

# The SPAC-ification of Space (Or: A Guide to Financing Your Space Company)

*Iliana Griva\**

## Abstract

The days when the conduct of space activities was an “invitation-only party” for governmental agencies and their guests are long gone. Apart from the popular personas and firms that have monopolized the spotlight for some time, the private sector's footprint in space is expanding at a fast rate. Thus, not only did Jeff Bezos announce his “retirement” from Amazon to dedicate more time in his Blue Origin venture, but also an increasing number of space start-ups are emerging around the globe due - inter alia - to the lowering of launch costs. Admittedly though, companies involved in the space industry are not in the business of making money - at least not yet. An inevitable question that arises is how these companies will raise the capital necessary to invest in RD, until their bottom line reflects their prospected valuations. Lately, a vehicle that has proven popular among the IPO-shy group of space companies is reverse mergers through special-purpose acquisition companies (SPACs). The rise of SPACs in capital markets has also led to the heated debate whether they are an acceptable means of “going public”, virtually democratizing finance, or whether the lack of regulation will be another “black hole” in the history of financial markets. Initially, the present paper briefly addresses the ambiguous nature and varied acceptance of SPACs in capital markets globally. It then turns to an elaborate examination of cross-border mergers between space start-ups and SPACs, which are anticipated in the months ahead. The paper further attempts to assess their potential implications, in particular whether SPACs are an optimal manner to finance companies with high-end innovation expectations, and what standards of Corporate

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\* Faculty of Law/Saïd Business School, University of Oxford, St Cross Building, St Cross Road, Oxford, OX1 3UL, [iliana.griva@law.ox.ac.uk](mailto:iliana.griva@law.ox.ac.uk). ONASSIS Foundation Scholar | Foundation for Education and European Culture Scholar.

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Governance should be expected thereby. Moreover, the respective regulatory lacuna is juxtaposed to the requirement of close supervision of space activities in general. In conclusion, the paper reflects upon the democratization of space by comparing this capital-raising technique with public-private partnerships. In essence, the promotion of innovation and the survival of new players in heavily regulated realms, as is outer space, depends upon investment-friendly policies, even beyond long-standing geopolitical rivalries. To that effect, financing techniques via governmental subsidies, and their respective compliance with applicable regional regulation, is examined as an alternative.

**Keywords:** corporate finance, space companies

### Acronyms/Abbreviations

ETF	Exchange Traded Fund
FAA	Federal Aviation administration
Inc.	Incorporated
NASA	National Aeronautics and Space Administration
P&L	Profit & Loss
PIPE	Private Investment in Public Entity
SPAC	Special Purpose Acquisition Vehicle
SEC	Securities & Exchange Commission
SPCE	Virgin Galactic Holdings Inc (NYSE)
UAE	United Arab Emirates
US	United States
USSR	Union of Soviet Socialist Republics

## 1. Introduction

This paper addresses the issue of corporate funding of space companies, mainly focusing of NewSpace undertakings, from a contemporary perspective. On introductory note (2.1), upon defining the basic term underlying this work (“SPAC”/“Special Purpose Acquisition Vehicle”), the paper briefly explores the current state of affairs regarding SPACs in global capital markets, especially the US stock exchanges (2.2). Subsequently, taking some distance from a solely government-backed venturing perspective, the paper reflects upon the privatization of the space industry (3.1), the nascent interest of global investor, and the role of this interest in shifting funding methods towards a more agile model (3.2). The paper then turns to its main objective, namely, to examine the rise of space-oriented SPACs, running through some of the most significant deals, past and prospected. In doing so, the potential pitfalls of such an approach are addressed to draw a specific conclusion about the optimal corporate financing vehicle for space companies and space activities in general.

The present paper is a combination of market research and law-based analysis, aiming at suggesting standards for the formation of policy in terms of financing space activities to encourage innovation and entrepreneurship. It is not a technical financial paper and does not attempt to directly or indirectly challenge the financial results of the examples specifically cited. The paper also excludes mathematical assessments of returns on investment in completed and liquidated SPACs nor does it analyse deal structuring at the time of the business combination. It rather attempts to capture the sentiment of investors and to examine the effect of space companies' introduction in stock exchanges for enhancement of investors' and market's interest.

## **2. The Rise of SPACs in Global Capital Markets**

In this section, we briefly address the meaning of "SPACs", and the how's and why's of the extravagant rise of this corporate form in the past couple of years, that drew unprecedented attention.

### **2.1. Introductory Note**

A Special Purpose Acquisition vehicle, or SPAC, also known as "blank check company" (hereinafter "SPAC"), is a company with no commercial operations, formed strictly to raise capital through an initial public offering (hereinafter "IPO") for the purpose of acquiring an existing company. Investors in SPACs can range from well-known private equity funds to the general public. SPACs are set up by sponsors with the aim to raise money and eventually merge with an existing company within two years. Within this time limit, the SPAC should have identified its merger target, negotiated and completed the deal, as well as complied with all reporting requirements; otherwise, the company must dissolve and return its funds to investors (*i.e.* the public stockholders).

In essence, the function of SPACs can be simply summed up as follows: juxtaposed to a traditional IPO, where a company's announcement of its intention to go public is followed by a long and elaborate disclosure process to end up with input of investors' money, a SPAC puts in place a reverse IPO. Particularly, the funds are assembled and put into what is essentially a publicly traded "shell" company, with minimal disclosure obligations given its minimal business operations.

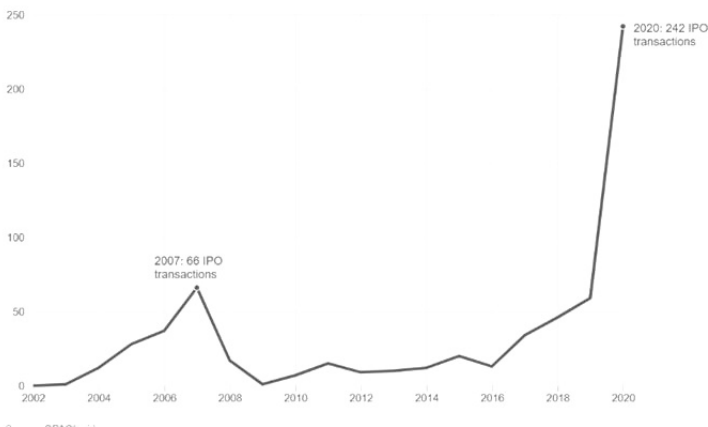
At the time of their IPOs, SPACs have no existing business operations or even stated targets for acquisition. It is usually the case though that a SPAC is formed with expertise in a specific industry, a range of industries, or a business sector, which is focal for its founders. Thus, the company seeks to identify targets with high growth prospects within this industry(-ies) and pursue a deal thereof. Nowadays, a multitude of space-oriented SPACs have emerged in the global scene (see below, subsection 4.1).

Should the SPAC manage to duly and timely fulfil the business combination, the merger effectively confers the SPAC’s capital and stock-market listing to the target firm, often with additional investment at the time of the business combination. This complementary financing is normally arranged as input from additional institutional equity financing and structured as a “PIPE” (Private Investment in Public Equity) to allow for larger deal sizes, as well as to deal with potential redemptions by SPAC holders at the time of the merger.

Upon completion of the reverse IPO, the target has become a publicly traded company, quite notably without undergoing the time-consuming process of a “real” IPO.

## 2.2. The Recent SPAC Boom

Descending from the “blank-check corporations” of the 1980s, which were infamous scamming vehicles, and were then reinvented to provide more safeguards for investors, SPACs remained unpopular for a couple of decades. Having seen a short-lived flurry of interest in the 2000s, they were pushed back until late the very 2010s. But in 2020, SPAC launches had quadrupled since 2019.<sup>1</sup> The number of combinations announced could validly support the claim that a new trend had arisen in capital markets.



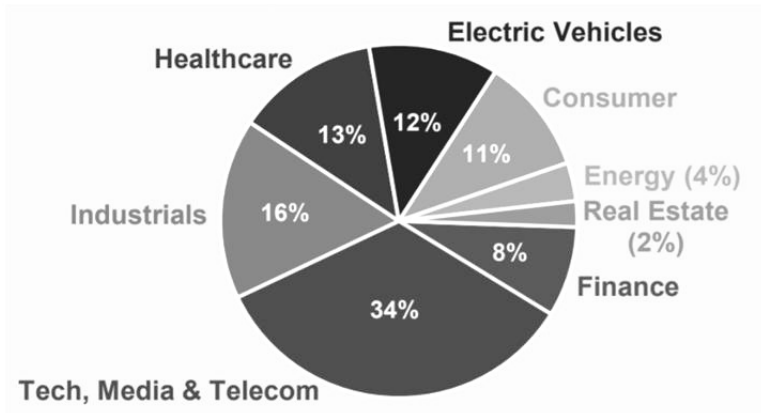
Graph 1. Number of SPAC IPOs in 20-year span

Source: *SPACInsider.com*

1 C. Domonoske, *The Spectacular Rise Of SPACs: The Backwards IPO That’s Taking Over Wall Street*, 29 December 2020, <https://www.npr.org/2020/12/29/949257672/the-spectacular-rise-of-spacs-the-backwards-ipo-thats-taking-over-wall-street?t=1631879576062>, (accessed 30 September 2021).

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By volume – and by number of issuing companies – SPACs represented around 50% of all new IPOs since the dawn of 2019.<sup>2</sup> In terms of sector focus, completed SPAC IPOs dating from January 2019 have been dominated by technology, electric vehicle, healthcare and industrial companies (e.g. aerospace, specialty chemicals, metals & mining).



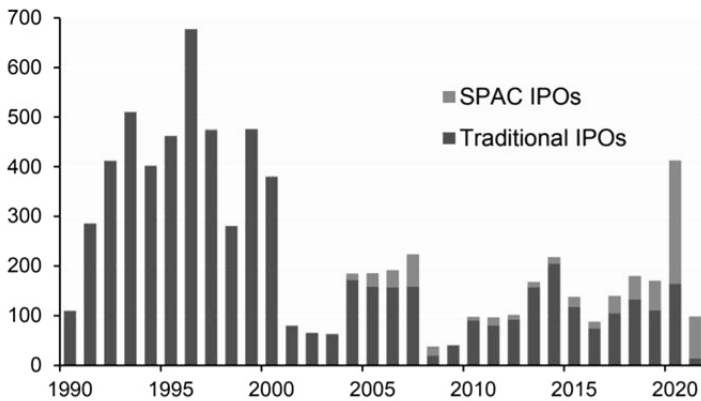
Graph 2. Sector breakdown of companies brought public via SPACs since 2019, % of companies

Source: Dealogic, Bloomberg, JPMAM. January 2021 ( $n = 85$  companies)

These companies generally tend to be early-stage and unprofitable.<sup>3</sup> All the while, as of mid-January 2020, 52 SPACs had announced mergers that have not been completed (yet) and 264 SPACs are keeping an eye on companies to merge with. And the numbers keep going up.

2 M. Cembalest, J.P. Morgan, *Hydraulic Spacking: The SPAC capital raising boom, and why Biden's early stage energy policies are more likely to increase oil imports rather than reduce emissions*, 8 February 2021, <https://am.jpmorgan.com/content/dam/jpm-am-aem/global/en/insights/eye-on-the-market/hydraulic-spacking-nl.pdf>, (accessed 30 September 2021).

3 According to a JPMorgan Asset Management Report, 69 of the 85 companies examined had negative free cash flow or negative net income.



Graph 3. US IPOs by type (vertical axis: number of IPOs/year)

Source: Jay Ritter, *University of Florida, Dealogic*. January 2021.

The SPAC boom is largely originating in the model's inherent advantages - speed, control and less founder uncertainty. These built-in features combined with a highly volatile market in the context of a global pandemic created ideal circumstances for investors to actively seek alternative, more risk-tolerant destinations for their excess cash.

On a cautionary note, however, the Securities and Exchange Commission ("SEC") has repeatedly warned investors regarding the risks of investing in SPACs, at the very least taking a defensive stance against this boom cycle. The US regulatory watchdog is also investigating at least a handful of SPACs, following concerns raised over the accuracy of disclosures thereof.<sup>4</sup>

A recent lawsuit raised before the US Courts by a group of legal professionals, including former U.S. Securities and Exchange Commissioner Robert Jackson, against three blank-check acquisition firms (GO Acquisition, E.Merge Technology Acquisition Corp and Bill Ackman's Pershing Square Tontine Holdings), accusing the SPACs of operating illegally by not registering as investment companies, has drawn further attention to the issue.<sup>5</sup> The potential blowback of using such a financing vehicle, with a particular focus on space-focused companies, is analysed further below (subsection 4.2).

4 Andrew Ross Sorkin, *The Dealbook Newsletter*, The New York Times, 21 August 2021, (accessed 17 September 2021).

5 N. Nishant, Reuters, *U.S. law firm group pushes back on lawsuits calling for SPAC regulation*, 27 August 2021, <https://www.reuters.com/legal/litigation/us-law-firm-group-pushes-back-lawsuits-calling-spac-regulation-2021-08-27/>, (accessed 30 September 2021).

### 3. The Outlook of a Space Investor at the Dawn of the 2020s

In this section, we concisely present a current overview of the space industry as formed by the trends of privatization, globalization, and NewSpace in the most recent decades. We then attempt to identify the key characteristics of SPACs that, in the context of this market, might present a special appeal to space entrepreneurs.

#### 3.1. The Trends of the Post-Cold War Space Industry

Following the end of the Cold War era, *inter alia* an era of harsh competition between the US and USSR in the area of space capabilities, there followed a time of noteworthy international cooperation. The globalization forces and the collapse (or at least the relaxation) of barriers of international trade, along with a wide cooperation for the protection of intellectual property rights, supported by concurrent treaty making in the global scene, largely contributed to what appeared to be at the time an international confidence-building project. At its peak, this project resulted in the launch of the International Space Station, infamously referred to in international literature as the most remarkable example of international cooperation.

The costs and risks of space activities are undoubtedly handled more efficiently when shared, both in terms of financial backing and of expertise. Thus, it can be assumed that serious space venturing cannot derive from a one-State-only endeavour. Nevertheless, the innate national security concerns raised in the context of any space-related activity along with the grave escalation of geopolitical tensions in recent years have created serious barriers in interstate space projects.

At the other end of the spectrum, private investors and companies have not been discouraged by national defence concerns or nationalist-minded adversities. On the contrary, over the past few decades, a privatization trend has been observed in the space realm, overtaking the bureaucratic and budget-restrictive policies of national space agencies. In this framework, privatization refers to the increasing role of private actors in space activities, either autonomously or as contractors providing goods and services to government-based space agencies.

From the launch of SpaceShipOne in 2004<sup>6</sup> to the 2015 US Commercial Space Launch Competitiveness Act,<sup>7</sup> all the way to the Artemis Accords<sup>8</sup> and

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6 T. Sharp, *SpaceShipOne: The First Private Spacecraft*, 5 March 2019, <https://www.space.com/16769-spaceshipone-first-private-spacecraft.html>, (accessed 30 September 2021).

7 U.S. Commercial Space Launch Competitiveness Act, Public Law 114-90-NOV. 25, 2015.

8 NASA, *The Artemis Accords Principles for Cooperation in the Civil Exploration and Use of the Moon, Mars, Comets, and Asteroids for Peaceful Purposes*, <https://www.nasa.gov/specials/artemis-accords/img/Artemis-Accords-signed-13Oct2020.pdf>.

the launch of non-trained astronauts into space in 2021,<sup>9</sup> a major commercialization trend has brought into being a new approach in space activities, commonly referred to as “NewSpace”.<sup>10</sup> NewSpace is not only comprehensive of innovative technologies in space but also constitutes an umbrella term for the movement affiliated with this emergent private spaceflight industry *per se*.<sup>11</sup> With declining launch costs and reusability-oriented solutions and privately owned firms are on the way to establish scalable business models. One survey estimates that the global space economy could produce revenue of more \$1 trillion in 2040, up from \$350 billion today.<sup>12</sup>

### 3.2. Why Did SPACs Grab the Attention of Space Entrepreneurs?

In order to answer the question posed in this subsection, we examine why SPACs appeal to any investor in the first place. In short, we can primarily (and not exclusively) enumerate the following reasons:

- SPACs provide a speedy way to the public market. As aforesaid, lately investor appetite for risky assets is on the rise driving an increasing amount of capital towards equities; private companies are capitalizing on this demand. SPACs as such allow private companies to exert greater control over allocation of shares to institutional holders;
- the SPAC market provides a venue for new and risky companies to enter the publicly traded club. As mentioned above, many SPAC mergers involved companies with negative free cash flows. Also, sponsors have pressing motives to close SPAC transactions to avoid loss of their upfront expenses.
- during the SPAC marketing process to potential investors (institutional and retail), management is allowed to provide internal financial projections (as opposed to traditional IPOs). This may lead

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9 S. Gorman, Billionaire Branson soars to space aboard Virgin Galactic flight, *Reuters*, 12 July 2021, <https://www.reuters.com/lifestyle/science/virgin-galactics-branson-ready-space-launch-aboard-rocket-plane-2021-07-11/>, (accessed 30 September 2021); P. Rincon, Jeff Bezos launches to space aboard New Shepard rocket ship, *BBC*, 20 July 2021, <https://www.bbc.co.uk/news/science-environment-57849364>, (accessed 30 September 2021); A. Thompson, *SpaceX launches four civilians into orbit on historic Inspiration4 flight*, 16 September 2021, <https://www.space.com/spacex-launches-inspiration4-civilian-orbital-mission>, (accessed 30 September 2021).

10 L.D. Solomon, *The Privatization of Space Exploration: Business, Technology, Law and Policy*, Transaction Publishers, New Brunswick, New Jersey, 2008.

11 N. Frischauf, NewSpace: New Business Models at the Interface of Space and Digital Economy: Chances in an Interconnected World, *New Space* Vol. 6 No. 2 (2018).

12 Morgan Stanley, *Space: Investing in the Final Frontier*, 24 July 2020, <https://www.morganstanley.com/ideas/investing-in-space>, (accessed 30 September 2021).



to companies with a lot of uncertainty about future prospects still going public with notable investor backing;

- SPACs usually market themselves as a cheaper route for capital raising, providing a suitable funding source for companies with high expenditure.

In reviewing these indicative advantages, SPACs naturally constitute a particularly attractive financing method for space companies.<sup>13</sup> The latter, featuring high R&D expenses, risky undertakings, and uncertain returns, all along with the vast *lacunae* on the national and international spatial regulatory regimes adding another layer of insecurity, are at first sight discouraging for any risk-averse or, quite honestly, moderate investor. Add lack of profit at the time when capital raising is most needed (not to mention the long-term horizon of no earnings at all) and it becomes apparent that space companies would hardly withstand the scrutiny of a traditional IPO.

On the other hand, at least two reasons provide solid arguments in favour of space companies going public: firstly, as all companies in any other industry, they too see the public market as an opportunity to raise capital, which is vital for the survival of their innovation-driven operations. Secondly, as often argued these days, making companies accessible to the wide public is a way of democratizing finance.

In view of the pandemic-induced spike in retail trading, these two arguments set a very distinguished tone for space companies: amongst a social media frenzy around the popularity of specific personas and industries and the wide accessibility of stock trading, is this the moment which all space entrepreneurs should momentarily capitalize on so as to i) get their hands on some necessary cash, and ii) make space venturing mainstream in public opinion to push for more extra-terrestrial business? And if this window of opportunity is missed, are space activities doomed to return to a monotone development pace set by space agencies strictly abiding by partisan policy and budgets?

#### 4. Space Companies & SPACs

This section touches upon the emergence of space SPACs and the issues raised thereof. To achieve a more focal analysis, we start by presenting the most well-known deals (completed and announced) between SPACs and private space companies to date. We then turn to a short discussion about the most significant risks of this undertaking and conclude by enumerating a few alternative paths.

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13 Renaissance Capital, *To the moon: Space startups shoot for SPAC mergers*, 3 March 2021, <https://www.renaissancecapital.com/IPO-Center/News/78712/To-the-moon-Space-startups-shoot-for-SPAC-mergers>, (accessed 30 September 2021).

#### 4.1. Examples of Space Companies Going Public Through SPACs

After Virgin, which premiered the space SPAC scene under the epic SPCE name, more than a handful of space companies have been eyeing the SPAC vehicle as an attractive method of launching into the public market. Although not profit-generating just yet, innovative early stages companies can access capital markets funds utilising forward-looking statements, including projected revenues. This is exactly the case for Astra, which has already announced its intention to merge with an existing SPAC in view of its plan to begin commercial launches in the near future.<sup>14</sup> This practice, nevertheless, has not gone unnoticed by the regulatory authorities, which are more focused on protecting existing and potential investors from vague revenue projections that go far into the involved parties' business plan.<sup>15</sup>

But as time goes by, the trend does not seem to go away and, despite some discouraging results in the general SPAC market, at least six other companies have shared their intention to proceed to a similar deal. The industry is increasingly drawing investors' attention, with Ark Investment Management filing an offering for its Space Exploration ETF under the symbol ARKX.<sup>16</sup> Planet, one more to join the cohort of companies going public via SPAC, with accounts managed by world-leading investment manager Blackrock, expects to see a positive bottom-line by 2025.<sup>17</sup>

The total capital raised via SPACs by aerospace and defence companies reaches \$11 billion in only the first quarter of 2021.

#### 4.2. Why SpaceX Won't IPO: Pitfalls & Alternative Financing Vehicles for Space Venturing

The common risks of a SPAC IPO are well-known and enumerated in many literature sources ranging from misaligned goals between the SPAC management team and the operating company management, to delayed timelines, and unpreparedness of the operating company to hold to the

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14 S. McBride, Branson's Flight Validates the Space SPACs That Virgin Started, *Bloomberg Businessweek*, 12 July 2021, <https://www.bloomberg.com/news/articles/2021-07-12/space-companies-eye-spacs-after-virgin-galactic-spce-test-flight>, (accessed 30 September 2021).

15 For example, Momentus Inc., joint launcher in the context of a SpaceX mission, was forced to revise its revenue projection to \$0, as it fell under the FAA's national concerns radar.

16 C. Katje, 9 Space SPACs For Investors To Consider Ahead Of Ark Space ETF, *yahool!finance*, 28 March 2021, [https://finance.yahoo.com/news/9-space-spacs-investors-consider-114038677.html?guce\\_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce\\_referrer\\_sig=AQAAADo5bgXuRuruHii-9oiAgVCx](https://finance.yahoo.com/news/9-space-spacs-investors-consider-114038677.html?guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAADo5bgXuRuruHii-9oiAgVCx), (accessed 30 September 2021).

17 R. Jewett, Planet Joins Space SPACs, Plans To Go Public in \$2.8B Deal, *Satellite today*, 7 July 2021, <https://www.satellitetoday.com/business/2021/07/07/planet-joins-space-spacs-plans-to-go-public-in-2-8b-deal/>, (accessed 30 September 2021).

responsibilities of a public registrant.<sup>18</sup> Even more extreme scenarios, but not too rare in practice, include the risk of deal collapse or, even more so, the increasing number of fraud cases.

In the space market however, we argue that the potential blowback of a reverse IPO differs, and is potentially more severe, because it does not exclusively affect the investor side. In particular, one could assume that speedy though it might be, the risk-bearing SPAC IPO boom in the space domain might have long-term repercussions on investor-confidence towards the entire industry. The recent experience in SPAC performance is not as encouraging as one would aspire, and space companies' viability raise compounded feelings of concern given the small addressable market. Even a very successful IPO may not have the expected return on investment in the long run, especially as the nascent technological landscape rapidly evolves.<sup>19</sup> Such investor sentiment may have the opposite effect than desired. Should scientific and technological expectations not realize, or realize with extreme delays, both of which are not unusual instances in space activities, the worst outcome is not that investors might withdraw their funds. Rather, it is possible that such failure (normally anticipated in risky entrepreneurial undertakings) will generate a long-term reluctance of investors and the public to encourage innovation in spatial activities.<sup>20</sup> In turn, governmental support and budgeting will be restricted accordingly. This could take the space industry decades back.

On a final note, the concerns raised must also account for the side of the space companies *per se*. Namely, for many of the companies acquired by SPACs, current values are practically a “steal” should estimations of projected revenue realize. As one of the cornerstones in valuation companies is comparable companies analysis, the nascent space economy landscape does not allow for much room to navigate in terms of accounting management. In this respect, the valuation basis for small-satellite companies could be space tourism providers and vice versa. Nevertheless, potential returns and future involvement in their respective business models vary in all possible respects.<sup>21</sup>

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18 J. Stewart, *Beware of These Five SPAC Risks*, 8 June 2021, <https://middlemarketgrowth.org/the-portfolio-beware-of-these-five-spac-risks/>, (accessed 30 September 2021).

19 M. Luinaud, W. Ricard, *The Promises and Pitfalls of SPACs for the Space Economy*, *Satellite Today*, June 2021, <http://interactive.satellitetoday.com/via/june-2021/the-promises-and-pitfalls-of-spacs-for-the-space-economy/>, (accessed 30 September 2021).

20 E. Sherman, *5 Lessons from the rise and fall of SPACs*, *Forbes*, 27 April, 2021, <https://www.forbes.com/sites/zengernews/2021/04/27/5-lessons-from-the-rise-and-fall-of-spacs/?sh=7ea35de87cb0>, (accessed on 30 September 2021).

21 S. Erwin, *Analysts: Space SPACs can be a steal or a shot in the dark*, *Space News*, 23 August 2021, <https://spacenews.com/analysts-space-spacs-can-be-a-steal-or-a-shot-in-the-dark/>, (accessed on 30 September 2021).

In view of this potential blowback, we suggest that conservative though it may sound, conventional funding means constitute a safer path not only for corporations and investors individually but for the industry in its entirety. We indicatively include in the notion of “conventional”, for the case under examination, traditional IPOs - once the company in question is mature enough to proceed accordingly - as well as government backing such as subsidies in the form of cash, tax incentives, and government-guaranteed loans from private banking institutions. We also underline the potential of public-private partnerships, which contribute to the creation of an agile environment for business operations with the assertion of ongoing regulatory compliance and adjustable timelines.

## **5. Conclusions**

In a nutshell, after establishing the basis for our discussion around SPACs and their economic potential, we have examined the numerous cases of space-oriented SPACs, as well as the potential advantages and drawbacks of their function for the space industry. Admittedly, people have envisioned a space-for-space economy since the very dawn of the Space Age. This vision though has gone largely unmet to this day. However, the momentum in global financial markets gives the impression that investors are positively eyeing the placement of private capital into space.

Indeed, the risk tolerance and profit motive have generated a unique window of opportunity, for a transformational space economy. This opportunity is arguably to be seized or missed. Nevertheless, in exploiting the momentum, one should not neglect to have forward thinking, and assess the sustainability of the space economy. Ensuring a viable investing environment for the long term is equally crucially as seizing this chance, and probably more important than short-term profit-making.

In view of the above, and without prejudice to the financial results of the deals completed or announced, which are yet to be seen, we conclude that a sufficiently risky but stable investing path should be preferred in order to maintain the high growth prospects of this nascent industry.