U.PORTO

FEP FACULDADE DE ECONOMIA
UNIVERSIDADE DO PORTO

SPACs: How to Separate the Wheat from the Chaff

Ana Cláudia Ribeiro Carvalho

Dissertation

Master in Finance

Supervised by

Professor Miguel Augusto Gomes Sousa, PhD

2020/2021

Biographical Note

Ana Cláudia Ribeiro Carvalho was born in Guimarães on 7th March 1998. She has completed a bachelor's degree in management at School of Economics and Management (FEP) of University of Porto in 2019. This degree culminated in interest and curiosity for finance, which led her to enroll in the Master's in Finance at the same school in 2020.

Presently, she is a Master's in Finance student and Financial Auditor at Ernst & Young, S.A.

Acknowledgments

Throughout the writing of this dissertation, I have received plenty of support, either directly or indirectly.

Firstly, I would like to express my sincere gratitude to my professor and supervisor Miguel Sousa, who introduce me to the topic. For all the technical and theoretical support provided, as well as for all feedback and motivation transmitted during this journey, which were crucial to the conclusion of this dissertation. I am extremely grateful!

I would also like to thank Professor Jay Ritter for providing important data used in this work, which facilitated and expedited the entire process. I am very grateful!

I would also like to thank my friends Carolina, Cristiana, and José, for all the fellowship during both this dissertation and the entire master's degree.

Lastly, I would like to thank my parents, Joaquim and Madalena, sister, Carina, and boyfriend, Diogo, for making this achievement possible, as they were always there for me on this challenging path. I am eternally thankful!

Abstract

Special Purpose Acquisition Companies (SPACs) are corporations with no business operations formed to conduct an initial public offering (IPO) with the sole purpose to acquire a private firm. SPACs have been on a strikingly upward trend lately, raising more IPOs and completing more deals than ever before. The literature on SPACs is limited compared with their importance and topicality, existing some controversy and gaps regarding determinants of successful SPACs. This research aims to identify the factors that increase the likelihood of a successful SPAC, i.e., those SPACs that announced (and concluded) a value-creating acquisition (Good SPACs, in Jenkinson and Sousa (2011) terminology). The sample comprises 354 U.S. SPACs, that already completed the cycle, between 2003 to 2020. This dissertation documents that the main factor that enhances the probability of a successful SPAC is the experience of its managers, suggesting that first SPACs were especially useful for learning (at the expense of the investors). Moreover, SPACs with more deferred underwriting fees are less likely to be associated with a successful SPAC. Furthermore, this paper shows that investors are still not listening to the market and that they should, reinforcing the findings of Jenkinson and Sousa's (2011).

Sumário

Special Purpose Acquisition Companies (SPACs) são empresas sem operações comerciais criadas exclusivamente para realizar uma oferta pública inicial (IPO) com o único objetivo de adquirir uma empresa privada. Os SPACs, recentemente, têm apresentado uma tendência de evolução crescente, conduzindo mais IPOs e completando mais aquisições do que nunca. A literatura dos SPACs é limitada em comparação com a sua importância e atualidade, existindo alguma controvérsia e algumas lacunas relativamente aos determinantes dos SPACs bem-sucedidos. Este estudo tem como objetivo identificar os fatores que aumentam a probabilidade de um SPAC de sucesso, ou seja, aqueles SPACs que anunciaram (e concluíram) uma aquisição que cria valor (Bons SPACs, na terminologia de Jenkinson e Sousa (2011)). A amostra é composta por 354 SPACs dos EUA, que já completaram o ciclo, entre 2003 e 2020. Esta dissertação documenta que o principal fator capaz de aumentar a probabilidade de um SPAC de sucesso é a experiência da gestão, sugerindo que os primeiros SPACs foram especialmente úteis para aprendizagem (à custa dos investidores). Para além disso, SPACs com maiores *underwriting fees* diferidas têm menos probabilidade de estarem associados a SPACs de sucesso. Por fim, esta investigação também demonstra que os investidores continuam sem prestar a devida atenção ao mercado, quando o deveriam fazer, o que reforça as conclusões de Jenkinson e Sousa (2011).

Palavras-chave: SPAC, *Blank Check*, IPO, Bom SPAC, Mau SPAC, Fusão, Aquisição, Liquidação, Aprovação

Classificação JEL: G14, G24, G34

Table of Contents

List of Tables

List of Figures

1. Introduction

The year of 2020 has been remarkable in many ways, one of which concerns Special Purpose Acquisition Companies (SPACs). SPACs are corporations with no business operations that are formed to raise capital in an initial public offering (IPO) with the sole purpose of using the proceeds to acquire or merge with a private firm. The SPACs have been around for decades, since The South Sea Bubble (1720), but their frequency has been on the rise recently and when we look to 2020 it has been a record year, both in the number of transactions and in gross proceeds raised. The literature in SPACs is limited compared with their importance and topicality. In fact, this crazy scenario around SPACs has been astonishing, given the alert of some authors about their poor performance and the agency problems provoked by their structure. Indeed, these instruments are structured in a very peculiar way, sometimes reacting very differently from the traditional investments. So, this research aims to deepen those reactions, studying the main determinants that may lead SPACs to success in the United States.

In fact, some authors (Cumming, Haß, & Schweizer, 2014; Lakicevic, Shachmurove, & Vulanovic, 2014) already addressed the main determinants that enable SPACs to successfully execute merger combinations. However, in their study, they considered as successful SPACs those in which the acquisition was approved, even if it is value-destroying acquisition. Considering a scenario in which a value-destroying acquisition (according to the market) is approved it does not seem coherent include it in the successful category. Jenkinson and Sousa (2011) followed a very simple observable rule to distinguish between value-destroying and value-creating acquisition: if, at decision/acquisition date, the share price is equal to (or slightly below) the actual trust value per share, the acquisition should be considered as value-destroying (Bad SPAC according to their terminology) and the SPAC should be liquidated; if, at decision/acquisition date, the share price is higher than the actual trust value per share it means the deal is expected to create value (Good SPAC according to their terminology) and the acquisition should be completed. So, taking this into consideration, we only consider as successful SPACs those Good SPACs, ensuring that Bad acquisitions are not considered as successful SPAC. By doing that, this dissertation not only extends the SPACs literature, covering a period in which more than 400 IPO SPACs were completed under modern SPACs designs but also sheds light on the determinants of a successful/Good SPAC. Therefore, new evidence on the field is presented.

This study uses a sample of 587 U.S. SPACs issued between 2003 to 2020, of which 354 completed their life cycle. Information related to SPACs' institutional characteristics, from different life stages, namely IPO process data, SPAC structure data, and merger and target data was gathered from both EDGAR and Zephyr databases. Subsequently, following the empirical model of Jenkinson and Sousa (2011), we build portfolios of "Good" and "Bad" SPACs. Finally, we run two logistics regressions: (i) Liquidated SPACs vs Approved SPACs; and (ii) Good SPACs vs Bad and Liquidated SPACs in order to determine the success factors of a SPAC.

First, our findings suggest that investors continue to approve deals that according to market data should have been rejected. From all approved acquisitions, 48% were considered value-destroying by the market, during the period under analysis. Second, for all SPACs we document a positive cumulative return of around 5% up to six months after the SPAC acquisition, which contradicts SPACs performance literature, suggesting that SPACs returns have been improving over the years. Still, Bad SPACs perform a -5% return after six months (-15% after one year) and Good SPACs perform 15% (18% after one year).

Third, we find a positive relationship between SPACs approval probability and the SPAC size, the number of promoters, the management experience, the trust value, the approval threshold, and the amount of non-deferred underwriting fees. Conversely, we find a negative effect concerning both the time to announcement (since the IPO) and the time between announcement and decision date. However, when only more recent SPACs are considered, only the management experience and the time to announcement continue to have a significant impact on the approval likelihood.

Fourth, when compared to Bad SPACs, we also reported a positive relationship between Good SPACs likelihood and the management experience, the SPAC size, the approval threshold, the non-deferred underwriting fees, and the time between announcement and decision date. Nonetheless, a negative effect concerning both the deferred underwriting fees and the time to announcement (since the IPO) is found. Apart from that, when only lately SPACs are considered, only the management experience and the deferred fees turn out to be both important and consistent factors over time. These findings suggest that deferred compensation in fact encourages the underwriters to pitch deals, even when they are of poor quality. Additionally, our results suggest that the management experience, i.e., the

management involvement in previous SPACs is the main factor that led to a Good SPAC, both for older or more recent SPACs.

The remainder of this paper is structured as follows. Section 2 introduces the institutional background of SPACs and reviews their relevant existing literature. Section 3 describes our data sample construction and methodology. Section 4 presents the results, interpretations, and discussion. Section 5 presents our main conclusions, limitations, and suggestions for future research.

2. Literature Review

2.1. SPACs History and Evolution

Inspired in Blank Check Companies SPACs were created in the United States in the 1980s, (Riemer, 2007), but the structure came from the United Kingdom 'blind pools' which arose during the 1720 South Sea Bubble[1]. However, in the 1980s they were used as part of many fraudulent investment schemes in the Penny Stock Market[2] ('PSM'). After being caught by the Securities Exchange Commission (SEC) radar, they started to be regulated by the Penny Stock Reform Act of 1990 and SEC Rule 419. Then, modern SPACs started to gain popularity in the U.S. in the mid-2000s due their restated structure and regulation and "due the increasing difficulties faced by small companies looking to raise money through their own IPO" (Heyman, 2007, p. 531).

Between 2003 to 2008, IPO SPACs started to increase abruptly from one SPAC in 2003 reaching a peak of 66 IPO offerings in 2007 – representing around 22% of all U.S. IPOs (Kolb & Tykvová, 2016). In 2008 it was noticed a decrease to 17 U.S. SPACs due the financial crisis. According to Jenkinson and Sousa (2011), between 2003 to 2008, 161 SPACs went public raising $22 billion in the course of their IPOs. Nonetheless, in the post-financial crisis, SPAC activity dropped in 2009 (one IPO SPACs) and 2010 (seven IPO SPACs), recovering after 2011. According to SPAC Analytics (2020), during 2020, 248 U.S. SPACs – representing 55% of total IPOS – have been formed raising some $83 billion – representing 46% of the total U.S. IPO proceeds. A major increase considering that a total of 59 went public in 2019 – representing 28% of all IPOs – raising only around $14 billion – 19% of U.S. IPO proceeds. Beyond being a SPACs' record year, 2020, marked by the coronavirus crisis, also sheltered the largest SPAC IPO ever – Pershing Square Tontine which raised $4billion – and the largest SPAC merger ever – Churchill Capital Corp III is acquired MultiPlan in a deal which is valued at $11billion. Indeed, between 2009 to 2020, 457 SPACs went public raising around $125 billion (see appendix A to track SPACs evolution since 2003 to 2020).

---

[1]For more about The South Sea Bubble (1720) 'blind pools' history, see Odlyzko (2020). BUBBLES AND GULLIBILITY. Financial History (132), 16-19.

[2] See Heyman (2007, p. 535). "There were many schemes in which, for instance, broker-dealers operating in a "boiler room" environment, would cold-call potential investors, sell them stocks at inflated prices, and profit from the difference between the mark-up and the actual trading price".

2.2. SPACs Structure and Institutional Changes

Special Purpose Acquisition Companies (SPACs) are corporations with no business operations that are formed to raise capital in an IPO with the sole purpose of using the proceeds to acquire or merge with a private company in a limited time. A SPAC[3] is a company founded by a small group of industry executives sophisticated investors (known as the 'Sponsors', the 'Founders' or the 'Promoters') – usually with industry experience – which make an initial small investment typically in a company's common stock (private placement) (Jog & Sun, 2007). At the time of the IPO, the company has neither operations nor any target company defined, being essentially, a bet on the management's professed know-how. In fact, the management will receive a compensation of around 20% of the SPACs' equity only upon a successful merger completion, otherwise, it does not receive any management fees.

Although this investment type seems risky due lack of information about the potential target, it is structured in a way that shareholders are relieved by certain safeguards. The most important feature that distinguishes SPACs from other applications, is that the IPO proceeds are put in a trust account until an acquisition is made, with shareholders holding an option to exit of the SPAC by receiving a pro-rata share of the funds placed in the trust ('conversion right').

So according to Lewellen (2009), a SPAC's lifecycle crosses three distinct phases: The No Target phase, the Target Found phase, and the Acquisition Completed (or Liquidation) phase.

2.2.1. No Target Phase

This phase starts when the SPAC decides to carry out an IPO[4] until the SPAC announces its intention to acquire a specific target company. During the IPO, shares are offered in form of units consisting of common stock plus a determined number of warrants. In the first SPACs, the blank-shell company would issue units of one common share and two in the money warrants. However, recently they have start issue one share plus either one half or

---

[3] Note that in the literature sometimes the terms such as "blank shell", "blank check company", "cash shell" are used to refer a SPAC. However, they may differ in some points, so, I will use the notation "SPAC".

[4] SPACs are formally established when Form S-1 is filled with the SEC, announcing the sponsors intention to conduct an IPO in future date. This form also contains the establishment of escrow accounts, details of the financing structure and other specificities about the SPAC design (Shachmurove & Vulanovic, 2017).

one third of an out of the money warrant. The warrants usually cannot be exercised until[5] and unless the SPAC completes the acquisition, but both shares and warrants become separately tradable after the IPO completion, which creates a market for the stakeholders – founders, underwriters, managers, and shareholders (Shachmurove & Vulanovic, 2017). It is important to note that these instruments provide a wide range of investors the opportunity to invest, such as hedge funds, private equity funds, mutual funds, investment banks, and small public individuals, since usually they are offered at a price of $10 per unit – early unit prices ranged $6 to $8 (Cumming et al., 2014).

Therefore, in this phase, the presence of underwriters is crucial to conduct the IPO, since they managed the sale of the issued units and helps to develop a liquid secondary market (Sjostrom, 2008). Underwriters receive their commission – typically around 7 to 7.5%[6] – plus overallotment options ('greenshoe') and warrants just like in an IPO[7]. However, in the modern SPACs, since 2005, a portion of the underwriter's compensation, usually 2.30%, is deferred until the SPAC merge or acquire a company, which may increase their incentives to assist the SPACs acquisition process (Dimitrova, 2017; Lakicevic & Vulanovic, 2013).

Raised funded, the IPO proceeds will be held in a trust account to be used to fund the business combination. While in the trust account, the funds are invested in U.S. short-term government securities, earning risk-free interest. At the beginning, only around 85% to 100% of the proceeds were put in trust. However, over time, as competition among SPACs has increased, they started to hold around 95% and, in some cases, reaching more than 100%[8], promising to "return to investors more than they put in" (Rodrigues & Stegemoller, 2011, p. 857). This may occur in cases when the SPAC needs additional capital to carry out the acquisition, through debt or equity financing, such as private investment in public equity (PIPE) commitment (Lewellen, 2009). Regarding the funds not held in trust[9], they are used to cover underwriting discounts, working capital, and other expenses related to the acquisition. Nonetheless, it should be noted that "sponsors cannot use the money held in

---

[5] On the later of a business combination or one year after the effective date of the offering (Hale, 2007).

[6] See U. Rodrigues and Stegemoller (2014). The authors argue that SPAC underwriters' compensation are similar to the traditional IPOs, but this fact is not justifiable for SPACs corporations as they are much easier to analyse.

[7] See Hale (2007) for more detail about the overallotment option and warrants conditions.

[8] See D'Alvia (2019). Stock Exchange List requirements: at least 90% of the proceeds must be held in the trust.

[9] When 100% of the proceeds are hold in the trust fund, the expenses related with the acquisition can be covered by the management (Hale, 2007).

the trust to pay themselves salaries, finders' fees, or any form of compensation" (Lewellen, 2009, p. 7).

2.2.2. Target Found Phase

This phase starts when the SPAC announces the proposed acquisition until if the acquisition is closed (or the SPAC liquidated). Since the IPO date, the SPAC founders or management, based on their expertise and experience, have a deadline of 24 months[10] to consummate the business. Furthermore, as mentioned above, in recent designs underwriters will help the sponsors in the searching process, playing adviser roles, in order to get their deferred compensation. Nevertheless, they must find a deal in which the fair market value represents at least 80% of the SPAC's net assets (excluding the underwriter's discount).

Subsequently to the business announcement, usually, the SPAC performs a shareholder vote[11] ('proxy vote') in which all the shareholders, including managers, express their belief, either voting in favor or against the deal (Sjostrom Jr, 2007). In fact, they receive two vote opportunities on the proposed acquisition. First, if the majority of the SPAC investors vote against it, the deal will not occur, and the SPAC will be liquidated. Second, if more than a specified percentage – threshold, defined *ex-ante* – of SPAC investors redeem their shares from the trust ('redemption right'), the deal will also not occur and the SPAC will be liquidated (Rodrigues & Stegemoller, 2011). Nonetheless, if the acquisition is approved and less than the threshold percentage of investors decide to redeem their shares, those shareholders are able to redeem their shares but continue to hold their warrants, regardless of their decision (Lewellen, 2009). Concerning the threshold, in the early days, it was established at 20%, but lately, it reached 40% to reduce the SPAC liquidation risk. Howbeit, in 2009/2010 was introduced a "tender offer" regulation, in which the SPACs rules started to include an option to hold a tender offer[12] in lieu of shareholder vote on a proposed acquisition. As a result, many SPACs have reduced shareholding voting rights, increasing the deal rejection to 88% or even more (Rodrigues & Stegemoller, 2011). Withal, albeit this

---

[10] See D'Alvia (2019). Stock exchange rules (NYSE, AMEX, NASDAQ) permit a period as long as 36 months, but most SPACs designate 24 months from the IPO closing as the period, i.e., 18 months to find a suitable target plus 6 months to consummate the business.

[11] See Sjostrom Jr (2007, p. 758). "A SPAC typically agrees to proceed (…) if the acquisition is approved by a vote of a majority of IPO shares, even if shareholder approval is not required by applicable law".

[12] Tender offer for all shares of all shareholders in exchange for a pro rata share of the cash held in trust.

alternative, the shareholders would still preserve the power to "vote with their feet"[13] because, if a high number of SPACs shareholders decide to sell their shares in a tender offer, the SPAC may not have the sufficient financial to pursue with a combination, which would end either in raise additional capital or SPAC liquidation (Nilsson, 2018).

2.2.3. Acquisition Completed or Liquidation Phase

If the business is completed, the target merges with the SPAC and becomes a publicly traded[14] company[15] – reverse merger (Sjostrom Jr, 2007)[16]. Then, the SPAC management is able to receive their compensation through the SPAC equity. As mentioned previously, initially, the founders purchase shares in a private placement before the IPO typically investing around $25,000. After the IPO, usually SPAC management will own 20% of the shares ('sponsors promote shares'), which are locked up for three years after the IPO date. Therefore, if the business combination is consummated, they receive this compensation, otherwise, they will not receive anything respecting to shares acquired before the IPO (Hale, 2007). Along with that, it should be noted that "there is nothing to stop the founders buying public shares in the market, and in such cases, the rights of such shares are identical whether owned by the public or the founders" (Jenkinson & Sousa, 2011, p. 3). On the other hand, if an acquisition does not occur or does not meet the milestones, the SPAC must liquidate, the investor's IPO investments should be returned, the management does not receive any compensation, and the warrants cease and become worthless.

Therefore, based on that structure, it is possible to identify some main advantages and disadvantages.[17] SPACs may work as a good alternative to small companies to raise cash

---

[13] If the business combination is not put to a shareholder vote, the investors who do not agree with the acquisition may sell their shares in a tender offer, usually set by the promoters. Thus, the shareholders continue to be able to vote, but indirectly, walking out of the SPAC.

[14] SPACs are usually only issued in OTCBB, NASDAQ, AMEX, and NYSE. Their regulation is different is some points, see D'Alvia (2019).

[15] According to SEC rules, SPAC must file a special Form 8-K within four business days following completion of an acquisition, containing all the information required in a Form 10.

[16] For more detail about the reverse merger method in SPACs see Sjostrom Jr. (2007). The truth about reverse mergers. Entrepreneurial Bus. LJ, 2, 743.

[17] See Hale (2007), Riemer (2007) and Schumacher (2020) for more detail about advantages and disadvantages.

without conducting an IPO by itself[18], avoiding huge costs and bureaucracies associated with that process. Moreover, SPACs depend less on the external environment than IPOs, since, at the time the target is listed, they have cash at their disposal – a good prospect in volatile markets according to Dimic, Lawrence, and Vulanovic (2020). Besides, given the SPAC low price per unit, any investor has the "opportunity to get a piece of the action in a private equity investment, regardless the amount of capital they have"[19] (Schumacher, 2020, p. 400). And, obviously, the liquidity, safeguards, and cashing out right, given to shareholders, are huge qualities. However, there is a high lack of transparency and high uncertainty given that these vehicles possess "no assets other than management's possessed "know-how""(Schumacher, 2020, p. 400) and that SPACs' incentive structure is established in a 'do or die situation' consorting agency problems, which could lead to approval of poor acquisitions. Besides, as SPAC must deal both with an IPO and a merger, huge fees may be involved. Finally, the dilution effect[20] is an issue, because, after the acquisition, the outstanding shares become exercisable and the shares holding by the founders will have the same rights as public ones (Jenkinson & Sousa, 2011).

2.3. SPACs Relevant Academic Literature

The SPACs have been around for decades, but their first studies only started to emerge in 2007.

2.3.1. SPAC Structure and Regulation Framework

In the beginning, authors such as Hale (2007), Heyman (2007), Riemer (2007), Sjostrom (2007), and Davidoff (2008) have essentially described SPACs history, evolution, incentive structure, and regulatory framework.

Hale (2007) addresses in some detail the SPAC structure, the players involved and their incentives, and potential conflicts of interest that may arise. Given the SPACs incentive

---

[18] "The comparison of RMs to IPOs is irrelevant for many companies (…) because for many companies an IPO is not an option."(Sjostrom Jr, 2007, p. 751)

[19] Heyman, *supra* note 26, at 548-49 (citing Martin Sikora, *Blank Checks Add Buyers*, 41 MERGERS & ACQUISITIONS: DEALMAKER'S J. 22, 22 (2006)).

[20] For more detail about dilution problems see Berger (2008). SPACs: An Alternative Way to Access the Public Markets. Journal of Applied Corporate Finance, 20, 68-75, and Nilsson (2018). Incentive Structure of Special Purpose Acquisition Companies. European Business Organization Law Review, 19(2), 253-274.

structure, agency problems may occur namely between shareholders and management, once management only receives compensation if a business combination is completed, which may conduct them to pursue a combination whether or not it is the optimal choice. Albeit the author concludes that a SPAC "has something for everyone" namely providing "an avenue for management capitalize on their industry expertise", providing "target companies with a new publicly available pool of potential buyers" and providing "investors with an investment upside potential and downside guarantees"(Hale, 2007, pp. 67,74).

Heyman (2007) remit for the same points but connecting it to the main differences between SPACs and black check companies (BCCs), which were also addressed later by other authors (Castelli, 2009; Murray, 2011; Riemer, 2007). According to SEC rule 419 definition, a blank check company offers 'penny stock'[21] and doing so is subject to significant regulation that makes it an unattractive investment. However, this rule is generally not applicable to most SPACs, which rely on the exception provided in Rule 3a51-1 of the Exchange Act of 1934 for issuers with less than three years of operations who have a minimum of $5 million in net assets. So, based on that, SPACs could avoid the imposed regulation for PSM and BCCs. However, by self-imposed regulation or by fulfilling the Exchange list requirements[22], SPACs created similar protections to rule 419 in order to maintain the safeguards to stakeholders while making it a more attractive investment: (1) rule 419 allows warrants to be exercised before a business combination, in contrast with SPACs; (2) under the rule the target firm's net assets must be at least 80% of the offering proceeds, while for SPACs must be at least 80% of the SPAC's net assets; (3) the time limit to complete the acquisition differ, BCCs have 18 months; and (4) BCCs cannot trade their securities before the business combination. Therefore, Heyman (2007) argues that SPACs are safe to investors, and they are a viable alternative to IPO to give a company a cash infusion and get listed. Indeed, Castelli (2009) explains that SPACs do not display the alarming features that did blank check companies fall in 1980s schemes, since more reputable underwriters and investors are associated with these transactions such as Goldman Sachs, Citigroup, and Deutsche Bank. Moreover, largely obscure targets are also being replaced by rather prominent private companies.

---

[21] Penny stock is stock offered for sale for less than $5.00 per share.

[22] See D'Alvia (2019). The international financial regulation of SPACs between legal standardised regulation and standardisation of market practices. Journal of Banking Regulation, 1-18.

Davidoff (2008) discussed the comparison between SPACs and Private Equity (PE), reporting that they are structured in a very similar way, mainly when it comes to the incentive compensation scheme, stating that "SPACs attempt to mimic private equity returns by employing comparable structures and practices"(Davidoff, 2008, p. 225). Later, other authors (Boyer & Baigent, 2008; Jenkinson & Sousa, 2011; Rodrigues & Stegemoller, 2011; Schumacher, 2020) also pictured the main differences between both investments as well as their advantages and disadvantages[23].

2.3.2. SPACS Performance and Trading Activity

Jog and Sun (2007) were the first ones to analyze the SPACs' performance in the different stages of their life. Based on a sample of 62 SPACs between 2003 to 2006, they concluded that shareholders, since the second day after the IPO to the outcome date, earn -3% annualized abnormal returns, while management earns approximately 1900%; and that SPACs 60-post-outcome day abnormal return is -18.23%. Besides, they noticed a relatively underpricing of on average 1.9%. In addition, SPACs exhibit less underpricing compared to regular IPOs, which was expected since SPACs are easier to analyze – there are no cash flows for the market to value, just an 'amount of cash'. Lewellen (2009) also studied the returns, between 2003 to 2008, reporting that a portfolio of SPACs in the post-announcement phase earns a four-factor alpha of more than 2% and -2% after an acquisition has been completed. Also, he examined the trust account contesting that SPACs routinely trade at a substantial discount to value held in trust, which cannot be fully attributable to transaction costs or liquidity, suggesting that may be a strategy to attract hedge funds.

Regarding underpricing, the literature between 2003 to 2011 is consistent about SPACs revealing a little mispricing (Lakicevic & Vulanovic, 2013; J. Murray, 2011; U. Rodrigues & Stegemoller, 2014). However, more recent literature, covering a sample of 74 SPAC IPOs between 2010 to 2016, Griffin (2019) reported that SPAC IPOs are on average more underpriced than traditional IPOs and that larger SPAC IPOs experienced a greater level of underpricing than smaller ones. The suggested explanations for these findings are that (1) investors have less information available to factor into the price discovery process, which results in higher uncertainty in investment valuation, and that (2) SPACs looking to raise

---

[23] For more detail about the Private Equity versus SPACs see Davidoff, S. M. (2008). Black market capital. Colum. Bus. L. Rev., 172; and see Rodrigues, U., & Stegemoller, M. (2011). Exit, voice, and reputation: The evolution of SPACs. Del. J. Corp. L., 37.

greater sums of money attract larger institutional investors, who have a greater ability to negotiate more favorable investment terms.

Around the announcement date, the initial literature is also consistent founding that SPACs get positive returns nearby 1% to 2% (Dimitrova, 2017; John & Scott, 2012; Lakicevic & Vulanovic, 2013; Rodrigues & Stegemoller, 2014). Indeed, Rodrigues and Stegemoller (2014), stated that acquirer announcement returns in SPACs are about triple that of a typical merger, and when compared to traditional IPOs, they also noticed a stronger positive reaction for SPACs.

Finally, concerning post-acquisition performance, the literature based on initial SPACs (between 2003 and 2015) is consistent both in the short-term and the long-term – on average a SPAC buy-and-hold strategy converts into negative returns reaching close to or greater than -20% after six months, -50% after one year and even -100% after five years (Dimitrova, 2017; Jenkinson & Sousa, 2011; Kolb & Tykvová, 2016; Lakicevic & Vulanovic, 2013). Actually, the most recent study about long-term performance reported that SPAC firms between 2003 and 2015 are associated with severe underperformance in comparison to the market, industry, and (comparable) IPO firms (Kolb & Tykvová, 2016).

Still concerning performance and trading activity, Jenkinson and Sousa (2011) studied a sample of 58 U.S. SPACs, between 2003 to 2008, that was divided into portfolios of "Good" and "Bad" SPACs according to an observable rule based on the market price on the decision date: if, on decision date, the share price is lower than the trust value, the proposed merger is value-destroying (Bad SPAC), so it should be liquidated; on the other hand, if the share price, on decision date, is higher than trust value, the proposed merger is value-creating (Good SPAC), so it should be approved. The results showed that, although 74% of deals were approved, according to the rule more than half should have been rejected. Additionally, investors who went against the market lost around 39% after six months and 79% after one year, while the market reaction of those who followed the rule was positive. As a result, it was concluded that SPAC investors should listen to the market. Furthermore, it was noticed an abnormal trade activity around the decision date, suggesting a vote-buying by the founders, or their affiliates, from large investors who have indicated they will vote against the deal or those who could not be present on the decision date, to guarantee the approval of the proposed deal[24]. Thus, in part, this phenomenon explains what drives investors to take

---

[24] As explained previously the promoters will have access to SPAC shares, that represent 20% of the total

"Bad" deals. Aside from that, aggressive hedge funds, holding large blocks of stock, sometimes use 'greenmailing' by threatening to redeem their shares and forcing the management to purchase them at a higher price than the market. So, as mentioned in the previous section, later, to try to prevent both phenomena, a tender offer option was launched, increasing the threshold rejection, and ensuring that all investors receive the same.

2.3.3. SPACs Determinants

Regarding the main determinants that enable SPACs to successfully execute merger combinations, as well those which may influence their post-performance, Boyer and Baigent (2008) investigated the connection between warrant price, share price, and other SPAC variables, documenting a statistically significant positive relationship between the price units at the IPO and the size of the offering, meaning that larger SPACs have larger share values. Kim (2009) decided to focus on the SPAC management team, reporting that it has more industry experience when compared with traditional IPOs and that the market put a higher value on SPACs with better management experience. Along with that, as expected, this know-how improves the long-term unit price performance and decreases the time to complete a deal, suggesting this factor is valuable and has a significant effect both on performance IPO and business combination.

Cumming et al. (2014), covering a sample of 139 SPACs from 2003 to 2010, went further by running a logit model considering the probability of deal approval linked to a variety of characteristics collected from different SPAC life stages: (1) structural data, (2) IPO process data, (3) ownership structure data, (4) operations and performance data and (5) human capital characteristics data on the SPAC management team. Considering twenty-three explanatory variables, their results surprisingly suggest that greater managerial and board member experience does not improve the probability of a successful SPAC, which was not expected, since more experience managers could be beneficial for finding better acquisition targets, as reported by Kim (2009). In addition, it was perceived that younger management teams, smaller underwriter's syndicates, an increase in average underwriter reputation, the presence of fewer block holdings, and a higher level of SPAC management voting rights, may be associated with a higher deal approval probability. Apart from that, SPAC management revealed an incentive to reduce the duration of the entire process, while active investors may

---

shares, if an acquisition is approved (even if value-destroying)

also seek faster proxy voting "but for different reasons such as pursuing arbitrage strategies instead of long-term buy-and-hold strategies"(Cumming et al., 2014, p. 210) (appendix B).

Based on the same rationale, Lakicevic et al. (2014) tracked the factors that influence the likelihood of a SPAC merger but covering a widely sample of 163 companies, between 2003 to 2012. However, in contrast to Cumming et al. (2014), they reported that the number of founders and their experience positively impact the probability of the merger outcomes and that the impact of founders' ages on the likelihood of the merger did not have significance. Concerning underwriters, they found a highly significant characteristic: the involvement of EarlyBirdCapital[25] increases the deal approval probability. Moreover, they note that SPACs with a defined focus on the merger, SPACs with a merger focus on China, and SPACs that can announce the deal sooner are more likely to execute an acquisition. After all, contrary to Cumming et al. (2014), who consider that ownership structure determinants are those with strong influence in the merger likelihood, they found that the "underwriter's underlying choice and geography are the most important merger determinants"(Lakicevic et al., 2014, p. 151). However, it should be noted that in a previous study, Lakicevic and Vulanovic (2011, p. 119) reported that "the most influence on the probability of a SPAC merger is the amount of gross proceeds raised at the date of the IPO", which demonstrated a negative impact.

Dimitrova (2017), examining SPACs between 2004 to 2010, sought to explain the cross-sectional variation in performance by focusing mainly on characteristics that may be related to conflicts of interest between the parties involved in a SPAC and corporate governance of the merged firms. It was found that SPAC performance is worse for acquisitions announced near the deadline, for acquisitions with deferred underwriting fees, and for acquisitions with a market value close to the required 80% threshold. Furthermore, she reported that the SPACs in which the sponsors continue involved as shareholders or board members, after the acquisition, reveals better performance. So, her main conclusions were that the "perverse incentives" infused in the SPAC may encourage some founders and underwriters to make bad acquisitions to get compensation and defer underwriting fees, respectively.

Vulanovic (2017) studied how institutional characteristics of SPACs are related to their post-merger survival, reporting they are important drivers to determine their outcomes. Covering a sample of 105 SPACs, between 2003 to 2013, they found a SPACs failure rate of

---

[25] EarlyBirdCapital, a midsize investment bank, was a SPAC pioneer. In 2003 underwrote a successful IPO for Millstream Acquisition Corporation, triggering SPAC activity in capital markets (Lakicevic et al., 2014)

58.09%, stating that increases in the pre-merger commitment by SPAC stakeholders and initial positive market performance increase post-merger survival likelihood; and that, oppositely, mergers with higher transactions costs and focused on foreign companies may be associated to a higher failure probability.

More recently, Dimic et al. (2020) examined the determinants of IPO withdrawal, involving 370 IPO SPACs between 2003 to 2019. Their main conclusions were essentially that the likelihood of withdrawal is in direct relation with the level of volatility on the day of the IPO and with the presence of the target in a Private Equity portfolio. They also reported that SPACs are less likely to withdraw their IPO if they have a clear focus of acquisition, have a larger number of underwriters in the syndicate, and if the legal counsel is specialized in the SPAC market. Finally, they documented that the speed of the IPO process decreases when the market is doing well, when the IPO is larger, and if the CEO was previously manager of other public companies.

2.4. The Importance and Aim of This Study

SPACs have been on a rise lately, especially during the pandemic crisis, being on a pace to raise more IPOs and complete more deals than ever before. SPACs have been around for decades but over time they have been reporting some changes in their designs while attracting more well-known and more sophisticated investors, sponsors, and underwriters, being more companies opting for this alternative to access public markets. Indeed, according to Murray (2017, p. 25), "regulators have largely left the market free to try new designs" in order to attract new promoters and reinforce the position of the established ones. And apparently, it is working.

However, the literature on SPACs is limited compared with their importance and topicality, and in the existing few papers, there is some controversy about the SPACs concussion on the capital markets. Some authors argue that, despite the inherent risks, they could represent a good alternative for some companies to become public, while other authors warn for their poor performance and perverse incentive structure. In fact, these instruments are structured in a very peculiar way, sometimes reacting very differently than would be expected. For instance, if we look at the literature on the SPACs determinants, there is little consensus about some relationships between SPACs characteristics and the merger likelihood, mainly when it concerns managers and underwriters data (Cumming et al., 2014; Lakicevic et al., 2014). Besides, in these studies, the authors considered as successful SPACs

those in which the acquisition was approved, even if the market assumes, the deal is value-destroying. Considering a scenario in which a value-destroying acquisition is approved – which may occur according to Jenkinson and Sousa (2011) – it does not seem coherent include it in the successful category.

Based on that, and following Cumming et al. (2014), this study analyzes the main factors that may be associated with successful SPACs. However, contrary to previous studies and under the Jenkinson and Sousa (2011) approach, we consider as successful SPACs those SPACs that approved and completed a deal that the market, at the time of the decision, assumed to be value-creating (Good SPACs).

Therefore, the main research question of this study is: What are the main determinants of Good SPACs? How to separate a good investment (wheat) from a bad investment (chaff)?

In doing so, this dissertation extends the SPACs determinants literature as it covers a period in which at least more 400 U.S. IPO SPACs were completed under modern SPACs designs, being more comprehensive than of prior analysis such as Cumming et al. (2014) and Lakicevic et al. (2014). Moreover, by adopting a new methodology, it presents new literature on the field as well as gives more evidence to investors so they can take optimal decisions, i.e., invest in those SPACs that are more likely to approve a value-creating deal.

3. Data Sample and Methodology

Our sample includes all SPAC IPOs occurred in the United States, between 2003 and 2020, issued in the NASQAD, NYSE, AMEX and over the counter (OTTCB).

199 SPAC IPOs, occurred between 2003 and 2013, are from Jenkinson and Sousa (2011) and Anup (2016) and were obtained from Capital IQ database. An additional 361 SPAC IPOs from 2010 to 2020 (November) were made available by Gahng, Ritter, and Zhang (2021). The remaining 31 SPACs IPOs were collected from Zephyr database through the following criteria: (1) the deal should be issued on the IPO & Capital Markets; (2) the period should be "on and after 20/11/2020 and up to and including 31/12/2020 (completed, completed-assumed)"; (3) the target country should be the United States of America (US); (4) and the key words used should be "SPAC", "special purpose acquisition company", "blank check" and "cash shell". At this point, we identified 599 SPACs.

3.1. Institutional Characteristics of SPACs

The information related to the institutional characteristics of SPACs, namely (1) IPO process; (2) SPACs structure data; and (3) merger and target data, were extracted from the Electronic Data Gathering Analysis and Retrieval (EDGAR) database[26] and from Zephyr database.

3.1.1. IPO Process and SPAC Structure Data

The IPO process and SPAC structure data, which includes the variables detailed later in this study, were gathered from 424B2 forms, and then updated considering the exercise of the overallotment option by the underwriters, using the 10-Q or 10-K forms that followed the IPO. From the initial SPACs list, at this stage, we were only able to collect data from 587 SPACs, since 12 had no information available at EDGAR database.

Regarding IPO process, and considering the literature review, we compiled the characteristics that are considered by the researchers to be the most significant in this sort of offerings, such as the IPO price; the IPO proceeds raised; the number and strike price of the warrants; the percentage of shares held by management; the number of underwriters; and the lead underwriters. Along with that, we incorporated the lead underwriter's reputation

---

[26] See https://www.sec.gov/edgar/searchedgar/companysearch.html

variable, employing the Loughran and Ritter (2004) ranking[27], which is based on the Carter and Manaster (1990) and Carter, Dark, and Singh (1998) rankings, but with several modifications. The Carter and Manaster (1990)'s ranking is built on a scale of 0 (least prestigious) to 9 (most prestigious) by "looking at the position and the frequency by which underwriters are mentioned in the "Tombstone announcements" "(Ribeiro, 2016, p. 1). However, according to Loughran and Ritter (2004), the methodology used by these authors may have a potential flaw, since the reputation of penny stock underwriters may be overvalued, being Loughran and Ritter (2004) using an adjusted methodology that avoids this problem. As already mentioned in the Cumming et al. (2014) paper, this modification is very worthwhile, since many penny stock underwriters serve as syndicate members in SPAC IPOs. Therefore, matching this ranking with SPACs IPO periods (2003-2020), we assigned a score from 1 to 9 for our sample of 70 underwriters[28][29].

Concerning SPAC structure data, we assembled the main characteristics associated with the design of the offering, such as shareholder voting threshold, the number of promoters; age and number of managers; trust value; underwriters fees, and so on. Additionally, and bearing in mind that the management know-how is one of the main SPACs success factors (Jog & Sun, 2007; Kim, 2009; Schumacher, 2020), we decided to develop the variable "management experience". Since management might be formed by several members, to simplify, we just collected from SEC fillings the name of the CEO and Chairman of each SPAC, assuming they may work as management representatives, and then we built a database with the number of SPACs in which each of them took part. Therefore, based on this, we considered that the managers (CEO or Chairman) who had engaged in more than one SPAC would be "experienced managers", and, conversely, managers who only had engaged in a single SPAC, would be "inexperienced managers".

---

[27] The updated underwriters ranking for IPOs from 1975-2020 (updated in February 2021) is available at https://site.warrington.ufl.edu/ritter/files/founding-dates.pdf.

[28] The Loughran and Ritter (2004) ranking scale is from 1.1 to 9.1, assigning integers followed by 0.1, so that the authors can distinguish their ranking from the others. However, in empirical work, the x.1 rankings should be converted into x.0. It should be note that a score of -9.00 is assigned to underwriters who have not had activity in the corresponding period.

[29] The underwriters CRT Capital Group LCC, PBR Capital Markets & Co., Casimir Capital LP., FTN Midwest Securities Corp., PJT Partners LP., Jones Trading Institutional Services LCC, were assigned with a rank of -9.00, as they were not covered by the Loughran and Ritter (2004) ranking. Furthermore, for some underwriters, when the rank for the respective period was "blank", we assigned the last available one.

It is noteworthy that in the data collection process, some considerations and assumptions were taken: (i) the date of the IPO in some cases may be the day before trading starts; (ii) the underwriting fees and commissions were gathered from IPO prospectus, so changes that may occur after the offering were not considered; (iii) we just considered the underwriting discount paid in cash, not including payments in options; (iv) the initial trust amount was obtained by multiplying the unit price put in the trust by the number of shares issued at the IPO, since in some cases the overallotment option was exercised; (v) in those SPACs that it is not yet known if the overallotment option was exercised, we assumed that it was not.

Table 1 presents the phase of all 587 SPACs. More than half of our sample (more precisely 354 SPACs) already completed the cycle while only 19% (122) are still in the first phase (No Target Phase).

Table 1 – Sample Statistics (2003 – 2020)

The table presents summary statistics for the 587 SPACs from August 2003 to December 2020: number of SPACs that completed the Initial Public Offering; the number of SPACs that completed a merger; the number of SPACs that were liquidated; the number of SPACs that until December 2020 only announced a potential deal; and the number of SPACs seeking a merger.

	IPO	Merged	%	Liquidated	%	Announced Merger	%	Seeking	%
2003-2020	587	267	45.5	87	14.8	111	18.9	122	20.8

Table 2 presents the descriptive statistics of our sample. From 2003 to 2020, the IPO price was on average $9.41, with prices fairly standardized at $5, $6, $8, and $10, raising an average of $244 million, with between 80% and 105% (average of 99%) of the proceeds being held in the trust fund. Right after the IPO, the average percentage of common stock owned by founders was around 20%. Regarding warrants, on average, each unit consisted of 0.76 warrants[30], having the owners the option to exercise them at $9.90. On average, 5.20 promoters and 6.43 managers participated in a SPAC, and, for the latter, it was reached an average age of 52.40 and an average experience level of 0.31[31]. Furthermore, on average, 2.30 underwriters took part of the SPAC IPOs, charging fees around 5.96%, of which 51.65% are deferred until the SPAC merger outcome, i.e., 3.08%. The average reputation

---

[30] The number of warrants per unit was computed considering that each warrant gives the option to buy one common share at the respective strike price.

[31] The management experience level ranges from 0 to 1, with 0 being the least experienced and 1 the most experienced.

lead underwriter was 5.10, which corresponds to quality regional or niche underwriters (Loughran & Ritter, 2004). The threshold level, which represents the maximum percentage of shares that could be redeemed by the SPAC shareholders, was between 20% and 100% (average of 80%).

Table 2 – Major characteristics of SPACs (2003 – 2020).

This table reports descriptive statistics for the 587 SPACs that conducted an IPO between August 2003 to December 2020, also presenting descriptive statistics for both the 465 SPACs that announced a merger or liquidation and for the 364 SPACs that completed their life cycle.

	All SPACs (587)		SPACs that announced an acquisition (465)		SPACs that Completed the Life Cycle (354)	
	Average	Median	Average	Median	Average	Median
(1) IPO Process Data						
IPO Price	9.41	10.00	9.20	10.00	8.95	10.00
SPAC size ($m raised)	244.40	199.60	219.08	169.29	184.16	120.38
% owned by founders after the IPO	19.90%	20.00%	20.05%	20.00%	20.21%	20.00%
# of Underwriters	2.30	2.00	2.29	2.00	2.28	2.00
Average Reputation Lead underwriter	5.10	6.50	4.61	6.00	3.79	5.00
Warrants per unit	0.76	0.50	0.84	0.50	0.97	1.00
Warrant Strike Price	9.90	11.50	9.47	11.50	8.83	11.50
(2) SPAC Structure						
# of Promoters	5.20	5.00	5.04	5.00	4.57	4.00
# of Managers	6.43	6.00	6.37	6.00	6.241	6.00
Average team age	52.40	52.67	52.21	52.53	51.85	52.17
Management experience	0.31	0.00	0.35	0.00	0.36	0.00
% of IPO proceeds in the trust	98.64%	100.00%	98.21%	100.00%	97.36%	100.00%
% Threshold	80.33%	100.00%	75.16%	100.00%	67.34%	100.00%
% Underwriter fees	5.96%	5.50%	6.11%	5.50%	6.29%	6.00%
% Deferred Underwriting fees	3.08%	3.50%	2.98%	3.50%	2.84%	3.50%
(3) Acquisition and Target						
Days to announcement	-	-	413.81	433.00	463.73	484.00
Days between announcement and decision date	-	-	-	-	175.12	142.00

3.1.2.   Acquisition and Target Data

The information collected about the merger and target was essentially the announcement date; the decision date; the last trust value; and the potential target name. All the data, excluding the trust value, was obtained from Zephyr database and, in some cases, crossed checked with both 425 form and business wire website news[32].

---

[32] See https://www.businesswire.com/

The last trust value, a crucial variable for this study, was gathered from the last 10-Q or 10-K forms available, as close as possible to the decision date.

At this juncture, we collected data from 465[33] SPACs, those that have announced an acquisition. Regarding decision date, this information was only obtained for 354 SPACs, which correspond to those that completed their life cycles.

Table 3 – Major characteristics of both the SPACs that completed an acquisition and the SPACs that were liquidated (2003 – 2020)

These tables report descriptive statistics for both subsamples of 267 US SPACs that completed an acquisition and for the 87 US SPACs that were liquidated between August 2003 and December 2020, as well as the difference between the respective subsamples using the t-test for means – *, **, ***, indicate that the two subsamples are significantly different at the 10%, 5%, and 1% level, respectively – and using the two sample Wilcoxon rank-sum (Mann-Whitney) test for medians – +, ++, +++ indicate that the two subsamples are significantly different at the 10%, 5%, and 1% level, respectively.

	SPACs that made an acquisition (267)		SPACs that were liquidated (87)		Difference between Approved SPACs and Liquidated SPACs	
	Average	Median	Average	Median	Average	Median
(1) IPO Process						
IPO Price	9.15	10.00	8.37	8.00	0.78***	2.00+++
SPAC size ($m raised)	197.78	143.75	142.11	100.00	55.67***	43.75++
% owned by founders after the IPO	20.33%	20.00%	19.65%	20.00%	0.68%	0.00%
# of Underwriters	2.27	2.00	2.29	2.00	-0.01	0.00
Average Reputation Lead Underwriter	4.24	5.00	2.40	4.00	1.84***	1.00
Warrants per unit	0.87	1.00	1.21	1.00	-0.34***	0.00+++
Warrant Strike Price	9.37	11.50	7.24	6.00	2.13***	5.50+++
(2) SPAC Structure						
# of Promoters	4.95	4.00	3.47	3.00	1.48***	2.00+++
# of Managers	6.25	6.00	6.21	6.00	0.04	0.00
Average team age	51.63	51.92	52.51	52.80	-0.88	-0.88
Management experience	0.40	0.00	0.22	0.00	0.18***	0.00+++
% of IPO proceeds in the trust	98.03%	100.00%	96.42%	98.07%	1.61%	1.93%
% Threshold	74.85%	100.00%	44.40%	30.00%	30.45%***	70.00%+++
% Underwriter fees	6.15%	5.53%	6.74%	7.00%	-0.59%***	-1.48%+++
% Deferred Und. fees	2.83%	3.50%	2.84%	3.00%	-0.01%	0.50%
(3) Acquisition and Target						
Days to announcement	445.97	461.00	518.22	528.00	-72.25***	-67.00+++
Days between announcement and decision date	164.49	137.00	197.66	178.00	-33.17**	-41.00

Table 2 also presents descriptive statistics from both samples of 465 SPACs and 354 SPACs. Considering the former, on average, it takes 414 days to announce a potential acquisition. However, when considering the sample of SPACs that have already completed their lifecycle, on average it takes 464 days to announce a deal and a further 175 days to

---

[33] It also includes SPACs that announced an acquisition but were subsequently liquidated.

complete, reject or withdraw the acquisition.

Of these 354 SPACs, 267 successfully completed an acquisition, and 87 were liquidated. As Table 3 shows, it is possible to point out that the liquidated ones were smaller, raising on average $142 million while the approved ones raised on average $198 million, which goes against what was observed by Jenkinson and Sousa (2011). Additionally, the liquidated SPACs reveal an average reputation lead underwriter of 2.40 and a management experience of 0.22, lower than the approved SPACs, which was 4.24 and 0.40, respectively. Regarding warrant data, it is observable that liquidated SPACs possess more warrants per unit (1.21 vs 0.87) but lower warrant strike prices (7.24$ vs 9.37$). Besides, it is noticeable a difference in the number of promoters and the underwriting fees, being the liquidated SPACs coupled to fewer promoters (3.00 vs 4.95) and higher underwriting fees (6.74% vs 6.15%). Lastly, in the liquidated SPACs, it is also possible to see that the threshold assumes a lower level (44% versus 75%) and that it takes longer to both announce and complete (withdraw) a deal, 518 days versus 446 days and 198 days versus 164 days, respectively. The other variables are very similar across the two groups.

3.2.   Good vs Bad SPACs

As already stated, the acquisition can be approved or the SPAC liquidated, so, from the SPACs that achieved the last stage, it was found that 87 were liquidated while 267 approved an acquisition.

To split into the latter in "Good" and "Bad" SPACs, the Thomson Reuters DataStream was used to obtain the historical prices[34] of all SPACs[35] on the day before the decision date, instead of the exact day of the acquisition, to avoid the price to be already influenced by the decision itself.

Then, the trust value on the day before the decision date was estimated using the following assumptions:

$$Daily\ rate\ (\%) = \left(\frac{S_{LTV}}{S_{TVIPO}}\right)^{1/(LTV\ Date - IPO\ Date)} - 1 \qquad (3.1)$$

---

[34] The historical share price at the decision date of Arya Sciences Acquisition Corporation and Health Science Acquisition were obtained from Yahoo Finance since they were not available at the Thomson Reuters DataStream.

[35] For SPACs that adopt the name of the acquired company after completing the acquisition, we obtained the historical stock prices of the target company, as the original SPAC no longer exists.

$$S_{TVD} = S_{LTV} * (1 + daily\ rate)^{(TVD\ date - LTV\ Date)} \tag{3.2}$$

where S_{LTV} is the last trust value per share available[36] and 'LTV Date' the date the last trust value was available. S_{TVIPO} is the trust value per share at IPO and 'IPO Date' the date of the IPO. Finally, S_{TVD} is the trust value per share on the day before the decision date and 'TVD Date' the day of the acquisition.

Lastly, having all the required data, we applied the Jenkinson and Sousa (2011) rule at the decision date: if the share price is equal to (or slightly below) the trust value per share, the SPAC is considered a value-destroying acquisition (Bad SPAC); if the share price is higher than the trust value, the SPAC is considered value-creating acquisition (Good SPAC).

Therefore, of our sample of 267 SPACs that complete an acquisition, 138 were Good SPACs (52%) and 129 were Bad SPACs (48%). Comparing these values with those of Jenkinson and Sousa (2011) – 47% Good versus 53% Bad –, it can be concluded that this pattern has not changed since then, and that investors continue to not listen to the market and to approve deals that the market consider as value-destroying and so should be rejected.

Table 4 compares the descriptive statistics for both sub-samples. Regarding IPO Price, on average, the Good SPACs exhibit a higher price when compared to Bad SPACS (9.38$ vs. 8.91$). Aside from this, the number of underwriters is similar between both, but the Good ones present an average reputation lead underwriter higher than the Bad ones, i.e., 4.96 and 3.46, respectively. The same is verified in relation to the threshold, with Good SPACs presenting an average of 84% and the Bad SPACs presenting 65%. Concerning warrant data, Good SPACs have fewer warrants per unit (0.80 vs 0.95) but higher warrant strike prices (10.14$ vs 8.52$). In terms of underwriting fees, it is prominent that Good SPACs are associated with lower underwriting fees while Bad SPACs are related to higher underwriting fees (5.96% vs. 6.37%). Furthermore, although not significant, it may be noted that Good SPACs also raised more funds at the IPO (215$ million vs. 180$ million). Regarding the time between phases, albeit insignificant, it is possible to point out that Bad SPACs takes longer to both announce and complete the acquisition, resulting in a difference of about 24 days to announce the deal and further 7 days to complete it, i.e., a total difference of 30 days to complete a deal. The other variables do not reveal significant differences between the two

---

[36] This variable was obtained by dividing the last trust value by the number of shares issued at the IPO, gathered from the IPO prospectus (424B2 form)

groups.

Table 4 – Major characteristics of both Good SPACs and Bad SPACs (2003-2020)

This table reports descriptive statistics for both subsamples of 138 Good SPACs and for the 129 Bad SPACs that completed the acquisition between August 2003 and December 2020. It is also presented the difference between the subsamples, using the t-test for means – *, **, *** indicate that the two subsamples are significantly different at the 10%, 5%, and 1% level, respectively – and using the two sample Wilcoxon rank-sum (Mann-Whitney) test for medians – +, ++, +++ indicate that the two subsamples are significantly different at the 10%, 5%, and 1% level, respectively.

	Good SPACs (138)		BAD SPACs (129)		Difference between Bad and Good SPACs	
	Average	Median	Average	Median	Average	Median
(1) IPO Process						
IPO Price	9.38	10.00	8.91	10.00	0.47***	0.00+++
SPAC size ($m raised)	214.73	173.75	179.65	82.80	35.08	90.95++
% owned by founders after the IPO	20.46%	20.00%	20.20%	20.00%	0.26%	0.00%
# of Underwriters	2.22	2.00	2.33	2.00	0.10	0.00
Average Reputation Lead underwriter	4.96	6.00	3.46	4.00	1.50***	2.00++
Warrants per unit	0.80	0.50	0.95	1.00	-0.15**	-0.50+++
Warrant Strike Price	10.14	11.50	8.52	7.50	1.62***	4.00+++
(2) SPAC Structure						
# of Promoters	4.79	5.00	4.58	4.00	0.21	1.00
# of Managers	6.23	6.00	6.28	6.00	-0.05	0.00
Average team age	51.79	52.13	51.47	51.33	0.32	0.79
Management experience	0.43	0.00	0.37	0.00	0.06	0.00
% of IPO proceeds in the trust	98.59%	100.00%	97.43%	99.68%	1.16%**	0.32%+++
% Threshold	83.89%	100.00%	65.24%	100.00%	18.65%***	0.00%+++
% Underwriter fees	5.96%	5.50%	6.37%	6.25%	-0.41%***	-0.75%+++
% Deferred Underwriting fees	2.89%	3.50%	2.74%	3.40%	0.15%	0.10%+
(3) Acquisition and Target						
Days to announcement	434.14	458.00	458.62	467.00	-24.48	-9.00
Days between announcement and decision date	160.86	128.50	168.38	143.00	-7.52	-14.50

3.3. Hazard Models

Having our sample divided into its possible routes – liquidated SPAC, Bad SPAC, and Good SPAC – we employed survival analysis to examine both the dynamics of the exit options and the influence of some SPAC characteristics on the exit time, under the Giot and Schwienbacher (2007) and in Jenkinson and Sousa (2015) methodology.

Firstly, we start by applying a simple hazard function that is a conditional failure rate model that gives the probability of the event occurring during any given time point. To delve into the probability that the SPAC does experience a given exit when depending on (1) the expected Time to Target Announcement, and (2) the expected Time to Decision/Approval, we considered the following formula for each specific time (Jenkinson and Sousa, 2015):

$$h(t) = \lim_{\Delta t \to 0} \left(\frac{\Pr(t \leq T < t + \Delta t | T \geq t)}{\Delta t} \right) = \frac{f(t)}{S(t)} = -\frac{S\prime(t)}{S(t)} \tag{3.3}$$

where $h(t)$ is the expected hazard at time t, $S(t) = Pr\ (T > t = 1 - F(t)$ is the survivor function, $F(t) = Pr\ (T \leq t)$ is the exit time distribution function, and $f(t) = dF(t)/dt$ is the density function of exit time distribution.

Secondly, to extend this analysis, we use a Cox Proportional hazard model by inserting some control variables:

$$h(t) = h_0(t). e^{\beta_0 + \beta_1 X_1 + \beta_2 X_2 \dots + \beta_k X_k} \tag{3.4}$$

where $h_0(t)$ is the baseline hazard and $X_1, X_2 \dots X_k$ the explanatory variables: SPAC Size; percentage owned by the founders after the IPO; the number of underwriters; average reputation lead underwriter; the number of managers and promoters; average team age; management experience; IPO Proceeds put in the trust; threshold; and underwriting fees. The results are presented in section 4.2.

3.4. Logistic Models

To analyze the success factors for Good SPACs, we applied two logistic regressions: (i) similar to previous studies we use SPACs approval as a dependent variable, which will assume 0 if the acquisition is liquidated and 1 if the acquisition is approved; (ii) using SPACs classification as a dependent variable, which will assume 0 if the SPAC either completed a value-destroying deal (Bad SPAC) or if it was liquidated and 1 if the SPACs completed a value-creating deal (Good SPAC):

$$y_i = x_i\beta_i + w_i\delta_i + z_i\varphi_i + \mu_i \tag{3.5}$$

where x_i is the IPO Process Data, which includes the SPAC size, the percentage of shares owned by founders after the IPO, the number of underwriters, and the average reputation lead underwriter; w_i is the SPAC Structure Data, including the number of promoters and

managers, the average team age, the management experience, the percentage of IPO proceeds put in the trust, the threshold, the non-deferred underwriting fees and the deferred underwriting fees; and z_i is the merger and target data, which includes the days to announce an acquisition and the days between announcement and decision date. The results are presented in the section 4.3.

4. Empirical Results and Discussion

4.1. Post-Acquisition Returns (Good SPACs vs. Bad SPACs)

Employing an event study methodology, for the approved SPACs with at least 26 weeks of data available (223 SPACs), we computed the post-acquisition returns for all of them and for each of the groups "Good" (103 SPACs) and "Bad" deals (120 SPACs). Contrary to the negative post-acquisition performance of around -20% reported in the literature from 2003 to 2015 (Dimitrova, 2017; Jenkinson & Sousa, 2011; Kolb & Tykvová, 2016; Lakicevic & Vulanovic, 2013), for the all sample of SPACs that completed an acquisition, on average we find a positive cumulative return (CR) of around 5% up to six months after the acquisition (Figure 1). However, when we look at the returns of the different SPACs groups, a notable difference is found between the two, with Good SPACs showing a 15% average cumulative return after six months of the acquisition (26 weeks), while Bad SPACs display a -5% return, which results in a spread between both of around 20%.

Figure 1 – Cumulative Returns 26 Weeks After Acquisition (2003-2020)

This figure represents the average cumulative weekly returns for the 223 SPACs that completed an acquisition between August 2003 and December 2020, of which 103 are considered Good SPACs and 120 are considered Bad SPACs. The returns were computed since date 0, which refers to the decision date, to 26 weeks after the acquisition is completed.
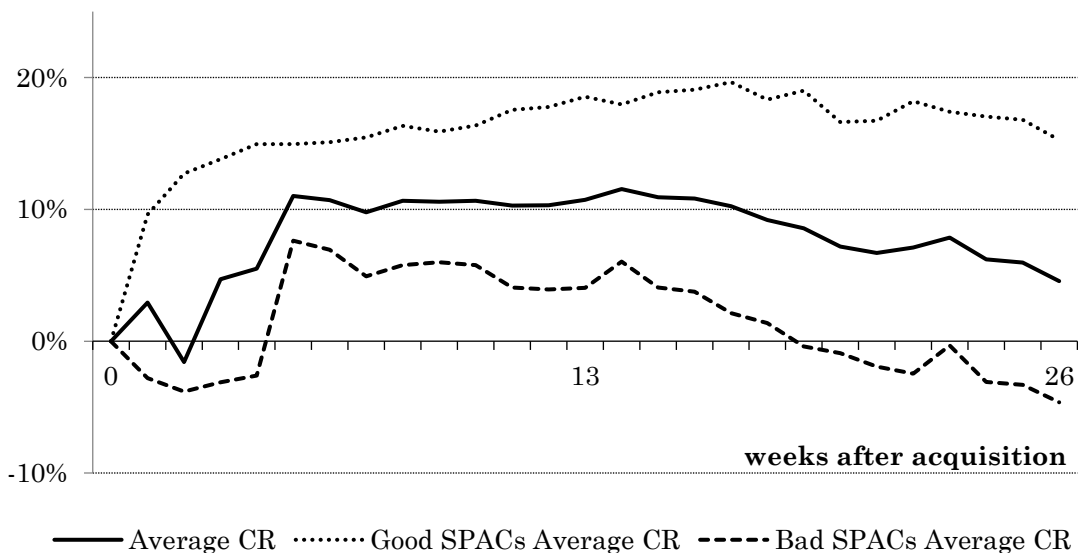
If we consider a period of one year (52 weeks) after the acquisition, on average, a negative return of around -1% is found. Nonetheless, for the 190 SPACs that completed a deal, the disparity between groups is more pronounced, since the 80 Good SPACs show a return of around 18% and the 110 Bad SPACs of -15%, causing a significant differential of 33% (Figure 2).

Figure 2 – Cumulative Returns After 52 Weeks After Acquisition (2003-2020)

This figure represents the average cumulative weekly returns for the 190 SPACs that completed an acquisition between August 2003 and June 2020, of which 80 are considered Good SPACs and 110 are considered Bad SPACs. The returns were computed since date 0, which refers to the decision date, to 52 weeks after the acquisition is completed.
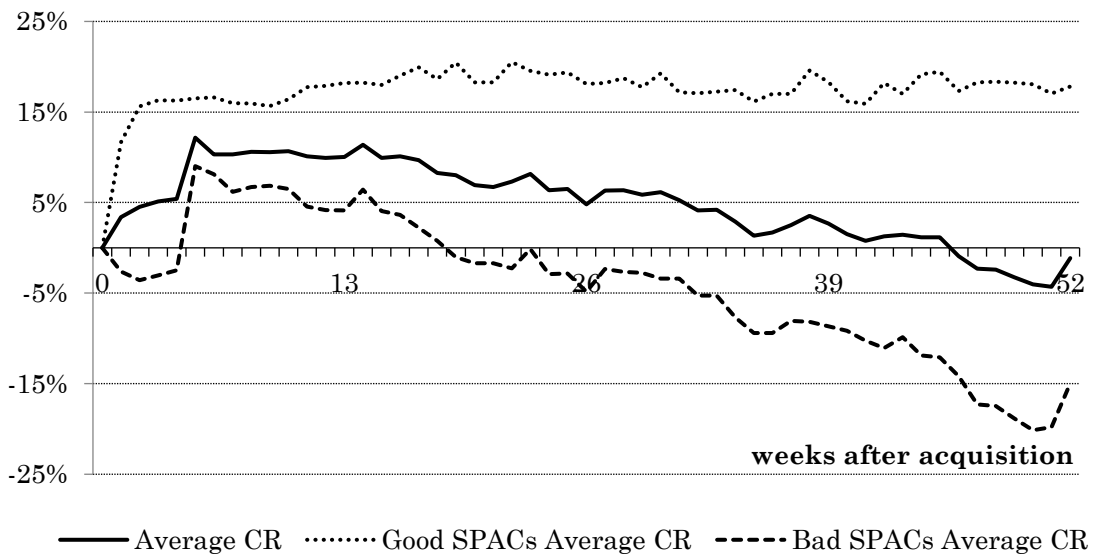
Furthermore, applying the single-factor capital asset pricing model (CAPM), we also computed the cumulative abnormal returns (CARs), using the Russell 1000 as a market index and considering the market model to estimate the SPACs expected returns (betas equal to 1 and alfas equal to zero). The results of the CARs are identical to the CRs, but with Good SPACs displaying fewer positive returns, reaching at 26 weeks 8%, and with Bad SPACs achieving more striking negative returns of -10% (Table 5). Additionally, when considering 52 weeks after the acquisition, the same occurs, with the Good SPACs and Bad SPACs displaying returns of 9% and -22%, respectively, resulting in a significant differential of around 31% (Table 6).

Table 5 – Post-Acquisition Returns of Good and Bad SPACs at 4, 13, and 26 weeks (2003-2020)

This table reports both the cumulative returns and the cumulative abnormal returns of the 103 Good SPACs and 120 SPACs at 4, 13, and 26 weeks after the decision date. Panel A presents the cumulative returns for both Good and Bad SPACs, as well as the difference between the two. Panel B presents the cumulative abnormal returns (CARs) computed based on the CAPM model with betas equal to the unity. Using a t-test for means we do ***, **, and * indicating statistical significance at the 1%, 5%, and 10% levels, respectively. Using the two sample Wilcoxon rank-sum (Mann-Whitney) test for medians we do +++, ++, + indicating statistical significance at the 1%, 5%, and 10% levels, respectively.

		Cumulative Returns (26 Weeks)						
	A.1. Good SPACs			**A.2. Bad SPACs**			**A.3. Difference between Good and Bad SPACs**	
Weeks after acquisition	N	Average	Median	N	Average	Median	Average	Median
4	103	14.94%	-2.24%	120	-2.60%	-1.28%	17.54%**	-0.96%
13	103	18.53%	0.00%	120	4.03%	-4.63%	14.50%*	4.63%++
26	103	15.26%	0.00%	120	-4.64%	-10.51%	19.90%*	10.51%+++
		Cumulative Average Returns ($\beta=1$)						
	B.1. Good SPACs			**B.2. Bad SPACs**			**B.3. Difference between Good and Bad SPACs**	
Weeks after acquisition	N	Average	Median	N	Average	Median	Average	Median
4	103	13.98%	-2.95%	120	-3.50%	-4.83%	17.48%**	1.88%
13	103	14.90%	-2.10%	120	1.49%	-8.77%	13.42%*	6.68%+++
26	103	8.04%	-6.39%	120	-9.84%	-17.53%	17.88%*	11.14%+++

Take this into consideration, despite the positive post-acquisition performance of all approved SPACs, it is evident that the shareholders continue to approve acquisitions that the market has assessed *ex-ante* as value-destroying acquisitions (and confirmed *ex-post*), as demonstrated in the study of Jenkinson and Sousa (2011). Indeed, the difference found between the returns of Good and Bad SPACs is remarkable, suggesting that "SPACs investors should listen to the market"(Jenkinson & Sousa, 2011) what clearly they have not being doing it.

Table 6 – Post-Acquisition Returns of Good and Bad SPACs at 4, 13, 26, and 52 weeks (2003-2020).

This table reports both the cumulative returns and the cumulative abnormal returns of the 80 Good SPACs and 110 SPACs at 4, 13, 26, and 52 weeks after the decision date. Panel A presents the cumulative returns for both Good and Bad SPACs, as well as the difference between the two. Panel B presents the cumulative abnormal returns (CARs) computed based on the CAPM model with betas equal to the unity. Using a t-test for means we do ***, **, and * indicating statistical significance at the 1%, 5%, and 10% levels, respectively. Using the two sample Wilcoxon rank-sum (Mann-Whitney) test for medians we do +++, ++, + indicating statistical significance at the 1%, 5%, and 10% levels, respectively.

		Cumulative Returns (52 Weeks)						
		A.1. Good SPACs			A.2. Bad SPACs		A.3. Difference between Good and Bad SPACs	
Weeks after acquisition	N	Average	Median	N	Average	Median	Average	Median
4	80	16.24%	-2.26%	110	-2.48%	-1.19%	18.72%*	-1.07%
13	80	18.19%	-1.64%	110	4.13%	-4.63%	14.06%	2.99%++
26	80	18.09%	0.00%	110	-4.85%	-11.58%	22.94%*	11.58%+++
52	80	17.83%	0.00%	110	-14.94%	-17.56%	32.77%**	17.56%+++
		Cumulative Average Returns (β=1)						
		B.1. Good SPACs			B.2. Bad SPACs		B.3. Difference between Good and Bad SPACs	
Weeks after acquisition	N	Average	Median	N	Average	Median	Average	Median
4	80	15.71%	-3.09%	120	-3.13%	-4.03%	18.84%**	0.95%
13	80	15.93%	-2.92%	120	2.22%	-8.77%	13.71%	5.85%++
26	80	13.27%	-3.80%	120	-9.13%	-17.53%	22.40%*	13.73%+++
52	80	9.27%	-11.25%	120	-21.87%	-27.67%	31.13%*	16.42%+++

4.2. Hazard Functions Results

In order to understand the different dynamics between a liquidated SPAC and a SPAC that approve an acquisition (either a value-creating – Good SPAC – and value-destroying – Bad SAPC), as mentioned in section 3, we applied a survival analysis similar to that used in Giot and Schwienbacher (2007) and in Jenkinson and Sousa (2015), as function of (1) the expected Time to Target Announcement (Figure 3); and (2) the expected Time to Decision/Approval (Figure 4), being the time variable in days.

Firstly, when depending on the time to announcement, the exit probabilities are quite similar for the first 600 days. However, since that point, the probability of a liquidated SPAC to announce an acquisition increase, with Good SPACs becoming the less likely to announce an early deal. After that, the likelihood of announcement in the liquidated SPACs drops sharply, with Bad SPACs becoming the most likely to announce an acquisition, at least until the 750 days' time. So, it is observable that the announcement of a deal that is later rejected

tends to occur earlier in the SPAC life than the announcement of a (later) approved deal. The figure also suggests that value-creating deals tend to be announced later than value-destroying deals.

Figure 3 – Hazard Functions by exit (Time to Announcement)

This figure shows the hazard functions for the Liquidated, Good and Bad SPACs exits. The dependent variable is the expected time to target announcement. The hazard function gives the probability of exit given the acquisition has not been announced at that specific time.
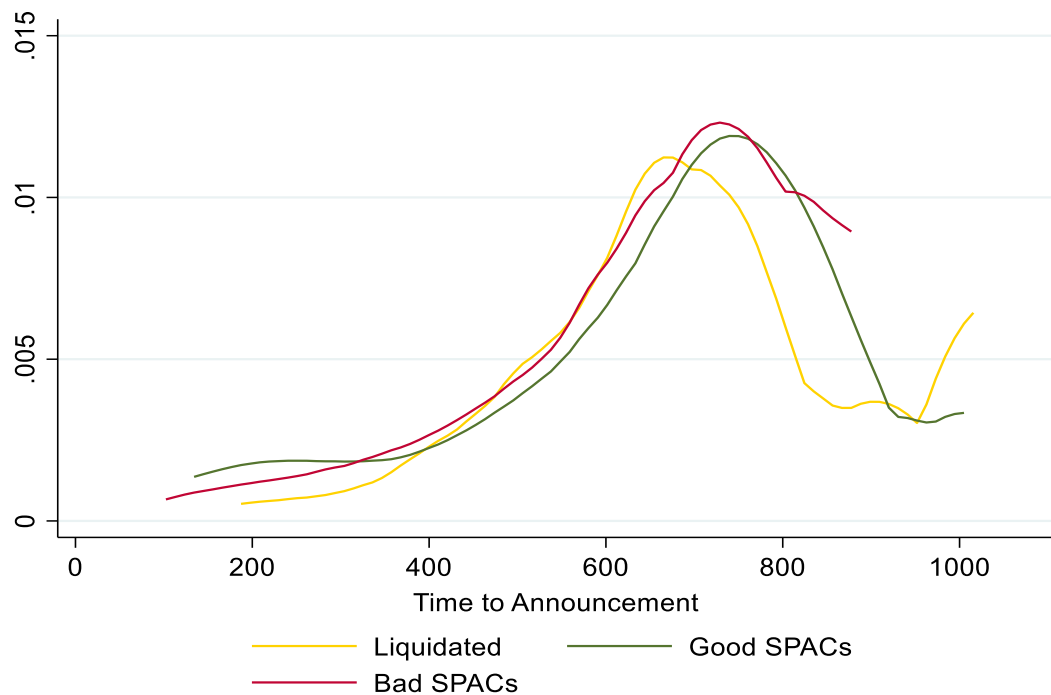
When analyzing the time to decision date, i.e., the time between IPO and the consummation date of the acquisition, the results are similar as the decision to liquidate a SPAC occurs earlier than the decision to approve an acquisition and that Good SPACs tend to decide to approve an acquisition later than Bad SPACs. This result is a little bit counter-intuitive since Bad SPACs theoretically would need more time to negotiate with investors, as the market is valuing shares below the trust value, but at same time could just be that managers used more time to try to improve negotiate terms to convince the investor to approve (now) a good deal.

Figure 4 – Hazard Functions by exit (Time to Decision).

This figure shows the hazard functions for the Liquidated, Good and Bad SPACs exits. The dependent variable is the expected time to decision date, i.e., expected time between the IPO and decision date. The hazard function gives the probability of exit given the acquisition has not been completed at that specific time.
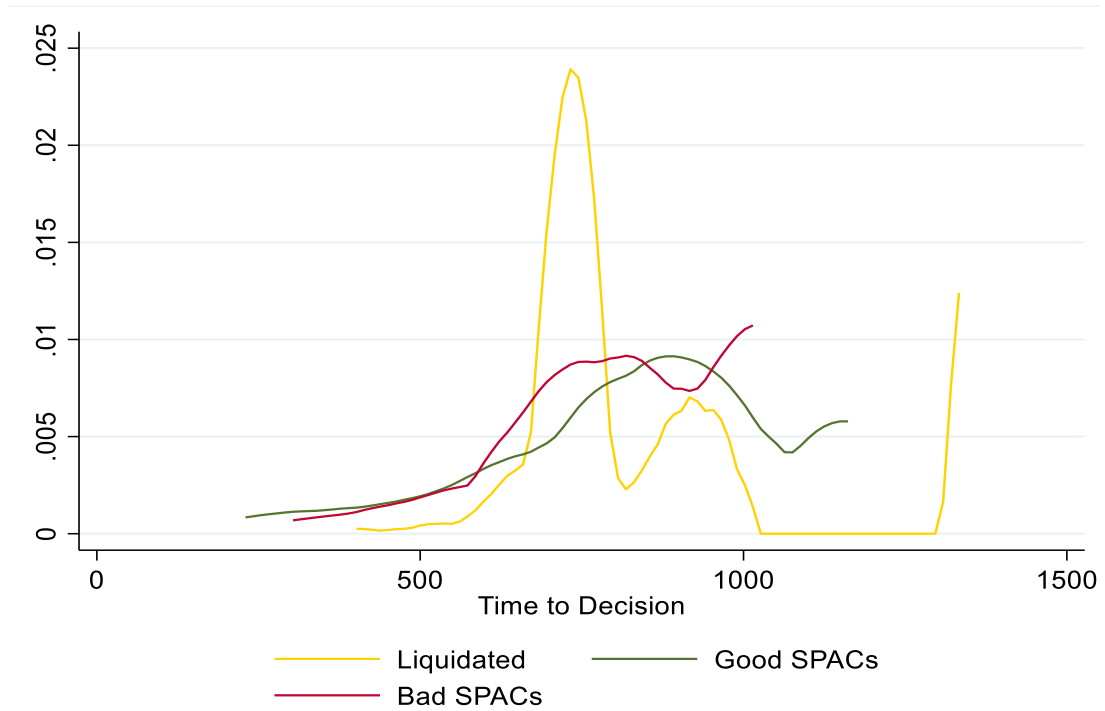
To investigate if there are factors that may influence the expected times mentioned above, we apply a Cox Proportional hazard model (see Giot and Schwienbacher (2007)), introducing several (potential) explanatory variables. The results can be found in Table 7, showing that larger SPACs tend to announce a value-creating deal earlier, which may suggest that having more funds available could accelerate the process of making a Good deal.

Moreover, both the number of promoters and the percentage owned by founders (managers) after the IPO have some influence on the expected time to target announcement as well as on the expected time to decision date. We find that SPACs with more promoters take less time to both announce and complete a deal. However, the liquidation of a SPAC is more likely to occur earlier as higher is the number of promoters). Similarly, it is observable that SPACs with a higher percentage owned by founders after the IPO tend to be quicker to announce a liquidation. These findings may suggest that, as both promoters and founders (which most of the time are the same individuals or companies) have their own capital invested in the SPAC to finance its activities, they might be interested to rush the liquidation

to invest their capital in other business opportunities. However, we also find that the percentage owned by founders decreases the expected time to announce a Bad acquisition but increases the expected time to make a Good acquisition. So clearly managers when have more money invested in a SPAC, want to spend less time negotiating bad deals, maybe because the deal is expected to be rejected (some of them are, but others, contrary to the market "opinion", are approved and become Bad SPACs) nonetheless they are willing to delay the consummation of a good deal, maybe in order to negotiate better terms.

Table 7 – Cox proportional hazard model.

The table reports the estimated coefficients of the Cox proportional hazard model for all and each of the exits (Liquidated SPAC, Good SPAC, and Bad SPAC) in order to analyze the influence of some characteristics on the expected time of the target announcement and on the expected time to decision. The sample covers the 354 SPACs that already completed their life cycle (87 liquidated, 138 Good, and 129 Bad). However, we could not get data for all the control variables regarding one SPAC, so it was excluded. Exit year fixed effects are included. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Variables	Time to Target Announcement				Time To Decision			
	All	Liquidated	Good	Bad	All	Liquidated	Good	Bad
(1) IPO Process								
Size ($million)	0.001	0.000	0.001*	-0.001	0.000	-0.001	0.001	-0.001
% Founders	2.232	6.791*	-0.814	6.347*	-0.397	-1.826	-6.344**	0.380
# Underwriters	-0.048	0.110	-0.043	-0.005	-0.089*	0.172	-0.137	-0.097
Av. Rep LUnd.	-0.007	-0.031	0.015	-0.011	0.002	-0.016	0.010	-0.018
(2) SPAC Structure								
# Promoters	0.032*	0.184**	-0.007	-0.017	0.049**	0.050	0.011	0.015
# Managers	0.023	0.112	0.018	0.015	0.048	0.079	0.082	-0.029
Av. Team Age	-0.012	0.015	-0.034**	0.023	-0.001	0.045*	-0.025	0.004
Mng Exp.	0.167	-0.761*	0.266	0.290	0.173	-0.813**	0.154	0.386*
% Trust	2.900	-3.058	2.644	12.637***	1.358	1.297	-2.512	9.293**
% Threshold	2.259	-1.074	-4.165	2.713	3.352**	1.523	4.850*	9.381**
% Und.fees	-3.331	-18.911	-13.337	8.437	-10.225	2.554	-38.650***	32.721**
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	353	87	137	129	353	87	137	129
LR Chi^2	107.89***	94.5***	36.42*	70.1***	88.75***	52.56***	52.75***	62.23***

The hazard models indicate that SPACs with more underwriters take more time to announce a deal in general and that SPACs paying higher underwriting fees tend to complete a Bad acquisition earlier in the life of a SPAC but a Good acquisition later.

Moreover, it can be seen that SPACs with older managers take more time to announce a Good acquisition but tend to be quicker to liquidate a SPAC. We also find that more

experienced managers may lead to a later liquidation, but, otherwise, may speed up the consummation of a Bad acquisition. Regarding trust value, it is noticeable that SPACs with higher trust proportions tend to announce and complete a deal faster. Lastly, we note that SPACs with a higher threshold find an exit earlier, especially when it comes to an acquisition, even if it is Good or Bad, which would be expected since a higher threshold is naturally associated with a higher probability of completing an acquisition.

4.3. Logit Regressions Results

As already mentioned in section 3, to analyze the success factors for Good SPACs, we applied two logistic regressions: (i) Liquidated SPACs versus Approved SPACs, and (ii) Good SPACs versus Bad and Liquidated SPACs.

4.3.1. Liquidated SPACs versus Approved SPACs

The sample includes 353 companies with complete data. The model was estimated using different sets of exogenous variables. The results are shown in Table 8 and Model 1 presents the estimation results when only variables known before the IPO are used as exogenous variables. Model 2 includes additionally the variables "% IPO Proceeds in the Trust" and "% by founders after the IPO" that are known just after the IPO, while Model 3 includes all exogenous variables presented before.

The results in Model 1, using the IPO *ex-ante* variables, suggest that the number of promoters and the threshold, impact positively the merger outcomes.

As expected, we find that an increase in the number of promoters increases the probability of the SPAC proposed acquisition to be approved. Promoters, usually individuals or companies with a good reputation, that most of the time comprise the management team, are responsible to manage and publicize the SPAC, providing the starting capital for the company and benefiting from "promote shares"[37].

---

[37] The promoters will purchase shares prior to the SPAC filling, by a nominal amount of cash, that usually will represent around 20% of the SPAC shares after the completion of the IPO, including the exercise of green shoe options. These shares are referred as the "promote shares".

See https://corpgov.law.harvard.edu/2018/07/06/special-purpose-acquisition-companies-an-introduction/.

Table 8 – Liquidated vs Approved SPACs logit regression analysis results.

The dependent variable is the SPAC Approval which takes a value of 0 if the SPAC is liquidated and 1 if is approved. In Specification 1, we do not control for year fixed effects; in Specification 2, we do. In Specification 1 the sample covers 353[38], however, in Specification 2 the sample covers 329 since in 2003, 2009, and 2020 there were no liquidated SPACs. In Model 1 only IPO *ex-ante* variables are presented. In Model 2 both IPO *ex-ante* and *ex-post* variables are presented. In Model 3 all the fourteen variables are presented. *, **, *** indicate significance level at 10%, 5% and 1%, respectively.

Variables	Model 1		Model 2		Model 3	
	Specification 1	Specification 2	Specification 1	Specification 2	Specification 1	Specification 2
IPO Process						
(1) SPAC Size					0.0019 **	0.0009
(2) % by founders after the IPO			3.7113	3.1848	3.6726	3.4869
(3) #Underwriters	0.0908	0.0713	0.1014	0.0692	0.1316	0.1185
(4) Average Reputation Lead Underwriter	-0.0154	-0.0256	-0.0172	-0.0278	-0.0192	-0.0290
SPAC Structure						
(5) #Promoters	0.1118**	0.0731	0.1148	0.0765	0.0987*	0.0693
(6) # Managers	-0.0210	-0.0026	-0.0392	-0.0172	-0.0865	-0.0369
(7) Average Team Age	-0.0335	-0.0318	-0.0310	-0.0294	-0.0359	-0.0332
(8) Management Experience	0.5359 **	0.8127**	0.5720*	0.8337**	0.3882	0.7138**
(10) % Threshold	3.1106***	-1.6901	3.0397***	-1.9607	3.2886***	-2.0188
(11) Non-Deferred Underwriting Fees	18.1965	8.1808	26.2188*	12.3001	36.0569**	19.0992
(12) Deferred Underwriting Fees	-16.2950	-20.2526	-20.2948	-20.6461	-13.0179	-15.1766
(9) % IPO Proceeds in the Trust			5.9899	4.5368	6.1106*	4.40603
Acquisition and Target						
(13) Days to Announcement					-0.0031 ***	-0.0029***
(14) Days Between Announcement and Decision Date					-0.0021*	-0.0023
(15) Constant	0.1586	6.6111	-6.6045	1.5822	-5.2421	2.9807
Year fixed effects	No	Yes	No	Yes	No	Yes
Pseudo R2	0.1702	0.2515	17.80%	25.63%	22.15%	27.99%
LR-Ratio	67.09 ***	95.6***	70.17***	97.41***	87.32***	106.39***
Number of observations	353	329	353	329	353	329

---

[38] Of the 354 SPACs that completed its cycle, one was excluded, as it did not contain data for all the explanatory variables.

Therefore, a higher number of promoters may suggest a higher incentive to close an acquisition, which might signal a greater collective effort to obtain both merger outcomes and the management compensation, while maintaining their good reputation. However, this positive relationship does not imply that the completed acquisitions are seen by the market as value-creating (Good SPACs).

Regarding threshold, a positive relationship would be expected in advance, since it is associated to a greater likelihood of approval by nature, as it allows more investors to redeem their shares, lowering barriers to the merger approval. In this sense, we find that a higher threshold is associated to a higher acquisition probability. Although when year-fixed effects are included, the coefficient associated to this variable loses statistically significance, which can be justified by the time nature of the variable, since it is only a feature of more recent SPACs.

Nonetheless, the most impactful variable in this regression is the management experience. Jog and Sun (2007) note that, at the time of the IPO, investors only know the management team identity and its previous track records, placing their "faith in management". Based on that, we clearly expect to find a positive sign for management experience. According to the results, it is observable that this variable increases the probability of a SPAC approval, in both models, being the main variable character to be considered by investors when deciding to invest in a SPAC IPO.

Concerning Model 2 (that also includes variables only known just after the IPO) we continue to find a positive significant impact of management experience and threshold. Apart from that, we find a positive influence of the non-deferred component of underwriting fees suggesting that SPACs with higher non-deferred underwriting fees may be associated to a higher acquisition likelihood, at the time of the IPO. However, we would expect a negative relationship considering the SPAC perverse incentive structure. Over the years, roughly around 2005, SPACs began to be designed with two underwriting fees components: (1) the non-deferred portion, awarded right after the IPO completion, and (2) the deferred portion, awarded only if an acquisition was accomplished. Furthermore, with this new design, underwriters have also started to take an active role in the search for potential targets. Based on that, we thought that lower non-deferred fees, and consequently higher deferred fees, could lead to greater pressure for the underwriters to find a suitable target and receive their underwriting fee. However, surprisingly, we find the opposite in Specification 1.

Model 3 shows the results for the logit regression with all fourteen explanatory variables, to analyze the success factors for acquisition approvals. Following the arguments and findings of the literature, we would expect a negative relationship between the SPAC Size and the acquisition approval. Lakicevic and Vulanovic (2011) found a significant negative impact of this variable in the SPAC approval probability, arguing that larger SPACs have more difficulties finding the proper business combination. Apart from that, if managers purchase shares around the shareholder vote to get enough votes to approve the acquisition (Jenkinson and Sousa, 2011), Cumming et al. (2014) argue strongly that the IPO size could reduce this effect due to SPAC manager's capital constraints, albeit they found no evidence to support it. On the other hand, it should be noted that, in their paper, these authors also presented the rationale that larger SPACs are associated with a less concentrated shareholder structure, which may lead to a lower control by the active investors – hedge funds and private equity firms – due to budget limitations, "keeping these classic no-voters away from the decision table". In this study, we find a significant positive relationship between the SPAC size and SPAC approval what contradicts our prior beliefs, while supporting the possible explanation presented by Cumming et al. (2014). However, this result may simply suggest that larger SPACs can easily found a suitable target to acquire, as they have more funds available and consequently fewer financial limitations.

Besides this, we find a significant impact of the percent of IPO proceeds held in trust. On the on hand, the amount of the net IPO proceeds put in the trust offers protection to the investment, giving to the investors more assurance that the capital will be used to increase the shareholder value, while offering sufficient financial to carry out a business combination (Boyer & Baigent, 2008; Nilsson, 2018). On the other hand, a higher trust value means a higher opportunity cost of not redeeming the shares, when comparing to the merger proposal (Cumming et. al, 2014). Moreover, according to Murray (2011) and Jenkinson and Sousa (2011), the stockholders are aware that the business combination should not be approved unless its value is greater than the SPACs' liquidation value. So, we do not have previous clear expectations about the impact of this variable. Looking at the regression results, we find that a higher percent in trust is associated to a higher probability of SPAC approval, which comes to support the first statement.

This regression also shows that the number of promoters, the management experience and the threshold have a positive impact on the SPAC approval likelihood, which enhances the findings presented above.

Regarding acquisition and target data, our estimations confirm a statistically significant impact of time to announcement in merger outcomes. Precedingly, due structural reasons, we would expect a negative impact of the time to announcement, given the severe time pressure under management to make an acquisition, allied to the fact that more announcement days could imply less time to promote and conduct the merger. As expected, we find a negative relationship between the time to announcement and the acquisition approval. Along with that, we also find that a longer time between the announcement and the decision date decreases the acquisition approval likelihood when should be expected a positive relationship since it would mean more time to promote the deal. Therefore, this result may suggest that a longer time between announcement and approval could exposes the deal to a higher market risk (Berger, 2008).

After all, considering the regulatory changes in SPACs mentioned throughout this dissertation[39], namely the threshold and the underwriting fees, we decided to run similar logistic regressions only for recently SPACs, in order to discern if there is any significant impact of these changes (Table 9). It is noteworthy that threshold and non-deferred underwriting fees lose their effect in newly SPACs, in the three models. Indeed, regarding threshold, since 2011 it no longer appears in the regression once it always assumes a value of 100%. Thus, it is evident that both variables are no longer important factors to consider when deciding invest in a SPAC.

In fact, looking at the model, it is observable that, in newly SPACs, only management experience and time to announcement continue to have an impact on the SPAC approval probability. And the coefficient associated to the time to announcement loses its statistical significance once we control for year-fixed effects.

---

[39] Roughly around 2005, SPACs began to be designed with two underwriting fees components: (1) the non-deferred portion, awarded right after the IPO completion, and (2) the deferred portion, awarded only if an acquisition was accomplished. Around 2009/2010 a "tender offer" regulation was introduced, increasing both the deal rejection and threshold to 88% or even more (Usha Rodrigues & Stegemoller, 2011).

Table 9 – Liquidated vs Approved SPACs logit regression analysis results (after 2010).

The dependent variable is the SPAC Approval which takes a value of 0 if the SPAC is liquidated and 1 if is approved. In this regression, only SPACs after 2010 are considered. In Specification 1, we do not control for year fixed effects; in Specification 2, we do. In Specification 1 the sample covers 192, however, in Specification 2 the sample covers 170 since in 2020 there were no liquidated SPACs. In Model 1 only IPO *ex-ante* variables are presented. In Model 2 both IPO *ex-ante* and *ex-post* variables are presented. In Model 3 all the fourteen variables are presented. *, **, *** indicate significance level at 10%, 5% and 1%, respectively.

Variables	Model 1		Model 2		Model 3	
	Specification 1	Specification 2	Specification 1	Specification 2	Specification 1	Specification 2
IPO Process						
(1) SPAC Size					0.0030	0.0018
(2) % by founders after the IPO			-7.2373	-4.5251	-5.0178	-3.1799
(3)#Underwriters	0.1822	0.1024	0.1980	0.1252	0.2757	0.3428
(4) Average Reputation Lead Underwriter	-0.1296	-0.0959	-0.1318	-0.1126	-0.2343	-0.1975
SPAC Structure						
(5) #Promoters	0.0979	0.0712	0.0912	0.0796	0.0516	0.0258
(6) # Managers	0.1234	-0.0139	0.1092	0.0143	-0.0092	-0.0071
(7) Average Team Age	-0.0212	-0.0340	-0.0278	-0.0341	-0.0212	-0.0267
(8) Management Experience	0.8625	1.2938*	0.9791*	1.1988*	0.7308	1.2665*
(9) % Threshold	-	-	-	-	-	-
(10) Non-Deferred Underwriting Fees	-31.9315	40.0780	-33.9851	28.5600	1.2258	23.8131
(11) Deferred Underwriting Fees	-21.8822	-80.8738	-37.4740	-88.5529	-35.3157	-68.2541
(12) % IPO Proceeds in the Trust			6.2297	-4.1417	6.7837	-1.0391
Acquisition and Target						
(13) Days to Announcement					-0.0032**	-0.0029
(14) Days Between Announcement and Decision Date					-0.0038	-0.0046
(15) Constant	3.7592	6.9000	0.0513	12.3236	1.0132	9.9994
Year fixed effects	No	Yes	No	Yes	No	Yes
Pseudo R2	5.84%	21.24%	6.83%	21.55%	14.97%	25.44%
LR-Ratio	6.97	24.39*	8.16*	24.76	0.162	29.22*
Number of observations	192	170	192	170	192	170

4.3.2.   Good SPACs versus Bad and Liquidated SPACs Regression

To learn what separates the good (wheat) and bad investment (chaff), we use a sample that includes 353 companies that complete the cycle. As devoted in the previous section, we follow a similar approach, inserting first the variables known before the IPO, following by the variables known just after the IPO, before presenting the full model (Table 10).

Concerning Model 1, considering as exogenous only the variables known before the IPO, we find a significant effect on management experience, deferred underwriting fees, and threshold on the approval of a Good acquisition.

 According to the literature on mergers and acquisitions, management experience can be beneficial to find and acquire a valuable company (Field & Mkrtchyan, 2017; Meyer-Doyle, 2012). Indeed, some studies report that the number of the previous acquisition involvements by management may play an important role in the subsequent acquisition performance (Haleblian & Finkelstein, 1999; Stuart & Abetti, 1990). Considering this and following the rationale of Heyman (2007, p. 544) that in a SPAC "investors are betting on the quality of the management" and pondering the findings of Kim (2009), we clearly expect a positive relationship between management experience and the success of a Good SPAC. In fact, we actually find a positive influence of management experience on Good acquisitions approval odds, which comes both to confirm our expectations and to contradict the Cumming et al. (2014) findings.

Given the perverse incentive structure in which the SPACs are built, we would expect that deferred underwriting fees, only paid upon approval of a business combination, would suggest a high interest by underwriters to complete a deal, regardless its quality. As expected, we find a negative significant impact of this variable.

Respecting the threshold, we expect a further negative sign. As already mentioned, by nature, a higher threshold is associated to a higher approval probability, since more shareholders have the possibility to redeem their investments, without conditioning the approval of the merger. Therefore, we argue that this mechanism ultimately leads to an easier approval of a bad deal, even when the market says to reject, taking the shareholders one more opportunity to vote. However, the results suggest that a higher threshold may increase the probability of a good acquisition completion, in Specification 1, refuting our expectations.

Table 10 – Good vs Bad and Liquidated SPACs Logit regression analysis results.

The dependent variable is the SPAC Classification which takes a value of 0 if the SPAC is either Bad or Liquidated and 1 if is Good. In Specification 1 the sample covers 353, however, in Specification 2 the sample covers 351 since in 2003 and 2009 there were only Good SPACs. In Specification 1, we do not control for year fixed effects; in Specification 2, we do. In Model 1 only IPO *ex-ante* variables are presented. In Model 2 both IPO *ex-ante* and *ex-post* variables are presented. In Model 3 all the fourteen variables are presented. *, **, *** indicate significance level at 10%, 5% and 1%, respectively.

Variables	Model 1		Model 2		Model 3	
	Specification 1	Specification 2	Specification 1	Specification 2	Specification 1	Specification 2
IPO Process						
(1) SPAC Size					0.0016**	0.0001
(2) % by founders after the IPO			0.0034	1.3997	0.6559	0.3630
(3) #Underwriters	-0.0024	-0.1122	-0.0028	-0.1128	-0.0093	-0.1289
(4) Average Reputation Lead Underwriter	-0.0111	-0.0319	-0.0082	-0.0290	-0.0177	-0.0245
SPAC Structure						
(5) #Promoters	0.0218	-0.0404	0.0187	-0.0398	0.0063	-0.0265
(6) # Managers	-0.0614	-0.0586	-0.0721	-0.0656	-0.0943	-0.0619
(7) Average Team Age	-0.0080	-0.0003	-0.0081	0.0013	-0.0109	0.0008
(8) Management Experience	0.2036	0.5041*	0.2434	0.5261*	0.1442	0.5987**
(9) % Threshold	3.0532***	8.9644	2.9911***	8.2578	3.3041***	9.2282*
(10) Non-Deferred Underwriting Fees	14.0988	-9.2136	21.3586*	-3.4299	26.2482*	-8.2207
(11) Deferred Underwriting Fees	-15.5032	-34.1130*	-17.5334	-32.5758	-17.7156	-37.7454*
(12) % IPO Proceeds in the Trust			5.6723	5.0685	5.6377	4.9925
Acquisition and Target						
(13) Days to announcement					-0.0013**	0.0005
(14) Days Between Announcement and Decision Date					0.0005	0.0027*
(15) Constant	-2.0049	-4.8866	-7.641323	-9.7809	-7.4752	-10.6804
Year fixed effects	No	Yes	No	Yes	No	Yes
Pseudo R2	12.05%	28.50%	12.52%	28.70%	14.74%	29.36%
LR-Ratio	56.8***	133.33***	59.05***	134.26***	69.52***	137.31***
Number of observations	353	351	353	351	353	351

When the IPO *ex-post* variables are inserted (Model 2) we continue to find a positive impact of both management experience and threshold. Apart from that, we also find a positive influence of the non-deferred component of underwriting fees, in Specification 1, as expected, given that non-deferred fees imply higher deferred fees. Nonetheless, when looking at Specification 2, the coefficient associated to this variable becomes irrelevant.

Table 10, Model 3, reports the results for the logit model to comprehensively analyze the success determinants associated to the approval of a Good acquisition.

As mentioned in the previous section, according to Jenkinson and Sousa (2011), managers tend to purchase shares around the decision date to get enough votes to approve the acquisition (a possible explanation presented in their paper for bad deals approvals). Considering this, following the rationale of Cumming et. al (2014), larger SPACs could limit these purchases due manager's capital constraints so we would expect a positive relationship between the SPAC Size and the SPAC success likelihood. In fact, we find a positive sign in Specification 1, which supports our expectations. Nevertheless, as presented in the earlier regression, this result may simply suggest that larger SPACs are more able to find valuable companies, once they have the necessary financials to pursue with the business combination.

Furthermore, the management experience and threshold continue to have a significant positive impact on the likelihood of a value-creating acquisition when all the variables are considered. Apart from that, in this model, we also find a significant effect from both the non-deferred (positive) and deferred (negative) underwriting fees, which confirms our expectations that the deferred fees encourage the underwriters to pitch deals, even when they are of poor quality.

Regarding acquisition and target data, we find a significant influence of both time to announcement, and time between announcement and decision date on the success of a Good acquisition. According to the literature, SPACs performance is worse for acquisitions announced near the deadline, two years on average, suggesting that managers with the time pressure engage in worse bids (Dimitrova, 2017; Rodrigues & Stegemoller, 2014). Besides, following the arguments of Cumming et al. (2014), more time to announcement could be regarded to a complication in the negotiation process. Based on that, we would expect a negative impact respecting this variable, which was confirmed by our results. However, when year-fixed effects are included, the coefficient associated to this variable loses statistically significance, which may indicate that the time to announcement is prone to affect the good

deal consummation likelihood throughout time.

Regarding the time between announcement and decision date, we had no prior expectations. On one hand, following the rationale of Berger (2008) a longer time between the announcement and decision date exposes the deal to a higher market risk, which may increase the risk that a deal that looks good at announcement may look bad at the decision date, reducing the SPACs success likelihood. On the other hand, more time between stages portends more time to promote the deal, and, consequently, more time to the market evaluate the proposal, which might imply more time to make the "right" decision. Our results show a positive relationship between this variable and the success of a Good acquisition, which supports the latter argument.

Finally, a model with a sample of more recent SPACs (from 2010) was also estimated and the results are shown in Table 11.

Regarding threshold, once again, and as expected, it loses the effect on the three models, disappearing from the regressions.

Concerning both Model 1 and Model 2, after 2010, it is observable that the number of promoters starts to impact the Good acquisitions approval likelihood. We would expect a negative impact in advance, considering the rationale previously presented, but from another perspective, the promoters have "skin in the game" (Riemer, 2007), as they own "promote shares" and in most of the cases, they will get compensation if an acquisition is approved. In this vein, a higher number of promoters could suggest a greater need to advertise a SPAC, allied to higher uncertainty about the deal, and, as result, to a higher need for risk sharing, which may be a sign of lack of confidence on the potential value creation acquisition. As expected, according to the results, we find that a higher number of promoters is associated to a lower probability of a good acquisition occurrence.

Concerning Model 3, it is noticeable that trust value also starts to have an impact. As mentioned in the previous section, the stockholders are aware that the business combination should not be approved unless its value is greater than the SPACs' liquidation value (Jenkinson & Sousa, 2011; Murray, 2011). Considering the Good SPACs denotation', we expect a negative relationship. However, a positive impact is found, which may suggest again that a higher percent of IPO proceeds put in the trust in fact drives management to find and pursue value-creating acquisitions as the opportunity cost for the investor to approve the deal will be higher.

Table 11 – Good vs Bad SPACs Logit regression analysis results (after 2010).

The dependent variable is the SPAC Classification which takes a value of 0 if the SPAC is either Bad or Liquidated and 1 if is Good. The sample covers 192 SPACs, considering only those after 2010. In Specification 1, we do not control for year fixed effects; in Specification 2, we do. In Model 1 only IPO *ex-ante* variables are presented. In Model 2 both IPO *ex-ante* and *ex-post* variables are presented. In Model 3 all the fourteen variables are presented. *, **, *** indicate significance level at 10%, 5% and 1%, respectively.

Variables	Model 1		Model 2		Model 3	
	Specification 1	Specification 2	Specification 1	Specification 2	Specification 1	Specification 2
IPO Process						
(1) SPAC Size					0.0004	-0.0008
(2) % by founders after the IPO			14.62046	2.0378	-8.5663	-4.2830
(3) #Underwriters	0.0703	0.0222	0.05705	0.0256	0.0709	0.0141
(4) Average Reputation Lead Underwriter	-0.0573	-0.0184	-0.05031	-0.0219	-0.0645	0.0066
SPAC Structure						
(5) #Promoters	-0.0393	-0.0930*	-0.05598	-0.0941*	-0.0631	-0.0904
(6) # Managers	0.0019	-0.0409	-0.01307	-0.0411	-0.0301	-0.0191
(7) Average Team Age	0.0192	0.0219	0.01413	0.0199	0.0173	0.0191
(8) Management Experience	0.4259	0.6709*	0.51728	0.6820**	0.4673	0.7626**
(9) % Threshold	-	-	-	-	-	-
(10) Non-Deferred Underwriting Fees	-74.8770*	-12.9900	-83.36097	-19.0414	-75.9409**	-16.4633
(11) Deferred Underwriting Fees	1.6050	-49.8024*	-22.02363	-56.7718**	-21.8321	-63.4659**
(12) % IPO Proceeds in the Trust			-9.19653	-4.2295	15.0109**	1.2115
Acquisition and Target						
(13) Days to Announcement					-0.0006	0.0018*
(14) Days Between Announcement and Decision Date					-0.0008	0.0006
(15) Constant	1.084205	3.3294	-10.2302	2.6430	-10.5318	3.2298
Year fixed effects	No	Yes	No	Yes	No	Yes
Pseudo R2	4.09%	21.12%	6.93%	21.32%	7.34%	22.62%
LR-Ratio	10.79**	55.76***	18.29**	56.29***	19.39*	59.74***
Number of observations	192	192	192	192	192	192

Additionally, regarding the non-deferred underwriting fees, it is noticeable a signal change, in Specification 1, when only SPACs after 2010 are considered, i.e., the non-deferred underwriting fees start to have a negative impact on the Good acquisition approval probability. Thus, we might infer that, in recent designs, overall higher underwriter's compensation may reduce a Good merger likelihood.

Aside from that, still in Model 3, curiously, when year-fixed effects are involved, a positive signal is verified with regard to time to announcement. According to the outcomes, in lately SPACs, a later target announcement might increase the good deal approval odds. A possible explanation for this result is stated in the Cumming et al. (2014) study, denoting that a quick target announcement may lead the investors to question both the quality of the screening process and the quality of the target. Therefore, these results may suggest that more recent SPACs' designs have led to Good SPACs to be announced later, which could mean that managers are not fulfilled with finding a good deal, instead trying to use more of their available time to bargain a better deal (other, or the same one with better conditions).

5. Conclusions, Limitations, and Future Research

5.1. Conclusions

In this dissertation, we seek to scrutinize the main determinants that enable SPACs to successfully execute value-creating acquisitions, considering data from different life stages and using a new and comprehensive dataset, from 2003 to 2020. In previous studies, some of the determinants have already been analyzed, but always considering as successful SPACs those that executed a business combination, even if value-destroying. However, in this research, we deemed as successful SPACs only those that approved a value-creating deal (i.e., Good SPACs in Jenkinson and Sousa (2011) terminology), ensuring that value-destroying acquisitions are not considered as successful SPACs.

Some of the results of this investigation bolster what would be expected, supporting some previously established theories and works (Cumming et al., 2014; Jenkinson & Sousa, 2011; Kim, 2009). However, part of the results are also surprising, contesting our hypotheses and expectations.

Ten years after Jenkinson and Sousa (2011), investors continue to approve deals that, according to the market, should have been rejected. Between 2003 and 2020, 48% of approved SPACs deals were value-destroying. Although, we find a positive cumulative return of around 5% up to six months after the acquisition for all SPACs that concluded an acquisition. When discriminating between Good and Bad SPACs, a notable difference is found. Good SPACs show 15% average cumulative returns after 6 months (18% after one year) and Bad SPACs displaying -5% return (-15% after one year). These results suggest that, although, on average, SPACs performance is improving over time, investors are still not paying enough attention to the market.

Our results show that what distinguished Good from Bad/Liquidated SPACs are mainly the management experience and the deferred underwriting fees. We find evidence that the number of SPACs involvements by management is associated to a higher Good deal approval likelihood which is in agreement with our expectations as well as most of the available literature (albeit refuting Cumming et al. (2014)). Similarly, the results about deferred underwriting fees (negative) corroborate our initial predictions, which confirms that deferred fees inspire underwriters to pitch deals, even when they are value-destroying. However, our results also show that some of SPAC's characteristics studied in this dissertation affect

differently the Good merger probability throughout time, which indicates the latest designs are indeed having an offbeat influence on the market.

In conclusion, our results provide support for Jenkinson and Sousa's (2011) findings, reinforcing that the investors should listen to the market. Additionally, this paper confirms that both the management experience and the deferred underwriting fees matter, being imperative factors to separate the wheat from the chaff. However, we may conclude that, as SPACs are unfamiliar and unusual instruments, this makes the first SPACs especially useful for learning, at the expense of the investors.

5.2. Limitations and Suggestions for Future Research

This research has some limitations, some of them already discussed in chapter 3. Firstly, not all SPACs from 2003 to 2020 are included in this study, as there is a lack of historical data, mainly regarding the oldest ones. Additionally, it is important to recall that, in 2020, more than 200 SPAC IPOs were conducted, so they do not have time conditions to pursue an acquisition yet. Thus, we suggest similar future research, to cover a widely sample, catching newly SPACs' business combinations.

Secondly, another limitation of the study settles in the SPAC's historical stock prices. In many cases, when a SPAC acquires a company, it either disappears from the databases or appears under a different name. Thus, it becomes very challenging to get the stock prices from the right companies, at the required times, which may possibly impact the data accuracy.

Thirdly, throughout this investigation, some assumptions were taken. More specifically, as a proxy of the trust value on the decision date, we did an extrapolation of the last trust value available in the SEC filings, to the vote date, based on a daily rate (section 3.2). Apart from that, concerning underwriting fees, we just considered the underwriting discount paid in cash, not including payments in options or securities.

Lastly, in the underwriter's ranking used to measure the average reputation of the representative underwriters (Loughran & Ritter, 2004), some of them are not included in this rank. Therefore, we think it would be interesting to develop a SPAC underwriters' ranking, to understand, carefully, whether or not this variable has an impact on the success of a Good SPAC.

7. References

Berger, R. (2008). SPACs: An Alternative Wav to Access the Public Markets. *Journal of Applied Corporate Finance, 20*, 68-75. doi:10.1111/j.1745-6622.2008.00194.x

Boyer, C., & Baigent, G. (2008). SPACs as Alternative Investments: An Examination of Performance and Factors that Drive Prices. *The Journal of Private Equity, 11*(3), 8-15. Retrieved from http://www.jstor.org/stable/43503555

Carter, R., & Manaster, S. (1990). Initial public offerings and underwriter reputation. *the Journal of Finance, 45*(4), 1045-1067.

Carter, R. B., Dark, F. H., & Singh, A. K. (1998). Underwriter reputation, initial returns, and the long-run performance of IPO stocks. *the Journal of Finance, 53*(1), 285-311.

Castelli, T. (2009). Not Guilty by Association: Why the Taint of Their "Blank Check" Predecessors Should Not Stunt the Growth of Modern Special Purpose Acquisition Companies. *Boston Coll. Law Rev., 50.*

Cumming, D., Haß, L. H., & Schweizer, D. (2014). The fast track IPO – Success factors for taking firms public with SPACs. *Journal of Banking & Finance, 47*, 198-213. doi:10.1016/j.jbankfin.2014.07.003

D'Alvia, D. (2019). The international financial regulation of SPACs between legal standardised regulation and standardisation of market practices. *Journal of Banking Regulation*, 1-18.

Davidoff, S. M. (2008). Black market capital. *Colum. Bus. L. Rev.*, 172.

Dimic, N., Lawrence, E. R., & Vulanovic, M. (2020). The Determinants of IPO Withdrawals: Evidence From SPACs. *Available at SSRN 3538671.*

Dimitrova, L. (2017). Perverse incentives of special purpose acquisition companies, the "poor man's private equity funds". *Journal of Accounting and Economics, 63*(1), 99-120. doi:10.1016/j.jacceco.2016.10.003

Field, L. C., & Mkrtchyan, A. (2017). The effect of director experience on acquisition performance. *Journal of Financial Economics, 123*(3), 488-511. doi:https://doi.org/10.1016/j.jfineco.2016.12.001

Gahng, M., Ritter, J. R., & Zhang, D. (2021). SPACs. *Available at SSRN 3775847.*

Giot, P., & Schwienbacher, A. (2007). IPOs, trade sales and liquidations: Modelling venture capital exits using survival analysis. *Journal of Banking & Finance, 31*(3), 679-702. doi:https://doi.org/10.1016/j.jbankfin.2006.06.010

Griffin, J. (2019). Emerging Trends in the Special Purpose Acquisition Company Market:

Implications of Front-End IPO Underpricing.

Hale, L. M. (2007). SPAC: A financing tool with something for everyone. *Journal of Corporate Accounting & Finance, 18*(2), 67-74. doi:10.1002/jcaf.20278

Haleblian, J., & Finkelstein, S. (1999). The influence of organizational acquisition experience on acquisition performance: A behavioral learning perspective. *Administrative Science Quarterly, 44*(1), 29-56.

Heyman, D. K. (2007). From blank check to SPAC: the regulator's response to the market, and the market's response to the regulation. *Entrepreneurial Bus. LJ, 2*, 531.

Howe John, S., & O'Brien Scott, W. (2012). SPAC Performance, Ownership and Corporate Governance. In P. F. Stephen, J. Kose, & K. M. Anil (Eds.), *Advances in Financial Economics* (Vol. 15, pp. 1-14): Emerald Group Publishing Limited.

Jenkinson, T., & Sousa, M. (2011). Why SPAC investors should listen to the market. *Journal of Applied Finance (Formerly Financial Practice and Education), 21*(2).

Jenkinson, T., & Sousa, M. (2015). What determines the exit decision for leveraged buyouts? *Journal of Banking & Finance, 59*, 399-408. doi:https://doi.org/10.1016/j.jbankfin.2015.06.007

Jog, V., & Sun, C. (2007). Blank Check IPOs: A Home Run for Management. *SSRN Electronic Journal.* doi:10.2139/ssrn.1018242

Kim, H. (2009). Essays on management quality, IPO characteristics and the success of business combinations.

Kolb, J., & Tykvová, T. (2016). Going public via special purpose acquisition companies: Frogs do not turn into princes. *Journal of Corporate Finance, 40*, 80-96. doi:10.1016/j.jcorpfin.2016.07.006

Lakicevic, M., Shachmurove, Y., & Vulanovic, M. (2014). Institutional changes of Specified Purpose Acquisition Companies (SPACs). *The North American Journal of Economics and Finance, 28*, 149-169. doi:10.1016/j.najef.2014.03.002

Lakicevic, M., & Vulanovic, M. (2011). Determinants of Mergers: A Case of Specified Purpose Acquisition Companies (SPACs). *Investment Management and Financial Innovations, 8*, 114-120.

Lakicevic, M., & Vulanovic, M. (2013). A story on SPACs. *Managerial Finance, 39*(4), 384-403. doi:10.1108/03074351311306201

Lewellen, S. (2009). SPACs as an Asset Class. *SSRN Electronic Journal.* doi:10.2139/ssrn.1284999

Loughran, T., & Ritter, J. (2004). Why has IPO underpricing changed over time? *Financial management*, 5-37.

Meyer-Doyle, P. (2012). *How do firms become good acquirers? Managerial learning and the acquisition capability of firms.* Paper presented at the Academy of Management Proceedings.

Murray, J. (2011). The Regulation and Pricing of Special Purpose Acquisition Corporation IPOs. *SSRN Electronic Journal.* doi:10.2139/ssrn.1746530

Nilsson, G. O. (2018). Incentive Structure of Special Purpose Acquisition Companies. *European Business Organization Law Review, 19*(2), 253-274.

Odlyzko, A. (2020). BUBBLES AND GULLIBILITY. *Financial History*(132), 16-19.

Ribeiro, A. C. d. C. (2016). *Underwriter reputation: does it matter?*

Riemer, D. (2007). Special Purpose Acquisition Companies: SPAC and SPAN, or Blank Check Redux? *Washington University Law Review, 85.*

Rodrigues, U., & Stegemoller, M. (2011). Exit, voice, and reputation: The evolution of SPACs. *Del. J. Corp. L., 37.* doi:10.2139/ssrn.1948642

Rodrigues, U., & Stegemoller, M. (2014). What all-cash companies tell us about IPOs and acquisitions. *Journal of Corporate Finance, 29*, 111-121. doi:10.1016/j.jcorpfin.2014.07.003

Schumacher, B. (2020). A New Development in Private Equity: The Rise and Progression of Special Purpose Acquisition Companies in Europe and Asia. *Northwestern Journal of International Law & Business, 40*(3), 391-416. Retrieved from <Go to ISI>://WOS:000530899500004

Shachmurove, Y., & Vulanovic, M. (2017). SPAC IPOs.

Sjostrom Jr, W. K. (2007). The truth about reverse mergers. *Entrepreneurial Bus. LJ, 2*, 743.

Stuart, R. W., & Abetti, P. A. (1990). Impact of entrepreneurial and management experience on early performance. *Journal of Business Venturing, 5*(3), 151-162. doi:https://doi.org/10.1016/0883-9026(90)90029-S

Vulanovic, M. (2017). SPACs: post-merger survival. *Managerial Finance, 43*(6), 679-699. doi:10.1108/MF-09-2016-0263

8. Appendices

8.1. Appendix A: Number of SPACs IPOs, Number of Non-SPACs IPOs, SPAC Proceeds raised, and Total IPO Proceeds raised, between 2003 to 2020.

Source: https://www.spacanalytics.com/
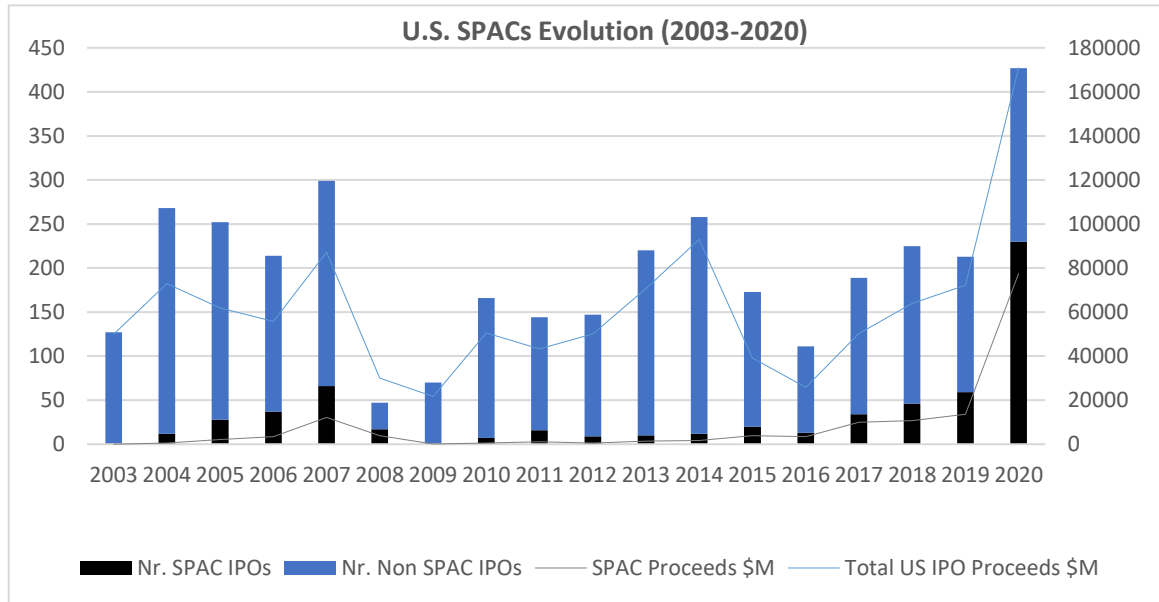
8.2. Appendix B: SPAC Investment Strategies (Jenkinson & Sousa, 2011).

As explained in Jenkinson and Sousa (2011, p. 12), there are main three possible investment strategies to earn significant profits: (1) "invest the same amount in the ordinary equity of all SPACs on the first trading day after the IPO and then follows the strategy (a) voting against and redeeming Bad SPACs shares (assuming they would receive their money two months after the vote) and (b) selling their stake in Good SPACs on the day before the decision date"; (2) buy "each SPAC on the first trading day after the IPO and sells one week after the announcement date"; (3) buy " an unit at the IPO and then follows the strategy of (a) voting against and redeeming Bad SPACs, and (b) selling their equity stakes in Good SPACs on the day before the decision date and selling warrants on the first day after the decision date if the acquisition was approved".

8.3. Appendix C: Independent Variables Definition

Independent Variables

Variable name	Definition
(1) IPO Process	
SPAC Size	Amount raised in the SPAC IPO in million $ (IPO Price x total number of shares including overallotments)
% owned by founders after the IPO	Number of shares owned by founders at IPO / (Number of shares owned by founders after the IPO + Number of shares issued at IPO, including overallotments)
# of Underwriters	Number of all underwriters that have participated in the SPAC IPO
Average Reputation Lead Underwriter	Average reputation of the SPAC representative underwriters under the Loughran & Ritter (2004) underwriters' ranking
Warrants per unit	Number of warrants per unit (one common share)
Warrant Strike Price	Price at which the warrant can be exercised after the acquisition completion
(2) SPAC Structure	
# of Promoters	Number of promoters (founders or sponsors) holding equity stakes
# of Managers	Number of Directors and Executive Officers that comprises the management team
Average Team Age	Average team age of the SPAC management team
Management Experience	Number of SPACs involvements by the SPAC managers (CEO and Chairman). Dummy variable equal to 1 if the managers engaged in more than one SPAC (experienced managers), 0 if managers only engaged in one SPAC (least experienced)
% of IPO proceeds put in the trust	Percentage of IPO proceeds placed in the trust account
% Threshold	Maximum percentage of SPAC shareholders that can redeem their shares before the acquisition
% Non-Deferred Underwriter fees	Percentage of IPO gross proceeds paid to underwriters at the IPO (only cash portion)
% Deferred Underwriter fees	Percentage of IPO gross proceeds paid to underwriters upon the completion of the SPACs' acquisition (only cash portion)
(3) Acquisition and Target Data	
Days to Announcement	Number of trading days between the IPO and the announcement of a potential target
Days between Announcement and Decision Date	Number of trading days between the acquisition announcement and the decision date (proxy voting)