recorded in the first quarter of 2025. This contraction reflects both diminished investor confidence and regulatory and market-related frictions that have hindered the growth of SPAC activity within Europe, as well as a higher level of risk aversion among European investors towards new and less conventional investment vehicles. Overall, the graph highlights that the European SPAC market remained more contained in both volume and maturity compared to its U.S. counterpart, experiencing a delayed adoption, a shorter expansion phase, significantly lower issuance levels, and a faster contraction.

As shown in both *Figure 3* and *Figure 4*, 2021 marked the peak of SPAC IPO activity in both markets, reflecting the surge of the SPAC boom. This surge was primarily driven by favourable market conditions that emerged during the COVID-19 pandemic and growing dissatisfaction with traditional IPO processes. Favourable market conditions involve expansive monetary policies, fiscal stimulus measures, and low interest rates, which created an environment of high liquidity in financial markets, which, combined with strong investors' appetite for alternative investment vehicles, supported the rise of SPACs

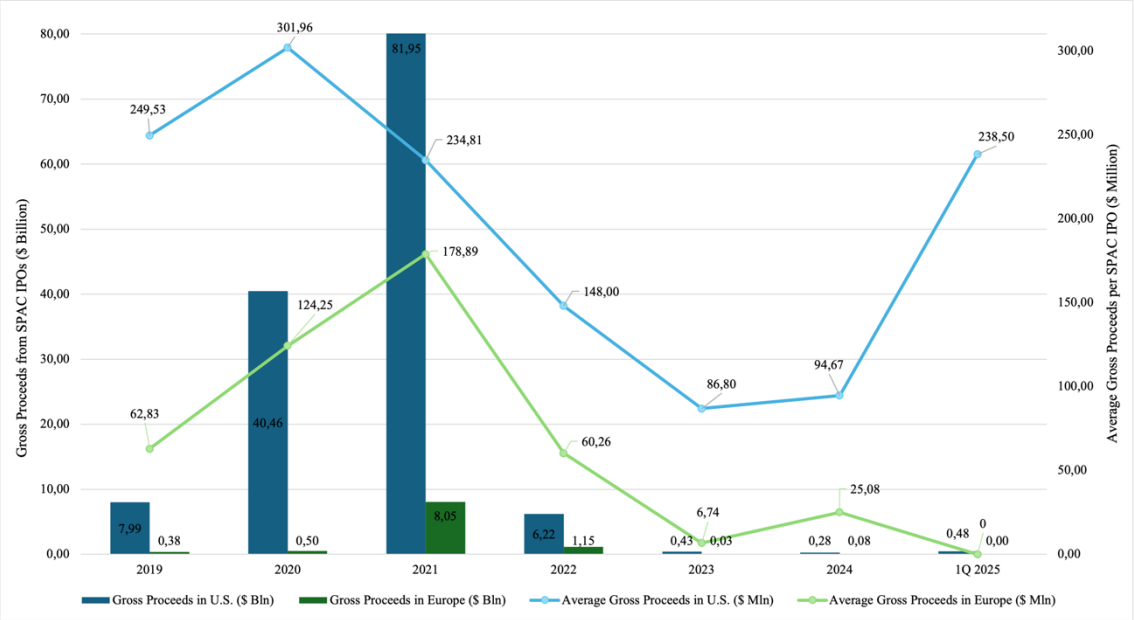
(Chaudhari, 2025). The growing appetite for this listing method was also driven by the increasing perception of SPACs as a faster, more flexible, and less administratively burdensome route to public markets, as well as by the fact that during this period of heightened market volatility and uncertainty, this listing method offered greater price certainty compared to traditional IPOs. The increasing involvement of institutional investors, attracted by excess liquidity, a growing number of start-ups seeking growth capital or exit strategies, and regulatory changes that standardized SPAC products, amplified the SPAC boom by bringing credibility to the market and drawing the attention of less-sophisticated investors (Bazerman & Patel, 2021).

Another factor contributing to the 2021 peak can also be attributed to the high level of market volatility and uncertainty surrounding financial markets triggered by the Covid-19 pandemic, which initially led many companies to wait for greater stability before accessing public markets, a condition that materialized in 2021 with the reopening and gradual restabilization of global economies. However, in both markets, this growing trend was followed by a marked market decline in SPAC IPO activity, with the number of listings declining significantly by 2025, as observable in both *Figure 3* and *Figure 4*. This downward trend can be attributed to several factors, including growing concerns regarding the lack of regulation and oversight in the SPAC market, doubts about the quality of the target companies brought public through SPACs, and the generally disappointing performance of these companies post-business combination. Moreover, due to the SPAC boom, the market became saturated, with many SPACs struggling to identify suitable targets and facing the risk of liquidation, which further deteriorated investor confidence and was compounded by growing regulatory scrutiny that increased the overall uncertainty surrounding SPACs.

Figure 5 shows the total and average gross proceeds generated from the SPAC IPOs within the two samples over the observed period, showing that the amounts raised in both the European and U.S. markets are consistent with the number of SPACs issuances and reflect the previously discussed trends. The graph highlights a substantial increase in gross proceeds in both regions during 2020 and a peak in 2021, when the U.S. and Europe recorded $81.95 billion and $8.05 billion respectively, followed by a sharp decline from 2022 onward, particularly in Europe, where gross proceeds dropped drastically to just

$0.08 billion in 2024, while in the U.S. the market also contracted significantly but maintaining relatively higher volumes.

Figure 5: SPAC Gross Proceeds and Average Deal Size in the U.S. and Europe (2019 – 1Q 2025)[19]



Both the U.S. and European SPAC markets appear to follow the same overall trajectory and trends, although with a significant difference in magnitude and volumes, as the share of SPAC IPOs relative to total IPO activity is relatively lower in Europe throughout the observed period, due to several factors, including differing levels of market maturity, investor appetite, and structural development between the two regions. Additionally, on average, European SPAC IPOs are smaller in size compared to those in the U.S., as evidenced by the lower average gross proceeds recorded each year over the observed time period.

One of the factors that may help explain this difference is the regulatory disparity between the two regions. In the United States, the regulatory framework applied by the SEC over SPAC IPOs is often considered more favorable than that applied to traditional IPOs, particularly in terms of filing procedures and disclosure requirements. On the other hand, SPACs listed within the European Union are subjected to almost the same regulatory burden as traditional IPOs, especially with regard to prospectus disclosures and product

[19] Personal elaboration from the LSEG Workspace database

governance obligations. This aspect helps explain the lower volume of issuances, which can be attributed to weaker market sentiment toward this alternative listing method in Europe, as well as to the fact that several European sponsors may have preferred to list their SPACs on U.S. stock exchanges[20], attracted by stronger market sentiment toward SPACs in the United States. Indeed, the U.S. benefits from significantly deeper capital markets, a longstanding familiarity with the SPAC model, and a more dynamic startup ecosystem, all of which have made European sponsors more inclined to list their SPACs on U.S. stock exchanges rather than domestically, in order to take advantage of stronger investor appetite, as well as a perceived combination of greater market efficiency and a more supportive regulatory environment for this listing vehicle.

From a European regulatory point of view, unlike the U.S., the lack of a harmonized framework, the reliance on general corporate and prospectus rules rather than SPAC-specific provisions, the absence of flexible mechanisms, such as full redemption rights, funder shares, and warrants, have made SPACs and European markets less attractive compared to traditional IPOs or to the U.S. market for SPAC listings (D'Alvia, 2023).

Table 3 and *Table 4* provide a summary of the SPAC volume analysis in both the U.S. and European markets over the observed time period, highlighting their relative share within the overall IPO activity, both in terms of the number of issuances and total proceeds.

Table 3:U.S. SPAC IPO Activity and Share in the Broader IPO Market (2019–Q1 2025)[21]

Years	Total U.S. IPOs	U.S. SPAC IPOs	% U.S. SPACs	Total U.S. IPOs Proceeds ($ Bln)	Total U.S. SPACs IPOs Proceeds ($ Bln)	% U.S. SPACs IPO Proceeds
2019	123	32	26%	37,196	7,99	21,5%
2020	265	134	51%	95,456	40,46	42,4%
2021	618	349	56%	181,509	81,95	45,1%
2022	99	42	42%	12,375	6,22	50,2%
2023	55	5	9%	9,876	0,43	4,4%
2024	60	3	5%	16,125	0,28	1,8%
1Q 2025	25	2	8%	2,4	0,48	19,9%
	1245	**567**	**45,5%**	**354,937**	**137,807**	**38,8%**

[20] Referring to SPACs established by European Sponsors but listed on U.S. stock exchanges, which full outside the scope of the present analysis as the selected samples include only SPACs that are both incorporated and listed within U.S. and European markets, respectively.

[21] Personal elaboration from the LSEG Workspace database and PitchBook

Table 4: European SPAC IPO Activity and Share in the Broader IPO Market (2019–Q1 2025)[22]

Years	Total European IPOs	European SPAC IPOs2	% European SPACs	Total European IPOs Proceeds ($ Bln)	Total European SPACs IPOs Proceeds ($ Bln)	% European SPACs IPO Proceeds
2019	**21**	**6**	**29%**	**8,186**	**0,38**	**4,6%**
2020	**54**	**4**	**7%**	**4,233**	**0,50**	**11,7%**
2021	**141**	**45**	**32%**	**30,269**	**8,05**	**26,6%**
2022	**54**	**19**	**35%**	**2,717**	**1,15**	**42,1%**
2023	**18**	**4**	**22%**	**0,28**	**0,03**	**9,6%**
2024	**18**	**3**	**17%**	**5,339**	**0,08**	**1,4%**
1Q 2025	**9**	**0**	**0%**	**0,379**	**0,00**	**0,0%**
	315	**81**	**26%**	**51,40**	**10,17**	**19,8%**

5.2.2. Structural Characteristics of SPACs

This section analyzes the structural characteristics of SPAC activity in both the U.S. and the European markets, based on the previously defined samples. The analysis specifically focuses on the countries of incorporation and the primary stock exchanges selected for the listings of SPACs included in both the U.S. and European samples. The objective is to provide a clear and updated understanding of the structural features of SPACs in the market, highlighting regional trends, listing preferences, and cross-border dynamics that characterize the SPAC landscape in both regions analyzed. Firstly, it will be analyzed the distribution of the two samples across the national stock exchanges of the respective reference markets.

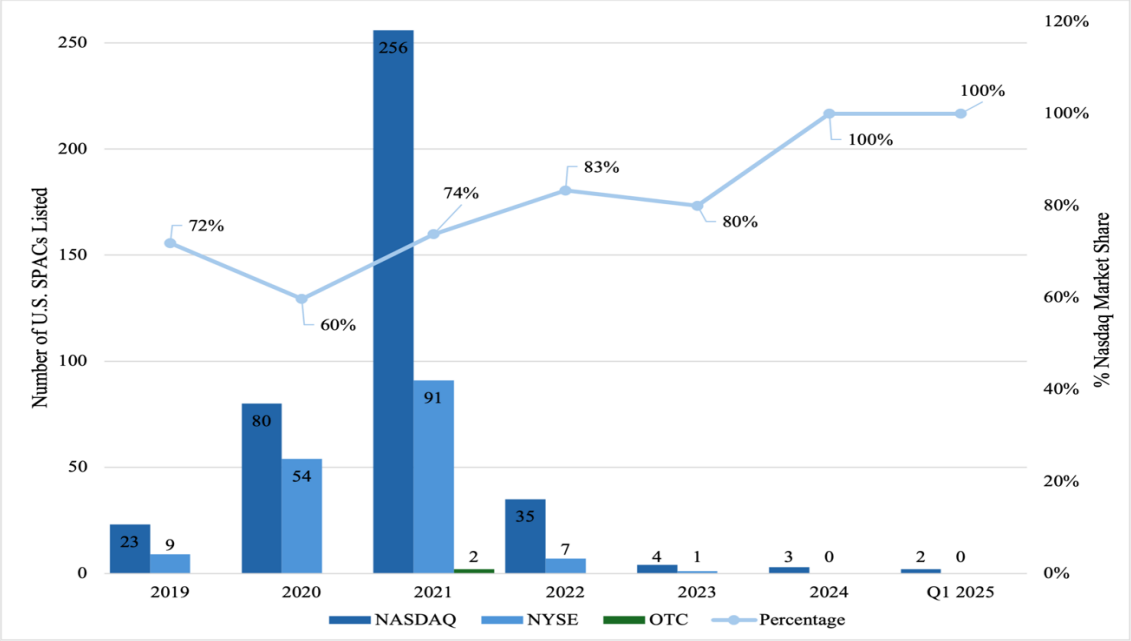
This investigation may provide valuable insights into potential preferences for specific stock exchanges, revealing the regulatory environments, listing requirements, and structural advantages that might make certain exchanges more attractive or accessible for SPAC listings. In particular, the selection of the listing venue and the jurisdiction of incorporation is crucial in SPACs transactions, as it impacts: (i) how straightforward the

[22] Personal elaboration from the LSEG Workspace database and PitchBook

regulatory review process is for launching the SPAC and obtaining approval for its prospectus, (ii) the stock exchange on which the combined entity will be listed following the de-SPAC transaction, and (iii) the SPAC's attractiveness during the IPO phase, for marketing purposes towards potential investors and in relation to negotiations with potential target companies (Clifford Chance, 2022).

Figure 6 shows the distribution of U.S. SPACs across the primary stock exchanges of listing within the U.S. capital markets over the predefined time period, also including the market share of issuances on Nasdaq, which is the most commonly chosen exchange for SPAC listings.

Figure 6: Distribution of SPAC Listings by Stock Exchange in U.S.[23]



As evident from the graph, the primary stock exchange for SPAC listings is Nasdaq, which accounts for an average of 82,3% of U.S. SPAC issuances over the examined time period, while the remaining listings take place on the New York Stock Exchange. This difference in listing numbers can be explained by several factors, including the fact that

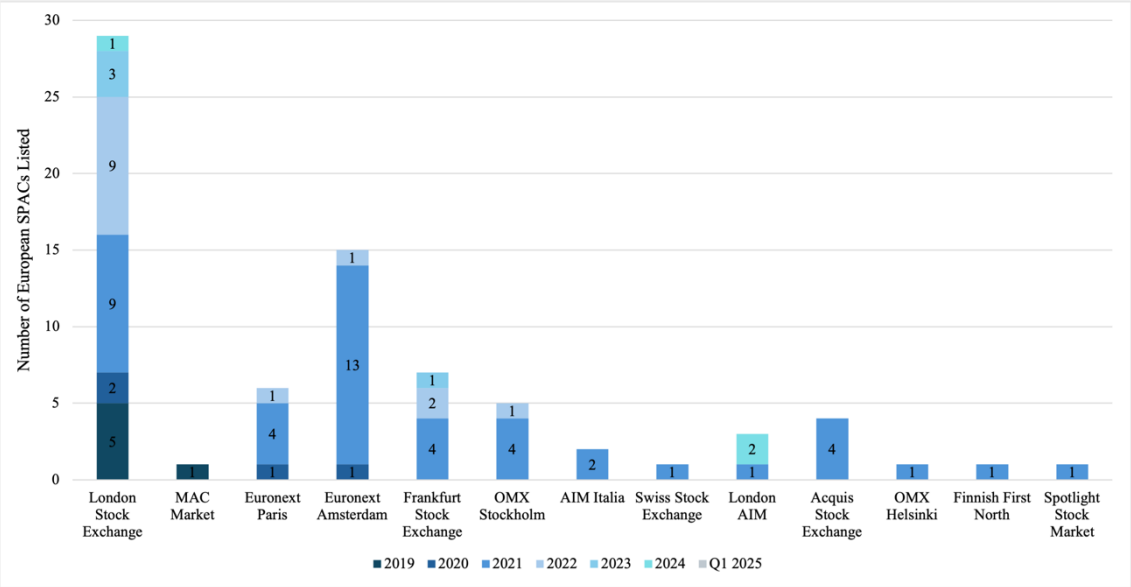
[23] Personal elaboration from the LSEG Workspace database

while both the Nasdaq and NYSE impose a 36-month deadline for SPAC to complete the business combination, Nasdaq offers greater procedural flexibility, for instance it allows hearing panels to grant additional time to SPACs that have signed a merger agreement before the deadline. Moreover, the difference in the volume of listings can also be associated with the nature of SPACs' target companies, which are generally active in high-technology industries that tend to prefer listing on Nasdaq rather than on the NYSE, as it is generally associated with greater opportunities in emerging sectors and innovation-driven companies. Moreover, as also observable from our analysis and samples, the largest SPACs tend to be listed on the NYSE, as the exchange requires a minimum market capitalisation of $100 million, resulting in smaller SPACs opting for listing on Nasdaq, which currently requires a minimum market capitalisation of $50 million.

This trend, however, may shift in the future as a result of potential changes in listing requirements by stock exchanges, which could be triggered by the SEC's recently approved rules enhancing disclosures, transparency, and investor protection, thereby encouraging stricter standards and possibly altering the relative attractiveness of one listing exchange over another (U.S. Securities and Exchange Commission, 2024). In 2021, we can also observe two SPAC listings on the OTC market, a rare occurrence in recent years since SPAC are now allowed to list on the major national exchanges such as Nasdaq and NYSE, whereas listings on the over-the-counter (OTC) markets were more common in the early generations of SPACs, when limited global recognition and regulatory constraints prevented them from accessing major stock exchanges.

Figure 7 shows the distribution of European SPACs across the primary stock exchanges of listing within the main European capital markets over the predefined time period.

Figure 7: Distribution of SPAC Listings by Stock Exchange in Europe[24]



The graph above shows that the two primary European stock exchanges for European SPAC listings are the London Stock Exchange and Euronext Amsterdam, which have recorded 29 and 15 listings, respectively, over the observed time period. The leading role of these exchanges in SPAC issuances can be attributed to their internationally oriented listing requirements, which, by being more closely aligned with those applied on major US stock exchanges such as Nasdaq and NYSE, contribute to creating a more familiar and accessible regulatory environment for SPAC listings in Europe and to attracting international investors to the European capital markets (Deloitte, 2021).

Until 2021, Euronext Amsterdam had established itself as the main European hub for SPAC listings, thanks to the flexibility of Dutch corporate law, which enabled the replication of US-style SPAC features, particularly with regard to redemption rights and sponsor structures. However, following the UK reform and the implementation of the Financial Conduct Authority's new SPAC regime in August 2021, the London Stock Exchange has rapidly caught up and even surpassed Euronext Amsterdam in the number of SPAC listings, as observable from the graph. In fact, the UK's alignment with international standards and the Financial Conduct Authority's (FCA) implementation of new features regarding shareholder approval, redemption rights, sponsor disclosure, use

[24] Personal elaboration from the LSEG Workspace database

of IPO proceeds, and listing requirements, all aimed at enhancing investor protection and market competitiveness, have positioned London as the new leading European hub for SPAC listings (Levitt, 2021). At the same time, also the Frankfurt Stock Exchange has taken significant steps to adopt and update SPAC-specific listing rules, allowing more flexible structures and aligning key aspects of SPACs with international practices, thereby positioning itself as the third largest European hub for SPAC issuances in the observed time period, as shown by the graph above. Overall, as shown in *Figure 7*, the period following 2021 marks an increased diversification in the geographical distribution of SPAC listings across European stock exchanges, with more countries such as Germany, Italy, and Spain emerging alongside other dominant markets, indicating an increased acceptance and greater regulatory openness towards SPACs.

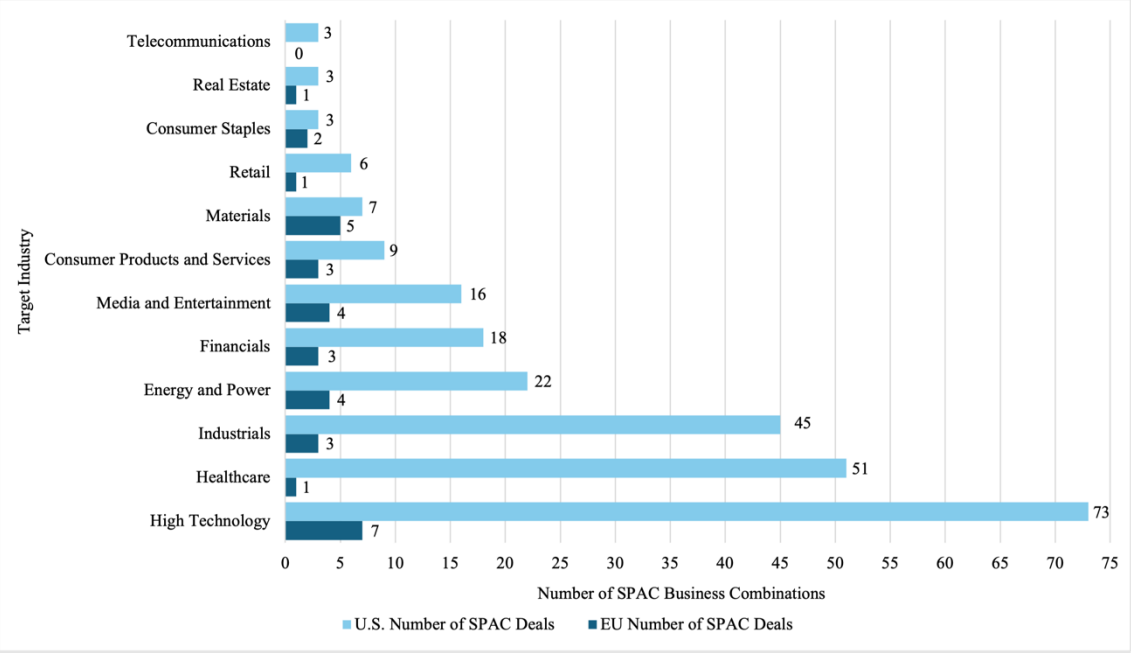
Since the European regulatory environment has recently become more receptive to SPACs, the current distribution of SPAC issuances across European exchanges, as well as the overall attractiveness of Europe for cross-exchange listings may change, depending on future developments in both national and EU-level SPAC-related regulations. This attractiveness largely depends on the extent to which the legal framework of the listing venue can accommodate features that make SPACs desirable investment vehicles for investors, sponsors, and stakeholders in general. The overall volume of SPAC activity may also be affected by European regulatory developments, as despite harmonization efforts by the European Securities and Markets Authority (ESMA), including the July 2021 statement on prospectus disclosures and MiFID II product governance, the European regulatory landscape still remains fragmented, suggesting an evolving SPAC environment (D'Alvia, 2022).

5.2.3. Industry Breakdown of De-SPAC Targets

The following section of the chapter analyses the target industries selected by SPACs in both samples, examining the type of sectors explicitly indicated in the prospectus as the primary focus for future business combinations. For the following analysis, the sample under examination includes only those SPACs from the previously defined datasets that

successfully completed a business combination within the established time frame, without undergoing liquidation. Starting from the initial SPAC IPOs datasets, composed of 567 U.S. and 94 European SPACs that went public between January 1, 2016, and March 31, 2020, and whose countries of incorporation and primary listing venues are located in the United States and Europe respectively, each SPAC was individually verified through LSEG Workspace, PitchBook Database, and other SPAC data sources. The verification process involved manually checking, by name and by ticker, whether each SPAC that completed the IPO and was included in the datasets had successfully merged or acquired a privately held target company, resulting in its public listing. This verification process resulted in two datasets of SPACs that completed a business combination, including 255 observations for U.S. SPACs and 34 observations for European SPACs, indicating that 44,97% of U.S. SPACs and 36,17% of European SPACs that went public between January 1, 2019, and March 31, 2025, successfully completed a transaction within the predefined time period. *Figure 8* visually represents the industry distribution of target companies involved in the business combination of SPACs that went public during the same period in both the United States and European samples.

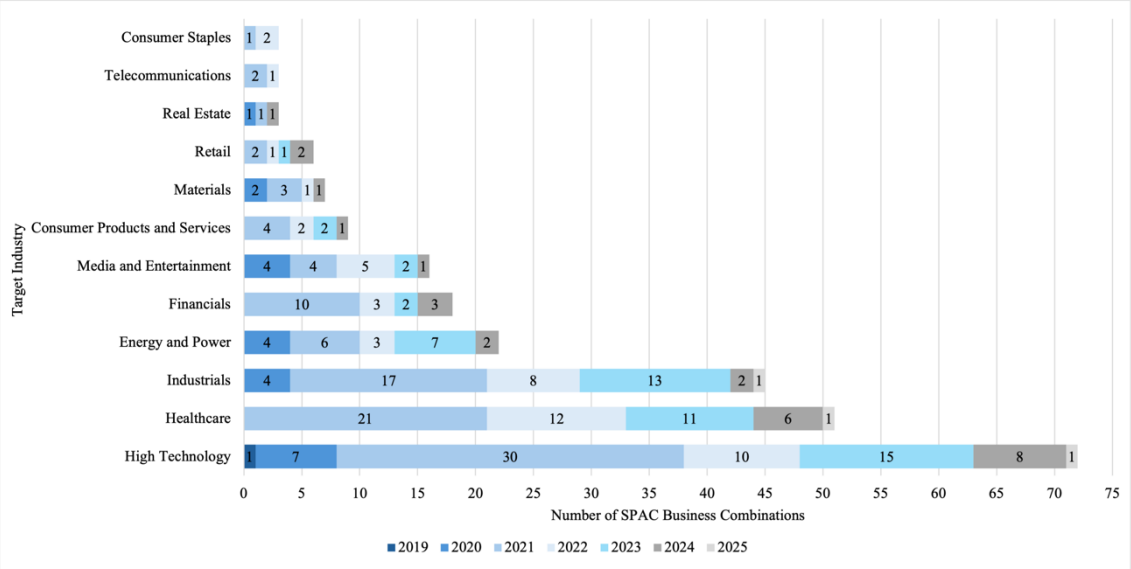
Figure 8: Industry Breakdown of SPAC Target Companies in Europe and the United States[25]



[25] Personal elaboration from the LSEG Workspace database

As shown in the graph above, based on the analyzed samples, the leading target industries for SPACs, particularly for those based in the United States, are High Technology (27.6%), Healthcare (17.9%), Industrials (16.6%), followed by Energy and Power (8.9%), Financials (7,2%), and Media and Entertainment (6.9%). These sectors appear to be the most attractive for business combinations, capturing the interests of both sponsors and investors, due to their strong growth potential and innovation-driven dynamics, confirming previous findings in the literature. As a matter of fact, SPACs tend to focus on niche, highly disruptive companies operating in dynamic and innovative sectors, confirming previous findings on the preference of the Nasdaq stock exchange as a primary listing venue for SPACs, which is generally chosen by such companies due to its association with greater opportunities in emerging sectors and innovation-driven businesses. One major reason for the frequent presence of many tech-targeted SPACs is that the tech sector tends to have many more private companies at various growth stages seeking additional capital compared to other industries, making the SPAC model particularly attractive by providing these firms an alternative route to public markets and funding for innovation, while offering investors access to the sector's high growth and speculative opportunities.

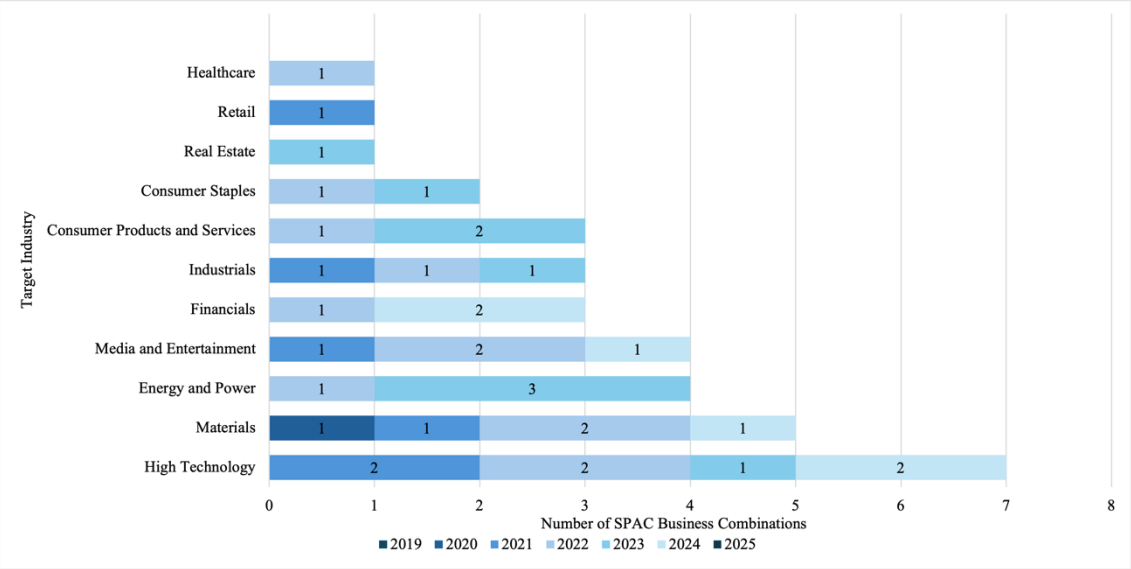
Figure 9: Industry Breakdown of SPAC Target Companies in the United States[26]



[26] Personal elaboration from the LSEG Workspace database

The industry distribution of target firms from the U.S. SPAC sample is shown in *Figure 9,* highlighting that high technology, healthcare, and industrial sectors have been the main focus of U.S. SPACs, with respective market shares of 28,2%, 20,2%, and 17,9%. Start-ups in these sectors often have significant growth potential but may not yet be profitable, requiring additional capital and being too early stage to meet the requirements for a traditional IPO. This makes them ideal candidates for de-SPAC transactions, which allow them to better market their business through forward-looking projections, define a long-term strategic roadmap for potential investors, and ultimately access capital (Huang, 2022). A notable surge in the number of business combination deals can also be observed from the beginning of 2021 onwards, reflecting the SPAC IPO boom of 2020 and 2021, which generated increased demand for target companies to merge with or acquire.

Figure 10: Industry Breakdown of SPAC Target Companies in Europe[27]



As depicted in *Figure 10,* the industry breakdown of SPAC target companies in Europe appears to follow a similar distribution to that of the U.S., with the leading market share represented by the high technology, materials, and energy and power sectors, which accounts for 20,6%, 14,7%, and 11,8% of the market respectively.

[27] Personal elaboration from the LSEG Workspace database

5.2.4. Timing Analysis of SPAC Transactions

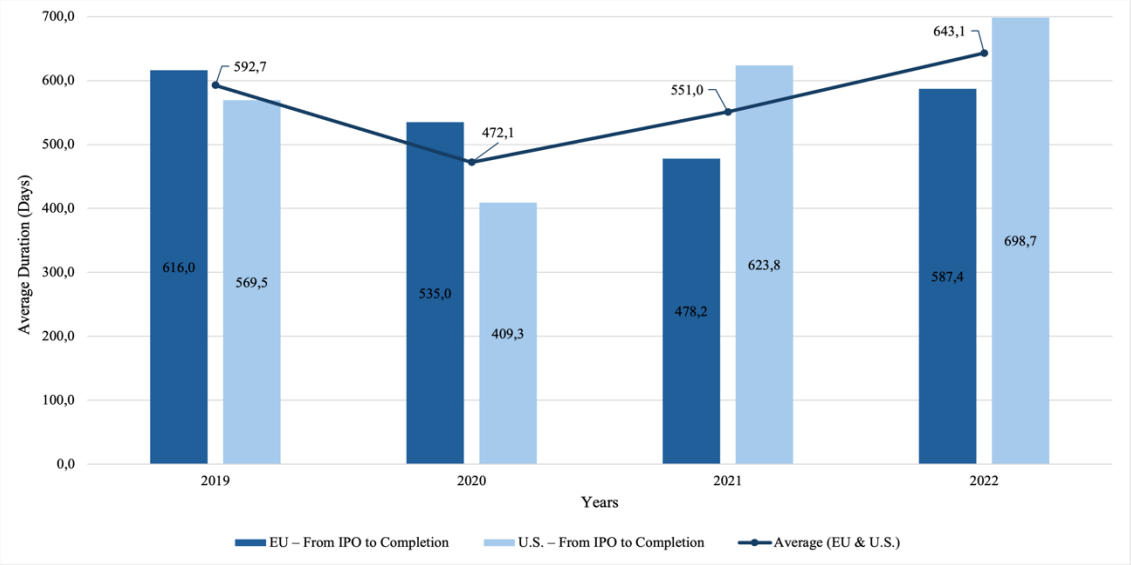
The following paragraph presents an analysis of the average time, measured in number of days, taken by the SPACs included in the previously defined U.S. and EU samples to complete a business combination. The examination was conducted by collecting data from the PitchBook database for the SPACs included in the previously defined samples, in order to identify the IPO date, the announcement date, and the completion date of the de-SPAC transaction for those SPACs that that went public between January 1, 2019, and March 31, 2025, and successfully completed a business combination.

This analysis is particularly relevant because one of the commonly mentioned advantages of SPACs is that the SPAC process is generally considered faster than traditional IPOs in taking a company public, due to less burdensome paperwork requirements and fewer time-consuming interactions with investors, such as roadshows (Bazerman & Patel, 2021). However, existing literature offers mixed perspectives on this characteristic of SPACs, with a relevant number of industry practitioners documenting the absence of significant speed difference between the two listing methods (Bai, Ma, and Zeng, 2021). Furthermore, as noted by Klausner et al. (2021), accurately measuring whether SPACs are faster than IPOs is complicated, since both processes involve substantial preparatory work before any public announcement of the deal, and differences in timing may depend more on firm-specific factors than on the nature of the SPAC or IPO process itself. However, since this research focuses on SPACs operating in the U.S. and European capital markets and is based on updated SPAC data, analyzing the timeframes of the SPAC process in both samples can still provide valuable and current insights into SPAC transactions across different markets.

As observable in *Figure 11,* the chart shows that, on average, both European and U.S. SPACs took 564.7 days (18 months) to complete a business combination from the IPO date. More specifically, the average duration for the SPACs that completed a de-SPAC transaction, included in the defined samples, was 592.7 days in 2019, 472.1 days in 2020, 551.0 days in 2021, and 643.1 days in 2022. As observable, in 2019 and 2020, European SPACs tended to take longer to complete the SPAC process compared to their U.S. counterparts, however from 2021 onwards the trend reversed, with U.S. SPACs requiring

on average more time to complete the transaction. The overall trend depicted by the average line reveals a U-shaped pattern, highlighting a decrease in 2020 followed by a progressive increase in 2021 that peaked in 2022, a dynamic that likely reflects the impact of the SPAC IPO Boom. In particular, this increase is likely associated with higher levels of market saturation caused by the SPAC IPO boom of 2020 and 2021, which led to a surge in the number of SPACs competing for a limited pool of suitable target companies, especially in the U.S., where capital markets were heavily affected by this speculative wave, causing many SPACs to seek targets internationally and ultimately extending the time required to complete a business combination.

Figure 11: Average Duration from IPO to Completion for SPACs in EU and U.S.[28]



As also notable from *Table 5*, although SPACs are often described as a faster alternative to IPOs, the data show that completing a business combination typically takes between 13 and 23 months from the IPO and between 3 and 12 months from the deal announcement, suggesting that depending on the company's circumstances and the extent to which it has completed prepatory work, such as audited financial statements, a SPAC merger may not necessarily provide a time advantage over the traditional IPO process.

[28] Personal elaboration from the LSEG Workspace database and PitchBook

Table 5: Comparison of SPAC Process Durations Between EU and U.S. Markets[29]

	EU			U.S.		
	From IPO to Announcement	**From Announcement to Completion**	**From IPO to Completion**	**From IPO to Announcement**	**From Announcement to Completion**	**From IPO Date to Completion**
2019	426,5	189,5	**616,0**	424,0	145,5	**569,5**
2020	252,5	282,5	**535,0**	239,9	169,4	**409,3**
2021	375,7	102,5	**478,2**	344,1	279,7	**623,8**
2022	421,0	166,4	**587,4**	333,8	364,9	**698,7**
AVG.	368,9	185,2	**554,2**	335,5	239,9	**575,3**

6. Empirical Analysis of Post-Business Combination Performance of U.S. and European SPACs

The following chapter analyses the post-transaction performance of U.S. and European SPACs by examining the period following the completion of the de-SPAC merger with the target company, with the aim of evaluating the returns investors may obtain by holding shares in the combined company. This empirical analysis is particularly valuable as it evaluates the post-de-SPAC transaction stock performance of SPACs that completed their IPOs between 2019 and 2025, including those that emerged during the SPAC IPO Boom of 2020 and 2021, providing meaningful insights and additional evidence on the long-term viability, performance, value creation, and sustainability of these alternative listing vehicles and their respective transactions carried out during this speculative period. As confirmed by previous literature, the main concerns regarding SPACs are primarily concentrated in the post-transaction period, being the one mostly affected by factors such as misaligned incentives, sponsors' opportunistic behaviour, structural dilution, and elevated redemption rates, all of which may ultimately result in value loss for non-redeeming shareholders, making this period the primary focus of the present analysis. Furthermore, this comparative analysis may also provide additional insights into the

[29] Personal elaboration from the LSEG Workspace database and PitchBook

similarities and discrepancies in the performance pattern of U.S. and European SPACs, potentially highlighting the ultimate effect on performance of regulatory, structural, and market-specific differences.

6.1. Sample Selection and Data Collection

The samples used for the purpose of the performance analysis were derived from the original U.S. and European SPAC samples previously defined for the market structure analysis (see Chapter 5, Paragraph 1), consisting of 567 U.S. SPACs and 94 European SPACs that completed their IPO between January 1, 2019, and March 31, 2025, with both their country of incorporation and stock exchange listing located within their respective geographic regions. Those samples were subsequently refined by selecting only the SPACs that successfully completed a business combination and for which all necessary post-transaction data were available, through a manual verification process conducted on the LSEG Workspace platform and Morningstar PitchBook, cross-checking each SPAC against the original sample and extracting two hand-collected datasets by matching the names and tickers from the previously defined SPAC list with those of the entities that completed a de-SPAC transaction during the same period. Following this examination, two datasets for the U.S. and European markets were manually constructed, including 252 U.S. SPACs and 32 European SPACs that conducted their IPO between January 1, 2019, and March 31, 2025, had both their country of incorporation and country of primary stock exchange of listing located in their respective regions, and successfully completed a business combination with a privately held target company without undergoing liquidation.

These two samples were further refined by manually adding, for each SPAC that completed a business combination, the name of the target company, the new ticker, the effective date of the transaction, the first trading day under following the de-SPAC transaction, the target's macro industry, and the stock prices from the business combination completion date up to 24 months thereafter, when data were available. For the purpose of the analysis, price data were collected from Yahoo Finance, Investing.com,

and LSEG Workspace Screener, by identifying and searching the post-business combination ticker for each individual SPAC included in the samples, and manually retrieving the closing prices for each at the business combination date, as well as one, six, twelve, eighteen, and twenty-four months thereafter, when data were available, as in some cases the transaction had occurred too recently or the company had been delisted before reaching the 24-month threshold. Since the actual performance period starts with the first trading day under the new ticker, a complementary manual research was also carried out using the official SPAC websites and stock exchange platforms to retrieve, through official announcements and press releases, the exact date on which each newly formed entity began trading under its new ticker.

For a complete and exhaustive analysis of the post-business combination performance of the SPACs identified in the two markets, the two samples were further clustered based on the time each SPAC took from the IPO date to the completion date of the de-SPAC transaction, resulting in three additional sub-samples: (i) SPACs that completed an acquisition or a merger in less than 12 months, (ii) in less than 24 months, and (iii) in more than 24 months.

This additional clustering enables a more in-depth examination of SPACs' post-business combination performances, providing additional evidence and useful insights into whether more time-consuming SPAC transactions are associated with weaker outcomes and higher investor risk, and addressing concerns raised in the literature suggesting that SPACs completing a transaction closer to the predefined time limit, beyond which liquidation occurs, tend to be of lower quality, as in this context sponsors may be incentivized to promote suboptimal targets in order to secure their remuneration linked to the completion of the transaction (Hale, 2007; Dimitrova, 2017).

The sub-samples are populated as follows (as also observable in *Table 6*): (i) in the U.S. sample, composed of 252 SPACs, 98 completed a business combination within 12 months from the IPO, 95 within 24 months, and 59 after more than 24 months; (ii) in the European sample, composed of 32 SPACs, 13 completed a business combination within 12 months, 12 within 24 months, and 7 after more than 24 months.

Table 6: Distribution of SPACs by Time to Completion[30]

Time To Completion	U.S. SPACs	European SPACs
Within 12 Months	98	13
Within 24 Months	95	12
Beyond 24 Months	59	7
Total	252	32

In addition, in order to assess the SPACs' post-business combination performance based on the year in which they conducted their IPO, a specific analysis was carried out with the specific purpose of examining potential differences in outcomes, particularly for those SPACs that went public in 2021, recognized as the peak year of the SPAC IPO Boom (see Chapter 5, paragraph 5.2.1.). This comparison can provide valuable insights concerning the several concerns raised about the quality of the SPACs that emerged in this speculative period, by assessing their post-de-SPAC performance and benchmarking it against that of SPACs that went public in other years. For the purpose of this examination, the initial samples of U.S. and European SPACs that completed their business combination were further divided into sub-samples based on the year in which they conducted their IPO, with the clusters populated as follows: (i) In the U.S. sample, composed of 252 SPACs, 29 went public in 2019, 98 in 2020, 108 in 2021, and 17 in 2022; (ii) in the European sample, composed of 32 SPACs, 4 went public in 2019, 2 in 2020, 21 in 2021, and 5 in 2022.

In order to carry out the analysis, the dataset was further expanded to include market benchmark data for both samples, enabling an assessment of both European and U.S. SPAC performance patterns against their respective market using indexes that represent measures of the overall stock market.

Specifically, the benchmark indexes chosen for the empirical analysis are the following:

(i) For the U.S. SPAC sample analysis, the benchmark index selected is the Russell 2000 Index, a small-cap U.S. stock market index that tracks the performance of 2,000 small-capitalization publicly listed companies included in the Russell 3000 Index, and is widely regarded as the primary measure of the overall performance

[30] Personal elaboration from the LSEG Workspace database and PitchBook

of small-cap to mid-cap stocks in the U.S. capital market. Given the typical structure and deal size of SPAC transactions, which often involve relatively small privately held target companies, de-SPAC firms usually emerge as newly public entities with market capitalizations that place them within the small-cap segment, making the Russell 2000 the most suitable benchmark for the analysis as it reflects similar risk-return profiles, volatility, and growth potential. The choice of this market index as benchmark for SPAC common stock performance is widely supported by empirical literature, with numerous academic studies evaluating SPACs' long-term post-business combination performance using the Russell 2000 Index as benchmark for abnormal return calculations, including Jog and Sun (2007), Floros and Sapp (2011), Dimitrova (2017), and Klausner, Ohlrogge, and Ruan (2021).

(ii) For the European SPAC sample analysis, the benchmark index selected is the STOXX Europe Small 200 Index, a fixed-component index that represents small capitalization companies in the European capital markets by tracking the performance of the 200 smallest stocks of the STOXX Europe 600 Index. Given that most de-SPAC newly public entities in the European sample fall within the small-cap segment and exhibit similar risk and growth profiles, this index offers a suitable and appropriate basis for the performance analysis of European SPACs. The choice of this market index is also supported in the literature, where it is recognized as a reliable market benchmark for assessing the performance of small-cap firms as well as the post-business combination performance of European SPACs (Ignatyeva, Rauch, and Wahrenburg, 2013).

6.2. Methodology

The following empirical analysis aims to examine the post-business combination performance of SPACs, by computing and evaluating the returns achieved by investors who participate in the de-SPAC transaction and retain their shares in the newly public

combined entity without exercising their redemption option, as well as those who purchase additional shares or warrants on the open market following the transaction.

The post-de-SPAC transaction performance of the SPACs included in both the U.S. and European samples is computed by adopting a buy-and-hold strategy, under the assumption that investors purchase common stocks of the newly formed entity on the first trading day under the new ticker following the de-SPAC transaction, and hold their investment for 1-month, 6-months, 12-months, 18-months and 24-months. This strategy allows for the quantification of the returns that an investor would obtain by holding the common shares of the newly formed entity after the business combination, assuming they did not exercise their redemption rights, while also enabling a consistent comparison between U.S. and European SPACs across both samples, allowing for the evaluation of the performance path over time, the assessment of the durability or erosion of value creation, the use of deal timing as a quality indicator, and the benchmarking of results against the broader market.

This empirical analysis adopts a price-based version of the BHAR calculation, consistent with approaches used in prior studies that rely on manually collected price data at fixed time intervals and discrete price observations, rather than compounding daily returns over the investment horizon. Specifically, BHARs are computed by subtracting the buy-and-hold return of the corresponding market index from that of each SPAC, with benchmark index prices selected on the same calendar dates as those used for the SPAC prices, based on the specific initial trading day of each individual SPAC following the business combination, using the following formula:

$$BHAR_{iT} = BHR_{iT} - BHR_{mT} = \frac{P_{iT} - P_{i0}}{P_{i0}} - \frac{P_{mT} - P_{m0}}{P_{m0}}$$

- P_{i0}: Closing price of the SPAC on the fist trading day under the new ticker following the de-SPAC transaction;
- P_{iT}: Closing price of the SPAC after 1, 6, 12, 18 and 24 months;
- P_{m0}: Value of the corresponding market index on the same calendar day as P_{i0} (i.e., the SPAC's initial trading day under the new ticker);
- P_{mT}: Value of the corresponding market index after 1, 6, 12, 18, 24 months.

The calculations and BHARs are computed for each SPAC in both the U.S. and European samples, each of which is further divided into three sub-samples consisting of SPACs that completed a business combination within 12 months, within 24 months, or beyond 24 months from the IPO, in order to enable a comprehensive analysis of post-business combination performance of the SPACs in relation to timing and structural variables.

The calculated returns will be used to evaluate the post-business combination performance of SPACs both in absolute terms and by conducting comparative analysis across the sub-samples described in the previous paragraph, which are grouped by time to completion of the de-SPAC transaction, in order to evaluate whether longer durations are associated with weaker returns, and by IPO year, with particular attention to SPACs launched in 2021, the peak of the SPAC boom, to investigate whether those formed during this speculative period are associated with lower quality and performance.

6.3. Results

The following paragraph presents and discusses the results of the empirical analysis conducted on the post-business combination performance of SPACs across both the U.S. and European samples[31].

The results are presented in the following tables, which are structured around the main time horizons considered, including 1,6,12,18, and 24 months, and further segmented based on the time taken to complete the business combination, with separate groups for SPACs that closed the de-SPAC transaction in less than 12 months, less than 24 months, and more than 24 months. *Table 7* presents the post-business combination stock performance of the U.S. sample of SPACs, while *Table 8* presents the post-business combination stock performance of the European sample of SPACs.

[31] Robustness check: All the results obtained were further tested through a robustness check, by replicating the same analysis using, as the starting price for the calculations of the buy-and-hold returns of both SPAC stocks and market benchmarks, the day of the business combination completion instead of the first trading day. The robustness check confirmed all the analysis conducted by showing similar and consistent results.

Table 7: Post-Business Combination Stock Performance of U.S. SPACs by Holding Period and Deal Completion Timing[32]

U.S. Sample	N	SPAC			Russel 2000 Index			Difference		
		Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	Mean	Std. Dev.	P-value
1-month return										
Total Sample	252	-19,58%	-20,60%	0,4270	-0,02%	0,04%	0,0608	-19,55%	0,4170	<0,01
Within 12-month cluster	98	-5,60%	-10,57%	0,4074	0,24%	0,37%	0,0659	-5,84%	0,3860	0,138
Within 24-month cluster	95	-21,71%	-20,74%	0,4098	-0,01%	-0,07%	0,0622	-21,71%	0,4041	<0,01
Above 24-month cluster	59	-39,35%	-46,55%	0,4071	-0,48%	-1,85%	0,0492	-38,87%	0,4102	<0,01
6-month return										
Total Sample	247	-48,25%	-54,59%	0,4001	-0,20%	-1,49%	0,1254	-48,05%	0,3950	<0,01
Within 12-month cluster	98	-38,69%	-47,37%	0,4138	-4,54%	-6,68%	0,1330	-34,15%	0,3706	<0,01
Within 24-month cluster	95	-52,30%	-60,77%	0,3431	1,26%	0,03%	0,1249	-53,55%	0,3460	<0,01
Above 24-month cluster	54	-58,46%	-69,06%	0,4362	5,14%	3,70%	0,0786	-63,60%	0,4411	<0,01
12-month return										
Total Sample	235	-62,34%	-74,89%	0,4492	-1,94%	-3,71%	0,1877	-60,40%	0,4541	<0,01
Within 12-month cluster	97	-59,76%	-71,76%	0,4697	-10,37%	-17,73%	0,1870	-49,39%	0,3922	<0,01
Within 24-month cluster	95	-64,04%	-79,12%	0,3646	1,16%	0,80%	0,1732	-65,20%	0,4168	<0,01
Above 24-month cluster	43	-64,38%	-83,19%	0,5654	10,21%	10,00%	0,1242	-74,59%	0,5954	<0,01
18-month return										
Total Sample	193	-69,21%	-81,76%	0,3820	-5,16%	-12,78%	0,1511	-63,95%	0,4003	<0,01
Within 12-month cluster	90	-67,43%	-79,64%	0,3976	-12,54%	-15,80%	0,1564	-54,89%	0,3413	<0,01
Within 24-month cluster	82	-69,81%	-88,27%	0,3976	-0,94%	-0,17%	0,1728	-68,87%	0,4625	<0,01
Above 24-month cluster	21	-69,21%	-81,76%	0,3820	10,76%	15,13%	0,1211	-84,53%	0,2443	<0,01
24-month return										
Total Sample	160	-70,88%	-86,49%	0,3708	-6,27%	-11,82%	0,1652	-64,61%	0,3933	<0,01
Within 12-month cluster	86	-71,94%	-84,11%	0,3537	-11,93%	-15,06%	0,1343	-60,01%	0,3496	<0,01
Within 24-month cluster	66	-70,32%	-89,54%	0,3867	-0,40%	0,42%	0,1763	-69,92%	0,4385	<0,01
Above 24-month cluster	8	-64,06%	-73,61%	0,3708	6,13%	13,40%	0,1511	-70,19%	0,4347	<0,01

Note: P-values are based on two-tailed t-tests. Statistical significance is assessed at the 10%, 5%, and 1% levels.

Table 7 indicates that overall, the post-business combination performance of U.S. SPACs is generally characterized by negative buy-and-hold returns across all time horizons considered, reflecting a persistent pattern of value destruction for investors who chose to retain their shares following the merger. This negative post-de-SPAC transaction performance trend further deteriorates as the time horizon following the merger or acquisition increases, indicating a progressive rise in investor losses over time as the holding period extends.

As shown in the table, the total sample of U.S. SPACs reports an average 1-month buy-and-hold return of -19,58%, with performance steadily deteriorating over time, reaching -48,25% after 6 months, 62,34% after 12 months, 69,21% after 18 months, and reaching the peak of -70,88% after 24-months. This steadily progressive decline highlights that the

[32] Personal elaboration based on data retrieved from Yahoo Finance, Investing.com, and LSEG Workspace.

U.S. SPACs of the sample, which conducted their IPO between January 1, 2019, and March 31, 2025, generally experience a sustained and deepening post-business combination underperformance, suggesting that the longer the investment is held following the de-SPAC transaction, the greater is the drop in share performance.

The examination of the sub-samples identified based on the time each SPAC took from the IPO date to the completion date of the transaction provides valuable insights, indicating that, on average, SPACs that take longer to finalize the de-SPAC transaction, often completing it to the predefined time limit and requiring more time to identify a suitable privately held target to acquire or merge with, tend to experience more significant underperformance in the short and medium term. This pattern is particularly evident in the 1, 6, 12 month return horizons, where the average performance progressively worsens from the cluster of SPACs that completed the business combination within 12 months to those that completed it in more than 24 months, with the average 1 month return decreasing from -5,6% to -39,35%, the average 6 month return declining from -38,69% to -58,46%, and the 12 month return worsening from -59,76% to -64,38%. This difference in performance across the time to deal clusters, however, tends to become progressively less pronounced as the holding period extends, gradually diminishing and resulting in a reduced level of dispersion in the 24-month return figures across the sub-samples. This attenuation pattern can be partly attributed to a selection effect, as indicated by the declining number of observations over time, since many poorly performing SPACs are delisted as the holding period extends, resulting in a remaining sample potentially composed of relatively better performing and more homogeneous firms, ultimately reducing the dispersion of returns. For the U.S. sample under analysis composed of 252 SPACs, a total of 54 were delisted from the market during the observed post-business combination period.

The table above also indicates that, when compared with the corresponding market benchmark, U.S. SPACs significantly underperform the Russell 2000 Index across all time horizons and time to deal clusters, with the average difference in buy-and-hold returns being consistently negative and statistically significant at the one percent level for nearly all the results obtained.

Table 8: Post-Business Combination Stock Performance of European SPACs by Holding Period and Deal Completion Timing[33]

European Sample	N	SPAC			STOXX Europe Small 200 Index			Difference		
		Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	Mean	Std. Dev.	P-value
1-month return										
Total Sample	32	-6,40%	-7,48%	0,1574	-0,70%	-0,27%	0,0524	-5,70%	0,1598	<0,10
Within 12-month cluster	13	-7,48%	-7,07%	0,0898	-1,50%	-1,87%	0,0617	-5,98%	0,1198	<0,10
Within 24-month cluster	12	-3,22%	-7,09%	0,1959	0,41%	1,63%	0,0459	-3,63%	0,1776	0,493
Above 24-month cluster	7	-9,83%	-8,32%	0,1944	-1,13%	0,76%	0,0479	-8,70%	0,2086	0,312
6-month return										
Total Sample	31	-14,72%	-21,94%	0,3338	-3,76%	-0,89%	0,1173	-10,96%	0,3079	<0,10
Within 12-month cluster	13	-26,29%	-28,56%	0,2662	-11,95%	-12,95%	0,0954	-14,34%	0,2717	<0,10
Within 24-month cluster	12	-6,91%	-20,26%	0,3478	1,69%	4,17%	0,1138	-8,60%	0,3231	0,376
Above 24-month cluster	6	-5,26%	-17,06%	0,4148	3,08%	1,50%	0,0456	-8,34%	0,3962	0,628
12-month return										
Total Sample	27	-21,00%	-24,55%	0,4443	-0,69%	1,36%	0,1648	-20,31%	0,4105	<0,05
Within 12-month cluster	13	-36,32%	-29,18%	0,2900	-9,79%	-9,13%	0,1215	-26,53%	0,2680	<0,01
Within 24-month cluster	11	-9,91%	-20,31%	0,3835	7,48%	7,56%	0,1767	-17,39%	0,3783	0,158
Above 24-month cluster	3	4,75%	-53,13%	1,0032	8,83%	10,93%	0,0667	-4,09%	0,9872	0,949
18-month return										
Total Sample	25	-27,68%	-39,82%	0,5775	-1,42%	-1,37%	0,1867	-26,26%	0,5906	<0,05
Within 12-month cluster	13	-33,39%	-57,14%	0,6797	-10,35%	-16,96%	0,1347	-23,04%	0,6943	0,255
Within 24-month cluster	9	-26,28%	-23,03%	0,2864	6,66%	9,22%	0,2211	-32,94%	0,3374	<0,05
Above 24-month cluster	3	-7,12%	-53,89%	0,9038	13,07%	14,06%	0,0357	-20,19%	0,8979	0,735
24-month return										
Total Sample	19	-39,38%	-55,83%	0,5402	-3,09%	-2,90%	0,1553	-36,29%	0,5258	<0,01
Within 12-month cluster	13	-39,11%	-65,11%	0,5937	-4,89%	-2,90%	0,1365	-34,22%	0,5688	<0,10
Within 24-month cluster	6	-39,98%	-50,41%	0,4524	0,81%	-0,01%	0,1986	-40,80%	0,4639	<0,01
Above 24-month cluster	0	-	-	-	-	-	-	-	-	-

Note: P-values are based on two-tailed t-tests. Statistical significance is assessed at the 10%, 5%, and 1% levels.

The results of the analysis concerning the European sample are shown in *Table 8*, indicating that, overall, the post-business combination performance of the European SPACs included in the sample is characterized by persistently negative buy-and-hold returns across all time horizons considered. This negative trend is consistent with the pattern observed in the U.S. SPACs sample, with buy-and-hold returns further deteriorating over time as the time horizon after the de-SPAC transaction increases, however, the negative post-transaction performance of European SPACs appears to be more contained compared to their U.S. counterparts.

As the table above shows, the total sample of European SPACs reports an average 1-month buy-and-hold return of -6,40%, deteriorating over time and reaching -14,72% after 6 months, -21,00% after 12 months, -27,68% after 18 months, and -39,38% after 24 months. This performance pattern indicates a progressive increase in investor losses over

[33] Personal elaboration based on data retrieved from Yahoo Finance, Investing.com, and LSEG Workspace.

time, the longer the investment is held following the merger or acquisition with the privately held target companies. From these results, it appears that on average European SPACs exhibit negative post-business combination performances similar to those observed in the previously analysed U.S. SPACs, however, with a lower degree of severity and generally more contained losses.

The results obtained for the time to deal sub-samples identified within the European sample appear less consistent and less clearly defined compared to those observed in the U.S. sample, which may be attributed due to the limited number of observations in each cluster, particularly in the cluster of SPACs that took more than 24 months to complete the business combination. Due to the limited number of observations in the European SPAC sample, it is difficult to draw strong conclusions regarding whether SPACs that take more time to complete the de-SPAC transaction consistently tend to perform worse in the post-business combination period. In addition, the small sample sizes increase the potential impact of individual outliers on the average returns, further limiting the interpretability of the results. A potential pattern emerges when focusing on the 6, 12, 18 month return horizons, indicating that the 12 month cluster appears to report more negative average returns compared to those that took longer to complete the transaction, however, the scarcity of observations and the variation in this pattern in the 1 and 24 and 24 months return horizons reduces the overall reliability of this evidence.

Similar to the previous results of the U.S. SPAC sample, when compared with the corresponding market benchmark, the European SPACs significantly underperform the STOXX Europe Small 200 Index across all time horizons and time to deal clusters. For the total sample, the average difference in buy-and-hold returns is consistently negative and statistically significant across all time horizons, and although the results for each individual clusters are not always statistically significant due to the limited number of observations in certain sub-samples, the overall significance observed in the total sample rows indicate the presence of a persistent underperformance relative to the market.

Both the European and U.S. samples exhibit poor stock performance in the post-business combination phase, which deteriorates over time as the holding period extends following the de-SPAC transaction, indicating a progressive rise in losses for the investors that

retain their shares in the newly public combined entity without exercising their redemption option. In addition, specifically in the U.S. sample, a distinct performance pattern emerges across the three sub-samples defined by the time taken from the IPO date to the completion date of the de-SPAC transaction, indicating that SPACs with more time-consuming transactions are generally associated with even weaker performances, ultimately resulting in greater detriment and risk to post-transaction investors.

The results obtained and reported in *Table 7* and *Table 8*, which highlight the poor post-business combination stock performance of SPACs, are consistent with the findings of prior literature on SPACs as alternative listing vehicles. Several empirical studies confirm the consistent underperformance of SPACs in the post-transaction phase. Among others, Floros and Sapp (2011) report significant negative post-transaction returns of -8,24% after 1 month and -75,7% negative buy-and-hold returns after 18 months, similar to Howe and O'Brien (2012), who document average post-business combination one-year buy-and-hold returns of -33%, while Dimitrova (2017) reports one-year post-transaction returns of -41%. Gahng, Ritter, and Zhang (2021) also report that SPAC common stocks significantly underperform the market benchmark, with an average one-year post-transaction buy-and-hold return of -11,3%. Jog and Sun (2007) report an average annualized abnormal buy-and-hold return of -17,34%, and Jenkinson and Sousa (2009) document even worse outcomes, with cumulative returns of approximately -24% after six months, worsening to -55% after 1 year. Finally, Kolb and Tykvová (2016) also report a clear pattern of performance deterioration over time, signaling post-business combination market-adjusted buy-and-hold returns of -29% after six months and long-term underperformance of -102% after sixty months, indicating that the newly public combined entities consistently underperform the market benchmark. Ultimately, the results obtained for the European SPAC sample, which indicate poor business combination stock performance, are also supported by prior empirical studies conducted to assess SPAC performances in European capital markets, for instance, the results obtained by Ignatyeva, Rauch, and Wahrenburg (2013) report average cumulative returns of -11% in six months and -14,4% after 12 months. Moreover, consistent with our findings and the comparative analysis showing a lower degree of underperformance reported in the European sample compared to the U.S. one, the same study (Ignatyeva et al., 2013) finds that European SPACs tend to exhibit smaller negative returns, and

therefore, while still underperforming, tend to achieve relatively better outcomes than their U.S. counterparts.

The second finding emerging from our empirical analysis, specifically from the U.S. sample, suggests that SPACs with more time-consuming de-SPAC transactions, which take more time from the IPO date to the completion date of the merger or acquisition with the privately held target company, tend to experience more substantial underperformance as the holding period extends, and this finding is consistent with previous literature, as Dimitrova (2017) also indicates that performance tends to be worse for those SPACs announcing and completing the transaction close to the predetermined deadline, suggesting the presence of low-quality deals promoted by sponsors just to secure their proceeds.

In addition, a second comparative analysis was conducted by examining the post-business combination performances of the SPACs based on the year in which they conducted their IPO, with the specific objective of assessing whether performance differences exist across the sub-samples, particularly for those that went public in 2021, the peak of the SPAC Boom. This comparative analysis is particularly valuable for addressing concerns regarding the long-term viability and acquisition quality of SPACs that went public in this phase, especially in light of the speculative surge that began in 2020 that peaked in 2021, when 613 out of 968 total IPOs were conducted through SPACs, highlighting the scale and relevance of this phenomenon and the importance of evaluating the outcomes of these alternative listing vehicles.

The results are presented in the following tables, which are structured around the main time horizons considered, including 1,6,12,18, and 24 months, and further segmented based on the year in which the SPACs conducted their IPO.

Table 9 presents the post-business combination stock performance of the U.S. sample of SPACs, while *Table 10* presents the post-business combination stock performance of the European sample of SPACs.

Table 9: Post-Business Combination Stock Performance of U.S. SPACs by IPO year[34]

U.S. Sample	N	SPAC			Russel 2000 Index			Difference		
		Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	Mean	Std. Dev.	P-value
1-month return										
SPACs listed in 2019	29	-3,22%	-9,79%	0,3306	2,78%	2,19%	0,1055	-6,00%	0,3098	0,306
SPACs listed in 2020	98	-5,89%	-11,31%	0,4454	0,37%	0,26%	0,0437	-6,26%	0,4264	0,149
SPACs listed in 2021	108	-33,29%	-42,98%	0,3532	-1,23%	-2,24%	0,0560	-32,05%	0,3572	<0,01
SPACs listed in 2022	17	-39,30%	-50,35%	0,5481	0,60%	1,07%	0,0577	-39,90%	0,5599	<0,01
6-month return										
SPACs listed in 2019	29	-24,53%	-31,39%	0,4260	10,23%	6,01%	0,1933	-34,76%	0,4119	<0,01
SPACs listed in 2020	98	-41,13%	-47,95%	0,3949	-3,08%	-3,52%	0,1026	-38,05%	0,3798	<0,01
SPACs listed in 2021	105	-59,15%	-65,31%	0,3750	-1,31%	-0,92%	0,1104	-57,85%	0,3865	<0,01
SPACs listed in 2022	15	-64,25%	-67,73%	0,2355	6,24%	5,26%	0,0649	-70,49%	0,2467	<0,01
12-month return										
SPACs listed in 2019	29	-42,80%	-57,55%	0,5767	8,34%	11,66%	0,2890	-51,14%	0,4802	<0,01
SPACs listed in 2020	97	-58,75%	-70,36%	0,4015	-10,54%	-15,40%	0,1424	-48,20%	0,3860	<0,01
SPACs listed in 2021	98	-69,49%	-83,97%	0,4532	1,35%	1,33%	0,1561	-70,83%	0,4827	<0,01
SPACs listed in 2022	11	-81,82%	-86,11%	0,1894	17,51%	17,10%	0,0691	-99,33%	0,2131	<0,01
18-month return										
SPACs listed in 2019	27	-59,45%	-80,57%	0,5014	-2,52%	-14,72%	0,2664	-56,93%	0,3928	<0,01
SPACs listed in 2020	90	-66,49%	-77,68%	0,3612	-12,14%	-14,86%	0,1228	-54,35%	0,3697	<0,01
SPACs listed in 2021	72	-75,23%	-84,41%	0,3560	1,42%	7,39%	0,1632	-76,46%	0,4064	<0,01
SPACs listed in 2022	4	-87,88%	-98,65%	0,2242	17,13%	16,59%	0,0183	-105,0%	0,2081	<0,01
24-month return										
SPACs listed in 2019	26	-70,44%	-87,51%	0,3217	-4,70%	-12,06%	0,1911	-65,74%	0,3054	<0,01
SPACs listed in 2020	85	-68,29%	-81,65%	0,3861	-11,08%	-14,55%	0,1286	-57,21%	0,4030	<0,01
SPACs listed in 2021	49	-75,60%	-89,31%	0,3703	1,23%	0,74%	0,1803	-76,84%	0,3933	<0,01
SPACs listed in 2022	0	-	-	-	-	-	-	-	-	-

Table 9 indicates the results of the comparative analysis by IPO year for the U.S. sample, revealing a clear deterioration trend in post-business combination performance for the SPACs listed during the SPAC IPO Boom period. It is observable that SPACs that conducted their IPO in 2021, the peak year of this speculative SPAC Boom, exhibit substantially weaker post-business combination performances across all time horizons, with average buy-and-hold returns of -33,29% after one month compared to -3,22% for SPACs listed in 2019, -59,15% after six months compared to -24,53%, - 69,49% after twelve months compared to -42,80%, and -75,23% after eighteen months compared to -59,45%. This comparison highlights the significantly weaker post-business combination performance of SPACs listed during 2021, the peak of this speculative surge, compared

[34] Personal elaboration based on data retrieved from Yahoo Finance, Investing.com, and LSEG Workspace.

to those listed before this phase in 2019. It is also possible to notice from the table above a similar, but slightly less pronounced, trend for SPACs listed in 2020, the starting year of the speculative boom, reporting worse buy-and-hold returns compared to those SPACs that went public in 2019 across the time horizons considered, with average buy-and-hold returns of -5,89% after one month compared to -3,22% for SPACs listed in 2019, -41,13% after six months compared to -24,53%, - 58,75% after twelve months compared to -42,80%, and -66,49% after eighteen months compared to -59,45%. This comparison highlights that although the performance deterioration and difference from those SPACs listed in 2019 and 2020 is less severe than that observed for those that went public in 2021, the results confirm that SPACs listed in this speculative period tend to generate lower returns, ultimately exposing investors who retained their shares in the newly formed public entity to greater risk and value erosion. On the other hand, although the number of observations is more limited, SPACs listed in 2022, following the end of the SPAC IPO Boom, also experienced substantially weak post-business combination performance, which may be attributed to several factors, including the heightened investor skepticism and the residual effect of the preceding speculative surge, which reduced the availability of attractive target companies and increased competition among SPACs to identify and acquire favourable and suitable privately held firms.

Table 10: Post-Business Combination Stock Performance of European SPACs by IPO year[35]

European Sample	N	SPAC			STOXX Europe Small 200 Index			Difference		
		Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	Mean	Std. Dev.	P-value
1-month return										
SPACs listed in 2019	4	6,21%	4,69%	0,1087	1,81%	1,88%	0,0467	4,40%	0,0982	0,436
SPACs listed in 2020	2	-24,18%	-24,18%	0,1210	-2,97%	-2,97%	0,1006	-21,21%	0,0204	<0,05
SPACs listed in 2021	21	-8,10%	-8,32%	0,0819	-1,44%	-1,72%	0,0540	-6,67%	0,1042	<0,01
SPACs listed in 2022	5	-2,21%	-4,67%	0,3324	1,28%	2,24%	0,0288	-3,49%	0,3361	0,828
6-month return										
SPACs listed in 2019	4	-15,44%	-26,58%	0,2937	-0,64%	2,45%	0,1648	-14,81%	0,2150	0,262
SPACs listed in 2020	2	-34,70%	-34,70%	0,0616	-8,36%	-8,36%	0,0981	-26,34%	0,1597	0,258
SPACs listed in 2021	21	-16,56%	-18,57%	0,3125	-4,37%	-0,30%	0,1233	-12,19%	0,2938	<0,1
SPACs listed in 2022	4	5,66%	-14,65%	0,5392	-1,39%	-0,57%	0,0471	7,06%	0,5058	0,798
12-month return										
SPACs listed in 2019	3	7,12%	-20,31%	0,5162	11,97%	21,21%	0,3613	-4,84%	0,5458	0,892
SPACs listed in 2020	2	-43,73%	-43,73%	0,1607	-3,80%	-3,80%	0,0360	-39,94%	0,1967	0,213
SPACs listed in 2021	20	-22,62%	-23,14%	0,4713	-3,03%	0,82%	0,1398	-19,59%	0,4332	<0,1
SPACs listed in 2022	2	-24,22%	-24,22%	0,0702	6,87%	6,87%	0,0154	-31,09%	0,0856	0,122
18-month return										
SPACs listed in 2019	3	-19,76%	-25,00%	0,2314	7,33%	-10,41%	0,4141	-27,08%	0,4851	0,436
SPACs listed in 2020	2	-56,23%	-56,23%	0,4695	-5,55%	-5,55%	0,0591	-50,69%	0,5286	0,405
SPACs listed in 2021	19	-26,15%	-49,44%	0,6450	-2,94%	5,14%	0,1577	-23,21%	0,6447	0,134
SPACs listed in 2022	1	-23,35%	-23,35%	-	9,52%	9,52%	-	-32,86%	-	-
24-month return										
SPACs listed in 2019	3	-37,78%	-45,00%	0,4021	-1,38%	-9,39%	0,3041	-36,40%	0,4698	0,312
SPACs listed in 2020	2	-74,52%	-74,52%	0,2643	-0,01%	-0,01%	0,0631	-74,51%	0,3275	0,192
SPACs listed in 2021	13	-36,15%	-65,11%	0,6154	-4,17%	-2,90%	0,1415	-31,98%	0,5822	<0,1
SPACs listed in 2022	1	-15,95%	-15,95%	-	-0,34%	-0,34%	-	-15,61%	-	-

As *Table 10* shows, the results obtained from the comparative analysis by IPO year for the European sample are less robust due to the limited number of observations within each sub-sample, which restricts the ability to draw meaningful conclusions. As a matter of fact, while there is a strong concentration of SPACs that conducted their IPO in 2021, accounting for 21 out of 32 entities and consistent with the broader SPAC boom period, the other sub-samples for those listed in 2019, 2020 and 2022 include very few observations, hindering the ability to draw strong conclusions on whether SPACs launched during in this speculative period of 2020 and 2021 exhibit superior long-term viability and acquisition quality compared to those from other periods. Despite the limited number of observations, the table above shows that, overall, SPACs launched during the speculative SPAC IPO Boom of 2020 and 2021 tend to experience worse average buy-and-hold returns in the post-business combination period across the examined time horizons. Specifically, SPACs that conducted their IPO in 2020 and 2021 report average

[35] Personal elaboration based on data retrieved from Yahoo Finance, Investing.com, and LSEG Workspace.

buy-and-hold returns of -24,18% and -8,10% respectively after one month, compared to 6,21% for those listed in 2019; -34,7% and -16,56% respectively after six months, compared to -15,44% for those launched in 2019, -43,72% and – 22,62% respectively after twelve months, compared to 7,12% for the 2019 sub-sample; and -56,23% and -26,15% respectively after eighteen months, compared -19,76% for those listed in 2019.

This emerging pattern, although supported by less robust evidence compared to the results obtained for the U.S. sample, further supports the hypothesis that SPACs launched during this speculative period tend to exhibit more pronounced underperformance, increasing the risks and potential losses for post-business combination investors. The quality of the SPACs and their acquisition strategies may have been negatively affected by market saturation, shifted investor sentiment, stronger conflicts of interest, misaligned incentives, and a reduced availability of attractive and suitable privately held target companies, largely driven by the surge in SPAC IPOs during the speculative phase, which intensified competition and led sponsors to complete deals even with suboptimal targets and under less favourable conditions.

This hypothesis and the associated criticism are further supported by the number of liquidations that occurred after the speculative boom of SPACs launched during this period, also referred to as the Liquidation Phase (Chaudhari, 2025). This pattern emerges clearly also in the present analysis, as a matter of fact, based on the sample identified in Chapter 5, paragraph 5.1., the percentage of liquidated SPACs in the U.S. sample was 9,4% for those listed in 2019, increasing to 25,6% for those launched in 2020, and rising further to 68,1% and 59,5% for those that conducted their IPO in 2021 and 2022 respectively. For the European sample is also observable a similar trend, with the percentage of liquidated SPACs equal to 33,3% for those listed in 2019, increasing to 50,0% for those launched in 2020, and rising further to 48,9% and 75% for those that conducted their IPO in 2021 and 2022, respectively.

6.4. Summary of Results and Discussion

The analysis of the post-business combination stock performance for both U.S. and European samples reveals insightful patterns that enhance the understanding of SPAC performance following the de-SPAC transaction and contribute meaningfully to the existing body of literature.

First of all, the first part of the analysis aimed to assess the stock performance of SPACs following their business combination by computing the buy-and-hold returns over 1, 6, 12, 18, and 24 months, with the objective of determine whether investors who chose to retain their shares following the merger experienced positive or negative returns.

What emerged from the results of the present analysis is that the post-business combination performance of both U.S. and European SPACs is generally characterized by negative buy-and-hold returns across all time horizons considered, reflecting a persistent pattern of value destruction for investors who decide to remain invested in the newly public entity (*Table 7* and *Table 8*). Specifically, the U.S. SPAC sample reports an average 1-month buy-and-hold return of -19,58%, with performance steadily worsening over time, reaching -48,25% after 6 months, 62,34% after 12 months, 69,21% after 18 months, and reaching the peak of -70,88% after 24 months. On the other hand, the European SPAC sample reports an average 1-month buy-and-hold return of -6,40%, worsening over time and reaching -14,72% after 6 months, -21,00% after 12 months, -27,68% after 18 months, and -39,38% after 24 months. These emerging performance patterns suggest that investors who choose not to exercise their redemption rights and instead hold their shares following the de-SPAC transaction, as well as those who enter the newly public entity by purchasing common shares or exercising warrants, are likely to incur significant losses in the months following the merger or acquisition. A second finding emerging from the analysis is that the buy-and-hold returns appear to deteriorate as the holding period increases, suggesting that SPACs tend to underperform not only in the short term but even more significantly over longer time horizons, raising serious concerns about their long-term viability and indicating that SPACs' investors may be particularly exposed to sustained value erosions.

These findings, as already reported in the previous chapter, are consistent with prior literature on SPACs' performance. Among others, Floros and Sapp (2011), Howe and O'Brien (2012), Dimitrova (2017), Gahng, Ritter, and Zhang (2021), Jog and Sun (2007), Ignatyeva, Rauch, and Wahrenburg (2013), and Kolb and Tykvová (2016), report in their respective studies and analyses significantly negative post-transaction returns that tend to worsen over time, with results that align with the present analysis and further confirm the persistence of this post-transaction performance trend characterizing across both U.S. and European SPACs.

Among the various factors contributing to this negative performance pattern of SPACs following their merger or acquisition, a significant role is played by the misaligned incentives and conflicts of interest between the stakeholders involved in SPAC transactions, as widely documented in the SPAC literature (Jog & Sun, 2007; Jenkinson & Sousa, 2011; Howe and O'Brien, 2012; Kolb and Tykvová, 2016; Dimitrova, 2017; Gahng, Ritter, and Zhang, 2021). As a matter of fact, the SPAC structure is fundamentally designed in a way that creates strongly misaligned financial incentives between sponsors, underwriters, and public shareholders, prioritizing deal consummation over long-term shareholder value creation and fostering opportunistic behaviours that may ultimately undermine the long-term viability and performance of the newly public company after the business combination. Specifically, since the compensation of sponsors and underwriters is, respectively, fully and partially contingent upon the successful closing of the transaction, and since both parties can generate substantial profits even if the acquisition results value destroying, they may be incentivized to finalize the deal before the predefined time limit solely to secure their financial gains, even by promoting suboptimal or low-quality privately held target companies, which tend to significantly underperform after the business combination. In addition, as widely supported in the literature, another factor contributing to the negative post-transaction performance of SPACs is the dilution effect, which emerges from the exercisability of outstanding warrants after the de-SPAC transaction, the sponsors promote, the payment of deferred underwriter fees, and the share redemptions by public shareholders who voted against the deal, all of which reduce the value per share for remaining investors and may hinder post-deal performance (Jenkinson & Sousa, 2009).

Secondly, the analysis also aimed to assess potential similarities and discrepancies in the performance pattern of U.S. and European SPACs, and to determine whether the stock performance of U.S. SPACs is superior to that of their European counterparts, or vice versa, potentially highlighting the ultimate effect on performance of regulatory, structural, and market-specific differences.

What emerged from the results of the present analysis is that, while both U.S. and European SPACs exhibit negative post-business combination performance, European SPACs tend to underperform less severely and generally experience more contained losses, indicating relatively better outcomes compared to their U.S. counterparts. While the U.S. SPAC sample shows an average 1-month buy-and-hold return of -19,58%, which deteriorates sharply to -70,88% after 24 months, the European sample reports more moderate losses, with an average buy-and-hold return of -6,4% after 1 month, deteriorating to -39,38% after 24 months, indicating a lower magnitude of underperformance for European SPACs (*Table 7* and *Table 8*). This trend is also supported by the comparative analysis conducted by Ignatyeva et al. (2013), which yielded similar results. Several factors may explain the observed differences in stock performance between U.S. and European SPACs, among others, a key explanation lies in the regulatory and institutional differences between the European and U.S. capital markets, with Europe generally imposing stricter governance and disclosure requirements, which may limit opportunistic behaviours and lead to the selection of higher-quality target companies. In addition, another factor potentially contributing to this trend is the relative immaturity and lower saturation of the European SPAC market, which may allow for greater selectivity in deal-making and lower competition in the identification of suitable privately held target companies to merge with or acquire (Deloitte, 2021).

Thirdly, the present empirical analysis also aimed to assess and benchmark the post-business combination stock performance of SPACs against the market, in order to determine whether these companies outperform or underperform their reference markets, by comparing them to their respective benchmark market indexes, the Russell 2000 Index for the U.S. sample and the STOXX Europe Small 200 Index for the European sample.

What emerged from the results, in line with the previous findings, is that both U.S. and European SPACs considerably underperform their respective benchmark index across all time horizons considered (*Table 7* and *Table 8*). This underperformance is statistically significant at a high level for the U.S. sample for nearly all the results obtained, due to the large number of observations available across all sub-samples, while for the European sample the significance level is lower but still statistically significant when considering the total sample across all time horizons, due to the more limited number of observations compared to the U.S. dataset. These findings suggest that the negative performance of SPACs is not only absolute but also relative to the broader market, reinforcing the evidence of value erosion for investors following the de-SPAC transaction.

Fourthly, the present empirical analysis also aimed to assess whether more time-consuming SPAC transactions are associated with weaker outcomes and increased investor risk, addressing concerns raised in the literature that associate SPACs with longer time to deal completion with opportunistic behaviours driven by misaligned financial incentives, which may ultimately have a negative impact post-business combination performance and investor returns. This examination was conducted by further clustering both the U.S. and European SPAC samples into three sub-samples based on the time each SPAC took from the IPO date to the completion date, distinguishing between those that took less than 12 months, less than 24 months, and more than 24 months.

What emerged from the results, specifically from the U.S. sample which allowed for a more robust examination due to the greater number of observations in the identified sub-samples, is that SPACs requiring more time to finalize the de-SPAC transaction are associated with lower average buy-and-hold returns post-business combination. As is observable from *Table 7*, this evidence is particularly evident across the 1, 6, 12 month return horizons, where the average returns progressively worsen from the sub-sample of SPACs completing the transaction in less than 12 months to those requiring more than 24 months, with 1-month return dropping by 33,75 percentage points (from -5.60% to -39.35%), the average 6-month return declining by 19,77 percentage points (from -38.69% to -58.46%), the 12-month return worsening by 4.62 percentage points (from -59.76% to -64.38%), and the 18-month return decreasing by 1.78 percentage points (from -67.43% to -69.21%). This pattern of performance deterioration for more time-consuming SPAC

transactions is reversed and less evident in the European sample, primarily due to the limited number of observations within each cluster, especially in the group of transactions completed after 24 months, which limits the robustness of the results and makes the evidence less clear. The results from the U.S. sample are consistent with the previously discussed misalignment of incentives between sponsors, underwriters, and shareholders, according to which, as the liquidation deadline approaches, underwriters and sponsors are incentivized to conclude the deal by promoting even suboptimal targets solely to secure their compensation, often resulting in lower quality transactions that destroy value.

Finally, the present analysis aimed to assess whether SPACs that conducted their IPO during the speculative SPAC IPO Boom, which began in 2020 and peaked in 2021, exhibit stronger underperformance compared to those SPACs listed in other years, addressing several concerns raised about the quality of these alternative listing vehicles launched during a period of heightened market speculation and the potential negative implications for retail investors. This examination was conducted by further clustering both the U.S. and European SPAC samples into sub-samples based on the year of their IPO, distinguishing between those that went public in 2019, 2020, 2021, and 2022.

What emerged from the results of the present analysis is that, in both the U.S. and European SPAC samples, SPACs listed during the speculative period, ranging from 2020 to 2021, exhibit worse average buy-and-hold returns, with particularly poor performance observed among those listed in 2021, the peak of the speculative boom. As observable in

Table 9 and *Table 10*, across all return horizons considered, SPACs listed before the SPAC IPO Boom tend to exhibit less severe underperformance, still delivering poor returns but performing relatively better compared to those listed during the speculative period. Both the U.S. and European samples exhibit the same result pattern, although the European sample delivers still coherent but less significant results compared to the U.S. sample due to the limited number of observations within the sub-samples. These results are consistent with the concerns raised about SPACs launched during this speculative SPAC period, particularly regarding their long-term viability and acquisition quality,

culminating in what has been defined as "The Great Liquidation[36]", as many SPACs listed during this phase failed to identify and merge with a privately held target company mainly due to market saturation. This speculative period was fuelled by favourable market conditions during the COVID-19 pandemic, heightened financial market liquidity, dissatisfaction with traditional IPO processes, the active role of underwriting banks facilitating SPAC transactions to earn substantial fees, and an increasing number of sponsors seeking to secure their generous promote. One of the main concerns is that, due to the attractiveness of these alternative listing vehicles, the SPAC boom also led to the launch of many SPACs backed by more inexperienced and even unscrupulous sponsors seeking to profit from this speculative SPAC mania, raising concerns about the future post-business combination performance of those specific SPACs that emerged during this period (Elberg & Dressel, 2023). Another evidence further supporting the emerged trend is that the highest number of SPACs that successfully completed a business combination and were subsequently delisted were those listed in 2020 and 2021, with 48 delisted out of 227 completed transactions in those two years across both the U.S. and European samples considered in the present empirical analysis, suggesting an higher tendency towards long-term failure of those SPACs launched during this speculative boom. Some of the main factors contributing to this trend include the high redemption rates for deals closed after the speculative period, with investors redeeming on average more than 80% and 95% of the capital held in trust in 2022 and 2023 respectively, nearly doubling the average redemption rate recorded in 2021 (Barlow et al., 2023), and the saturation of the market due to the elevated number of SPACs seeking private targets following the SPAC IPO Boom. This surge in SPAC IPOs between 2020 and 2021 proved unsustainable, with many SPACs competing to find a suitable target company to merge with or acquire before the predefined liquidation deadline, increasing the likelihood of opportunistic behaviour by sponsors, including the promotion of suboptimal targets and the provision of inflated valuations for some target companies. In addition, in line with the findings of the present analysis, the lack of availability of high-quality and profitable private target companies suitable for acquisition has pushed many sponsors to expand their research to include

[36] Chaudhari, A. (2025). The SPAC Boom and Bust: An Analysis of Investment Banking Strategies and Investor Returns. Harvard Business Review Press. The author refers to the post-2021 period as "The Great Liquidation," highlighting the sharp increase in the number of SPAC liquidations following the failure to complete the business combination within the required timeframe.

international targets, which in turn may trigger more complex cross-border transactions involving additional legal and tax issues, further negatively impacting the de-SPAC process and potentially worsening the post-business combination outcomes (Byrnes, 2021).

7. Conclusion

In the past decade, Special Purpose Acquisition Companies (SPACs) have experienced unprecedented growth, establishing themselves as a credible and relevant alternative listing method that offers investors and target companies a new set of financing opportunities competing with the traditional IPO process, later-stage venture capital, direct listings, and private equity. Specifically, SPACs are shell companies set up specifically to raise capital through an IPO with the sole purpose of merging with or acquiring an existing privately held company to facilitate its public listing, and are characterized by a flexible structure that aims to create value for all stakeholders involved, by offering profit opportunities for sponsors, appropriate risk-adjusted returns for investors, and an attractive capital-raising process for targets.

However, as highlighted by the present research and supported by previous literature, the SPAC structure and its associated regulatory framework do not solely offer advantages, but also reveal a more complex reality in which several underlying factors can undermine their efficiency and overall convenience for the participating stakeholders. In fact, while SPACs offer several advantages, including a faster execution timeline, greater pricing certainty, less stringent disclosure requirements, flexible transaction structures, enhanced liquidity, and reduced risk through trust-held funds and redemption rights, the present thesis suggests that these benefits are often outweighed by significant structural inefficiencies. The most critical issues characterizing SPAC transactions include, among others, misaligned incentives among stakeholders, particularly between sponsors, underwriters and shareholders, post-merger governance instability, and high dilution resulting from sponsors' promote, redemption, deferred underwriting fees, and warrants,

all of which may adversely affect post-business combination performances and non-redeeming investor returns.

The following thesis provides a comprehensive and up-to-date comparative analysis of the structural characteristics and post-business combination performance of SPACs in the U.S. and European capital markets, highlighting both the increasing relevance and potential of this alternative listing vehicle, as well as its intrinsic limitations.

In examining the structure of the U.S. and European SPAC markets, the research indicates that in the last years this alternative listing vehicle has reached an unprecedented growth in both markets, reaching its peak volume in 2020 and 2021. During this speculative phase, known as the SPAC IPO Boom, SPACs reached substantial volumes, accounting in 2021 for more than 55% and 30% of total IPOs in the U.S. and Europe respectively, a trend mainly caused by favourable market conditions, such as high market liquidity, expansive monetary policies, growing investor appetite for alternative listing over traditional IPOs, regulatory standardization, and the gradual post-pandemic recovery of financial markets following Covid-19. Even though SPAC IPO activity declined in both markets after 2021 due to enhanced market uncertainty, increased regulatory scrutiny, and rising concerns about the quality of those transactions following the speculative phase and their post-business combination performances, this alternative listing vehicle continues to be considered a credible and viable pathway to the public markets. The U.S. and European SPAC IPO markets have followed a similar trajectory over the years, although the European market has shown a lower magnitude in terms of both the number of IPOs and the gross proceeds raised, mainly due to the nature of European capital markets, greater investor risk aversion, and a less developed SPAC-oriented regulatory framework. Emerging from the distribution of the primary stock exchanges for SPAC listing, in U.S. the most popular one is the Nasdaq, due to its greater procedural flexibility and stronger association with technology-driven and high-growth sectors, while in Europe the most popular ones are the London Stock Exchange and Euronext Amsterdam, due to their internationally oriented listing requirements and more familiar and accessible regulatory environment for SPAC listings. For both U.S. and European SPACs the leading target industry for de-SPAC transactions is High Technology, followed in the U.S. by

Healthcare and Industrial, and in Europe by Materials and Energy and Power. Lastly, the timing analysis of SPAC transactions across the U.S. and European samples highlights that the average time required to complete a deal from the IPO is 554,2 days for the European market and 575,3 for the U.S. market, partly due to the less restrictive regulatory burden in Europe, specifically, in 2019 and 2020, European SPACs tended to take longer to complete the transaction compared to U.S. SPACs, however, from 2021 onwards the trend reversed, with U.S. SPACs requiring more time on average mainly due to market saturation following the SPAC IPO Boom phase.

The examination of the post-business combination stock performance pattern of SPACs across the U.S. and European capital markets was conducted to assess whether investors who chose to retain their shares following the merger experience positive or negative returns. The obtained results suggest that in both samples, SPACs exhibit poor stock performance after the business combination, with a trend that deteriorates as the holding period extends, and tend to underperform the broader market. It also emerged that U.S. SPACs tend to perform even more poorly compared to their European counterparts, which still report negative buy-and-hold returns but achieve relatively better outcomes. In particular, U.S. SPACs included in the analysed sample exhibit buy-and-hold returns of -19,58% after 1 month, deteriorating up to -70,88% after 24 months, while European SPACs exhibit buy-and-hold returns of -6,4% after 1 month and -39,38% after 24 months. Moreover, in accordance with previous literature on SPACs, it also emerged that particularly in the U.S. sample, which includes more observations and allows for more robust conclusions, SPACs that take more time to complete a de-SPAC transaction are associated with lower buy-and-hold returns in the post-business combination period, as completing the deal closer to the liquidation deadline may indicate opportunistic behaviour by sponsors who are incentivized to promote even suboptimal targets to secure their compensation. Additionally, the results indicate that SPACs launched during the IPO Boom phase of 2020 and 2021 also tend to perform more poorly compared to the others, likely due to market saturation and intensified competition for a limited number of suitable target companies.

The research attributes the poor post-business combination performance to several underlying structural weaknesses within the SPAC model, including misaligned

incentives among stakeholders, particularly between sponsors, underwriters and shareholders, post-merger governance instability, poor disclosure practices, and significant dilution arising from the sponsors' promote, redemptions, deferred underwriting fees, and warrants.

Specifically, as also supported by the literature on SPAC, it emerges that the SPAC model is structured in a way that generates strongly misaligned incentives between sponsors, underwriters, and shareholders. As a matter of fact, since the compensation of sponsors and underwriters is, respectively, fully and partially contingent upon the closing of the de-SPAC transaction, and since both parties can secure substantial profits even when the business combination results value destroying, there is a strong financial incentive to prioritize deal completion rather than primarily prioritize the long-term shareholder value creation, even by promoting suboptimal and low-quality deals solely to close the business combination before the predefined liquidation deadline and secure their proceeds. As previously mentioned, another factor negatively impacting SPAC performance is the significant dilution caused by multiple elements, including redeeming shareholders who decide to exit because not interested in the business combination, the sponsor promote which grants sponsors a large equity stake at a nominal cost, the warrants which allow investors to purchase additional shares at a fixed price and increase the total share count post-merger, and PIPE investments which are often issued at a discount.

All these factors are key contributors to the average underperformance of SPACs following the business combination, raising concerns about the sustainability of this alternative listing vehicle and driving a substantial portion of SPAC investors to redeem their shares prior to the de-SPAC transaction, which further deteriorates post-transaction performance. Since previous literature reports that the stock performance of SPACs prior to the business combination is generally positive, regulators must focus on the aspects previously discussed that undermine their long-term viability and sustainability after the transaction, as discussed throughout this thesis.

Given that SPACs have already proven in recent years to be a significant and widely used alternative listing method, it becomes even more necessary for regulators to address the structural inefficiencies that have emerged, especially considering that in the last years,

the development of the SPAC regulatory framework has been outpaced by the vehicle's growth and adoption. Therefore, to ensure greater investor protection, increased efficiency, and the long-term sustainability of these alternative listing vehicles, regulators across capital markets must establish a more effective and harmonized regulatory framework, capable of restoring investor confidence and ensuring that value creation is equitably shared among all stakeholders involved.

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