Are SPACs a good investment deal for investors? A performance comparison between SPACs vs IPOs

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Abstract

Purpose – SPACs are reshaping the world of digital entrepreneurial finance. Firms in the digital sector often need access to public markets for long-term competitiveness. SPACs offer a viable solution for these entities to collect capital and transition to public ownership quicker than IPOs. In this context, the paper aims to analyse and compare the performance of SPACs with those of IPOs in the post-business combination phase. The objective is to provide novel insights into the determinants of SPAC operating and market performance by considering firm-specific and deal-specific characteristics and the broader implications of market uncertainty.

Design/methodology/approach – The analysis applies univariate and multivariate OLS regressions to a sample of 96 SPACs to investigate the drivers affecting SPACs' performance vis-a-vis IPOs.

Findings – The study finds that SPACs underperform the matched group of IPOs on both operating and stock market performance (buy-and-hold strategy). The time to execute a business combination negatively correlates with SPAC performance, and proximity to the 80% deal threshold negatively affects share price performance and EBITDA margin.

Practical implications – The objective is to offer insights for institutional investors to effectively select prime targets within the SPAC framework.

Originality/value – This study strengthens the findings related to the drivers influencing the long-term performance of SPACs that were previously identified in prior research.

Keywords SPACs, Alternative financing, Operating performance, ROA, EBITDA margin

Paper type Research paper

1. Introduction

Equity capital markets are constantly evolving with their myriad financing options. Ownership structures often shift as companies navigate these markets, introducing institutional investors within a firm's holdings, thus, fundamental changes in the corporate governance structure. While traditional financing routes have been extensively studied (Battisti *et al.*, 2022; Beltrame *et al.*, 2023; Gomber *et al.*, 2017), there is a growing interest in innovative financing mechanisms (Bertoni *et al.*, 2022). This study aims to shed light on a specific segment within cash shells,

highlighting Special Purpose Acquisition Companies (SPACs) as a transformative element in the ever-evolving landscape of digital entrepreneurial finance.

SPACs, with their unique organizational structures and operational roles, are reshaping the digital finance landscape. Despite the various funding avenues available to startups in the digital asset domain, accessing public markets remains a crucial step for long-term competitiveness (Dezi *et al.*, 2018). The access to equity capital markets is particularly significant for disruptive tech firms, for which early funding is critical to rapid market penetration. For these companies, SPAC mergers offer a promising route for these companies to amass capital and transition to public ownership more swiftly than traditional IPOs (Deloitte, 2022). According to Statista, in 2020, more than one-quarter of all special purpose acquisition companies (SPACs) in the United States seeking acquisitions focused on the technology sector (Brown, 2020).

SPACs, essentially blank check entities without operational activities, are explicitly created to raise capital through public stock offerings to acquire one or more unidentified businesses (Fadil and St-Pierre, 2021). These innovative financial instruments have emerged as a popular and legitimate alternative to traditional IPOs, playing a significant role in entrepreneurial finance (Barth *et al.*, 2023; Bertoni *et al.*, 2022). Their prominence has surged, particularly in the United States, where they constitute a considerable portion of the IPO market. For example, 2020 and 2021 marked unprecedented highs for SPAC IPO filings, representing 53 and 58% of total IPOs of the respective years (EY, 2021).

SPACs have transitioned from a niche market into a significant phenomenon in public equity markets due to their unique benefits. They facilitate quicker access to capital markets by reducing legal requirements and shield companies against market uncertainties during the capital-raising process, allowing even firms with less robust metrics to secure funding. These advantages have profound implications for entrepreneurial finance, offering an alternative route to public markets that better suits certain companies and investors, especially in a fast-paced digital economy where speed and flexibility are of paramount importance. This study's originality is underscored by its comprehensive evaluation of SPACs' performance relative to traditional IPOs, considering firm-specific and deal-specific characteristics and external market uncertainties.

Historically, SPACs have yielded disappointing long-term post-merger returns for investors (Kolb and Tykvová, 2016) and have exhibited high failure rates (Dimitrova, 2017; Vulanovic, 2017). The surge in their popularity has prompted debates and concerns about a potential SPAC bubble (Naumovska, 2021). Following a peak in 2021, the number of SPAC IPOs plummeted in 2022, with factors such as sponsor compensation schemes and misaligned incentives being cited as potential causes (Del Giudice and Signori, 2024).

The mixed sentiment on the SPAC phenomenon and outcomes from prior research prompts a crucial question: *Do SPACs offer a superior investment avenue to traditional IPOs?* Within the perimeter set out by this research question, it is fundamental to acknowledge that SPACs are generally less impacted by market uncertainties during the fundraising phase (Schill, 2004), these uncertainties significantly affect the size and share of the SPAC market (Blomkvist and Vulanovic, 2020). Therefore, this study seeks to integrate firm-specific characteristics—such as size or gearing ratio, to cite a few examples—and deal-specific characteristics of SPACs—such as the time to acquisition and proximity to the 80% threshold—with factors that capture external market uncertainties to evaluate post-merger performance relative to IPOs. This approach expands upon previous research by extending the analysed timeframe (to include SPACs up to 2019) and contextualizing the SPACs within the broader market environment to provide a comprehensive insight into the determinants of SPAC performance post-business combination.

Consistent with prior studies (Dimitrova, 2017; Gahng *et al.*, 2023), we employ univariate and multivariate cross-sectional OLS regressions to analyse a sample of 96 US SPACs that completed a business combination between 2010 and the end of 2019. Our findings indicate that SPACs generally underperform compared to matched IPO counterparts in terms of both

operating and financial performance. Deal-specific characteristics negatively impact SPAC performance, potentially driven by the "perverse" sponsor's compensation mechanism (Dimitrova, 2017), such as the time to the acquisition and the proximity to the 80% threshold, which could stress out the potential agency conflicts between sponsors and investors. Additionally, our research highlights significant disparities in returns generated by the buy-and-hold strategy. Consequently, despite expert investors' meticulous selection of SPAC targets, the operating performance of SPACs seems to remain closely tied to the quality of targets acquired through the SPAC process.

This study brings a novel perspective to the dynamic field of entrepreneurial finance by juxtaposing the performance of SPACs to that of traditional IPOs over a period in which SPACs in the U.S. have been living with strong positive momentum. While SPACs offer unique advantages, particularly for companies in sectors where speed is a crucial competitive edge, such as disruptive technology firms, they may also foster misaligned incentives that lead to poorer performance than traditional IPOs. This analysis not only broadens the theoretical understanding of SPACs within the context of market dynamics but also provides practical investment insights crucial for institutional investors and policymakers aiming to optimize financing strategies in an increasingly volatile market environment.

Therefore, this paper has significant theoretical and practical implications. Theoretically, it enriches the ongoing debate on SPACs by extending the analysis to include a more recent timeframe, capturing the significant uptake the SPAC market has experienced in the aftermath of the financial crisis and incorporating market uncertainty factors into the analysis. Empirically, it shows potential drawbacks that limit the performance effectiveness of SPACs as an alternative to traditional IPOs, offering investment insights to institutional investors actively involved in the SPAC process. Finally, it also has policy implications within the broader agency theory context; the analysis results underscore the need to develop a regulatory framework capable of aligning the interests of SPAC sponsors with those of shareholders to maintain the popularity of SPACs within the digital entrepreneurial context.

2. Literature review and hypotheses development
2.1 SPACs phenomenon, a theoretical background
Cutting-edge technologies are transforming the entrepreneurial landscape (Schiavone *et al.*, 2022a). This transformation fosters a departure from traditional value propositions toward more flexible approaches that employ digital technologies. These technologies potentiate business innovation, ushering in a novel business paradigm (Schiavone *et al.*, 2022b). Consequently, there is a growing imperative to secure funding to support the adoption and implementation of digitalization, particularly for companies pioneering disruptive technologies. While digital asset startups might secure initial funding through alternative avenues, long-term competitiveness often necessitates accessing public markets. This approach is prevalent among disruptive technology firms, where initial investment is crucial for rapid market share expansion. In this context, SPACs represent a viable and quick strategy for raising capital and achieving public listing. Various studies have examined their features (Castellani *et al.*, 2024; Del Giudice and Signori, 2024; Lakicevic *et al.*, 2014), while others have explored factors influencing SPAC returns (Chatterjee *et al.*, 2016; Klausner and Ohlrogge, 2020), such as the size of the offering (Okutan Nilsson, 2018), board characteristics (Cumming *et al.*, 2014), and acquisition-related information (Dimitrova, 2017; Jenkinson and Jones, 2009). Boyer and Baigent (2008) pioneered collecting structural data on SPACs and identified features that make them attractive investments. They found that SPACs offer investors a quicker and cheaper market entry than private equity investments. This characteristic makes SPACs cost-effective for raising capital (Boyer and Baigent, 2008; Jog and Sun, 2007). Moreover, SPACs offer distinct advantages over traditional IPOs for privately held firms. They provide immediate access to capital, enabling firms to secure

funding even in challenging market contexts, optimize capital structures and offer exit opportunities without strategic acquirers. SPACs contribute to reshaping the ownership structure by blending private equity and public offering characteristics, typically involving institutional investors from the onset. This structure – in particular, the presence of institutional investors – could ensure better monitoring and reduce information asymmetry between company insiders and public shareholders (Lakicevic *et al.*, 2014; Lakicevic and Vulanovic, 2013). Despite these benefits, SPAC performance results are mixed. Some studies report that investors gained a 2% return post-acquisition, while the return at the investment date was −2% (Lewellen, 2009). Additionally, many business combinations result in value destruction, with the six-month post-acquisition cumulative return averaging −24% (Jenkinson and Sousa, 2009).

Another strand of research has focused on identifying the characteristics that can help overcome some of the drawbacks of SPACs, such as agency problems and investor confidence. Empirical evidence has shown that imposing a time restriction for completing an acquisition is a significant benefit that helps to reduce agency problems. Consistently, the theoretical framework of agency theory is often used (Panda and Leepsa, 2017). Despite the management's preferences, the shareholders' voting mechanism inspires confidence among investors. Applying specific practices attracts investors' attention and raises the theoretical framework of signal theory (Blomkvist and Vulanovic, 2020; Tran, 2012).

2.2 SPACs performance

Previous research by Dimitrova (2017) offers critical insights into the financial performance of SPACs across short- and long-term horizons. Dimitrova's findings highlight a significant trend: Although market reactions to SPAC acquisition announcements are generally positive, these entities tend to underperform compared to relevant benchmarks in the long run. Furthermore, the study underscores substantial cross-sectional variations in SPAC performance, primarily attributed to the misaligned incentives embedded within SPAC contracts. In contrast, Gahng *et al.* (2023) concluded that investing in SPAC IPOs is relatively secure, akin to investing in underpriced, default-free convertible bonds with additional warrants.

As indicated in previous sections, SPACs offer several advantages over traditional IPOs, making them a viable option for companies that want to go public. Therefore, understanding the effectiveness of SPACs as a means for private firms to achieve public status and whether they represent a profitable investment for institutional investors, which have a long-term investment horizon, requires an analysis of their post-merger performance. This evaluation can be effectively conducted through the lens of agency theory, which posits that a contract between principal and agent exists for either a finite or indefinite duration in an uncertain future (Panda and Leepsa, 2017).

Building on Dimitrova's (2017) research, four hypotheses have been formulated to examine the relationship between SPACs' contractual incentives and the financial and operational performance of the targeted companies. Despite the various benefits SPACs provide to investors, they are also subject to several disadvantages. A primary concern is the sponsor's compensation mechanism, which can introduce conflicts of interest into the transaction. Specifically, this mechanism might incentivize SPAC sponsors to pursue acquisitions irrespective of their value-generating potential, thus raising the issue of agency costs.

Since 2010, the risk associated with investing in a value-destroying merger has increased due to changes in the vote-redemption mechanism. These changes, coupled with the potential worthlessness of warrants if the SPAC is liquidated, incentivize shareholders to support value-diminishing mergers while redeeming their shares (Gahng *et al.*, 2023). Moreover, the SEC's 2010 introduction of a safe harbour provision shields issuers from liability for manipulation when repurchasing outstanding common shares, further influencing SPAC dynamics. With hedge funds often being the principal shareholders in SPACs, the ownership

structure can significantly impact SPAC performance. This is particularly relevant when these majority voters engage in short-term trading strategies, potentially undermining the long-term success of the SPAC. These insights form the basis for our initial two hypotheses:

H1. The buy-and-hold price returns of SPACs are significantly lower than those of matched IPO peers during the two years following the acquisition.

H2. The operating performance (ROA and EBITDA margin) of SPACs are significantly lower than those of matched IPO peers during the two years following the acquisition.

Beyond firm-specific factors, it is crucial to consider deal-specific factors such as the 80% rule, which mandates that the target must hold a fair market value of at least 80% of the SPAC's value (Dimitrova, 2017). This condition can potentially prompt sponsors to overpay for targets, viewing the threshold as a benchmark and prioritizing it over the best interests of external shareholders—a compelling case of agency problem. Consequently, sponsors might overpay for smaller targets to meet the threshold rather than assessing the target's intrinsic value. Given that 20% of equity stake sponsors receive post-business combination, significant dilution can result.

Evidence indicates a negative trend when a SPAC completes a business combination with a target near the 80% threshold (Dimitrova, 2017). Overpaying for targets not only impacts short-term market performance but also has adverse effects on the SPAC's long-term performance. Additionally, Dimitrova (2017) emphasized that the timing of a business combination announcement significantly impacts share performance. Longer durations often lead to better share performance, reflecting more informed decision-making by the SPAC, supported by thorough due diligence and careful target selection. Conversely, premature or delayed announcements may signal low-quality investments to potential investors, resulting in poorer long-term performance—consistent with signalling theory (Blomkvist and Vulanovic, 2020).

Sponsors face strong incentives to finalize acquisitions within the two-year deadline imposed by SPAC regulations, leading to premature or last-minute deals. Dimitrova's (2017) research, which employed a buy-and-hold strategy, examined the four-year post-IPO performance. To explore these agency problems and issues of information asymmetry further, two additional hypotheses have been formulated:

H3. The buy-and-hold price returns of SPACs are significantly lower for business combinations close to the 80% threshold or executed towards the two-year deadline during the two years following the acquisition.

H4. The operating performance (ROA and EBITDA margin) of SPACs are significantly lower for business combinations close to the 80% threshold or executed towards the two-year deadline during the two years following the acquisition.

3. Sample selection

The primary dataset employed for this study was sourced from Refinitiv and included 129 exchange-listed SPACs that went public in the United States between 2010 and 2019. The selection of 2010 as the starting year was intentional to ensure a homogeneous regulatory environment, as this year marked significant regulatory changes by the SEC affecting the SPAC market – such as Rule 18-10b. The end date of December 2019 was chosen to provide at least two years of post-business combination data. The United States was selected as the focal country due to its status as the largest market for SPACs and one of the earliest adopters of this financial instrument (Dimitrova, 2017), thereby allowing for an extensive period of analysis.

The initial sample underwent adjustments to exclude SPACs lacking available accounting or acquisition-related information, SPACs whose acquired target companies filed for bankruptcy within two years of the business combination, and SPACs whose acquired target companies were sold to strategic investors and ceased operations within two years post-combination. These adjustments resulted in a final sample comprising 96 SPACs. The sample size aligns with previous research on the post-acquisition performance of SPACs (Dimitrova, 2017; Gahng *et al.*, 2023). Furthermore, no empirical evidence suggests that the initial sample reduction significantly impacts the overall analysis outcomes (Gahng *et al.*, 2023).

To compare the post-acquisition performance of SPACs with other investment vehicles, we employed a control group methodology (Ferretti and Meles, 2011). This approach involved constructing a peer group for each SPAC, comprising the SPAC and the median of five comparable IPOs. The selection criteria for these comparable companies included the availability of financial data for at least two years following the business combination and a comparable equity value to the reference SPAC at the time of the business combination.

Furthermore, given the tendency of SPAC targets to exhibit lower-quality financials and higher leverage than IPO targets (Gahng *et al.*, 2023; Klausner and Ohlrogge, 2020), the final sample was refined to consider financial and economic similarities. For each SPAC we identified five comparable companies closely aligned with fundamental operating metrics, including ROA, EBITDA margin, leverage ratio, and size (measured by total sales). This approach was designed to create peer groups that closely resembled the reference SPACs financially, thereby enhancing the accuracy and precision of the research.

4. Methodology

4.1 Dependent and independent variables

To delve into the long-term performance comparison between SPACs and comparable IPOs, we examine the selected sample of SPAC acquisitions, evaluating, as dependent variables, the financial performance and operating performance over a two-year post-business combination, following the methodology outlined by Dimitrova (2017). Share price performance is assessed using the dependent variable buy-and-hold performance throughout the entire period of analysis constructed as for the formula below:

$$Buy-and-hold_{i,t} = \frac{P_{i,t} - P_{i,j}}{P_{i,j}}$$

where t denotes the period following the completion (one- or two-years post-business combination) of the business combination date, i represents each firm in the dataset and j indicates the date of the business combination.

Regarding the operating performance, in line with previous research (Dimitrova, 2017), we investigated the relationship between ROA and EBITDA margin and SPAC-specific characteristics. Both operating indicators were calculated with an annual frequency using the following baseline formulas:

$$EBITDA\%_{i,t} = \frac{EBITDA_{i,t}}{Revenues_{i,t}}$$

$$ROA_{i,t} = \frac{EBIT_{i,t}}{Total\,asset_{i,t}}$$

where t denotes the period following the completion (one- or two-years post-business combination) of the business combination date and i represents each firm in the dataset.

Furthermore, in line with previous research, we employ an adjustment methodology to investigate the unique factors impacting SPAC acquisitions (Dimitrova, 2017; Ghosh, 2001; Healy *et al.*, 1992). In particular, we deployed an IPO firm-adjusted measure by deducting the median ratio of a matched IPO group from that of each SPAC. Consequently, the following set of adjusted dependent variables has been calculated:

$$Buy - and - hold\,performance\,adj_{i,t} = Buy - and - hold\,perf_{i,t} - Buy - and$$

$$- hold\,perf_{k,t}$$

$$\boldsymbol{EBITDA\,\%\,adj_{i,t} = EBITDA\,\%_{i,t} - EBITDA\,\%_{k,t}}$$

$$\boldsymbol{ROA\,adj_{i,t} = ROA_{i,t} - ROA_{k,t}}$$

Also, for the adjusted version of the performance, t denotes a period of one or two years following the completion of the business combination, i represents each firm in the dataset, and k represents the matched IPO group corresponding to each SPAC.

The independent variables that capture SPAC-specific characteristics have been included: Dummy SPAC, Time, 80% Threshold, Relative Size, and Deal Value. The Dummy SPAC variable distinguishes between companies that have undergone an SPAC transaction and those that have pursued a traditional IPO process, serving as a fundamental variable to test H1 and H2. The Time variable measures the period from the IPO to the acquisition announcement, a characteristic that is expected to impact SPAC returns in line with H3 and H4. Given that SPACs have a maximum of two years from their IPO to acquire another company, failing which they must liquidate and return the funds to investors, sponsors might feel pressured under the two-year constraint. This pressure can lead to unsuitable acquisitions, perceived by the market as last-minute opportunistic deals (Dimitrova, 2017), potentially reflecting a negative trend in the share price.

The 80% Threshold variable is a dummy that takes the value of 1 if the deal value is within an upward threshold of 10% of the compulsory 80% minimum limit at the time of the business combination. According to SPAC contractual characteristics, the initial target business that the SPAC acquires must have a fair market value equal to at least 80% of the SPAC's net assets at the time of acquisition. If the SPAC involves a smaller target, sponsors may be incentivized to overpay to meet this threshold. Therefore, to include the dimensional feature of the acquired company, we also integrated the Relative Size and Deal Value variables to adequately account for the target size.

In addition to these variables, several control variables have been included, considering additional financial and economic characteristics and governance factors that previous research has found to significantly influence post-business combination SPAC performance. SPAC acquisitions may be more leveraged and have higher financial distress costs, affecting their operating performance; thus, the Gearing Ratio is included in the analysis.

Further aspects relevant to corporate governance that influence post-business combination performance include the direct involvement of SPAC sponsors in governance post-combination. Previous research suggests that SPAC sponsor involvement can be beneficial due to their substantial industry and target-specific knowledge (Dimitrova, 2017). Consequently, dummy variables capturing the direct involvement of SPAC sponsors in decision-making bodies, such as Directors from Sponsors, Chairman from Sponsor, and CEO from Sponsor, are included.

In addition, smaller boards tend to be more effective because they facilitate better communication and quicker decision-making processes (Merendino and Melville, 2019). Therefore, board size is an important variable to consider.

Institutional investor holdings and their involvement in firm decision-making are crucial in monitoring corporate governance mechanisms, increasing transparency, and minimizing conflicts of interest (Merendino and Melville, 2019). As a result, the percentage of independent directors (% Independent Directors) is included as a control variable. Both board size and % independent directors are essential for addressing the agency problem between shareholders and management (Jensen and Meckling, 1976).

The complete list of independent and control variables used in this study is summarized in Table 1.

The desprictive statistics is shown in Table 2.

4.2 Empirical model

Following prior research (Dimitrova, 2017; Gahng *et al.*, 2023), we employ cross-sectional OLS models to test the four research hypotheses outlined in previous sections. The suitability of the models has been confirmed through tests conducted to assess for heteroscedasticity and multicollinearity issues. In particular, we performed VIF and Breusch-Pagan tests to ascertain the models' absence of multicollinearity and heteroscedasticity. Additionally, we employed a Durbin–Wu–Hausman test to control for endogeneity.

Variable	Description
Dependent variables	
Buy and hold	Share price performance of a buy and hold strategy
EBITDA %	EBITDA margin
ROA	Return on assets
Buy and hold adjusted	Share price performance of a buy and hold strategy net of median ratio of a matched IPO group
EBITDA % adjusted	EBITDA margin net of median ratio of matched IPO group
ROA adjusted	Return on assets net of median ratio of a matched IPO group
Independent variables	
Dummy SPAC	Dummy variable that equals 1 if the company is a SPAC
Time	Natural logarithm of the days between IPO and acquisition date
80% Threshold	Dummy variable that equals 1 if the deal values is within 10% of the compulsory 80% threshold at the time of business combination
Relative size	Target market capitalization divided by acquirer market capitalization
Deal value	Natural logarithm of deal value
Control variables	
Size	Natural logarithm of revenues
Gearing ratio	Total financial liabilities divided by total assets
Growth	Revenues' growth rate
Directors from sponsors	Number of BoD members of the sponsor after the operation
Chairman from sponsor	Dummy variable that equals 1 if the Sponsor sits as chairman after the operation
CEO from sponsor	Dummy variable that equals 1 if the Sponsor sits as CEO after the operation
Board size	Number of BoD members
% independent directors	% BoD independent members
Market uncertainty	VIX volatility index (Blomkvist and Vulanovic, 2020)

Note(s): The table includes the description of the dependent variables, independent variables and control variables used in the cross-sectional OLS regressions (Model 1 and Model 2). Description of dependent and independent variables

Source(s): Authors own creation or created by author

Table 1.
Set of variables

Variable	P1	P50	MEAN	P99
Buy and hold	−0.3	0.1	0.1	0.7
EBITDA %	−5.4	5.4	2.6	11.0
ROA	−1.7	0.5	2.9	10.0
Buy and hold adjusted	−0.6	−0.1	−0.2	0.4
EBITDA % adjusted	−5.0	2.0	2.0	3.8
ROA adjusted	−6.9	4.2	4.6	5.8
Dummy SPAC	0.0	1.0	1.0	1.0
Time	343.0	617.5	624.4	1257.3
80% Threshold	0.0	1.0	1.0	1.0
Relative size	1.5	3.2	4.3	15.4
Deal value	5.2	6.7	6.6	8.6
Size	16.7	19.9	20.9	30.5
Gearing ratio	0.0	0.4	0.4	1.6
Growth	−0.1	0.1	3.9	58.8
Directors from sponsors	1.0	2.0	2.0	4.0
Chairman from sponsor	0.0	0.0	0.5	1.0
CEO from sponsor	0.0	1.0	0.5	1.0
Board size	5.0	7.0	6.4	7.0
% independent directors	0.1	0.2	0.2	0.4
Market uncertainty	9.5	17.7	19.3	37.6

Note(s): The table includes the descriptive statistics of the dependent variables, independent variables and control variables
Source(s): Authors own creation or created by author

To incorporate SPAC and deal-specific variables, we use two distinct econometric models (Model 1 and Model 2) for conducting multivariate regressions. In particular, Model 1 aims to compare the operating and financial performance of SPACs vis-à-vis IPO, thus answering the research hypotheses H1 and H2. In contrast, deal-specific characteristics in Model 2 aim to understand SPAC-specific characteristics, thus answering the research hypotheses H3 and H4.

Model 1.

$$Y_{k,t+1} = a + \beta Dummy\ SPAC_k + \gamma Control\ Variables_{k+1} + \varepsilon\mu_{k+1}$$

Model 2.

$$Y_{k,t+1} = a + \beta_1 Time_k + \beta_2 80\%\ Threshold_k + \beta_3 Relative\ size_k + \beta_4 Deal\ Value_k$$
$$+ \gamma Control\ Variables_{k+1} + \varepsilon\mu_{k+1}$$

5. Results of the research

5.1 Univariate regression

We conducted univariate regressions to assess general differences in terms of performance between IPOs and SPACs. The findings presented in Table 3 show a remarkable trend: SPACs consistently lag behind the matched group across all analysed metrics, including share price performance, ROA, and EBITDA margin.

Notably, our analysis reveals significant value destruction from an investor's perspective. Specifically, the one-year buy-and-hold strategy yields a median negative performance of

	SPAC (N. obs = 96) median	Peers (N. obs = 96) median	T-test
Panel A – Performance one year after the merger			
Buy-and-hold	(16.6%)	9.5%	***
EBITDA %	0.7%	12.4%	*
ROA	(5.0%)	3.2%	***
Panel B – Performance two years after the merger			
Buy-and-hold	(30.1%)	0.4%	***
EBITDA %	0.4%	12.8%	**
ROA	(8.0%)	3.5%	***

Note(s): The table shows the results of the univariate regression analysis focusing on the performance in terms of buy-and-hold, EBITDA% and ROA in one year after the merger and two year after the business combination. The N.observation for SPAC and IPOs (Peers) is 96 respectively. *, **, *** refers to the statistical significance at the 10, 5, and 1%, respectively
Source(s): Authors own creation or created by author

Table 3.
Univariate regression results

16.6%. In contrast, the matched IPO group exhibits a positive abnormal return of 9.5% over a one-year horizon, as shown in Table 3 Panel A. Furthermore, the performance deteriorates over two years, with the buy-and-hold strategy yielding a negative abnormal return of −30.1%, substantially lower than the matched peers (Table 3 Panel B). The significance levels of the *t*-tests anticipate a confirmation of H1.

Similar results are also observed in terms of operating metrics (both ROA and EBITDA %), despite ROA seeming to have much more marked negative results than EBITDA%, showing −5.0% 1-year post-business combination (Table 3 Panel A) and −8.0% 2-years post-business combination (Table 3 Panel B). These results demonstrate a high level of significance, being accepted at the 1% level for ROA analysis and at the 5 and 10% levels for EBITDA margin analysis.

5.2 Multivariate analysis
Model 1 is applied to each dependent variable and period to demonstrate whether the observed relationship between SPAC characteristics and performance persists in the first and second years following the business combination. Results of Model 1 are shown in the following Table 4.

| | Buy and hold | | EBITDA % | | ROA | |
| | $t+1$ (1) | $t+2$ (2) | $t+1$ (3) | $t+2$ (4) | $t+1$ (5) | $t+2$ (6) |
Variables						
Dummy SPAC	−0.245**	−0.382***	−82.711**	−122.14***	−20.22***	−38.90***
	(−2.53)	(−2.93)	(−1.65)	(−2.84)	(−3.00)	(−3.38)
Control variables	YES	YES	YES	YES	YES	YES
Constant	0.220	−0.234	−34.23**	−44.55**	−5.68*	−6,543*
N	192	192	192	192	192	192
R-square	5.32%	10.45%	4.53%	5.32%	10.42%	9.53%

Note(s): *, **, *** refers to the statistical significance at the 10, 5, and 1%, respectively
The following table shows the results of Model 1. $t+1$ and $t+2$ indicates respectively one year after the business combination and two years after the business combination. Each equation includes the control variables indicated in the methodology section, which for readability purpose are not explicitly shown in the below table
Source(s): Authors own creation or created by author

Table 4.
Cross-sectional OLS regression – Model 1

The dummy variable SPAC emerges as a significant explanatory factor, displaying a negative coefficient of 1% or 5% significance for both $t+1$ and $t+2$. These results show that the buy-and-hold strategy, as represented by regressions (1) and (2) in Table 4, consistently yields negative returns in both periods with a declining trend; this result is consistent with previous research (Dimitrova, 2017; Gahng *et al.*, 2023; Kolb and Tykvová, 2016). Furthermore, the dummy variable SPAC continues to show a negative influence on the operating performance – EBITDA% and ROA – of the SPAC sample, with a significance level of 1% or 5% - as shown by regressions (3), (4), (5) and (6) in Table 4. The SPACs target shows a pattern of deteriorating performance, with the coefficient becoming increasingly negative in $t+2$, showing a worsening trend at the same confidence level. The inability to improve results over time compared to peers may depend on several factors, including selecting low-quality targets and the negative incentive prompting sponsors to favour relatively higher-risk targets with more leverage and lower growth (Del Giudice and Signori, 2024; Dimitrova, 2017). In summary, Model 1 underscores that SPACs consistently lag behind the matched group of IPOs in terms of both share price and operating performance throughout the post-acquisition period, with a tendency to deteriorate over more extended timeframes. These findings support both H1 and H2; thus, the buy-and-hold price returns and operating performance of SPACs are significantly lower than those of matched IPO peers during the two years following the acquisition.

Table 5 presents the regression results of Model 2, focusing on the baseline (thus unadjusted) dependent variables, specifically buy-and-hold, EBITDA %, and ROA. Equations (1), (3), (5), (7), (9), and (11) in Table 5 test the Time variable independently. In contrast, the other equations in Table 5 also factor in the 80% Threshold, the Relative size, and the Deal Value, thus presenting the full specification of Model 2.

The results of Model 2 demonstrate a significant negative trend between Time and buy-and-hold performance, with statistical significance at the 5% level. This result indicates that a more extended timeframe between the SPAC constitution and the final business combination announcement correlates with poorer share price performance, partly confirming our H3.

Interestingly, the Time variable maintains significance even after including deal-specific factors, such as the nearness to the 80% Threshold, the Relative size and the Deal Value. Furthermore, Table 5 (2) shows a significant negative relationship between the buy-and-hold performance of SPACs and business combinations executed near the 80% Threshold, thus fully confirming H3, which stated that the buy-and-hold price returns of SPACs are significantly lower for business combinations close to the 80% threshold or executed towards the two-year deadline during the two years following the acquisition.

The relevance of the 80% Threshold variable suggests that sponsors may be inclined to acquire suboptimal targets, potentially smaller and lower-quality companies, to expedite a business combination and secure their compensation. Consequently, such targets may contribute to inferior long-term performance, negatively impacting the SPAC's stock price performance.

The results in terms of EBITDA% align with the buy-and-hold performance and indicate that SPACs' operating profitability tends to deteriorate over time, highlighting potential challenges in sustaining post-acquisition operating results. Moreover, the analysis reveals a significant negative relationship between the proximity to the 80% threshold and operating profitability, particularly at $t+1$. Accordingly, this noteworthy outcome suggests that SPACs executing business combinations close to the threshold may experience lower operating profitability. However, this relationship loses significance at $t+2$, indicating potential variations in performance dynamics over time.

Regarding ROA, the results confirm a negative trend between the duration required to complete a business combination and the operating profitability of SPACs, aligning with the

Table 5.
Cross-sectional OLS regression for buy and hold strategy, EBITDA % and ROA% in t+1 and t+2 (Model 2)

Independent variable	Panel A | cross-sectional OLS regression results for buy and hold strategy in t+1 and t+2				Panel B | cross-sectional OLS regression results for EBITDA % in t+1 and t+2				Panel C | cross-sectional OLS regression results for ROA in t+1 and t+2			
	Buy and hold		Buy and hold		EBITDA %		EBITDA %		ROA		ROA	
	$t+1$	$t+1$	$t+2$	$t+2$	$t+1$	$t+1$	$t+2$	$t+2$	$t+1$	$t+1$	$t+2$	$t+2$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Time	−0.345** (−2.43)	−0.422** (4.32)	−0.352** (−4.53)	−0.005*** (2.10)	−28,756*** (2.77)	−54,283** (−2.19)	−45,372** (−2.82)	−44,719** (−2.77)	−4,789* (−2.54)	−8,404* (−1.92)	−31,201** (−2.45)	−44,365** (−2.14)
80% Threshold		−0.643* (2.54)		−0.043* (1.35)		−21,473** (−2.25)		174,123 (1.50)		−8,245** (−2.48)		−69,540* (−1.66)
Relative size		0.534 (−2.45)		−0.433** (−3.53)		−3,256 (−0.54)		3,347 (0.43)		−0.596 (−0.49)		−8,341*** (−2.99)
Deal value		0.643 (3,453)		0.154** (2,255)		−34,272 (−1.56)		−35,297 (−1.29)		−3,744 (−0.85)		5,284 (0.54)
Control variables	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Constant	−0.453	−0.342	−0.432	−0.244	58,912	488,562	83,589	116,621	7,820	67,062	141,725	320,179
N	96	96	96	96	96	96	96	96	96	96	96	96
R-square	4.35%	11.53%	6.43%	15.42%	10.47%	17.43%	5.06%	8.42%	3.74%	7.39%	5.08%	20.74%

Note(s): *, **, *** refers to the statistical significance at the 10, 5, and 1%, respectively
The following table shows the results of Model 2. $t+1$ and $t+2$ indicates respectively one year after the business combination and two years after the business combination. Each equation includes the control variables indicated in the methodology section, which for readability purpose are not explicitly shown in the below table
Source(s): Authors own creation or created by author

findings of previous research (Axelson *et al.*, 2009; Degeorge *et al.*, 2016). The coefficients follow a worsening trend in SPACs' operating performance as time progresses. This finding underscores the importance of the timing of acquisitions as a signal of potentially value-eroding transactions being pursued. Accordingly, *Time* can be a red flag that investors should check when funding SPACs. The significance of *Time* and 80% Threshold variables confirm our H4; thus, the operating performance (ROA and EBITDA margins) of SPACs are significantly lower for business combinations close to the 80% threshold or executed towards the two-year deadline during the two years following the acquisition.

Table 6 shows the adjusted financial and operating results with a matched group of IPOs.

In terms of the buy-and-hold strategy, the adjusted performance also shows a significant negative relationship with Time and the 80% Threshold, with a more pronounced effect observed over time, as evidenced by equations (1), (2), (3), and (4) of Table 6.

The significance of the 80% Threshold supports the notion that SPACs executing business combinations close to the threshold tend to exhibit inferior operating profitability performance.

In terms of EBITDA% adjusted, the results presented in Table 6, evidenced by equations (5), (6), (7), and (8), confirm the negative relationship between time to acquisition and operating profitability, in line with H4. Interestingly, adding deal-specific variables in the regression model mitigates the negative performance trend associated with time. This outcome suggests that proximity to the 80% threshold, relative size, and deal value influence SPACs' operating performance dynamics, offering insights into potential avenues for improving performance over time.

Finally, equations (9), (10), (11), and (12) in Table 6 display the ROA results adjusted to the performance of the matched group.

The results confirm the negative trend between time and ROA, which is consistent with previous findings. This result reaffirms the notion that the longer it takes for SPACs to execute a business combination, the lower their operating profitability tends to be. Furthermore, the observed negative relationship between the proximity to the 80% threshold and ROA supports H4, indicating that SPACs executing business combinations close to the threshold tend to exhibit inferior operating profitability compared to those with more significant deals or executed earlier.

5.3 Robustness test

To strengthen our analysis, we performed a robustness test. Specifically, we utilized a panel data framework to align with established literature and capitalize on its advantages for our dataset. Panel data models combine time series and cross-sectional data, which can significantly improve result reliability when properly applied. Among the usual estimation techniques for these models, a choice must be made between "fixed effects" (FE) and "random effects" (RE) models. The Hausman test, a standard method to determine the most appropriate model, has shown that the fixed effects model is the best fit for our data. Using the FE model enables a thorough investigation of our previously outlined research hypotheses. Fixed effects were employed in Model 1 and Model 2 based on the variables of time and company, consistent with the nature of our analysis. Results are shown in Table 7 and Table 8 which confirm previous findings.

6. Discussion

The univariate analysis anticipates the negative trend between SPACs, the operating and the buy-and-hold performance vis a vis matched-peers of IPOs, anticipating the results that find further confirmation in the subsequent cross-sectional OLS analysis. The negative trend in

Independent variable	Panel A | cross-sectional OLS regression results for buy and hold strategy adjusted in t+1 and t+2				Panel B | cross-sectional OLS regression results for EBITDA % adjusted in t+1 and t+2				Panel C | cross-sectional OLS regression results for ROA adjusted in t+1 and t+2			
	Buy and hold adjusted		Buy and hold adjusted		EBITDA % adjusted		EBITDA % adjusted		ROA adjusted		ROA adjusted	
	t+1 (1)	t+1 (2)	t+2 (3)	t+2 (4)	t+1 (5)	t+1 (6)	t+2 (7)	t+2 (8)	t+1 (9)	t+1 (10)	t+2 (11)	t+2 (12)
Time	-0.224** (-2.05)	-0.147** (-2.67)	-0.267** (-2.61)	-0.061** (-2.56)	-3.634* (-4.35)	-34,532* (4.24)	-45,634** (-34.5)	-3,453* (-4.45)	-0.452** (2.12)	-1.245* (-2.34)	-22.355** (-3.45)	-34.556** (-2.63)
80%		-0.13** (-2.32)		-0.155** (-2.71)		24,520 (0.45)		24,450 (1.47)		-15.32* (-3.45)		-12.45* (-1.35)
Threshold												
Relative size		-0.042 (-1.42)		-0.048** (-3.29)		-45,532 (-0.543)		0.845 (0.10)		1.240 (-0.22)		-14.3* (-3.5)
Deal value		0.153 (1.44)		0.117** (2.25)		-84,553 (-2.34)		-45,540 (-1.13)		-4,560 (-0.46)		5,430 (0.33)
Control variables	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Constant	0.823	-0.583	-0.014	-0.325	2,350	13,530	243,430	234,200	-34,550	46,540	124,220	234,320
N	96	96	96	96	96	96	96	96	96	96	96	96
R-square	3.71%	6.80%	12.36%	22.31%	1.34%	5.30%	2.40%	5.42%	4.55%	6.54%	2.34%	15.43%

Note(s): *, **, *** refers to the statistical significance at the 10, 5, and 1%, respectively
The following table shows the results of Model 2. t+1 and t+2 indicates respectively one year after the business combination and two years after the business combination. Each equation includes the control variables indicated in the methodology section, which for readability purpose are not explicitly shown in the below table
Source(s): Authors own creation or created by author

Table 6.
Cross-sectional OLS regression for buy and hold strategy adjusted, EBITDA% adjusted and ROA% adjusted in t+1 and t+2 (Model 2)

Variables	Buy and hold		EBITDA %		ROA	
	$t+1$ (1)	$t+2$ (2)	$t+1$ (3)	$t+2$ (4)	$t+1$ (5)	$t+2$ (6)
Dummy SPAC	−0.754***	−1.186***	−10.96***	−16.05***	−7.862***	−14.47***
	(0.0156)	(0.0277)	(0.528)	(0.902)	(0.262)	(0.570)
Control variables	YES	YES	YES	YES	YES	YES
Constant	0.481***	0.791***	9.331***	13.08***	5.940***	8.461***
N	192	192	192	192	192	192
R-square	9.57%	9.59%	8.09%	8.10%	904.00%	9.08%

Note(s): *, **, *** refers to the statistical significance at the 10, 5, and 1%, respectively
The following table shows the results of Model 1. $t+1$ and $t+2$ indicates respectively one year after the business combination and two years after the business combination. Each equation includes the control variables indicated in the methodology section, which for readability purpose are not explicitly shown in the below table
Source(s): Authors own creation or created by author

Table 7.
Fixed effect regression – Model 1

Variables	Buy and hold		EBITDA %		ROA	
	$t+1$ (1)	$t+2$ (2)	$t+1$ (3)	$t+2$ (4)	$t+1$ (5)	$t+2$ (6)
Time	−0.277*	−0.578***	−0.718***	−0.411***	−0.309**	−0.511**
	(0.152)	(0.210)	(0.586)	(0.101)	(0.138)	(0.322)
80% Threshold	−0.0223*	0.164	−0.914*	−0.821	−1.219**	−2.233**
	(0.176)	(0.244)	(0.681)	(1.170)	(1.598)	(0.677)
Relative size	−0.00503	−0.0266*	0.0674	−0.0826	−0.181*	−0.284*
	(0.0118)	(0.0164)	(0.0457)	(0.0787)	(0.107)	(0.122)
Deal value	0.0320	0.0149*	−0.0995	0.245	0.269	0.111
	(0.0428)	(0.0593)	(0.165)	(0.284)	(0.388)	(0.055)
Control variables	YES	YES	YES	YES	YES	YES
Constant	−0.614	0.956	−0.667	−2,487	−3,127	8.461***
N	96	96	96	96	96	96
R-square	0.153	0.253	0.719	0.245	0.212	9.08%

Note(s): *, **, *** refers to the statistical significance at the 10, 5, and 1%, respectively
The following table shows the results of Model 2. $t+1$ and $t+2$ indicates respectively one year after the business combination and two years after the business combination. Each equation includes the control variables indicated in the methodology section, which for readability purpose are not explicitly shown in the below table
Source(s): Authors own creation or created by author

Table 8.
Fixed effect regression for buy and hold strategy, EBITDA% and ROA% in $t+1$ and $t+2$ (Model 2)

price performance is exacerbated over extended periods (after two years post-business combination), as shown in the significant decrease in stock market returns during the second year. Similarly, although to a lesser extent, this downward trajectory is mirrored in the operating profitability metrics. These findings corroborate H1 and H2 and are consistent with prior literature (Dimitrova, 2017). Therefore, validating these hypotheses underscores the consistent underperformance of SPACs relative to the chosen matched group, suggesting that SPAC targets generally exhibit lower quality than their peers.

Furthermore, our analysis reveals a negative association between the time it takes for a SPAC to complete a business combination and its subsequent performance, a trend that amplifies over time, in line with previous research (Axelson *et al.*, 2009; Degeorge *et al.*, 2016; Gahng *et al.*, 2023). Additionally, examining the impact of the 80% threshold, we find a statistically significant negative relationship between buy-and-hold performance and ROA. This result suggests that overpaying for smaller targets to prevent SPAC liquidation or secure a controlling stake adversely affects these metrics, confirming our H3 and H4.

Several managerial implications stem from the abovementioned results. Firstly, the time required to complete business combinations is essential as prolonged acquisition periods (close to the two-year limit) generally relate to lower performance. The findings demonstrate how perverse incentives embedded in the SPAC contract may encourage some SPAC sponsors and underwriters to make bad acquisitions to collect their equity compensation and defer underwriting fees, respectively.

Secondly, overpayment risks must be managed carefully; the findings on the 80% threshold suggest that overpaying to avoid liquidation or to secure control can negatively impact share price performance and EBITDA margin. Therefore, it is crucial to negotiate terms that reflect actual market value. Lastly, management should stay updated on regulatory developments and advocate for policies that support the sustainable growth of SPACs, structuring deals that are compliant and beneficial in the long term. By focusing on these aspects, management can better navigate the complexities of acquisitions, improve performance outcomes, and enhance stakeholder value.

Overall, our findings demonstrate all hypotheses. They underscore a consistent pattern of underperformance by SPACs compared to matched peers, particularly evident in operating profitability and buy-and-hold returns, which deteriorate over time. The analysis highlights the significance of factors such as the duration of acquisition execution and proximity to the 80% threshold in influencing SPAC performance.

7. Conclusions, implications, and future lines of research

Amidst the ever-expanding domain of digital entrepreneurial finance, our study takes a unique approach to understanding the performance of SPACs. We delve into their distinctive structure and operational advantages, exploring their enduring performance through the lens of stock prices (buy-and-hold strategy) and operational profitability metrics—specifically, EBITDA% and ROA—over a two-year horizon. By extending the observation period beyond the timeframe provided by previous research, we add more years to assess whether SPAC performance exhibits temporal deterioration.

The research findings confirm a consistent pattern of underperformance by SPACs compared to matched peers of IPOs, particularly in terms of operating profitability and buy-and-hold returns over 1 and 2 years, which is in line with Dimitrova (2017). However, the research also reveals that this underperformance tends to worsen with time, shedding light on the dynamic nature of SPAC performance and confirming that their long-term results are still uncertain (Datar *et al.*, 2023). Therefore, the paper contributes to the literature by exploring the impacts of intrinsic and extrinsic factors on the operating and market performance of SPACs post-combination and by highlighting potentially misaligned incentives within the broader agency theory framework within the inherent structure of SPACs, which could drive managers towards value-destroying acquisitions to unlock equity compensation. Moreover, the research emphasizes that while SPACs are generally less affected by market uncertainties during the fund-raising stage, these uncertainties significantly influence the size and share of the SPAC market (Schill, 2004).

The practical implications of our research are particularly pertinent in light of the increasing prominence of SPACs in the IPO market. While several investors highlight the advantages of SPAC mergers for digital asset companies, our research findings, which underscore the consistent underperformance of SPACs, hold crucial implications for investors and policymakers. Investors need to be aware of the potential risks associated with SPAC investments, considering the observed negative performance trends over 1 and 2 years. This aspect is especially relevant in the fast-paced digital economy, where companies seeking funding rely on speed and flexibility. Policymakers can use this information to

reevaluate regulatory frameworks surrounding SPACs and ensure adequate institutional investor protection.

Furthermore, the insights gleaned from this study can address the conflict-of-interest conundrum sponsors face within SPACs. Despite regulatory interventions aimed at mitigating this conflict, the enduring poor long-term performance of SPACs relative to their peers underscores the persistent nature of this challenge. It is imperative to align the interests of sponsors with those of SPAC investors to sustain the appeal and adoption of SPACs as an alternative route to accessing the financial ecosystem. The relevance of this issue is underscored by recent regulatory actions, such as the SEC's 2022 regulation, signalling heightened scrutiny and potential reforms in this domain (Dimic *et al.*, 2023). As such, the forthcoming outcomes of these regulatory measures bear significant implications for the future trajectory of SPACs, with the potential to ameliorate many of the prevailing challenges plaguing this investment vehicle, as posited by academic discourse.

While our study provides insights into the performance dynamics of SPACs and their implications for entrepreneurial finance, it is essential to acknowledge certain limitations. The methodology employed in our study exhibits strengths in terms of quantitative rigour, a focused timeframe, and a comparative analysis with matched IPOs. Our concentrated analysis of SPACs executing business combinations from 2010 to 2019 provides a deep understanding of this specific period while including a matched IPO group enhances the reliability of our assessments. However, the geographical focus on the U.S. SPAC market may limit the applicability of our findings to global contexts with different regulatory environments. Relying exclusively on quantitative methods may overlook qualitative factors influencing SPAC performance and external factors beyond SPACs' sponsors or investors' control, such as geopolitical events, which could, in turn, influence firm performance. These considerations highlight the importance of a balanced approach, incorporating both quantitative and qualitative methods, considering a broader timeframe, and exploring SPAC dynamics across global markets for a comprehensive understanding of the perverse contract incentive phenomenon. Moreover, our study concentrates on the post-business combination phase, leaving room for further exploration of the pre-merger stage and its influence on subsequent performance. Examining the negotiation and selection processes during this earlier phase could unveil critical insights into the drivers of SPAC's success or failure.

In conclusion, by outlining the impacts of intrinsic and extrinsic factors on their post-business combination phase, our findings underscore the importance of aligning sponsor interests with shareholder value, providing essential insights for investors, policymakers, and industry practitioners navigating the dynamic intersection of finance and digital evolution.

References

Axelson, U., Strömberg, P. and Weisbach, M.S. (2009), "Why are buyouts levered? The financial structure of private equity funds", *The Journal of Finance*, Vol. 64 No. 4, pp. 1549-1582, doi: 10. 1111/j.1540-6261.2009.01473.x.

Barth, J.R., Gu, M. and Liu, J. (2023), "SPACs: an overview and assessment of returns", *The American Journal of Economics and Sociology*, Vol. 82 No. 2, pp. 129-139, doi: 10.1111/ajes.12498.

Battisti, E., Nirino, N., Leonidou, E. and Thrassou, A. (2022), "Corporate venture capital and CSR performance: an extended resource based view's perspective", *Journal of Business Research*, Vol. 139, pp. 1058-1066, doi: 10.1016/j.jbusres.2021.10.054.

Beltrame, F., Grassetti, L., Bertinetti, G.S. and Sclip, A. (2023), "Relationship lending, access to credit and entrepreneurial orientation as cornerstones of venture financing", *Journal of Small Business and Enterprise Development*, Vol. 30 No. 1, pp. 4-29, doi: 10.1108/JSBED-07-2021-0281.

Bertoni, F., Bonini, S., Capizzi, V., Colombo, M.G. and Manigart, S. (2022), "Digitization in the market for entrepreneurial finance: innovative business models and new financing channels", *Entrepreneurship Theory and Practice*, Vol. 46 No. 5, pp. 1120-1135, doi: 10.1177/10422587211038480.

Blomkvist, M. and Vulanovic, M. (2020), "SPAC IPO waves", *Economics Letters*, Vol. 197, 109645, doi: 10.1016/j.econlet.2020.109645.

Boyer, C.M. and Baigent, G.G. (2008), "SPACs as alternative investments: an examination of performance and factors that drive prices", *The Journal of Private Equity*, Vol. 11 No. 3, pp. 8-15, doi: 10.3905/jpe.2008.707198.

Brown, M. (2020), *Number of Special Purpose Acquisition Companies (SPACs) Seeking Acquisitions in the United States in 2020, by Sector*, Statista, available at: https://www.statista.com/statistics/1232122/number-spacs-usa-by-sector/ (accessed 10 June 2024).

Castellani, V., Muller, K.A. and Park, K.J. (2024), "Investor reaction to SPACs' voluntary disclosures", *The Accounting Review*, Vol. 99 No. 1, pp. 105-137, doi: 10.2308/TAR-2022-0003.

Chatterjee, S., Chidambaran, N.K. and Goswami, G. (2016), "Security design for a non-standard IPO: the case of SPACs", *Journal of International Money and Finance*, Vol. 69, pp. 151-178, doi: 10.1016/j.jimonfin.2016.07.005.

Cumming, D., Hass, L.H. and Schweizer, D. (2014), "The fast track IPO - success factors for taking firms public with SPACs", *Journal of Banking and Finance*, Vol. 47, pp. 198-213, doi: 10.1016/j.jbankfin.2014.07.003.

Datar, V., Emm, E.E. and Han, B. (2023), "Performance of ESG SPACs", *Managerial Finance*, Vol. 50 No. 1, pp. 198-227, doi: 10.1108/MF-04-2023-0249.

Degeorge, F., Martin, J. and Phalippou, L. (2016), "On secondary buyouts", *Journal of Financial Economics*, Vol. 120 No. 1, pp. 124-145, doi: 10.1016/j.jfineco.2015.08.007.

Del Giudice, A. and Signori, A. (2024), "Sponsor reputation and agency conflicts in SPACs", *International Review of Financial Analysis*, Vol. 92, 103054, doi: 10.1016/j.irfa.2023.103054.

Deloitte (2022), *Digital asset Companies and SPACs: what Emerging Companies Should Know*, Deloitte, available at: https://www2.deloitte.com/us/en/pages/audit/articles/spac-cryptocurrency.html (accessed 12 June 2024).

Dezi, L., Battisti, E., Ferraris, A. and Papa, A. (2018), "The link between mergers and acquisitions and innovation: a systematic literature review", *Management Research Review*, Vol. 41 No. 6, pp. 716-752, doi: 10.1108/MRR-07-2017-0213.

Dimic, N., Goodell, J.W., Piljak, V. and Vulanovic, M. (2023), "Acquisition determinants of energy SPACs: reflecting a closed group?", *Finance Research Letters*, Vol. 55, 104001, doi: 10.1016/j.frl.2023.104001.

Dimitrova, L. (2017), "Perverse incentives of special purpose acquisition companies, the 'poor man's private equity funds'", *Journal of Accounting and Economics*, Vol. 63 No. 1, pp. 99-120, doi: 10.1016/j.jacceco.2016.10.003.

EY (2021), *Distribution of Proceeds from Traditional IPOs and Special Purpose Acquisition Company (SPAC) IPOs in the United States from 2016 to 2021. In Statista*, available at: https://www.statista.com/statistics/1234501/size-traditional-spac-ipo-usa/ (accessed 12 June 2024).

Fadil, N. and St-Pierre, J. (2021), "Growing SMEs and internal financing: the role of business practices", *Journal of Small Business and Enterprise Development*, Vol. 28 No. 7, pp. 973-994, doi: 10.1108/JSBED-11-2019-0375.

Ferretti, R. and Meles, A. (2011), "Underpricing, wealth loss for pre-existing shareholders and the cost of going public: the role of private equity backing in Italian IPOs", *Venture Capital*, Vol. 13 No. 1, pp. 23-47, doi: 10.1080/13691066.2010.543321.

Gahng, M., Ritter, J.R. and Zhang, D. (2023), "SPACs", *The Review of Financial Studies*, Vol. 36 No. 9, pp. 3463-3501, doi: 10.1093/rfs/hhad019.

Ghosh, A. (2001), "Does operating performance really improve following corporate acquisitions?", *Journal of Corporate Finance*, Vol. 7 No. 2, pp. 151-178, doi: 10.1016/S0929-1199(01)00018-9.

Gomber, P., Koch, J.-A. and Siering, M. (2017), "Digital Finance and FinTech: current research and future research directions", *Journal of Business Economics*, Vol. 87 No. 5, pp. 537-580, doi: 10.1007/s11573-017-0852-x.

Healy, P.M., Palepu, K.G. and Ruback, R.S. (1992), "Does corporate performance improve after mergers?", *Journal of Financial Economics*, Vol. 31 No. 2, pp. 135-175, doi: 10.1016/0304-405X(92)90002-F.

Jenkinson, T. and Jones, H. (2009), "IPO pricing and allocation: a survey of the views of institutional investors", *Review of Financial Studies*, Vol. 22 No. 4, pp. 1477-1504, doi: 10.1093/rfs/hhn079.

Jenkinson, T. and Sousa, M. (2009), "Why SPAC investors should listen to the market", *SSRN Electronic Journal*, Vol. 21 No. 2, doi: 10.2139/ssrn.1341771.

Jensen, M.C. and Meckling, W.H. (1976), "Theory of the firm: managerial behavior, agency costs and ownership structure", *Journal of Financial Economics*, Vol. 3 No. 4, pp. 305-360, doi: 10.1016/0304-405X(76)90026-X.

Jog, V.M. and Sun, C. (2007), "Blank check IPOs: a home run for management", *SSRN Electronic Journal*. doi: 10.2139/ssrn.1018242.

Klausner, M.D. and Ohlrogge, M. (2020), "A sober look at SPACs", *SSRN Electronic Journal*, Vol. 39, p. 228, doi: 10.2139/ssrn.3720919.

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

Lakicevic, M. and Vulanovic, M. (2013), "A story on SPACs", *Managerial Finance*, Vol. 39 No. 4, pp. 384-403, doi: 10.1108/03074351311306201.

Lakicevic, M., Shachmurove, Y. and Vulanovic, M. (2014), "Institutional changes of specified purpose acquisition companies (SPACs)", *The North American Journal of Economics and Finance*, Vol. 28, pp. 149-169, doi: 10.1016/j.najef.2014.03.002.

Lewellen, S.M. (2009), "SPACs as an asset class", *SSRN Electronic Journal*, p. 1284999, doi: 10.2139/ssrn.1284999.

Merendino, A. and Melville, R. (2019), "The board of directors and firm performance: empirical evidence from listed companies", *Corporate Governance: The International Journal of Business in Society*, Vol. 19 No. 3, pp. 508-551, doi: 10.1108/CG-06-2018-0211.

Naumovska, I. (2021), "The SPAC bubble is about to burst", in *Harvard Business Review*.

Okutan Nilsson, G. (2018), "Incentive structure of special purpose acquisition companies", *European Business Organization Law Review*, Vol. 19 No. 2, pp. 253-274, doi: 10.1007/s40804-018-0105-7.

Panda, B. and Leepsa, N.M. (2017), "Agency theory: review of theory and evidence on problems and perspectives", *Indian Journal of Corporate Governance*, Vol. 10 No. 1, pp. 74-95, doi: 10.1177/0974686217701467.

Schiavone, F., Pietronudo, M.C., Sabetta, A. and Bernhard, F. (2022a), "Designing AI implications in the venture creation process", *International Journal of Entrepreneurial Behavior and Research*, Vol. 29 No. 4, pp. 838-859, doi: 10.1108/IJEBR-06-2021-0483.

Schiavone, F., Pietronudo, M.C., Sabetta, A. and Ferretti, M. (2022b), "Total quality service in digital era", *The TQM Journal*, Vol. 35 No. 5, pp. 1170-1193, doi: 10.1108/TQM-12-2021-0377.

Schill, M.J. (2004), "Sailing in rough water: market volatility and corporate finance", *Journal of Corporate Finance*, Vol. 10 No. 5, pp. 659-681, doi: 10.1016/S0929-1199(03)00045-2.

Tran, A.L. (2012), "Blank check acquisitions", *SSRN Electronic Journal*. doi: 10.2139/ssrn.2070274.

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