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Who becomes listed using the SPAC Door?

Evidence from US Market

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Abstract

Given the impressive hype in SPAC activity in the US market, this paper is proposed to determine whether there is a specific combination of traits that enhance the probability that a company chooses to enter the market using the SPAC alternative rather than the traditional IPO route. The basic aim of the analysis is to clarify the way the SPAC use varies by size, performance, leverage, age and industry of the company and market volatility. Following the applied research methodology from Kolb and Tykvová (2016), the research study applies a logistic model. The results from the analysis of 133 SPAC acquisitions and 1320 IPOs priced in the US market in the last 10 years (2010-2020) indicate that SPACs could be a viable alternative when IPO channel is blocked due to difficulties in entering the public market either by a low quality of the company or a high level of uncertainty in the market. Actually, the empirical findings of the research support the statement that smaller and riskier firms prefer the SPAC channel to enter the market. On the other hand, and contrarily to expectations as well as previous studies, younger firms are more inclined to follow the traditional IPO route. Regarding companies' performance, the results are not significant for any of the specifications of the model. Finally, given the importance of the external market conditions when deciding to join it, the study also confirms that the SPAC vehicle is particularly attractive in turbulent periods since investors are not willing to support IPOs.

Executive Summary

Until a few years ago, the most common manner for companies to go public was to execute an IPO (Initial Public Offering) process. However, recently firms have been testing several non-standard approaches to access public markets. In particular, Special Purpose Acquisition Companies (SPACs) have considerably increased their relevance as possible vehicles to obtain public status in an alternative way. In the last years, the attention of investors on SPACs has risen massively, together with the positive reaction towards this method that allows companies to become public. If until few years ago SPACs were more associated with market abuses, today they are seen as a worthy asset and an inclusive technique to allow a greater number of firms to access the market even if they have always struggled to be the ideal candidates for IPOs.

This paper investigates whether there is a certain pattern of features that contributes to the decision of companies to become public through the SPAC alternative instead of executing a traditional IPO. To achieve this, a sample of 1320 IPOs and 133 SPAC acquisitions completed in the US market in the last 10 years (2010 - 2020) has been analyzed by applying a logistic model as previously done in past research that contributed to the current literature. In particular, the paper is based on the research methodology applied from Kolb and Tykvová (2016). The three areas of interest of the determinants are company-specific, industry-specific and market-specific. The outcome of the study is generally in line with the evidence from previous studies. In fact, companies going public via a SPAC acquisition result to be smaller and riskier for what concerns company-specific characteristics. Contrarily to previous findings and expectations, both the univariate and multivariate regressions show that younger firms prefer a classic IPO rather than the SPAC option when they want to go public. Some determinants such as the performance indicator (ROA) and the dummy control variable (TECH) appear not to be statistically significant. Finally, regarding the market-specific variable, the empirical evidence supports with conviction the statement that investors decide to support SPAC activity when the market conditions do not seem to be ideal to boost the IPO route.

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List of Abbreviations

EBIT – Earnings Before Interests and Taxes

FY – Fiscal Year

1H – First Half

IPO – Initial Public Offering

NYSE – New York Stock Exchange

PE – Private Equity

RM – Reverse Merger

ROA – Return on Assets

ROE – Return on Equity

RT – Reverse Takeover

SEC – Securities and Exchange Commission

SPAC – Special Purpose Acquisition Company

SPXTR – S&P 500 Total Return Index

SU – Self Underwritten

US – United States

VC – Venture Capital

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1. Introduction

It is common knowledge that companies' decision to disseminate stocks to the wide market is one of the major milestones in the life of a firm. This choice consists in an ongoing process that usually takes years to materialize, and it ends up with allowing the firm to gain access to the market and raise funds as an alternative source of financing from bank-loan. Given the wide implications, when companies become listed, they radically change the way they operate and their interactions with third parties. Moreover, due to a reduction of information asymmetries, the firm is also advantaged by implications on the cost of capital which tends to touch lower levels consequently increasing the company's value.
Not surprisingly, since the outdoor capital that firms are able to raise when they go public is of primary interest to growing businesses and simultaneously also a significant event for those shareholders who may want to exit by selling their holdings, the decision to go public is a substantial and developed area of study in corporate finance.

Up to few years ago, the most conventional going public scheme to gain access to public funds consisted in an IPO (Initial Public Offering) and previous literature has mainly focused on this method. Nevertheless, nowadays companies are exploring more and more the non-traditional approaches to access public markets which are briefly explained in Section 3. Special Purpose Acquisition Companies (SPACs) specifically have started to enjoy a massive boost as possible vehicles to gain public status through the back door (Datar *et al.*, 2012). Indeed, few have missed to notice the myriad of blank check companies listed on the US stock market during 2020 that have been able to raise billions of dollars in IPO funds with the objective of creating outstanding business combination.

This paper wants to join the contemporary and ongoing debate about which private firms prefer the front-door (IPO) and which ones the SPAC alternative. In particular, the dissertation is proposed to clarify whether there is a combination of target-specific traits that enhance the probability that a private firm becomes public by accepting to be acquired by a SPAC rather than opening the door to the traditional IPO practice. Generally, back-door listings have always been designed as a cheaper, easier, and faster

way to go public, and previous literature demonstrated that IPOs alternatives were more suitable for smaller, younger, and less profitable firms than their IPO counterparts.

SPACs remained on the margins of the corporate finance practice until 2003 when the new generation of SPACs re-emerged on the US stock market following the implementation of Rule 419 Blank Check Offering Terms which has drastically improved transparency and shareholders' protection.

In the most recent years a growing number of deal announcements by SPACs have generated highly positive reactions by investors as they started to be seen as a way to allow companies previously excluded by the public market to start benefit of the public status. Smaller companies that usually would not be considered the best candidates for an IPO identified the way to attain public listing and the consequent benefits through SPACs. Firms that choose the SPAC path might not fulfil the initial listing requirements and hence using the not conventional mechanisms, firms are able to bypass, at least initially, the disclosure requirements since they are not forced to reveal all the information about the private firm before reaching the public status through the acquisition. However, it is also important to consider that listing requirements need to be met as the company is public, as well as the years after. Therefore, even if the initial ones may be somehow avoided, continuous listing requirements must be satisfied to not incur in delisting and detrimentally affect reputation.

Evidence also suggests that the SPAC acquisition process is less subjected to SEC scrutiny and it gives the possibility to less reputable firms to get public access. Besides this aspect, the readily available cash, allows SPACs to be more suitable for complicated circumstances, therefore opening the possibility of reaching a public status also to companies with complex or uncertain businesses that otherwise may struggle to go listed.

Nevertheless, regardless the recent acceleration in SPAC activity, the topic is still quite under-researched in the most recent academic literature. Previous analyses are based on data at most up to 2016 and therefore nowadays there is no evidence of the fact that only small, young and not profitable firms continue to consider SPAC acquisition as a possible route to go public. Therefore, given the recent and surprising development in SPAC IPOs activity and taking into account SPACs' revaluation as a worthy vehicle to go public, this

paper wants to put under discussion past conclusions about typical traits of companies that make use of SPACs as alternative to IPO.
Doubts around the statement arise since today data show that many companies that have decided to public through a de-SPAC transaction have incorporated the market's positive sentiment by maintaining their stock prices well above the SPAC's IPO price.

If until recently, SPACs were an investment vehicle more associated with abuses such as accounting frauds, nowadays the market seems to have completely changed its sentiment and it appears to look at SPACs as one of the most exciting contemporary businesses that has been able to attract the first-class highest profile name.
Consequently, if not only the audience's (market) reaction, but also the actors' traits have somehow changed, this research could shed light on the potential risk for IPOs to lose their supremacy as the predominant path for a private firm to obtain a listing status on the stock exchange.

Given the most recent evolutions of this asset class as well as the explicit advantages intrinsically linked to SPACs, the final objective of the dissertation is to analyze whether SPAC acquisitions are a viable alternative when the IPO channel is impeded by barriers to enter the public market, given either by the low and not sufficient quality of the company or by a high level of uncertainty in the market.

To answer this question, an empirical analysis is conducted mirroring the procedures followed in previous studies by Adjei, Walker and Cyree (2008), Gleason, Jain and Rosenthal (2008), and Kolb and Tykvová (2016). This paper distinguishes itself from the first two because, while using the same procedure, it analyses SPAC acquisition instead of reverse mergers. Furthermore, in contrast to the three studies, this paper examines a more recent sample with more recent data which refer to the period during which SPACs IPO activity has massively increased. More specifically, a sample of 133 SPACs acquisitions and 1320 IPOs entered in the market between 2010 and 2020 has been analyzed using a logit model.

The dissertation is organized as follow. Section 2 presents a snapshot of SPAC history and evolution and describes the SPAC process from the foundation to the business combination (or alternatively the liquidation). Furthermore, Section 2 also presents an overview of the main advantages of the SPAC route for the sponsors, the target company and the investors. Section 3 offers a brief explanation of the most common alternative ways to go public together with some summary statistics and SPACs' insights. Section 4 provides an overview of previous studies related to the firms' main characteristics when they choose an alternative route to IPO. Section 5 explains the methodology employed and describes data collection and the model chosen. Section 6 shows the summary statistics of the sample and reports and discusses the empirical results obtained both with the univariate analysis and with the multivariate framework. Finally, Section 7 summarizes the main results obtained, explains the research's limitations and areas of further investigation, and draws the final conclusions.

2. SPAC Background and Development

It was the August 2003 when a new Special Purpose Acquisition Company (SPAC) launched by David Nussbaum, appeared again in the US financial market.
SPACs are shell or blank-check companies that are commonly thought as empty boxes. Indeed, these companies do not have any kind of operation, but their attractiveness is based on their founders and their managers' credibility. As SPACs are established, they go public through a traditional IPO with the scope to raise a substantial amount of funds that is going to be used as financing source for the acquisition and merging of a private company. SPACs founder and manager credibility are undoubtedly the most important aspects of a SPAC since they represent one of the key success factor of the IPO stage and the following acquisition deal. Because of this, blank-check companies are typically launched by top-tier executives with a demonstrable track record in completing successful acquisitions and creating value for shareholders.

Actually, SPACs already existed in the financial market as an asset class known as Blank Check Companies, which were very popular in 1980s. Between 1987 and 1990, these companies accounted for almost 2,700. However, their popularity was the result of their contribution in facilitating manipulation schemes and harm investors[1]. Hence, after being used as a part of many fraudulent market manipulations, modern SPACs antecedents had been strictly regulated with the Penny Stock Reform Act of 1990 (PSRA). The instruction of this Act did not ban them, but it decreed regulation meant to restrict their offerings, including adding an amendment to section 7 of Securities Act that instructed the SEC to make special rules "*with respect to registration statements filed by an issuer that is black check company*" (Greenspan, 2021). In response, the SEC issued Rule 419 of 1992. After PSRA and Rule 419, the old SPACs resulted no longer compliance with Rule 419 and they became mainly a way to create a form of Blank Check Company with enough investor protection in place that it was feasible to easily obtain SEC approval. On the back of the stricter regulation, together with good market conditions favorable for IPOs activity, SPAC vehicles faded from the scene in the mid to late 1990s (Heyman, 2007).

[1] Penny Stock Reform Act, 2(8); H.R. Rep. No. 101-617 at 1408-09.

Despite their long existence, the second generation of SPACs reappeared in the US financial market in 2003. On the contrary of the first generation, the market started to reevaluate their worthy and they soon began to be the protagonists of a steady growth in term of deal frequency and IPO volumes. In order to gain the investors' trust, the SPACs were funded by well-known sponsors and the business was run by the best-in class management teams. Mainly in the last years, a growing number of deal announcements by SPACs have fostered highly supportive sentiment by investors. Furthermore, many companies that have gone public through a de-SPAC transaction have been able to maintain stock prices well above the SPAC's IPO price (Wachtell et al., 2020).

SPACs have seen a surge in issuance mainly in the last three years followed by a remarkably increase over 2020 that has seen this investment product becoming one of the hottest asset class in American Equity Capital Markets (Aliaj et al., 2020). Indeed commentators attribute this special investment vehicle increase in popularity to its intrinsic characteristic to allow also to public investors to enter in that area of investments which is usually sought by private equity firms.

2.1 SPAC Process

SPAC process is characterized by several critical phases: the SPAC foundation, the IPO and the Business Combination (or De-SPAC transaction) that must be consummated within a predetermined period of time that is usually between 12 and 24 months. Alternatively, in case the company does not complete the deal before the expiration date, the SPAC is liquidated.

2.1.1 Establishment

A SPAC is considered established when their underwriters, on the behalf of the management team, file the SEC Form S-1 (Shachmurove & Vulanovic, 2018) stating intention to conduct an IPO of a new company on the national exchange. This company would be created with the only purpose of acquiring a private target company, thereby bring it public, within a limited period of time that usually goes from 12 up to 24 months. The document consists of an initial registration form that provides disclosure of information regarding the transformation process of the registered shell company into a new public company, the financing needs of the company, the planned use of capital

proceeds, the nature of issuing securities, the underwriting agreement, any possible conflict of interest between SPAC founders and future investors, the proposed business of the target company and the background of the management team. In a SPAC IPO, the composition of the management team is a fundamental feature for the success of the raising-fund process and so usually it is joint by well-known public figures. Their reputation and skills work as a warrant of the SPAC and ultimately of sponsors and investors' investment. Investors feel safer to entrust their money in a vehicle that is led by highly capable and experienced people that are considered the best-in class to find a business with high growth perspectives that is going to create substantial returns for initial investors. Therefore, information regarding the management team composition and its members' previous experiences in the financial industry, earlier involvements in merger and acquisitions activity and connection with venture capital and private equity funds, is well detailed in the initial registration statement and in the final prospectus. Additionally, the registration also states the establishment of an escrow account where all funds raised during the IPO are going to be held. Finally, Form S-1 details how these funds are going to be used in case of acquisition and also what is going to happen in case of SPAC liquidation.

After that, the new company enters a preparatory phase in sight of the pricing date and, just before the IPO, underwriters file the final prospectus.

2.1.2 IPO Date

After that the S1 is filed, the SEC has given its approval, and sponsors have deposited the initial capital in the trust account, the SPAC is ready to be listed.

The investment bankers, together with other investors, organize roadshows with the intention to convince institutional investors to participate in the IPO of the SPACs. At the end on the process, if there is a sufficient base of commitment by institutional investors to purchase shares, the IPO is ready to be launched.

Following the example of Blank Check Companies, SPACs enter the market issuing units that are usually comprised of one share of common stock and of warrants exercisable in a future date. After the IPO, the units, the shares or the whole warrants can be separately traded and commonly, the offer price is fixed at $10 per unit. Importantly, a unit also

provides to the holder the right to exercise the redemption right if he does not agree with the proposed business combination.

Units of common stocks can be distinguished between “Class A” common stock and “Class B” common stocks. The first ones mentioned refer to shares and warrants that are sold to the public and traded in the market, while the second ones are exclusively sold to founders and sponsors.

Founders usually contribute to the initial capital by paying $25 p.s., subscribing the 25% of the total number of shares registered to be offered to the public through the IPO, including the 15% green shoe option. As a result, founder shares usually count for the 20% of the total outstanding shares and this stake is indicated as the “promote stake”. At the moment of the business combination, known as de-SPAC transaction, either founder shares are automatically converted into public shares on a one-for-one basis, or in the event additional public shares or equity linked securities are issued, a defined exchange ratio is defined in order to make the appropriate conversion.

As already mentioned, units include a fraction of warrant that provides investor flexibility to generate a minimum return or to realize additional upside on investment. Precisely, warrants give the right to initial SPAC investors to purchase an additional common share at an exercise price of $11.50 and they are subjected to exercisable constraints. Indeed, the rule states that the public warrants cannot be exercised either before 30 days after the completion of the acquisition of the target company, or at least 12 months after the SPAC’s entrance in the market.

Public warrants and founder warrants are issued under identical terms, however there are some slightly differences. First of all, public warrants can only be cash-settled, therefore investors can pay the $11.50 only in cash in exchange of one share of stock. The founder warrants can instead be exercised by issuing a number of stocks with a fair market value that is calculated as the difference between the trading price of the stock and the warrant strike price. Moreover, while public warrants can be redeemed for a nominal consideration if the public shares are traded above a fixed price that is usually $18 p.s., founder warrants are not redeemable.

Substantially all (90% to 100%) of the proceeds that are raised during the IPO, remain in a trust account until the proper target is identified and acquisition is consummated. The proceeds in the trust are usually held in escrow and invested in short term Treasury Bond and, as documented in the SEC Form S-1, they can only be used for acquisition purposes by the next 12-24 months from the IPO.

Figure 1 illustrates the typical SPAC capital structure. As already explained, the 80% of the total outstanding shares represents the Public Shares, while the remaining 20% represents the Founder Shares. IPO proceeds are held in a Trustee or escrow account, and they are commonly invested in short term US government securities.

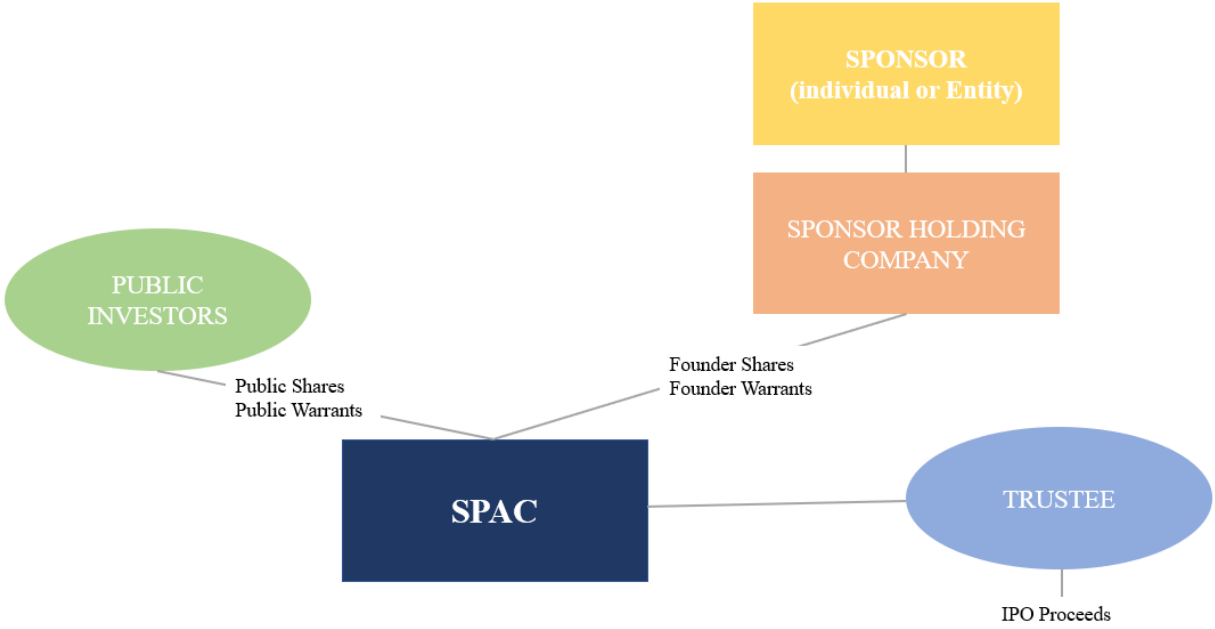

Figure 1 – SPAC Capital Structure

Source: Personal Elaboration

2.1.3 Acquisition Announced

SPACs do not have an unlimited time-window to purse the acquisition. Usually, the "screening for the target period" is fixed between 12-24 months and it is specified in the admission documentation. The acquisition can be completed using as source of financing not only trust fund, but also by raising debt or issuing new equity directly in the SPAC.

Once the target has been identified, the acquisition is subject to shareholders' approval through the vote and the transaction can proceed only if the following conditions are met:

a. Majority of votes cast in favor of the acquisition
b. No more than a certain percentage elect to redeem shares
c. There are sufficient funds to complete the acquisition

Additionally, sponsor shares must be voted in accordance with the vote of public shareholders.

During the vote, investors can also choose to redeem their shares if they do not agree with the choice of the proposed target. It is also relevant to highlight that the right to vote and the right to redeem shares are not mutually exclusive. Consequently, any shareholder can decide to vote in favor of the selected target acquisition, while exercising its right to exit the investment and get his return.

2.1.4 Acquisition Approved – De-SPAC Transaction

If the acquisition is approved, the deal can finally be completed, and the business combination process can be launched. The target company is merged into the SPAC and it becomes a normal operating company (reverse merger). The SPAC changes its name and its exchange ticker. Trust funds are paid to the company and to any shareholders who exercise the conversion right. On the contrary, minority dissenting shareholders have the right to convert shares into pro rata share of trust fund. Finally, all the shares are freely traded as for any other public company and also sponsor restricted stocks become common.

2.1.5 Acquisition Not Approved – SPAC Liquidation

In the eventuality that the acquisition is not approved, SPAC sponsors can continue to look for another target. However, liquidation occurs if business combination is not consummated within stated deadline. With the SPAC liquidation, trust funds are returned to public shareholders, while sponsors do not have right to any liquidation proceeds.

2.2 SPACs and IPOs comparison

Data show that SPAC is a very attractive vehicle and commentators attribute different primary advantages to SPACs over IPOs. Shachmurove and Vulanovic (2018) claims that SPACs alleviate many issues typical of the IPO market and they provide private companies of many advantages that traditional IPOs are inadequate to offer.

The remarkably high proceeds that have been raised over 2020 and 1H 2021, have demonstrated that SPACs become one of the most popular asset classes in American Equity Capital Markets. Someone talks about a SPAC "bubble" (Klausner *et al.*, 2021), but is it going to last, or is it just a temporary trend? Many commentators attribute this impressive hype to the most attractive advantages linked to SPAC transactions. Among others, SPACs are a much cheaper way to access the market. Then, SPAC merger is a faster path and less stressful process than IPO and the financing risk is much more contained. There is not uncertainty around the initial stock price that the market may set since funds have already been raised (Klausner *et al.*, 2021).

Looking at main advantages one by one, first of all SPAC is a flexible capital-investment strategy because it is not restricted to any specific region or sector. Then, the SPAC is a compelling blind pool vehicle for sponsors, the investors and target itself.

On sponsors side, SPACs are a cheaper way to access the market. Indeed, one of the most attractive merit of the alternative to IPO methods is that they allow firms to go public and avoid the burden of the costs linked to the process, among others, the cost of having one or more investment banks that lead the process and underwrite the issue (Gleason et al., 2008).
Funds are already raised with no uncertainty about the initial stock price the market may set (Datar et al., 2012). The alternative mechanisms are usually not dependent on the vagaries of market sentiment (Gleason et al., 2008) and so SPACs offer more certainty in pricing and execution than IPOs (Klausner, Ohlrogge and Ruan, 2021). This allow SPAC market to be active and healthy even when the new issue market is unfavorable (Datar et al., 2012) by guaranteeing constant availability of capital despite current equity market conditions. The market sentiment does not influence the certainty in pricing and neither the execution of the deal, while many times in history IPOs have collapsed just before the

execution due to unexpected adversities. Thus, even in unfavorable periods for new issue market, SPAC market can remain active and healthy.
Additionally, the stock issued allows the acquisition through new equity issue and, once the acquisition is completed, the capital raised become permanent.
Lastly, sponsors typically conserve 20% of post-deal common stock ownership and they have the opportunity to capture upside both as shareholders and from "at risk" warrant. Indeed, according to Chong et al. (2021) analysis of Abnormal Returns, the authors found out that many sectors reported a positive average excess returns in the period between the IPO and merger completion. This result is a clear evidence of the fact that SPACs can actually outperform the market and consequently investors can achieve a considerable profit by investing in SPACs.

From the target's perspective, SPAC merger is a faster path and less stressful process than IPO and this aspect is true also for high-middle quality companies which may consider SPAC route in order to skip over the expensive and time-consuming IPO procedures and reduce financing risk. Evidence related to reverse mergers in general suggests the process is less subjected to SEC scrutiny and hence they have commonly offered the possibility also to less reputable firms to get public status. Using the not conventional mechanisms, firms are able to bypass, at least initially, the disclosure requirements since very little information must be revealed about the private firm before the acquisition (Gleason et al., 2008). By this way, smaller companies that usually would not be good candidates for an IPO can still raise money and attain public listing through SPACs (Datar et al., 2012). Additionally, the readily available cash, allows SPACs to be more suitable for complicated circumstances opening the possibility of reaching a public status also to companies with complex or uncertain businesses that otherwise may struggle to go public. SPAC also contribute to take capital structure back into an optimal state and offer exit opportunities for companies without strategic buyers (Berger, 2008). SPACs also contribute to take capital structure back into an optimal state and provide exit opportunities for all the companies, or even the ones without strategic buyers.

On investors side, the SPAC gives access to top tier management and private equity opportunities. The original SPAC managers often take an active role in the post-merger

entity providing a source of highly qualified managerial and advisory talent (Datar et al., 2012). In fact, the target's identification process leverages on sponsors' network and skills gained by their experiences in specific industries and regions. Investors are highly protected by regulation. If management does not carry out the acquisition, funds are returned and there are no salaries or other compensations prior the acquisition. The acquisition needs to be approved by majority shareholders and dissenting minority shareholders can demand money back if the acquisition is consummated. Furthermore, SPAC is a very liquid and transparent investment that can provide significant upside in case of acquisition with only a limited downside represented by the cash in escrow.
Apart from the comparison with IPOs, SPACs also give the opportunity for investors not qualified to buy into Hedge or Private Equity funds and hence they have been defined as "poor man's" private equity. Anyone can invest in a SPAC and bet on the skills of its management in identifying an attractive target, negotiating a good deal, and helping the post-merger company produce value (Klausner, Ohlrogge and Ruan, 2021).

The main downsides of SPACs are represented by the low visibility on future acquisitions at the time of the SPAC public offering, the dilution due to management and sponsor shares (20%) and the shareholder approval contingency may make SPAC unattractive to sellers.

Today is not still clear if the above-mentioned advantages are of interest only for younger, smaller and poor performing companies. Thus, the following analysis of the paper is proposed to investigate whether the extraordinary acceleration in SPAC activity is only driven by the above-mentioned lower quality firms, as previous studies have demonstrated, or if also candidates that would be qualified for an IPO have started favoring to be acquired by a SPAC rather than choosing the first option in order to access the market quicker and easily.

3. Besides Traditional IPO

Section 3.1 presents a short introduction to IPO and to the most common alternative mechanisms to access the market, including SPAC transaction. Section 3.2 provides some current data and insights related to SPACs.

3.1 Alternative Ways to Go public

An IPO is an articulated multi-stage process during which the company, assisted by one or more Investment Banks, sells some or all its shares to institutional investors and then to retail investors. These shares, commonly known as floating, start to be object of public trading between investors. IPO route has always been very expensive and challenging (Smith, 2009). The process requires several excessive direct costs related to the painful time-consuming and expensive road show, the book-building phase, high fees to be paid to investments banks and other experts (Ang & Brau, 2002). Moreover, the company suffers hidden costs such as the underpricing, strict regulatory requirements and intensive months spent to prepare the company to be ready to be listed (Teti & Montefusco, 2021). Firms and their management are aware of the downsides linked to the IPO but they have always been willing to accept these to not give up the many advantages created by the listing status.

Thus, IPOs alternative gives the possibility to reach the public status objective but at the same time alleviating many problematic issues that IPOs are inadequate to release.
The most popular alternatives to IPO include, among others, reverse merger, sell-out to a publicly listed firm, direct public listing and ultimately SPAC transaction (Brown *et al.*, 2011). Given the increasing adoption of alternative going public transactions, both in US and outside, and by firms of all sizes, more investigation of these types of transaction is merit.

Reverse merger is a complex inter-corporate combination by which unlisted private-held firms get a listing status through the corporate shell of publicly listed companies (Brown *et al.*, 2011). Formally, it is the publicly traded entity that acquires the private one, but in essence it is the private company's shareholders that get the control of the public shell

(reverse takeover). The private firm sees the reverse merger as a path to achieve public status. In contrast to IPOs, the transaction itself does not raise capital for the target firm. However, after the deal, the previously private target can access public markets in the guise of newly public entity.

Sell-outs are relatively comparable with reverse mergers since they both implicate the acquisition of the private firm by a public company. However, in spite of reverse mergers, in sell-outs there is no change of control because the shareholders of the public firm maintain control over the acquired entity after the transaction (Brown *et al.*, 2011).

Direct listing is a process by which existing holders (both employees and investors) can choose to make their stocks available for the public. Differently from an IPO, the operation does not require neither underwriters nor a lock-up period. The direct listing mechanism does not induce the issuance of new shares since only existing ones are sold to the market. Unlike an IPO in which the cut-off price is negotiated beforehand through the book-building process, in a direct public listing the price is chosen by the market since it depends exclusively on supply and demand.

Lastly, there is the SPAC merger. A SPAC is a publicly traded pool of capital set up by a management team (sponsors) through a private placement and designed to raise capital in an initial public offering. A SPAC has no specific operating business plan or purpose and does not have assets other than cash and limited investments in its balance sheet (Shachmurove, Y. & Vulanovic, M., 2017). After the IPO, SPAC sponsors, within a pre-defined time frame period of typically two years, need to identify an appropriate target to acquire using the funds raised by the public. The target's identification process leverages on sponsors' network and skills gained by their experiences in specific industries and regions. Moreover, the original SPAC managers often take also an active role in the post-merger entity providing a source of highly qualified managerial and advisory talent (Datar *et al.*, 2012). Thus, the "screening for a target" period ends up either with a subsequent merger or acquisition of the selected target or with the liquidation and distribution of the raised proceeds back to shareholders. If the merge is completed, as a result of the transaction the target firm is converted into a publicly listed company. In this way, SPAC acquisition can be considered as an alternative to standard IPO process.

3.2 SPAC Insights

As already mentioned, SPACs have impressively increased, especially during the last two years. *Figure 1* shows the annual SPAC issuance in the last 10 years, including the first half of 2021.

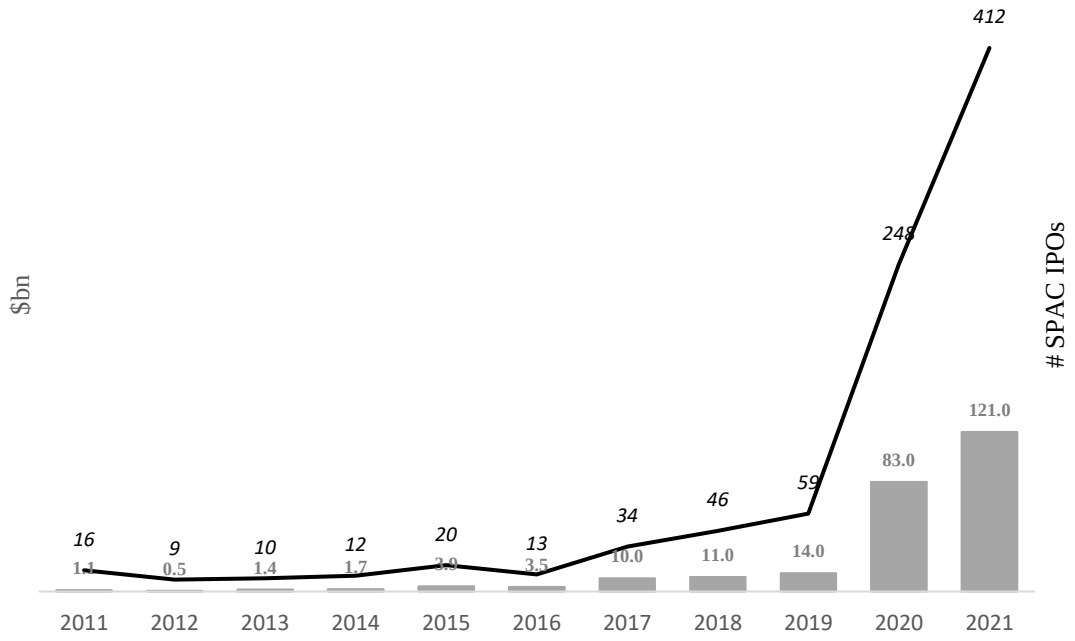

Figure 2 - Number of SPAC IPOs and volumes ($ bn) from 2011 to 2021

Data Source: Dealogic as of August 2021. Graph Source: Personal Elaboration.

In 2020, SPAC have issued almost 6 times the volumes of the previous year, with 248 deals on the market (vs 59 in 2019). In only 6 months of 2021, these volumes have far exceeded the already extraordinary value registered in 2020 and the number of deals has almost doubled (412 in 1H 2021 vs 248 in FY 2020).

In the first 6 months of 2021, 195 SPACs have completed the acquisition of their target company, while 438 SPACs are still seeking for a target and 142 SPACs are pending (Dealogic as of August 2021).

As it can be observed from *Figure 3*, overall this year non-SPAC IPO have issued $104bn, which means that SPAC IPOs have issued the 54% of all the IPO volumes (SPAC and Non SPAC).

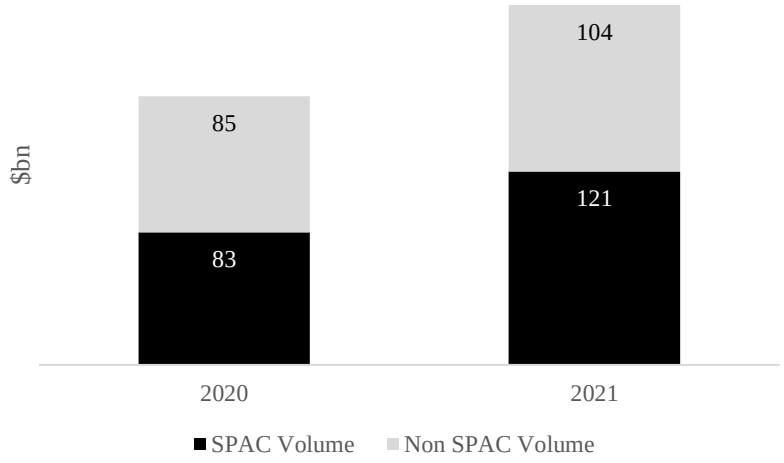

Figure 3 - SPAC IPOs and IPOs volumes ($bn) in 2020 and 2021.

Data Source: Dealogic as of August 2021. Graph Source: Personal Elaboration.

Figure 4 shows how the Average SPAC IPO size has changed over time. On average, it steadily increased starting from 2014 up to 2017, reaching an average of USD 254m. In 2018 and 2019, SPAC IPO size suffered a slight contraction, while in 2020 SPACs surged to a record average size of USD 335m. The USD 288m resisted for the 2021 refers to the first 6 months of the year and so it cannot be compared with the others, however, given the dense pipeline expected for the second half of the year, we could expect this value could be further boosted by next SPAC IPOs.

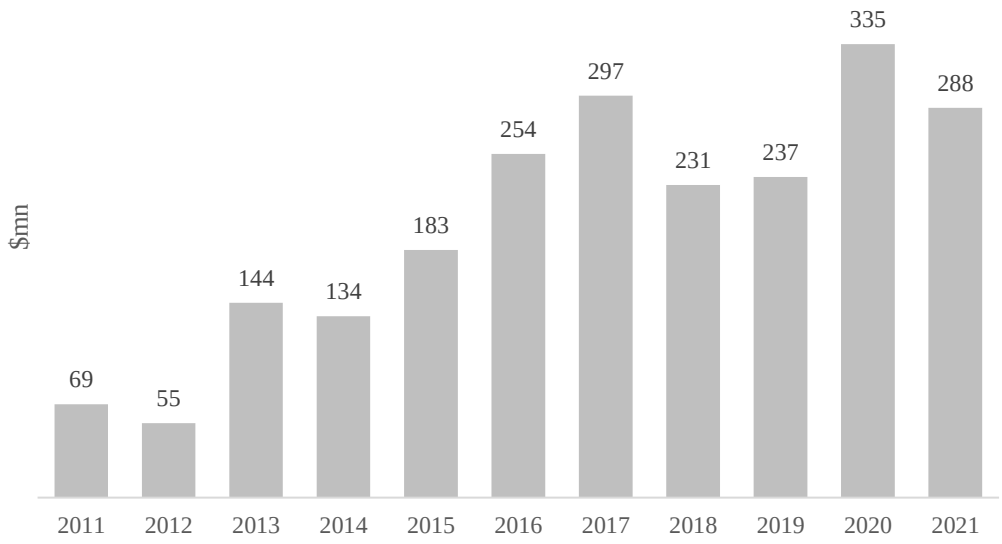

Figure 4 – Average SPAC IPO Size

Data Source: Dealogic as of August 2021. Graph Source: Personal Elaboration.

Figure 5 provides an overview of the Average SPAC Acquisition Size over time. This value has climbed, especially in the last two years. This trend can be also associated to the exceptional market performance of the last years which has driven higher companies' valuation and hence more willingness to sell but also to buy due to the high value of stocks used as consideration for M&A purposes. Besides the above-mentioned aspect, the peak in average size could be also be caused by a change in SPACs' targets. If until recently it was more common that only smaller and poorer performing companies were enthusiastic to be acquired and merged with a SPAC, today also companies of higher quality are seriously considering alternative to avoid the inevitable long and expensive IPO process.

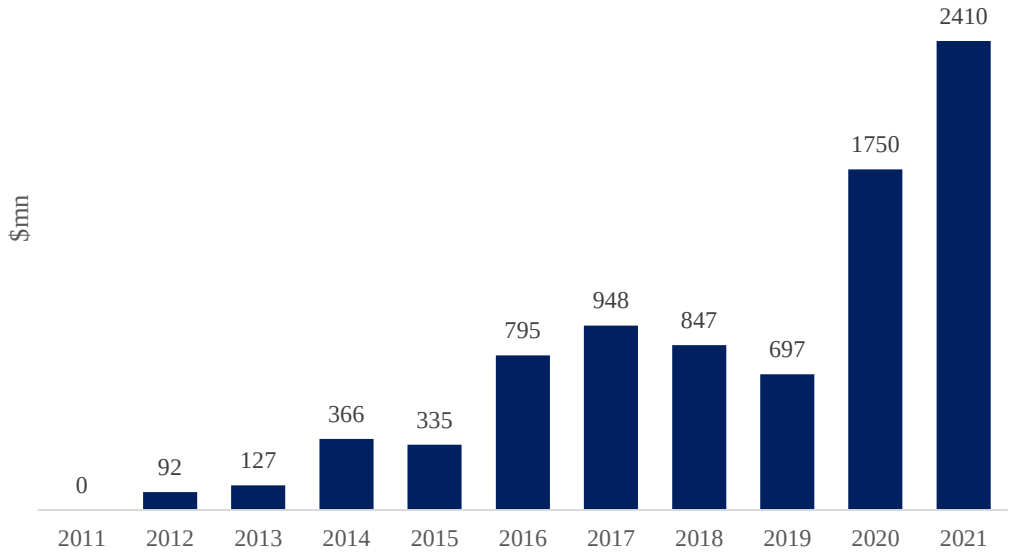

Figure 5 – Average SPAC Acquisition Size

Data Source: Dealogic as of August 2021. Graph Source: Personal Elaboration.

The following graph (*Figure 6*) gives an idea of the evolution of the M&A activity with SPACs. The picture shows that transactions volumes are dramatically increased over the last two years and the number of deals completed has drastically increased. At the moment, many deals are active, but not completed yet.

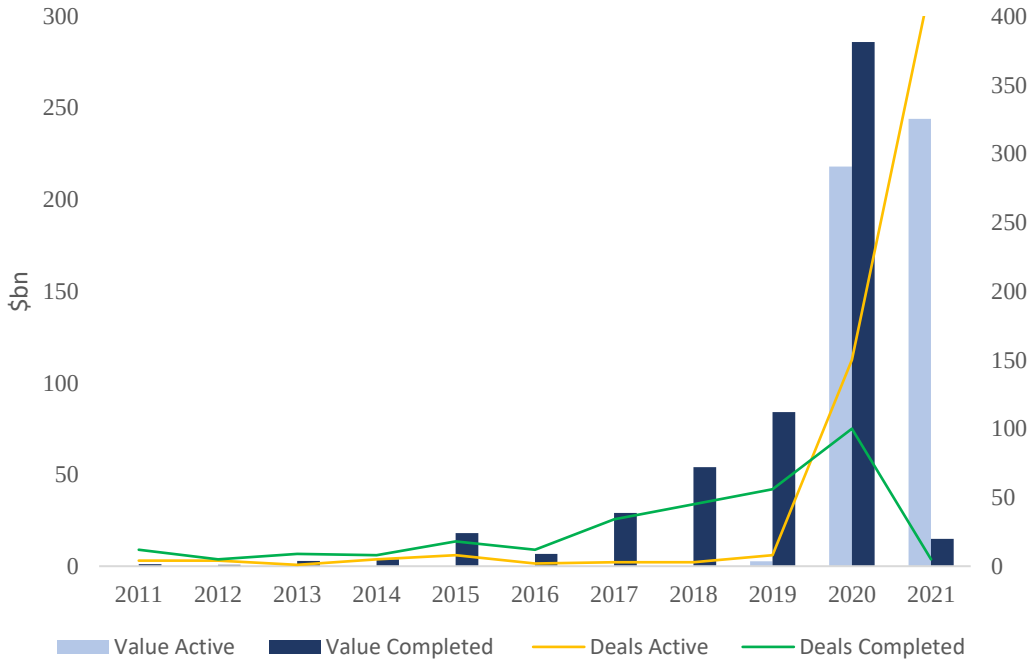

Figure 6 – SPAC Deals Overview

Data Source: Dealogic as of August 2021. Graph Source: Personal Elaboration.

Since the very beginning or SPACs resurgence, they have always favoured some specific sectors in order to look for the target and merge with it. *Figure 7* reports the volumes of completed acquisition by sector, while *Figure 8* shows the predominance of each sector over the others per year.

Unsurprisingly, even if M&A activity reached record lows at the beginning of 2020 due to the pandemic, companies reacted quickly and in second half of 2020 M&A activity rose by 90%. In this context, SPAC acquisitions massively contributed to the impressively hype.

Starting from 2015, SPACs have looked at companies operating in Tech and the business combination with them has hugely increased in the last two years. For these companies, SPAC merger seems to become the preferred method of access public market and SPACs sponsors really look for such high-growth and innovative companies. Sponsors see in these "companies of the future" concrete possibility of improvement and growth and consequently high levels of returns.

Mergers with companies operating in the Industrials sector are following a similar path of the ones in the Tech sector.

Furthermore, it is interesting to notice as in 2021, following Covid-19 pandemic, many companies operating in the Healthcare sector have decided to access public market by the SPAC route. Indeed, as reported in *Figure 8*, the 11% of targets in 2021 appertain to the Healthcare sector (vs 3% in 2020).

Generally speaking, the last 2 years of SPAC M&A activity have seen an increased in acceptance by private companies and businesses that by merging with SPACs have found an easier way to go public. Because of this, if until some years ago only specific sectors could be attracted by SPACs, today there is much more variety and willingness to enter in these kinds of transactions.

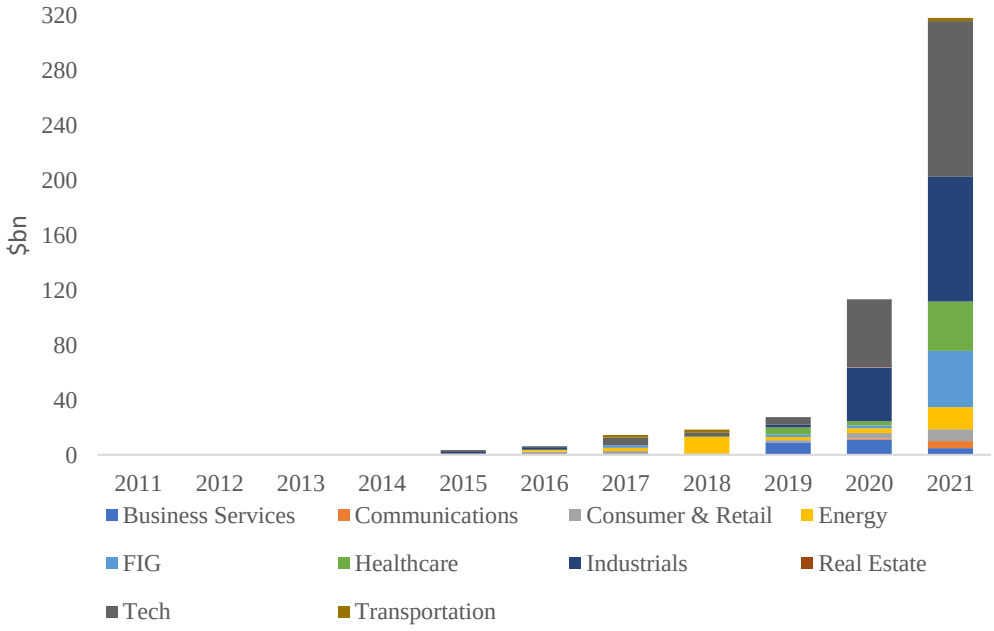

Figure 7 – Volumes of SPAC M&A Target Sectors

Data Source: Dealogic as of August 2021. Graph Source: Personal Elaboration.

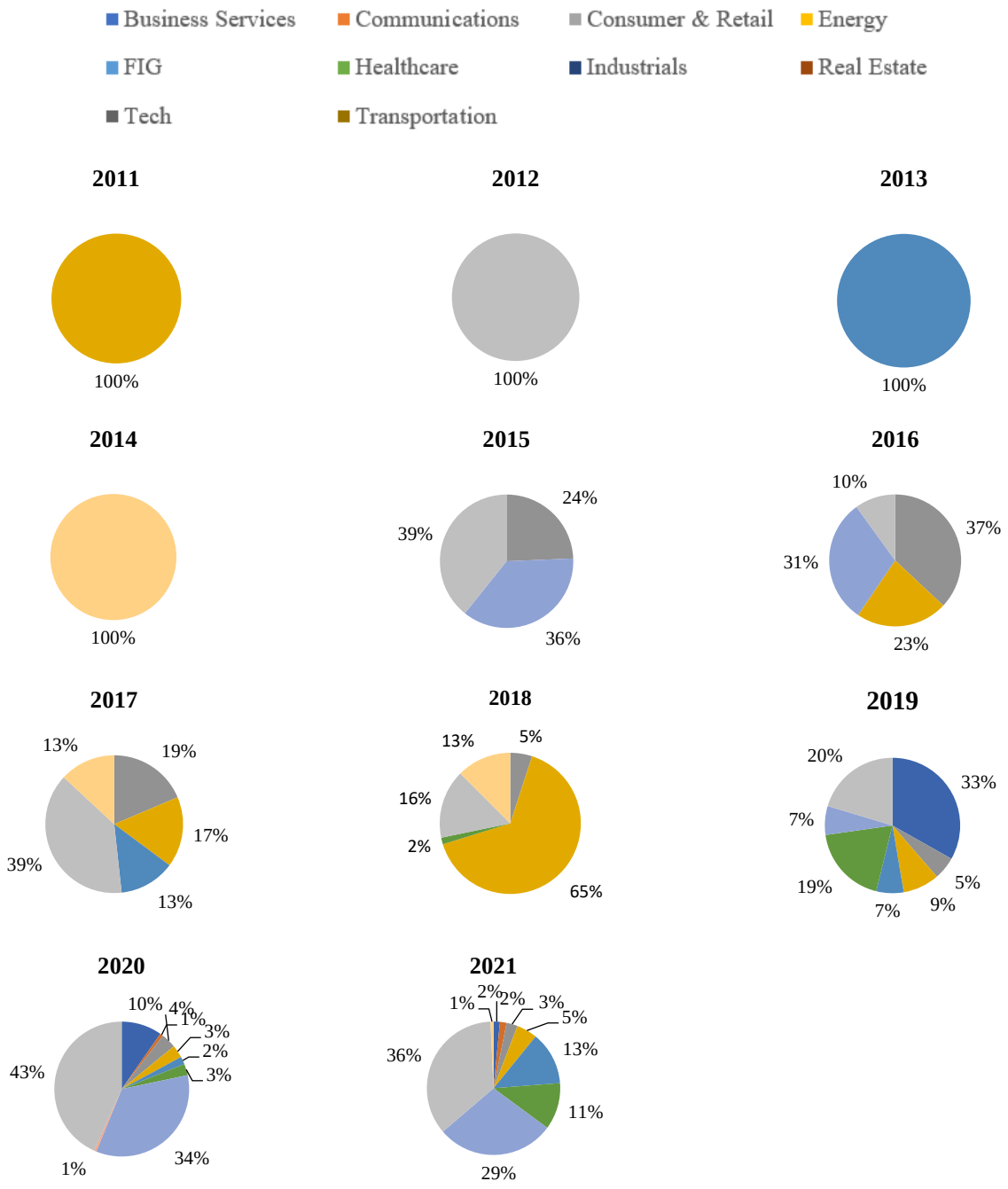

Figure 8 – Percentage of SPAC M&A Volumes per year

Data Source: Dealogic as of August 2021. Graph Source: Personal Elaboration.

4. Literature Review

The purpose of this section is to examine the existing literature in order to provide an overview of the empirical evidence regarding the characteristics of companies that go public using alternative routes to IPO.

The academic curiosity in SPACs has appeared since 2007. Several SPACs had been raised before the financial crisis but all of them collapsed quickly. Nevertheless, alternative going public methods were becoming more and more popular and therefore many authors researched the main features of those companies that retained that going public via an IPO was not worth the cost.

The following section focuses more extensively on the literature review and academic findings related to the typical features that characterize SPAC's target companies. For the dissertation's scope, also studies related to reverse merger are of interest.

4.1 Characteristics of Target Companies

Given the benefits mentioned above, the purpose of this paper is to examine more in depth the differences in the characteristics of private firms that go public using a non-traditional method versus the typical IPO.

Among practitioners, there is still a general consensus on the lower quality of firms which prefer a SPAC acquisition rather than an IPO. Not surprisingly, smaller firms are usually considered less capable to perform successful IPO by investors (Adjei *et al.*, 2008) and they may seriously struggle in raising sufficient capital through this route. Moreover, given the high underwriting fees and high fixed costs of going public, it is reasonable that small as well as young firms consider SPACs a particularly attractive vehicle to enter the market. Thus, they may look for alternative ways to access public markets and SPACs offer these firms the possibility to achieve a public listing using the back door (Adjei *et al.*, 2008).

Since 1950s, a growing number of companies were seeking to access the capital markets using the SPACs' ancestor, i.e., reverse mergers (RM). Consequently, the initial studies mainly questioned the intrinsic conditions which made a company prefer this direction.

In 2002, Arellano-Ostoa and Brusco constructed a three-period model using 52 companies that went public through Reverse Mergers (RM) between 1990 and July 2000 in the US stock markets. The paper addressed both the question why and when some companies preferred RM to IPO and also whether the IPO path was more expensive than the RM one. The authors used a Simple Three-Period Model in order to explore the conditions under which a company may prefer to go public via an IPO and under which conditions via a reverse merger (Arellano-Ostoa and Brusco, 2002). In the model, the "quality" of the firm was defined by the "type" of the company, which was associated with the probability of getting a positive net present value project at time two. In order to find the resources to finance the project, the company needs to take a decision on how to enter the market and so whether to consider a traditional IPO or a RM. The model predicted that, under appropriate conditions, a company with enough probability to undertake the project preferred to issue equity via IPO, as a sign of the quality of the project, while companies with positive, but low probability to undertake the project, preferred the RM route. The results allowed the authors to conclude that high quality firms issued equity through the IPO, while lower quality firms followed the RM path. Another prediction of the model was that firms that decided to undertake a RM, were not likely turn again capital markets in order to look for funds. Regarding the second research question, they found empirical evidence not in support of the claim that the Reverse Merger is cheaper than the IPO. Indeed, data showed that the RM cost seemed to be on average between 6.7% and 6.9% of the total amount raised (Arellano-Ostoa and Brusco, 2002) which is basically the same as for an IPO that is, according to Chi-Chen, Hsuan and Ritter (2000), around 7% of the amount raised by the transaction.

In accordance with Arellano-Ostoa and Brusco (2002), also Adjei, Cyree and Walker (2008) found that lower quality and smaller firms would easily use RMs to go public. They investigated a sample of firms that went public by a RM or an IPO between January 1990 and December 2002. In particular, the authors matched each reverse merged firm with ten IPOs, classifying them on the basis of the industry, listing exchange issue and time. They estimated a logistic regression (logit) model to calculate the probability that a private firm would be inclined to perform a RM rather than an IPO. The dependent variable was set to one for a RM and zero for an IPO. As independent variables, the authors considered the private company size, measured as the natural logarithm of total

assets, the age of the firm and its performance as the return on assets a year before the RM or IPO. These variables aimed at testing the hypothesis that small, young and poorly performing firms preferred RMs over IPOs. Additionally, the authors took into consideration a "hot market" dummy in order to assess market conditions at the time the firm went public. The purpose of the dummy variable was to control periods characterized by higher prices and greater incentives to access the public market. The authors discovered that the mean total assets value for the RM sample was $136.3 million compared to $674.9 million for the IPO control sample and this result was statistically significant at the 1% level. The mean $ROA_{(t-1)}$ for the RM sample and the IPO control sample was 0.08 and 0.145 respectively, and the difference was significant at the 1% level (Adjei *et al.*). This result showed that RM firms earned almost half the return on assets as the IPO control sample. Furthermore, the mean age of private firms at the time of going public was 7.9 years for RMs and 13.3 years for the IPO control sample and this result, too, was statistically significant at the 1% level. To summarize, these findings indicated that RM firms were smaller, poorer performing, and younger than those companies that decided to enter the market with the traditional IPO. Ultimately, the analysis of these univariate results was in accordance and consistent with what Arellano-Ostoa and Brusco (2002) had predicted regarding higher quality firms' preference over the traditional IPO route. The authors also run a multivariate analysis making use of the logistic model using as dependent variable a dummy equal to 1 for RM and to 0 for IPO. Consistently with the univariate analysis, they predicted that the total assets coefficient (proxy of firm's size) was negative and statistically significant ($p<0.0001$) meaning that the smaller the firm was, the higher the probability of going public through a RM. The same result was found analysing both the operating history and ROA ($p<0.0001$ for both), indicating that both younger firms and those with lower performance were more likely to employ the RM. Thus, the multivariate model entirely supported the hypothesis that smaller, younger and worse performing firms used to choose the RM over IPO. Finally, the coefficient of the "dummy variable" used to describe the market activity in the model resulted not significant.

Another specific research was conducted to test if firms using alternatives to IPOs differ from traditional IPOs in term of leverage, balance sheet liquidity, profitability and size (Gleason *et al.*, 2008). They analyzed 119 reverse takeovers listed on the NASDAQ stock

exchanges and 53 self-underwritten IPOs traded on the NYSE between 1986 and 2003 and used a multivariate logit regression analysis in order to assess if firms that utilize these alternative mechanisms were smaller or less profitable than firms which prefer traditional IPO. The authors firstly analyzed the univariate statistics and did not found evidence in support of the statement that firms which used Reverse Takeovers (RT) or Self Underwritten (SU) were particularly smaller than the ones using IPOs. Indeed, all three sets of firms were small, with mean (median) assets of $359.4 ($16.0) million for RTs and SUs, and $283.8 ($22.3) million for IPOs. Moreover, these firms did not appear to be particularly different neither in terms of profitability, measured by ROA. They only discovered that RTs and SUs had a negative ROE, while it was positive in IPOs. The multivariate framework instead confirmed that firms that use alternative routes tend to be significantly smaller (at the 1% level), less profitable (at 10% level) and tend to exhibit greater likelihood of financial distress. Furthermore, RTs and SUs were associated with significantly higher levels of debt (at the 5% level). Nevertheless, the authors did not find any difference in term of ROE (at 10% level).

Given the surprising increase of SPACs starting from the period after the financial crisis of 2008, more recent researchers shift the attention from reverse mergers to this new way to access the market.

Indeed, there were no specific studies that directly compared SPACs and traditional IPOs until 2012, when Datar, Emm and Ince (2012) addressed this gap in the literature. For the first time in the literature about this topic, the authors focused on an extensive research on SPACs. In particular, they were able to determine the key distinguishing features between firms that prefer the IPO route and those that merge with a SPAC to attain publicly traded status. Following previous similar studies, the authors used the probit regression model with the dependent variable $P(SPAC)_I$ in order to model the likelihood of SPAC acquisition. They compared a sample of 156 SPACs that conducted an IPO during the six-years period 2003-2008 in US, among which 71 merged with a target company, with 794 firms that executed the regular IPO in US during the same period. Firstly, the authors found that the total amount of equity raised was much higher in IPOs (the $180 billion in IPOs compared to $21 billion in SPACs). Then, by comparing the median level of the twenty-four variables for SPACs and IPOs, they observed a median

larger size for IPOs than for SPACs in term of assets, market capitalization, sales, EBITDA and operating cash flow (statistically significant between 1% and 5%). The general pattern was that SPAC firms were smaller than IPOs firms. In term of performance, the results were in line with Adjei *et al.* (2008) since the numbers confirmed that companies choosing to go public through unconventional methods, were smaller and had lower performance. Finally, looking at growth opportunities, the authors used P/E ratio; however, they did not find any significant difference between IPOs and SPACs. In addition to the univariate analysis, they also performed six multivariate regression specifications with the probit model and the results were confirmed the univariate conclusions. The model provided evidence that operational performance of SPAC firms was considerably lower than their industry peers and contemporaneous IPO firms. Additionally, SPAC firms conveyed more debt, were smaller in size, invested less and had less growth opportunities than the firms that conducted a traditional IPO.

Consistently, Kolb and Tykvová (2014) investigated the factors that influence the companies' choice to pursue public status through a SPAC transaction or an IPO (Kolb and Tykvová, 2014). They relied on a sample of 114 SPAC acquisitions and 1555 IPOs during the period going from January 2004 and June 2013 in US. The authors employed a logistic regression model using a binary dependent variable equal to 1 for SPACs and 0 for IPOs. The authors presented results that lend support to the conjecture that SPAC acquisitions are a way for lower quality firms to succeed in entering public market. As opposed to traditional IPO route, SPACs may be beneficial to small, highly levered, less profitable and riskier firms. Indeed, the authors found a negative ROA statistically significant at 1%, as well as a negative coefficient for total assets statistically significant at 1%, implying that SPAC targets are significantly smaller and worse performing than IPOs. Indeed, the well-managed market leaders would certainly favor a traditional IPO route since not only their characteristics comply with regulations, but also, they are able to effectively attract investors' interest. Indeed, according to the authors, SPAC acquisitions may face difficulties to achieve a similar attractiveness as IPOs (Kolb and Tykvová, 2014). Additionally, the authors went beyond the analysis of target company specific factors and contextualized their findings in relation to market conditions. Their results broadly confirmed that when markets are highly volatile investors are skeptical in

investing in IPOs and thus SPACs acquisition become more appealing (significant at 1% level).

Previous studies already highlighted the relevance of appropriate market timing for successful IPOs (Ritter, 1991). Market fluctuations provide direct evidence of the fact that economic crises and substantial drops in share price push an increase in market volatility (Schwert, 2002). Since in the aforementioned turbulent market environments are characterized by higher market volatility, the frequency of IPOs and the IPO proceeds drop (Schill, 2004). Consequently, since market participants are reluctant to invest in IPOs, the chance for a successful SPAC route may increase.

One of the most recent study was conducted by Kolb and Tykvová (2016) who reanalyzed 127 SPAC acquisitions during the new-generation SPAC wave (2003-2015) to further investigate in what way market, deal and firm specific variables are related to the route through which firms go public. To model the likelihood of a SPAC acquisition, the authors employed a logistic regression model with dependent variable $P(SPAC)_I$ equal to 1 for SPAC and 0 for IPO firms. They employed a sample which was composed of 127 SPAC acquisitions and 1128 IPOs. They looked at market volatility and cost of debt as Market-specific variables, cash out and time to resolution as Deal-specific variables, and ROA, Market to book asset ratio, Debt ratio, Size, Venture Capital (VC) involvement and Private Equity (PE) involvement as firm-specific variables. Their findings confirmed that SPAC acquisitions allow firms to enter public in difficult times when it is hard to access the IPO channel. In particular, the summary statistics with respect to volatility was significantly higher for SPAC acquisitions than for IPOs at 1% level. Given the readily available liquidity for the acquisition, it is likely that SPAC acquisitions will depend less on the current market environment than IPOs (Kolb and Tykovová, 2016). Regarding Deal-specific variables, the authors observed a higher cash out ratio for the company's shareholders when there was a SPAC acquisition rather than an IPO. As they expected, average ROA was much higher for firms which preferred IPOs (3.2% vs 1.4% in SPACs), however they found only the Wilcoxon-Mann-Whitney test to be significant at 1% level. Market to book asset ratio was higher for IPOs (3.3 vs 1.8 in SPACs) with 1% significance, while the leverage, measured by debt ratio, was higher for SPACs (60.7% vs 46.6% in IPOs), significant at 1% level. Furthermore, in terms of size, SPAC firms had

Total Assets that were almost 1/3 of the ones presented by IPO firms in their balance sheet (US$ 334.9 million vs US$ 923.1 million respectively). Both VC and PE involvement, measured by stake, was more sizeable in IPOs (33.1% vs 14.2% in SPACs for VC; 20.8% vs 12.6% in SPACs for PE), in both cases with 1% significance. Regarding firm specific factors, these companies present lower growth opportunities, higher leverage and smaller size than IPO firms and thus may struggle to succeed in the IPOs market. Then, the authors also run the logit model and they found results consistent with what was discovered in the univariate analysis. Market volatility was positive and significant at 5% level, indicating that firms prefer SPAC acquisitions over IPOs when market's conditions are not optimal. Contrarily to the univariate analysis, they found evidence of the importance of cost of debt: when it was higher, the SPAC likelihood decreased. The other company-specific results were in accordance with the statement that lower quality firms were more likely to become listed through SPAC acquisitions rather than IPOs (negative ROA, but insignificant; negative market-to-book asset ratio; positive debt ratio; negative Total Assets). Finally, also dummy variables VC involvement and PE involvement were negatively related to the probability of SPAC acquisition, indicating that they both are more willing to have a larger stake in IPOs rather than SPAC acquisitions.

5. Model, Methodology and Data

Section 5.1 starts with an explanation of the choice of the model used for the analysis; it follows the specification of the whole model together a description of the variables selected. Section 5.2 illustrates the data in the sample and displays some relevant observations.

5.1 Choice of the Model

As discussed in Section 3.3, prior literature advocates that firms which prefer to go public through an alternative methodology with respect to IPOs, and in particular through a SPAC acquisition, tend to differentiate themselves from the others for their lower quality. In particular, SPACs seem to be predominantly attractive for small, highly levered, less profitable and younger firms and previous empirical results have demonstrated that SPACs increase their frequency in periods of greater volatility. However, despite prior literature, the evidence obtained refers either to studies on other IPO alternatives or to ones conducted using not too recent sample of data. Thus, there is not yet a new analysis conducted employing the most recent data on SPACs which is able to support the above-mentioned assertion.

In the light of this, the dissertation aims at clarifying the combination of target-specific factors that enhance the probability that the firm becomes public using an acquisition by a SPAC rather than a traditional IPO. The basic aim of the analysis will be to describe the way the SPAC use varies by specific characteristics.

Based on the applied research methodology from Kolb and Tykvová (2016), the study will make use of a logistic model. The coefficients are estimated using a pooled sample of SPAC IPOs which completed their targets' acquisition and IPOs consisting respectively of 133 and 1320 deals. All the companies have been listed in the US during a 10 year period (2010-2020). Specifically, the listing choice is a binary variable that takes the value of 1 for SPAC IPOs and 0 for traditional IPO. The explanatory variables relate to size (TA), profitability (ROA), Debt ratio (LEV), industry (TECH), Age (Age) and market volatility (SPXTR).

The logistic framework is specified as follow:

$$Y_i = \alpha_0 + \alpha_1 \ln TA_i + \alpha_2 ROA_i + \alpha_3 LEV_i + \alpha_4 TECH_i + \alpha_5 Age_i + \alpha_6 SPXTR_i + \varepsilon_i$$

The first three variables are company-related, and they are used to verify the proposition that lower-quality firms may tend towards the SPAC route rather than the IPO to enter the market. For the dissertation purpose firms are associated to lower quality when they are small, risky and poorly performing companies.

Previous studies have showed that when firms decide to go public, size is considered of substantial importance by investors for the success of the IPO (Pagano *et al.*, 1998; Babich and Sobel, 2004). Indeed, small firms might be skeptical in succeeding in IPO due to the not easily affordable high costs required for the process. As a consequence, it is expected a negative relation between size and probability of SPAC acquisition, indicating that small firms prefer this alternative route. The company's size is approximated using the natural logarithm of total assets.

SPAC firms are also expected to show a lower performance than IPO firms. Following Kolb and Tyková (2016), firms' profitability is approximated by the return on assets (ROA) calculated as the ratio between EBIT and total assets.

The third variable is the debt ratio (LEV), calculated as the ratio between the company's debt and its Total Assets. This variable is taken under investigation to develop the hypothesis that highly levered firms could be unattractive for IPO investors since they could judge them to be too risky. Therefore, the companies with a highly levered capital structure could prefer SPAC route as their status-quo could seem not to be suitable for the traditional route. Thus, a positive relation is expected between debt ratio and companies' propensity of listing through a SPAC acquisition.

The fourth variable (Age) is still company-related and aims at clarifying if SPAC acquisition is more attractive for younger or older firms.

The fifth variable (TECH) is a control variable for high-tech companies which takes the value of 1 if the firm operates in business associated with telecommunications, biotechnology, information technology and internet.

Finally, the last variable (SPXTR) slightly differentiates from the others since it is market specific. Previous literature has demonstrated that market timing is key to the success of an IPO (Ritter, 1991) and volatility has created cycles in the IPO issuance volume as well as the number of IPOs and these cycles are called hot and cold markets (Genovevo da Costa, 2016), where hot markets are recognized as period of unusually high IPO activity, whereas cold markets exhibit lower issuance activity (Helwege and Liang, 2002). The hypothesis is that since market participants are reluctant to invest in IPOs during periods characterized by high volatility, the chance for a successful SPAC route may increase. As a proxy of the market environment, the analysis make use of the 6-month variance of the S&P 500 total return index preceding the announcement of the combination with the SPAC. In accordance with previous researchers, the expected result consists in a negative relationship between stock market returns and SPAC activity or, as a mirror, positive relationship between stock market returns and IPO activity. The idea is that in a turbulent market environment, firms may increase their chance of becoming public by looking for an appropriate SPAC rather than planning a conventional IPO (Kolb, and Tykvová, 2016).

Table 1 presents the definition of variables used in the logit framework together with the source from where the data has been exported.

Variable Name	Unit	Definition	Source
Firm specific variables			
Total Assets	m USD	Total assets 90 days after the listing	Bloomberg
Return on Assets	n.a.	EBIT divided by Total Assets 90 days after the listing	Bloomberg
Leverage	n.a.	Debt divided by Total Assets 90 days after the listing	Bloomberg
Age	years	Difference between IPO Pricing date and foundation date	Bloomberg
Industry specific variable			
Tech	Dummy	Firms operating in in business associated with telecommunications, biotechnology, information technology and internet	Dealogic – Deal General Industry Group (GIG)
Market specific variable			
S&P 500 Total Return Index	USD	S&P 500 Equity index at pricing date	Bloomberg

Table 1 - Definition of independent variables used in the logit model

5.2 Data Sample

The sample consists of 133 SPAC acquisitions and 1320 IPOs listed in US. The sample is obtained from Dealogic, convening a 10 year period from 2010 to 2020. Missing data has been exported from Bloomberg manually, as well as the 6-month variance of the S&P

500 total return index preceding the announcement of the combination with the SPAC or the IPO.

Target specific variables for IPOs refers to the first annual available data within the 90 days following the pricing date, while for SPAC's target data refers to the first annual available data within the 90 days following the acquisition. Similarly, Kolb and Tykvová (2016) employed the first available accounting variable because using the announcement date accounting data would have strongly reduced the already small sample of SPAC as most of the SPAC targets are private before the acquisitions and in contrast to IPOs firms, SPAC targets do not have to disclose the pre-IPO accounting data.

Figure 9 depicts the number of all SPAC target acquisitions and traditional IPOs in the sample. It also reports an overview of the total volumes issued by traditional IPOs and SPAC IPOs.4

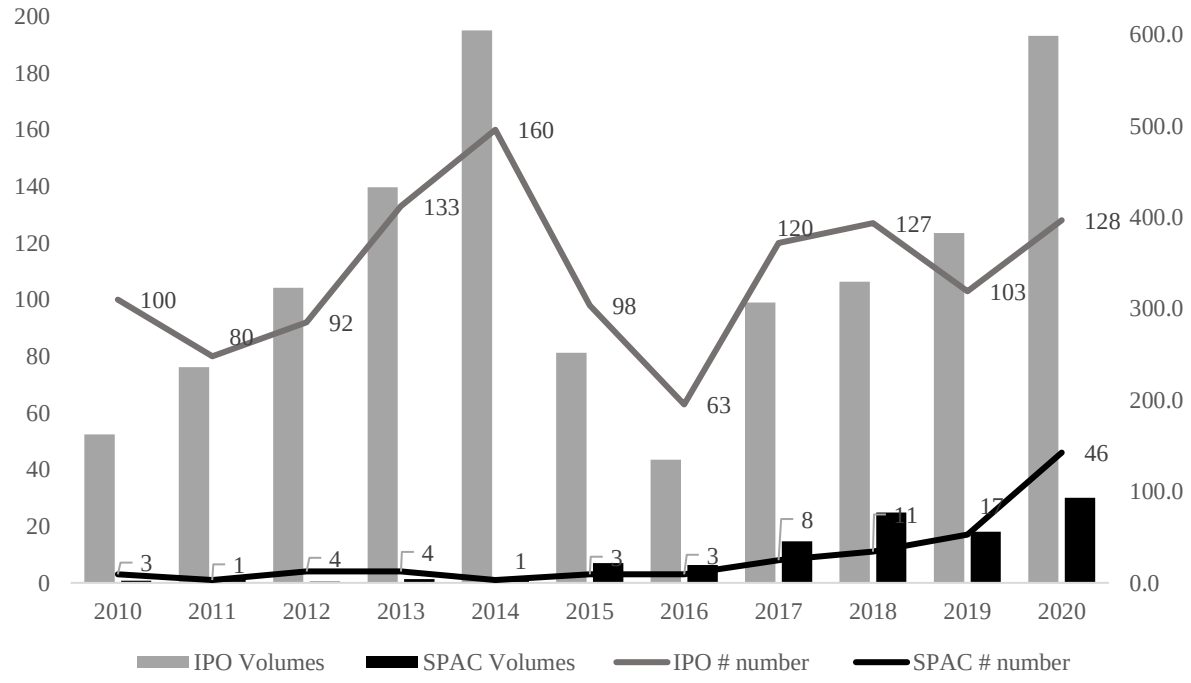

Figure 9 - Number of IPOs and SPAC acquisitions in the identified sample (left axes); volumes of IPOs and SPAC IPOs in the identified sample ($bn) (right axes.

Source: Personal Elaboration

From *Figure 9*, it is evident the opposite relation between the number of traditional IPOs and SPAC acquisitions. In particular from 2013 to 2014, IPOs have registered a substantial increase, while the number of SPAC acquisitions have fallen. From 2014 to 2016, IPOs activity has suddenly slowed down, while SPACs have restarted to grow both in term of numbers and volumes. Between 2018-2019 the inverse tendency has been registered again. The above-mentioned graph also compares the volumes issued by traditional IPOs and SPAC IPOs in the 10 years period where values and percentages over the total volumes are reported in Table 2. Overall, from the table it is evident how both the issued volumes of have increased consistently during the last four years and specifically for SPAC IPOs.

	Traditional IPO volume ($)	**% total IPO volume**	**SPAC IPO volume ($)**	**% total SPAC IPO volume**
2020	59,883,266,906	*16%*	9,329,531,450	28%
2019	38,293,612,131	*10%*	5,581,422,040	17%
2018	32,968,197,605	*9%*	7,703,759,170	23%
2017	30,686,503,675	*8%*	4,539,050,000	14%
2016	13,486,294,708	*4%*	1,940,000,000	6%
2015	25,200,648,007	*7%*	2,169,353,200	7%
2014	60,472,218,395	*16%*	626,250,000	2%
2013	43,286,490,242	*11%*	394,950,000	1%
2012	32,298,580,623	*9%*	121,000,000	0%
2011	23,621,689,896	*6%*	331,000,000	1%
2010	16,258,009,570	*4%*	225,563,000	1%
Total	**376,455,511,758**		**32,961,878,860**	

Table 2 - Detailed IPO volumes per year expressed in USD dollars and percentage of the IPO volume per year over the Total IPO volume; Detailed SPAC IPO volumes per year expressed in USD dollars and percentage of the SPAC IPO volume per year over the Total SPAC IPO volume;

Appendix 1 summarizes the sector involved in the deal. In the case of IPO, the sector refers to the one in which the company operates, while for SPAC acquisition it refers to the sector in which the target company operates. From the table, it is noticeable how the majority of the companies included in the sample that decided to go public during the last decade are involved in the Healthcare industry (29%), in Computer & Electronics (27%) or Finance (8%), whilst SPACs are used more commonly by the Computer & Electronics sector (33%), Consumer (7%) and Healthcare industry (6%).

6. Results and Discussion

Section 6.1 provides results obtained with the univariate analysis of the variables. Section 6.2 shows results obtained by running the logit model combining the variables in six different specifications, included the entire model. Section 6.3 presents some limitations of the model.

6.1 Descriptive Statistics

Table 3 presents the summary statistics of the selected 133 SPAC acquisition transactions identified in the period 2010-2020 together with the summary statistics of the 1320 selected IPOs.

As for company-specific characteristics, SPACs have a mean (median) total assets of $ 463.08m ($ 221.79m), compared with the $1957.77m ($ 195.07m) in the IPOs sample. As expected, SPACs are substantially smaller than IPOs. The test of differences in means and medians is strongly significant for both at 10%, 5% and 1% level.

The expected result is obtained also when looking at profitability, approximated by ROA. We can observe a relative underperformance with a mean (median) return on assets of -0.06 (0.00) for SPAC targets, while 0.63 (0.00) for IPOs. However, the test of differences is significant only for mean values at 10% level.

Regarding debt ratio, it is slightly higher for IPOs (27.57 for IPOs vs 21.38 for SPAC targets) in terms of mean, while it results substantially higher in IPOs (17.92 for IPOs vs 2.03 for SPAC targets) in terms of median. This difference is significant in both cases at 10%, 5% and 1% level. Thus, contrarily to expectations firms that go public through the IPO route seem to have a higher degree of leverage.

Unexpectedly, IPO firms are on average younger than SPAC firms (18 years vs 16 years respectively) and the difference is statistically significant at 1% level.

The results obtained also suggest that firms operating in the technology sector are slightly more predominant in SPAC targets sample. However, the difference between means and medians is not significant at all.

As for market-specific characteristics, results strongly confirm that in turbulent market environment firms are more oriented to become listed through the SPAC acquisition route. The mean and median of the S&P 500 Total Return Index, used as proxy for volatility, is significantly higher for SPAC acquisitions than for IPOs. The differences in values are significant at 10%, 5% and 1% level.

	SPAC						IPO						T-test	T-test
variable	median	mean	min	max	stdev	N	median	mean	min	max	stdev	N	t-value (median)	t-value (mean)
A. Firm specific														
Total Assets	221.79	463.08	0.24	14649.00	1478.38	133	195.07	1957.77	0.10	216394.20	10015.15	1320	3.056184***	-170.934525***
ROA	0.00	-0.06	-7.46	1.75	0.67	133	0.00	0.63	-152.85	291.75	15.53	1320	0.000730*	-2.01449
Debt ratio	2.03	21.38	0.00	451.71	46.83	133	17.92	27.57	0.00	1436.43	49.08	1320	-24.989814***	-9.731161***
Age	8.00	18.18	0.00	170.00	26.76	133	8.00	16.07	0.00	171.00	24.43	1320	0.000000	4.672314***
B. Industry specific														
Industry	0.00	0.32	0.00	1.00	0.47	133	0.00	0.27	0.00	1.00	0.44	1320	0.000000	0.89494
C. Market specific														
S&P500 TR Index	5439.80	5088.56	1851.28	7358.49	1347.58	133	3896.84	4436.87	1715.23	8851.17	1889.64	1320	395.355122***	166.984508***

, **, *, indicate statistical significance at the 10%, 5% and 1% levels, respectively*

Table 3 - Summary statistics and t-test for firm-, industry-, market-specific variable of SPAC targets and IPOs in the sample

6.2 Logit Results

Table 4 reports the result obtained by running the logit regression analysis.

In the logistic regressions, five different sub-specifications to the overall model (6) have been employed. Specification (1) takes into consideration only company-specific variables related to accounting metrics (Total Assets, ROA and Debt ratio); specification (2) includes the industry-specific variable (Tech) besides company-specific variables employed in (1); specification (3) includes the market-specific variable (SPXT Index) besides company-specific variables employed in (1); specification (5) adds to specification (1) the variable Age; specification (6) represents the full model.

Overall, the results are quite consistent with what has emerged with the univariate analysis.

The coefficient estimated for the Total Assets variable (Total Assets, ROA and Debt Ratio) is negative and strongly significant (1% significant) in all the six specifications of the model. The result is aligned with expectations since it means that the smaller the firm is, the more it is going to be likely that it would propend for the SPAC path. This result confirms both Kolb and Tykvová (2016), who found evidence that SPAC target firms were substantially smaller, and Adjei *et al.* (2008) who provided evidence of the fact that there was large difference in asset size between companies in the RM sample and the ones in IPO sample.

Also the estimated coefficient for ROA is negative in all the six specifications, indicating that firms which prefer to be listed through the traditional IPO route have a much stronger and better performance, or, on the other side, private firms with poorer performance are more likely to become listed after a deal with a SPAC company. This result shows that investors are more confident in investing their money in companies that appear to be financially stronger. Nevertheless, consistent with the univariate analysis, the result is not significant in neither of the multivariate frameworks.

Regarding financial leverage (Debt Ratio), the estimated model does not confirm the initial hypothesis, while it is in line with the univariate estimates. The negative coefficient, significant at 5% level, implies that firms with smaller leverage degree prefers the SPAC route, while it was expected that riskier firms would have been more inclined to the SPAC route. Maybe this result could indicate that firms with a too high degree of leverage are not attractive for SPAC sponsors who often choose to finance the acquisition with debt. Thus, if the target already presents a high level of debt, it would become too exposed to the risk of bankruptcy and a too high cost of capital.

Contrarily to what was initially hypothesized, yet consistent with the univariate analysis, younger companies prefer the IPO route, as it can be seen by the positive coefficient estimated for Age variable. The result is significant at 5% level.

An industry specific dummy is included in the regression to control for company operating in Technology sector, however the positive coefficient estimated is not significant.

Finally, market volatility variable, expressed by the S&P500 Total Return Index, is positive and statistically significant at 1% level in all the four sub-specifications. Consistent with Kolb, and Tykvová (2016), in turbulent market environments firms prefer SPAC acquisitions over IPOs. This result is also in accordance with the 'Investor Sentiment Theory' which states that variation in the level of investor optimism determines the costs of issuing equity and therefore enhances IPO fluctuation over time (Genovevo da Costa, 2016). Furthermore, given the readily available liquidity for the acquisition, it is likely that SPAC acquisitions will depend less on the current market environment than IPOs (Kolb and Tykovová, 2016).

	(1) Company specific variables	**(2) Company & Industry Specific Variables**	**(3) Company & Market Specific Variables**	**(4) Company, Industry & Market Specific Variables**	**(5) Company Specific & Age Variables**	**(6) All Variables**
Total Assets	-0.385824***	-0.388156***	-0.297191***	-0.301404***	-0.412926***	-0.331625***
	(0.022879)	(0.025705)	(0.03716)	(0.038329)	(0.026451)	(0.041694)
ROA	-0.004968	-0.004992	-0.004906	-0.004968	-0.005139	-0.005108
	(0.004427)	(0.004430)	(0.004839)	(0.004851)	(0.004436)	(0.004806)
Debt Ratio	-0.008253**	-0.008215**	-0.009001**	-0.008883**	-0.008614**	-0.009087**
	(0.003617)	(0.003616)	(0.003704)	(0.003701)	(0.003672)	(0.003729)
Age					0.008934**	0.007741**
					(0.003811)	(0.003772)
Tech		0.038840		0.0864360		0.108660
		(0.193982)		(0.194461)		(0.194955)
SPXT Index			-0.0001***	-0.000102***		-9.59E-05***
			(3.45E-05)	(3.46E-05)		(3.47E-05)

, **, *, indicate statistical significance at the 10%, 5% and 1% levels, respectively*

Table 4 – Multivariate Logistic Regression results.

This table shows the marginal effects of multivariate logistic regression using a sample of SPAC acquisitions and IPOs completed in the US market in the period 2010-2020. The dependent variable is a binary variable that takes the value of 1 for SPAC acquisitions and 0 for IPOs. Specification (1) includes only company-specific variables, specification (2) includes company

and industry specific variables, specification (3) includes company and market specific variables, specification (4) includes company, industry and market specific variables; specification (5) includes company specific variables and age at the moment of IPO or combination with the Target company; specification (6) includes all variables in the model. Standard errors are in parenthesis.

6.3 Limitations of Research

Despite the results seem to be quite aligned with what demonstrated by previous research, the paper still presents some limitations that need to be considered. First of all, the model is based on accounting data which do not refer to the firms' financial statements at the moment of going public, but 90 days after the entrance in the market. Indeed, differently from IPOs, SPACs are not obliged to present a prospectus to investors and regulator before the day of listing and thus it resulted impossible to find the information needed for private companies acquired by SPACs. Furthermore, for many of these companies, it has been difficult also to find information after the pricing day and consequently they have been excluded from the final sample because some of the variables were not available. As a result, only 133 SPAC acquisitions have been compared with the 1320 IPOs in order to conduct the analysis.

7. Conclusions

Given the recent unprecedent hype in SPAC activity in the US market starting from 2019, the scope of this paper was to investigate whether there is a combination of variables that enhances the probability that a company prefers to enter the market as target of a specific acquisition by a SPAC instead of following the traditional IPO route. The dissertation has taken into consideration not only company-specific variables, but also the industry and the condition of the market since these factors are retained to influence the company's decision to access the market and when.

Despite academic curiosity in SPACs has appeared since 2007, SPACs remained on the margins of empirical evidence until recently and only few years ago they restarted to be a topic at the center of the academic debate. Consequently, this paper joins the scarce existing literature with the scope of providing a much clearer view regarding when and which companies choose to enter the market using the backdoor.

A sample of 1320 IPOs and 133 SPAC acquisitions completed in the US market in the last 10 years (2010-2020) has been studied. The six variables selected refer to three areas of interest: company-specific, industry-specific and market-specific. Following previous studies related not only to SPACs, but also to other forms of IPO alternatives, a logit model has been applied and five different sub-specifications of the model have been object of the analysis besides the whole model. The initial hypothesis has been built starting from results of past literature and has been put under discussion. Indeed, using samples with IPOs and SPACs which joint the market until 2015, almost all studies demonstrated that companies that prefer to find an alternative to the traditional IPO to enter the market are usually small, poor performing, young and risky. Moreover, SPAC activity seemed to be more appealing in periods of high volatility because investors are reluctant to invest in IPOs. However, given the recent extraordinary increase in these deals, the research wanted to reinvestigate the sub-mentioned statement using a more recent sample which also included IPOs and SPAC target acquisitions which recently joint the market. Past studies used samples which included activity up to 2015, while this paper arrives to deals completed up to 2020.

Overall, the results are quite aligned with what emerged from previous studies. Findings related to company-specific and industry-specific characteristics, are in support of the statement that companies which enter the market via a SPAC acquisition are smaller and riskier due to high leverage. Contrarily to expectations, younger firms do not seem to be attracted by SPAC alternative. Both the univariate and multivariate analysis brought to the conclusions that younger firms prefer the IPO route. The performance indicator (ROA) is not significant in the analysis and neither the dummy control variable (Tech) included in the study. For what concerns market-specific variable, the analysis strongly confirms the idea that when market conditions are not considered optimal for the IPO channel, SPAC activity becomes more suitable.

These results imply that if a firm wants to enter the public market, but the traditional IPO channel is blocked either because quality-standards are not met, or because market conditions are adverse, it can always consider SPAC acquisitions as a feasible substitute. Someone talks about a "SPAC bubble", but data shows that more than half of the funds raised year to date derive from SPAC IPO. Consequently, these transactions could start to undermine IPO's popularity, and this would trigger several managerial implications.

This study could be further expanded in order to clarify which specific factors have triggered the impressive popularity of this asset class in the US during 2019. It would also be interesting to analyze the long-term performance of companies that took the SPAC route with the ones that remained faithful to IPO path. On top of that, it would be useful in order to assess if the relative lower quality of companies acquired by the SPAC continues to persist, or maybe SPAC sponsors expertise and ability to identify promising firms is able to make SPACs outperform IPOs. Finally, a comparative analysis between US and European SPACs would be important not only to scrutiny if European SPAC targets present similar profiles of the ones in US, but also to understand why SPAC activity has mainly boosted in the US, while it still seems to be weak in Europe.

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Appendix

	IPO Company	SPAC Target
Aerospace	2	n.a.
Agribusiness	4	1
Automobile	13	2
Chemicals	21	n.a.
Computer & Electronics	355	44
Construction	22	1
Consumer	20	9
Defence	1	n.a.
Dining & Lodging	24	n.a.
Finance	110	3
Food & Beverage	15	1
Forestry & Paper	2	n.a.
Healthcare	384	8
Insurance	13	n.a.
Leisure	18	1
Machinery	11	n.a.
Metal & Steel	8	n.a.
Mining	8	2
Oil & Gas	82	n.a.
Professional Services	42	1
Publishing	7	n.a.
Real Estate	53	3
Retail	33	n.a.
Telecommunication	17	1
Textile	3	n.a.
Transportation	24	n.a.
Utility & Energy	28	3
Not specified	n.a.	53
TOTAL	**1320**	**133**

Appendix 1 - Detailed IPO and SPAC Target operating sector

SUMMARY

It is common knowledge that companies' decision to disseminate stocks to the wide market is one of the major milestones in the life of a firm. This choice consists in an ongoing process that usually takes years to materialize, and it ends up with allowing the firm to gain access to the market as an alternative source of financing from bank-loan. Not surprisingly, since the outdoor capital that firms are able to raise when they go public is of primary interest to growing businesses and simultaneously also a significant event for those shareholders who may want to exit by selling their holdings, the decision to go public is a substantial and developed area of study in corporate finance.

Up to few years ago, the most conventional going public scheme to gain access to public funds consisted in an IPO (Initial Public Offering) and previous literature has mainly focused on this method. Nevertheless, nowadays companies are exploring more and more the non-traditional approaches to access public markets. The most popular alternatives to IPO include, among others, reverse merger, sell-out to a publicly listed firm, direct public listing and ultimately SPAC (Special Purpose Acquisition Company) transaction.

SPACs specifically have started to enjoy a massive boost as possible vehicles to gain public status in an alternative way. SPACs are shell or blank-check companies that are commonly thought as empty boxes. Indeed, these companies do not have any kind of operation, but their attractiveness is based on their founders and their managers' credibility. Because of this, blank-check companies are typically launched by top-tier executives with a demonstrable track record in completing successful acquisitions and creating value for shareholders.

As SPACs are established, they go public through a traditional IPO with the scope to raise a substantial amount of funds that are going to be used as financing source for the acquisition and merging of a private company that consequently is going to access the public market through a kind of reverse merger.

SPACs remained on the margins of the corporate finance practice until 2003 when the new generation of SPACs re-emerged on the US stock market. Contrary to few years ago when SPACs were more associated with market abuses, today they are considered a

worthy asset and an inclusive technique to allow a greater number of firms to access the market even if they have always struggled to be the ideal candidates for IPOs. Thus, a growing number of deal announcements by SPACs have generated highly positive reactions by investors.

Nevertheless, regardless the recent acceleration in SPAC activity, the topic is still quite under-researched in the most recent academic literature. Consequently, this paper wants to enrich contemporary studies and join the ongoing debate about which private firms prefer the front-door (IPO) and which ones the SPAC alternative to get access to the market. In particular, the dissertation is proposed to clarify whether there is a combination of target-specific traits and market-specific conditions that enhance the probability that a private firm becomes public by accepting to be acquired by a SPAC rather than opening the door to the traditional IPO practice. Generally, back-door listings have always been designed as a cheaper, easier, and faster way to go public, and previous literature demonstrated that IPOs alternatives were more suitable for smaller, younger, and less profitable firms than their IPO counterparts.

However given the most recent evolutions of this asset class as well as the explicit advantages intrinsically linked to SPACs, the final objective of the dissertation is to analyze whether SPAC acquisitions are a viable alternative when the IPO channel is impeded by barriers to enter the public market, given either by the low and not sufficient quality of the company or by a high level of uncertainty in the market.

To answer this question, an empirical analysis is conducted mirroring the procedures followed in previous studies by Adjei, Walker and Cyree (2008), Gleason, Jain and Rosenthal (2008), and Kolb and Tykvová (2016). This paper distinguishes itself from the first two because, while using the same procedure, it analyses SPAC acquisition instead of reverse mergers. Furthermore, in contrast to the three studies, this paper examines a more recent sample and data which refer to the period during which SPACs IPO activity has massively increased, especially during the last two years.

According to US market data exported by Dealogic, in 2020, SPAC have issued almost 6 times the volumes of the previous year, with 248 deals on the market (vs 59 in 2019). In

only 6 months of 2021, these volumes have far exceeded the already extraordinary value registered in 2020 and the number of deals has almost doubled (412 in 1H 2021 vs 248 in FY 2020).

In the first 6 months of 2021, 195 SPACs have completed the acquisition of their target company, while 438 SPACs are still seeking for a target and 142 SPACs are pending. Overall this year non-SPAC IPO have issued $104bn, which means that SPAC IPOs have issued the 54% of all IPO volume.

The Average SPAC IPO size has changed over time by steadily increasing from 2014 up to 2017 and reaching an average of $ 254m. In 2018 and 2019, SPAC IPO size suffered a slight contraction, while in 2020 they surged to a record average size of $ 335m. As a consequence of the SPACs' ability to raise more and more funds, also Average SPAC Acquisition Size has increased over time. This value has climbed, especially in the last two years reaching $ 335m in 2020 and $ 288m in 1H 2021.

Since the very beginning of SPACs resurgence, they have always favoured specific sectors. Starting from 2015, SPACs have mainly looked at companies operating in Tech and the business combination with them has hugely increased in the last two years.
Mergers with companies operating in the Industrials are following a similar path of the ones in the Tech sector. Furthermore, it is interesting to notice as in 2021, following Covid-19 pandemic, many companies operating in the Healthcare sector have decided to access public market by the SPAC route.

Regardless recent data drastically differ from the past, SPACs are not a new phenomenon since they already existed in the financial market as an asset class known as Blank Check Companies, which were very popular in 1980s. Between 1987 and 1990, these companies accounted for almost 2,700. However, their popularity was the result of their contribution in facilitating manipulation schemes and harm investors[2]. Hence, after being used as a part of many fraudulent market manipulations, modern SPACs antecedents had been strictly regulated with the Penny Stock Reform Act of 1990 (PSRA). The instruction of this Act did not ban them, but it decreed regulation meant to restrict their offerings,

[2] Penny Stock Reform Act, 2(8); H.R. Rep. No. 101-617 at 1408-09.

including adding an amendment to section 7 of Securities Act that instructed the SEC to make special rules "*with respect to registration statements filed by an issuer that is black check company*" (Greenspan, 2021). In response, the SEC issued Rule 419 of 1992. After PSRA and Rule 419, the old SPACs resulted no longer compliance with Rule 419 and they became mainly a way to create a form of Blank Check Company with enough investor protection in place to obtain SEC approval. Stricter regulation, together with good market conditions favorable for IPOs activity, SPAC vehicles faded from the scene in the mid to late 1990s. Despite their long existence, the second generation of SPACs reappeared in the US financial market in August 2003 when David Nussbaum launched a new SPAC.

On the contrary of the first generation, the market started to reevaluate SPACs' worthy and they soon began to be the protagonists of a steady growth in term of deal frequency and IPO volumes. In order to gain the public's trust, the SPACs started to be funded by well-known sponsors and the business to be run by the best-in class management teams. SPACs founder and manager credibility are undoubtedly the most important aspects of a SPAC since they represent one of the key success factors of the IPO and the following acquisition deal. Therefore, information regarding the management team composition and its members' previous experiences in the financial industry, earlier involvements in merger and acquisitions activity and connection with venture capital and private equity funds, is well detailed in the initial registration statement and in the final prospectus.

SPACs have seen a surge in issuance in the last three years followed by a remarkably increase over 2020 that has seen this investment product becoming one of the hottest asset class in American Equity Capital Markets.

SPAC process is characterized by several critical phases: the SPAC foundation, the IPO and the Business Combination (or De-SPAC transaction) within a predetermined period of time that is usually between 12 and 24 months. Alternatively, in case the company does not complete the deal before the expiration date, it is liquidated.

A SPAC is considered established when their underwriters, on the behalf of the management team, file the SEC Form S-1 stating intention to conduct an IPO of a new company that is created with the only purpose of acquiring a private target company,

thereby bring it public, within a limited period of time that usually goes from 12 up to 24 months. The document consists of an initial registration form that provides disclosure of information regarding the transformation process of the registered shell company into a new public company, the financing needs of the company, the planned use of capital proceeds, the nature of issuing securities, the underwriting agreement, any possible conflict of interest between SPAC founders and future investors, the proposed business of the target company and the background of the management team. Additionally, the registration also states the establishment of an escrow account where all funds raised during the IPO are going to be held. Finally, Form S-1 details how these funds are going to be used in case of acquisition and also what is going to happen in case of SPAC liquidation. After that, the new company enters a preparatory phase in sight of the pricing date and, just before the IPO, underwriters file the final prospectus.

After that the S1 is filed, the SEC has given its approval, and sponsors have deposited the initial capital in the trust account, the SPAC is ready to be listed.
Following the example of Blank Check Companies, SPACs enter the market issuing units that are usually comprised of one share of common stock, warrants exercisable in a future date and a redemption right to exercise if the initial investor does not agree with the proposed business combination. Warrants give the right to initial SPAC investors to purchase an additional common share at an exercise price of $11.50 and they cannot be exercised either before 30 days after the completion of the acquisition of the target company, or at least 12 months after the SPAC's entrance in the market.

Founders usually contribute to the initial capital by paying $25 p.s., subscribing the 25% of the total number of shares registered to be offered to the public through the IPO, including the 15% green shoe option. As a result, founder shares usually count for the 20% of the total outstanding shares and this stake is indicated as the "promote stake". At the moment of the business combination, known as de-SPAC transaction, either founder shares are automatically converted into public shares on a one-for-one basis or, in the event additional public shares or equity linked securities are issued, a defined exchange ratio is defined in order to make the appropriate conversion.

Substantially all (90% to 100%) of the proceeds that are raised during the IPO, remain in a trust account and they are invested in short term Treasury Bonds until the proper target is identified and acquisition is consummated.
SPACs do not have an unlimited time-window in order to purse the acquisition and usually the "screening for the target period" is fixed between 12-24 months.
Once the target has been identified, the acquisition is subject to shareholders' approval and the transaction can proceed only if the majority of votes cast in favor of the acquisition, no more than a certain percentage elect to redeem shares and there are sufficient funds to complete the acquisition.
Additionally, sponsor shares must be voted in accordance with the vote of public shareholders. During the vote, investors who do not agree with the choice of the targets can exercise their redemption right.

If the acquisition is approved, the target company is merged into the SPAC and it becomes a normal operating company (reverse merger) and all the shares are freely traded as for any other public company.
In the eventuality that the acquisition is not approved, SPAC sponsors can continue to look for another target. However, liquidation occurs if business combination is not consummated within stated deadline.

Commentators attribute different primary advantages to SPACs over IPOs since they alleviate many issues provide private companies of many advantages that traditional IPOs are inadequate to offer.
Among others, SPACs are much cheaper way to access the market. Then, SPAC merger is a faster path and less stressful process than IPO together with a financing risk much more contained. SPAC is a flexible capital-investment strategy since it is not restricted to a specific region or sector.
On sponsors side, SPACs are cheaper, do not dependent on the vagaries of market sentiment and offer more certainty in pricing and execution. Thus, even in unfavorable periods for new issue market, SPAC market can remain active and healthy. Additionally, the stock issued allows the acquisition through new equity issue and, once the acquisition is completed, the capital raised become permanent. Lastly, sponsors typically conserve

20% of post-deal common stock ownership and they have the opportunity to capture upside both as shareholders and from "at risk" warrant.
From the target's perspective, SPAC merger is a faster path and less stressful process than IPO. SPACs also contribute to take capital structure back into an optimal state and offer exit opportunities for companies without strategic buyers.
On investors side, the SPAC gives access to top tier management and private equity opportunities. If management does not carry out the acquisition, funds are returned and there are no salaries or other compensations prior the acquisition. Dissenting minority shareholders can demand money back if they do not agree with the acquisition. Furthermore, SPAC is a very liquid and transparent investment that can provide significant upside in case of acquisition with only a limited downside represented by the cash in escrow.

Today is not still clear if the above-mentioned advantages are of interest only for younger, smaller and poor performing companies. Indeed, since smaller firms are usually considered less capable to perform successful IPO they may seriously struggle in raising sufficient capital through, there was a general consensus on the lower quality of firms which preferred a SPAC acquisition rather than an IPO. Previous studies supported this statement. In 2002, Arellano-Ostoa and Brusco constructed a three-period model using 52 companies that went public through Reverse Mergers (RM) between 1990 and July 2000 in the US stock markets and they concluded that high quality firms issued equity through the IPO, while lower quality firms followed the RM path.

In accordance with Arellano-Ostoa and Brusco (2002), also Adjei, Cyree and Walker (2008) found that lower quality and smaller firms would easily use RMs to go public. They investigated a sample of firms that went public by a RM or an IPO between January 1990 and December 2002 and their results indicated that RM firms were smaller, poorer performing, and younger than those companies that decided to enter the market with the traditional IPO.

Another specific research was conducted to test if firms using alternatives to IPOs differ from traditional IPOs in term of leverage, balance sheet liquidity, profitability and size (Gleason *et al.*, 2008). They analyzed 119 reverse takeovers listed on the NASDAQ stock

exchanges and 53 self-underwritten IPOs traded on the NYSE between 1986 and 2003. The authors firstly analyzed the univariate statistics and did not found evidence in support of the statement that firms which used Reverse Takeovers (RT) or Self Underwritten (SU) were particularly smaller than the ones using IPOs. Moreover, these firms did not appear to be particularly different neither in terms of profitability, measured by ROA. They only discovered that RTs and SUs had a negative ROE, while it was positive in IPOs. The multivariate framework instead confirmed that firms that use alternative routes tend to be significantly smaller, less profitable and tend to exhibit greater likelihood of financial distress. Furthermore, RTs and SUs were associated with significantly higher levels of debt. Nevertheless, the authors did not find any difference in term of ROE.

In 2012 Datar, Emm and Ince addressed the gap of lack of SPACs' studies in the literature. The authors designed a logit model and they provided evidence that operational performance of SPAC firms was considerably lower than their industry peers and contemporaneous IPO firms. Additionally, SPAC firms conveyed more debt, were smaller in size, invested less and had less growth opportunities than the firms that conducted a traditional IPO.

Consistently, Kolb and Tykvová (2014) investigated the factors that influence the companies' choice to pursue public status through a SPAC transaction or an IPO with a logistic regression model and their results lend support to the conjecture that SPAC acquisitions are a way for lower quality firms to succeed in entering public market. As opposed to traditional IPO route, SPACs may be beneficial to small, highly levered, less profitable and riskier firms. Additionally, the authors went beyond the analysis of target company specific factors and contextualized their findings in relation to market conditions. Their results broadly confirmed that when markets are highly volatile investors are skeptical in investing in IPOs and thus SPACs acquisition become more appealing.

Kolb and Tykvová (2016) reanalyzed 127 SPAC acquisitions during the new-generation SPAC wave (2003-2015) to further investigate in what way market, deal and firm specific variables are related to the route through which firms go public. The multivariate analysis showed that firms prefer SPAC acquisitions over IPOs when market's conditions are not

optimal, as the cost of debt was higher, the SPAC likelihood decreased and lower quality firms were more likely to become listed through SPAC acquisitions rather than IPOs (negative ROA, but insignificant; negative market-to-book asset ratio; positive debt ratio; negative Total Assets). Finally, also dummy variables VC involvement and PE involvement were negatively related to the probability of SPAC acquisition, indicating that they both are more willing to have a larger stake in IPOs rather than SPAC acquisitions.

In the light of previous results, the paper aims at clarifying the combination of target-specific factors that enhance the probability that the firm becomes public using an acquisition by a SPAC rather than a traditional IPO. The basic aim of the analysis will be to describe the way the SPAC use varies by specific characteristics. Based on the applied research methodology from Kolb and Tykvová (2016), the study will make use of a logistic model. The coefficients are estimated using a pooled sample of SPAC IPOs which completed their targets' acquisition and IPOs, consisting respectively of 133 and 1320 deals. All the companies have been listed in the US during a 10 year period (2010-2020). Specifically, the listing choice is a binary variable that takes the value of 1 for SPAC IPOs and 0 for traditional IPO. The explanatory variables relate to size (TA), profitability (ROA), Debt ratio (LEV), industry (TECH), Age (Age) and market volatility (SPXTR).

The logistic framework is specified as follow:

$$Y_i = \alpha_0 + \alpha_1 \ln TA_i + \alpha_2 ROA_i + \alpha_3 LEV_i + \alpha_4 TECH_i + \alpha_5 Age_i + \alpha_6 SPXTR_i + \varepsilon_i$$

The first two variables are company-related (TA and ROA), and they are used to verify the proposition that lower-quality firms may tend towards the SPAC route rather than the IPO to enter the market. For the dissertation purpose firms are associated to lower quality when they are small and poorly performing companies.

The third variable is the debt ratio (LEV) is taken under investigation to develop the hypothesis that highly levered firms could be unattractive for IPO investors since they could judge them to be too risky. Therefore, the companies with a highly levered capital structure could prefer SPAC route as their status-quo could seem not to be suitable for

the traditional route. The variable Age is still company-related and aims at clarifying if SPAC acquisition is more attractive for younger or older firms.

The variable TECH is a control variable for high-tech companies which takes the value of 1 if the firm operates in business associated with telecommunications, biotechnology, information technology and internet.

Finally, the last variable (SPXTR) slightly differentiates from the others since it is market specific. The hypothesis is that since market participants are reluctant to invest in IPOs during periods characterized by high volatility, the chance for a successful SPAC route may increase. As a proxy of the market environment, the analysis make use of the 6-month variance of the S&P 500 total return index preceding the announcement of the combination with the SPAC. The idea is that in a turbulent market environment, firms may increase their chance of becoming public by looking for an appropriate SPAC rather than planning a conventional IPO.

The first set of results was obtained through an univariate analysis of the variables.
As for company-specific characteristics, SPACs have a mean (median) total assets of $ 463.08m ($ 221.79m), compared with the $1957.77m ($ 195.07m) in the IPOs sample. As expected, SPACs are substantially smaller than IPOs. The test of differences in means and medians is strongly significant for both at 10%, 5% and 1% level.
The expected result is obtained also when looking at profitability, approximated by ROA. We can observe a relative underperformance with a mean (median) return on assets of -0.06 (0.00) for SPAC targets, while 0.63 (0.00) for IPOs. However, the test of differences is significant only for mean values at 10% level.
Regarding debt ratio, it is slightly higher for IPOs (27.57 for IPOs vs 21.38 for SPAC targets) in terms of mean, while it results substantially higher in IPOs (17.92 for IPOs vs 2.03 for SPAC targets) in terms of median. This difference is significant in both cases at 10%, 5% and 1% level. Thus, contrarily to expectations firms that go public through the IPO route seem to have a higher degree of leverage.
Unexpectedly, IPO firms are on average younger than SPAC firms (18 years vs 16 years respectively) and the difference is statistically significant at 1% level.

The results obtained also suggest that firms operating in the technology sector are slightly more predominant in SPAC targets sample. However, the difference between means and medians is not significant at all.
As for market-specific characteristics, results strongly confirm that in turbulent market environment firms are more oriented to become listed through the SPAC acquisition route. The mean and median of the S&P 500 Total Return Index, used as proxy for volatility, is significantly higher for SPAC acquisitions than for IPOs. The differences in values are significant at 10%, 5% and 1% level.

Following the univariate analysis. it was run the logit model combining the variables in six different specifications, included the entire model. Specification (1) takes into consideration only company-specific variables related to accounting metrics (Total Assets, ROA and Debt ratio); specification (2) includes the industry-specific variable (TECH) besides company-specific variables employed in (1); specification (3) includes the market-specific variable (SPXT Index) besides company-specific variables employed in (1); specification (5) adds to specification (1) the variable Age; specification (6) represents the full model.

Overall, the results are quite consistent with what has emerged with the univariate analysis. The coefficient estimated for the Total Assets variable (Total Assets, ROA and Debt Ratio) is negative and strongly significant (1% significant) in all the six specifications of the model. The result is aligned with expectations since it means that the smaller the firm is, the more it is going to be likely that it would propend for the SPAC path. Also the estimated coefficient for ROA is negative in all the six specifications, indicating that firms which prefer to be listed through the traditional IPO route have a much stronger and better performance, or, on the other side, private firms with poorer performance are more likely to become listed after a deal with a SPAC company. This result shows that investors are more confident in investing their money in companies that appear to be financially stronger. Nevertheless, consistent with the univariate analysis, the result is not significant in neither of the multivariate frameworks. Regarding financial leverage (Debt Ratio), the estimated model does not confirm the initial hypothesis, while it is in line with the univariate estimates. The negative coefficient, significant at 5% level, implies that firms with smaller leverage degree prefers the SPAC route, while it was

expected that riskier firms would have been more inclined to the SPAC route. Maybe this result could indicate that firms with a too high degree of leverage are not attractive for SPAC sponsors who often choose to finance the acquisition with debt. Thus, if the target already presents a high level of debt, it would become too exposed to the risk of bankruptcy and a too high cost of capital. Contrarily to what was initially hypothesized, yet consistent with the univariate analysis, younger companies prefer the IPO route, as it can be seen by the positive coefficient estimated for Age variable. The result is significant at 5% level. An industry specific dummy is included in the regression to control for company operating in Technology sector, however the positive coefficient estimated is not significant. Finally, market volatility variable is positive and statistically significant at 1% level in all the four sub-specifications. Consistent with Kolb, and Tykvová (2016), in turbulent market environments firms prefer SPAC acquisitions over IPOs. Given the readily available liquidity for the acquisition, it is likely that SPAC acquisitions will depend less on the current market environment than IPOs.

To summarize, the results are quite aligned with what emerged from previous studies. Findings related to company-specific and industry-specific characteristics, are in support of the statement that companies which enter the market via a SPAC acquisition are smaller and riskier due to high leverage. Contrarily to expectations, younger firms do not seem to be attracted by SPAC alternative. Both the univariate and multivariate analysis brought to the conclusions that younger firms prefer the IPO route. The performance indicator (ROA) is not significant in the analysis and neither the dummy control variable (TECH) included in the study. For what concerns market-specific variable, the analysis strongly confirms the idea that when market conditions are not considered optimal for the IPO channel, SPAC activity becomes more suitable.

These results imply that if a firm wants to enter the public market, but the traditional IPO channel is blocked either because quality-standards are not met, or because market conditions are adverse, it can always consider SPAC acquisitions as a feasible substitute. Someone talks about a “SPAC bubble”, but data shows that more than half of the funds raised year to date derive from SPAC IPO. Consequently, these transactions could start to undermine IPO’s popularity, and this would trigger several managerial implications.

Despite the results seem to be quite aligned with what demonstrated by previous research, the paper still presents some limitations that need to be considered. First of all, the model is based on accounting data which do not refer to the firms' financial statements at the moment of going public, but 90 days after the entrance in the market. Furthermore, for many of these companies, it has been difficult also to find information after the pricing day and consequently they have been excluded from the final sample because some of the variables were not available.

Moreover, this study could be further expanded in order to clarify which specific factors have triggered the impressive popularity of this asset class in the US during 2019. It would also be interesting to analyze the long-term performance of companies that took the SPAC route with the ones that remained faithful to IPO path. On top of that, it would be useful in order to assess if the relative lower quality of companies acquired by the SPAC continues to persist, or maybe SPAC sponsors expertise and ability to identify promising firms is able to make SPACs outperform IPOs. Finally, a comparative analysis between US and European SPACs would be important not only to scrutiny if European SPAC targets present similar profiles of the ones in US, but also to understand why SPAC activity has mainly boosted in the US, while it still seems to be weak in Europe.

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