

# THE SPAC MARKET

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## INTRODUCTION

Special purpose acquisition companies (SPACs) exploded in popularity in the past few years, to such a degree that they made up 60% of IPOs in 2020, 66.3% in 2021, and 69.4% in 2022.<sup>1</sup> Celebrities from Colin Kaepernick to Jay-Z have launched SPACs,<sup>2</sup> but perhaps the most feverish attention came in October 2021, when a SPAC called Digital World Acquisition Corp (DWAC) announced plans to acquire Trump Media & Technology Group (TMTG), a social media company headed by former president Donald Trump.<sup>3</sup>

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1. See *infra* note 21 and accompanying text.

2. See source cited *infra* note 13.

3. Dan Mangan, Yun Li & Christina Wilkie, *Shares in Digital World Acquisition Soar by 400 Percent on News of Social Media Deal with Trump*, NBC NEWS (Oct. 21, 2021, 1:23 PM), <https://www.nbcnews.com/business/markets/shares-digital-world-acquisition-soar-145-percent-news->

The SPAC frenzy has now abated, a casualty of some combination of higher interest rates, regulatory crackdown, and oversupply.<sup>4</sup> But the SPAC phenomenon was an innovation in the capital markets unprecedented since the very beginning of modern securities markets in 1933.<sup>5</sup> If SPACs are dead, an autopsy is in order.

It has been conventional to decry SPACs as exploiting the rules to create an end run around the more vexatious aspects of the traditional IPO process.<sup>6</sup> On this view, SPACs can be dismissed as mere regulatory arbitrage, a product of pandemic-fueled retail investing exuberance best left in the rear-view mirror.

This article rejects that view. We argue that SPACs represent more than back-door, low-rent IPOs. They create a new kind of market for private companies—*that*, and not regulatory sleight-of-hand, is their real innovation. In a companion paper we describe how, in the buildup to the IPO, the Securities Act of 1933 (the “‘33 Act”) tightly constrains the kind of information a private company can disclose and the manner in which it is disclosed. This approach, premised on the assumption that the public is prone to hysteria, results in information trickling out over time. Only when the regulators and underwriters deem the offering ready for the public will they greenlight the IPO. Thus, U.S. securities law intentionally structures a traditional IPO by decoupling the accumulation of information about a still-private company from the time when it begins to trade.<sup>7</sup>

Although SPACs trade on the NYSE and the NASDAQ, they represent a fundamentally different kind of market from the traditional exchanges upon which they trade. SPACs’ chief innovation is to allow the public to trade on information about private companies before they ever actually go public.

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social-media-n1282061 [https://perma.cc/8ZH9-4SRJ]; Madeline Halpert, *Shares of Trump’s Truth Social SPAC Rise After Merger Vote Delayed Again*, FORBES (Sept. 9, 2022, 8:44 AM), <https://www.forbes.com/sites/madelinehalpert/2022/09/09/shares-of-trumps-truth-social-spac-rise-after-merger-vote-delayed-again/?sh=2d7bcdd67161> [https://perma.cc/6N6T-HCBF].

4. See Michael Klausner, Michael Ohlrogge & Emily Ruan, *A Sober Look at SPACs*, 39 YALE J. ON REG. 228, 290–98 (2022); The Editorial Bd., *The Making of an Electric-Vehicle Fiasco*, WALL ST. J. (June 14, 2021, 5:36 PM), [https://www.wsj.com/articles/the-making-of-an-electric-vehicle-fiasco-11623710171?mod=searchresults\\_pos20&page=3](https://www.wsj.com/articles/the-making-of-an-electric-vehicle-fiasco-11623710171?mod=searchresults_pos20&page=3) [https://perma.cc/59XP-JPJ5]; see also Halpert, *supra* note 3.

5. Michele Corgatelli, *The Golden Year (so Far) of the SPAC Phenomenon*, FORDHAM J. CORP. & FIN. L. BLOG (Feb. 7, 2021), <https://news.law.fordham.edu/jcfl/2021/02/07/the-golden-year-so-far-of-the-spac-phenomenon/> [https://perma.cc/QEW3-ERNQ].

6. See, e.g., Gary Gensler, Chairman, Sec. Exch. Comm’n, Remarks Before the Healthy Markets Association Conference (Dec. 9, 2021), <https://www.sec.gov/news/speech/gensler-healthy-markets-association-conference-120921> [https://perma.cc/5T5D-MYQ9].

7. See Usha R. Rodrigues & Michael Stegemoller, *Inequity in Equities*, 49 BYU L. REV. (forthcoming 2024) (manuscript at 22–23) (on file with authors).

To understand this market, first an understanding of SPAC mechanics is critical. Conceptually, however, SPACs are simple. They go public at a price of \$10, then commence a time-limited hunt for an acquisition target—a private company looking to access the public markets.<sup>8</sup> The money from the IPO is set aside in escrow, and shareholders have a right to redeem their shares and get their \$10 back (plus interest) at the time of the merger, or if a merger does not occur. In this subsequent acquisition, termed the “de-SPAC,” the once-private firm instantly becomes public.<sup>9</sup> The de-SPAC is thus the functional equivalent of an IPO, effected via merger rather than public offering. And in the time period between announcement of a proposed target and the closing of the merger, the SPAC shares reflect, in a truncated and indirect form, the value of the still-private target. This is the SPAC market.<sup>10</sup>

So, the SPAC market exposes the general public to the value of still-private firms. Whether this exposure is a net benefit is a policy question. For investors, there is the possibility of rich reward but also accompanying risk. On the company side, SPACs offer the potential to bring companies to the public markets that the traditional IPO process overlooks, thus potentially reinvigorating the public capital markets and fostering growth.<sup>11</sup>

The fundamental question is whether this novel market SPACs create—composed of private companies yet open to the public—is worth preserving. This paper aims to describe a key characteristic of the SPAC market—indeed, of any market: its liquidity. We have two main findings and one philosophical observation. We begin, as one always should, with philosophy.

It has become commonplace to refer to SPACs in recent years as experiencing a “bubble.”<sup>12</sup> But a “bubble,” in financial terms, generally

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8. EVA SU, CONG. RSCH. SERV., IF11655, SPAC IPO: BACKGROUND AND POLICY ISSUES 1 (2021), <https://crsreports.congress.gov/product/pdf/IF/IF11655> [<https://perma.cc/S8B9-7DLQ>]; Christian A. Johnson, *Financial Innovation and Unforeseen Consequences: SPACs, SEC Lending, and Shorts*, 45 U. ARK. LITTLE ROCK L. REV. 177, 180 (2022).

9. See Su, *supra* note 8; OFF. OF INV. EDUC. & ADVOC., SEC. EXCH. COMM’N, WHAT YOU NEED TO KNOW ABOUT SPACS – UPDATED INVESTOR BULLETIN (May 25, 2021) [hereinafter UPDATED INVESTOR BULLETIN], <https://www.sec.gov/oiea/investor-alerts-and-bulletins/what-you-need-know-about-spacs-investor-bulletin> [<https://perma.cc/YE78-6HCQ>].

10. See Rodrigues & Stegemoller, *supra* note 7 (manuscript at 3–4).

11. Max H. Bazerman & Paresch Patel, *SPACs: What You Need to Know*, 99 HARV. BUS. REV. 102 (2021), <https://hbr.org/2021/07/spacs-what-you-need-to-know> [<https://perma.cc/T5CJ-EBYA>]; see Rodrigues & Stegemoller, *supra* note 7.

12. See, e.g., Jon Sindreu, *The SPAC Bubble Is Burst. It May Be Time to Invest.*, WALL ST. J. (Sept. 14, 2021, 6:40 AM), <https://www.wsj.com/articles/the-spac-bubble-is-burst-it-may-be-time-to-invest-11631619621> [<https://perma.cc/A3WN-UP52>]; Michael Klausner & Emily Ruan, *The SPAC Bubble May Burst—and Not a Day Too Soon*, WALL ST. J. (Jan. 6, 2021, 5:25 PM), <https://www.wsj.com/articles/the-spac-bubble-may-burstand-not-a-day-too-soon-11609975529> [<https://perma.cc/YASZ-JECB>].

refers to a situation where an asset's price exceeds its fundamental value.<sup>13</sup> SPACs, before the de-SPAC, generally held their value at around \$10 per share, even at peak frenzy.<sup>14</sup> They remained what they had always been—essentially, an option to buy into the shares of a still-private company. Before the announcement of the target, they were a bet (or an option to bet) on SPAC management. After the announcement, they created an indirect optionality on the information in a still-private company.

We have traced SPACs' evolution over almost two decades. Consequently, we take the long view. Certainly, in the 2020–21 time period, the SPAC market exploded.<sup>15</sup> Especially after 2017, when 73% of SPACs listed on the NASDAQ and 23% listed on the NYSE, a robust market in these companies developed.<sup>16</sup> It arguably became oversaturated—indeed, we believe that it did. But it is imprecise to refer to SPACs as an asset class as experiencing a bubble—what they saw was rapid growth. This observation—that SPACs were not a bubble—is more than semantic: it sets the stage for the liquidity data that follow.

Our first key point is that liquidity increased markedly from 2019–22.<sup>17</sup> Where in 2010–17 we see relatively little liquidity, in 2019–22 we see much more. The question of what to make of this marked increase in liquidity is complicated. One plausible takeaway may be the limited utility of generalizing much from this most recent period in the evolution of the SPAC form; it remains to be seen the extent to which it was an aberration.

Yet another development occurred over the span of our sample—SPACs conquered the major national exchanges. In the period from 2010–12, there were few SPACs, and most did not list on a national exchange, but rather traded over-the-counter (OTC). Only after 2013 were a majority of SPACs listed on the NASDAQ, and only in 2017 did they begin to list on the NYSE.<sup>18</sup> So while we see an increase in liquidity in recent years, we must keep in mind how relatively new SPACs are to the national exchanges.

The second finding relates to a theme in both our companion pieces: as currently structured, SPACs suffer from a fatal flaw. They allow shareholders to vote for proposed mergers and still redeem their shares—to approve a transaction while simultaneously heading for the exit. We argue

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13. Erik F. Gerding, *Laws Against Bubbles: An Experimental-Asset-Market Approach to Analyzing Financial Regulation*, 2007 WIS. L. REV. 977, 988.

14. See Usha R. Rodrigues & Michael Stegemoller, *Redeeming SPACs*, 50 F. St. L. Rev. (forthcoming Dec. 2023) (manuscript at 8) (on file with authors).

15. See *infra* Table 3.

16. See *infra* Table 1.

17. See *infra* Table 3.

18. See Bob Pisani, *An Unusual 'Blank Check Company' Just Began Trading on the NYSE for the First Time Ever*, CNBC (May 5, 2017, 2:11 PM), <https://www.cnbc.com/2017/05/05/unusual-blank-check-company-began-trading-nyse-for-first-time.html> [<https://perma.cc/NY5L-ZXQ4>]; *infra* Table 1.

in *Redeeming SPACs* for the recoupling of the vote and redemption right to avoid this perverse result.<sup>19</sup>

It turns out, as we show in *Redeeming SPACs*, that redemption levels provide a fairly good sorter of value-increasing de-SPAC transactions. Those with high levels of redemptions are quite bad for shareholders that remain through the de-SPAC, but those with low levels of redemptions are quite good.<sup>20</sup>

Our second finding in this paper is that this same bifurcation exists in the SPAC market when it comes to liquidity. Shares that suffer from low liquidity have high redemptions, and those with high liquidity are SPACs where the majority of shareholders stay in. We further present evidence from the regulatory record that certain SPACs struggled to maintain minimum numbers of shareholders, a lack of numerosity that indicates a poor level of liquidity.

The levels of liquidity we find, however, are striking. For the low-redemption firms, we find levels of liquidity in the SPAC market that compare favorably against measures in the public market for new IPOs. But firms with high levels of redemptions not only suffer from low liquidity—that level of liquidity is markedly lower than that of recent IPOs.

It remains to be seen whether the SPAC market maintains the levels of liquidity of 2019–22. In some sense, though, that question is irrelevant. The fundamental question remains: is the market SPACs create one worth having? And, properly understood, our data show that such a market can function; that is, it can provide a level of liquidity on par with that of the IPO market. Much like Michael Milkin created a market for junk bonds—excuse us, high-yield debt—SPACs demonstrate the viability of a public market for information on private firms and a demand for firms with higher valuation risk than those that typically undertake an IPO. The question whether such a market is advisable remains for another day.

## I. BACKGROUND

### A. Popularity

The IPO market in recent years has surged, and SPACs make up a significant and unusually high share of those IPOs: 25.6% percent in 2018,

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19. See Rodrigues & Stegemoller, *supra* note 14 (manuscript at 41).

20. *Id.* (manuscript at 40–42, 56).

34.5% in 2019, 60.0% in 2020, 66.3% in 2021, and 69.4 % in 2022.<sup>21</sup> This staggering increase has meant that SPACs are now driving a considerable portion of the total IPO market. Celebrities have launched SPACs in noteworthy numbers, prompting warnings from the SEC in an investor alert specifically tailored to the phenomenon.<sup>22</sup> Celebrities, sports stars, and politicians from Ciara to Shaquille O’Neal to Paul Ryan have launched their own SPACs or been associated with their founding.<sup>23</sup> Just as notably, there have been several high-profile SPAC failures, including Nikola Motor Company and Lordstown Motors, which led to potential criminal and civil securities fraud charges.<sup>24</sup>

Toward the end of 2021, SPAC IPO activity sharply decreased, in part because of worries that regulatory intervention was imminent and in part because of broader market factors.<sup>25</sup> On March 30, 2022, the SEC formally proposed new rules to regulate SPACs.<sup>26</sup> These proposals provide for regulation by the Commission of many aspects of SPAC formation and de-SPAC transactions, all of which is driven by the aim of “[a]ligning [d]e-SPAC [t]ransactions [w]ith [IPOs]”—or leveling the playing field between them.<sup>27</sup> After the release of the SEC’s proposed rules, 2022 SPAC activity continued to fluctuate. Before the proposed rules, fifty-four U.S.-listed

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21. In 2018, there were 46 SPACs as compared to 134 traditional operating company IPOs; in 2019, 59 as compared to 112; in 2020, 248 as compared to 165; and in 2021, 613 as compared to 311. JAY R. RITTER, INITIAL PUBLIC OFFERINGS: UPDATED STATISTICS 47 tbl.15a (2021), <https://site.warrington.ufl.edu/ritter/files/IPO-Statistics.pdf> [<https://perma.cc/3SA2-Z4HP>] (excluding SPACs, closed-end funds, REITS, unit offers, IPOs with an offer price of less than \$5.00, commercial banks and savings and loan companies not promptly listed on the Amex, NYSE, or NASDAQ, natural resource master limited partnerships, small best-efforts offers, and foreign companies issuing American Depositary Receipts).

22. OFF. OF INV. EDUC. & ADVOC., SEC. EXCH. COMM’N, CELEBRITY INVOLVEMENT WITH SPACs – INVESTOR ALERT (Mar. 10, 2021), <https://www.sec.gov/oiea/investor-alerts-and-bulletins/celebrity-involvement-spacs-investor-alert> [<https://perma.cc/6QX7-GFHL>] (“*It is never a good idea to invest in a SPAC just because someone famous sponsors or invests in it or says it is a good investment.*”).

23. Amrith Ramkumar, *The Celebrities from Serena Williams to A-Rod Fueling the SPAC Boom*, WALL ST. J. (Mar. 17, 2021, 4:32 AM), <https://www.wsj.com/articles/the-celebrities-from-serena-williams-to-a-rod-fueling-the-spac-boom-11615973578> [<https://perma.cc/5R2H-JZP8>].

24. Matthew Goldstein & Niraj Chokshi, *Nikola Founder Is Charged with Fraud in Rebuke to Wall Street*, N.Y. TIMES (July 29, 2021), <https://www.nytimes.com/2021/07/29/business/nikola-trevor-milton-fraud.html?searchResultPosition=1> [<https://perma.cc/3X4W-9LQE>].

25. See Press Release, EY, YTD 2022 Saw Dramatic Slowdown in Global IPO Activity from a Record Year in 2021 (June 30, 2022), [https://www.ey.com/en\\_gl/news/2022/06/ytd-2022-saw-dramatic-slowdown-in-global-ipo-activity-from-a-record-year-in-2021](https://www.ey.com/en_gl/news/2022/06/ytd-2022-saw-dramatic-slowdown-in-global-ipo-activity-from-a-record-year-in-2021) [<https://perma.cc/BWB2-3K9H>].

26. SPACs, Shell Companies, and Projections, 87 Fed. Reg. 29458 (May 13, 2022) (to be codified at 17 C.F.R. pts. 210, 229, 230, 232, 239, 240, 249, 270).

27. *Id.* at 29465, 29476.

SPACs had listed in the first quarter of 2022.<sup>28</sup> After the proposed rules were released, the second quarter of 2022 saw only fourteen new SPACs listed.<sup>29</sup>

### B. Literature

The literature on IPOs is vast, as is the literature on liquidity. We do not try to summarize it here. We have previously published two papers on SPACs, now almost a decade ago.<sup>30</sup> With the most recent SPAC surge, there has been a corresponding increase in interest in the form. The recent empirical literature has not focused much on the question of liquidity, however.

## II. SPACs

SPACs begin with a sponsor—who receives 20% of the SPAC—if, and only if, it completes an acquisition.<sup>31</sup> The sponsor then works with an investment bank to sell the SPAC shares to the public through an initial public offering.<sup>32</sup> But a SPAC IPO is relatively painless because it has little to disclose and the drafting of the registration statement is a relatively easy affair. No details regarding the SPAC's operating history or current operations are necessary—the firm has no operations at all.<sup>33</sup> It is merely a shell.<sup>34</sup> It essentially asks investors to give it money for a future, as-yet-unidentified acquisition.

At IPO, a SPAC sells *units*, a hybrid security consisting of two components—one share of common stock and one warrant.<sup>35</sup> Pricing a SPAC also requires no expertise in valuation as compared to the arduous book-building process for a traditional IPO because, by convention, the offering's price is merely the amount set to be raised divided by the shares

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28. See WHITE & CASE, US DE-SPAC & SPAC DATA & STATISTICS ROUNDUP (2022), [29. \*Id.\*](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwjKqLHf35P-AhXenWoFHb_DBiEQFnoECAoQAQ&url=https%3A%2F%2Fwww.jdsupra.com%2Fpost%2FfileServer.aspx%3FfName%3D9866acd1-5983-4d5e-b24e-d2ea61497a2f.pdf&u sg=AOvVaw0PFH7rleKpDToiRVD-NMK5 [https://perma.cc/7HT3-RFY4].</a></p></div><div data-bbox=)

30. Usha Rodrigues & Mike Stegemoller, *Exit, Voice, and Reputation: The Evolution of SPACs*, 37 DEL J. CORP. L. 849 (2013) [hereinafter Rodrigues & Stegemoller, *Exit, Voice, and Reputation*]; Usha Rodrigues & Mike Stegemoller, *What All-Cash Companies Tell Us About IPOs and Acquisitions*, 29 J. CORP. FIN. 111 (2014) [hereinafter Rodrigues & Stegemoller, *What All-Cash Companies Tell Us*].

31. SU, *supra* note 8, at 2.

32. *Id.* at 1.

33. Daniel S. Riemer, *Special Purpose Acquisition Companies: SPAC and Span, or Blank Check Redux?*, 85 WASH. U. L. REV. 931, 933, 933 n.11 (2007) (describing the emptiness of a SPAC).

34. Rodrigues & Stegemoller, *Exit, Voice, and Reputation*, *supra* note 30, at 871.

35. UPDATED INVESTOR BULLETIN, *supra* note 9.

issued, calculated mechanically to arrive at \$10 per unit.<sup>36</sup> After the IPO, the warrant and stock decouple and can then be traded separately. The accompanying warrants are a form of option exercisable, typically at \$11.50, if and only if the SPAC acquires a target.<sup>37</sup>

The sponsor places the proceeds from the IPO into an escrow account, where they are invested in government-backed securities and earn a small amount of interest.<sup>38</sup> The sponsors then embark on a hunt for a likely target.<sup>39</sup> The SPAC shareholders are investing in the unknown, trusting in the skill of the SPAC managers to find a good target. This may feel risky—and, indeed, is—but the SPAC form crucially seeks to reassure its shareholders with the fail-safe protection of a redemption right.<sup>40</sup>

SPAC shareholders have the right to redeem their shares, taking back their share of the trust account—usually \$10 per share, plus a modest amount of interest thanks to money the sponsors contribute.<sup>41</sup> They can exercise this redemption right under two circumstances: just before the merger is accomplished, or if the SPAC fails to find a target and its shelf life expires.<sup>42</sup>

Theoretically, at least, the value of the common stock has a floor equal to the redemption price, which is the price paid for the unit (again, usually \$10.00). In practice, the price of some SPACs dips below \$10 per share—never more than a few cents, presumably because of a discount for the time value of money, in this case the cost of waiting for a redemption or liquidation event.<sup>43</sup>

This is another key feature of SPACs: they are time-bound. SPAC managers do not have an unlimited amount of time to search for a likely target. Initially, SPACs lasted two years; in our sample, the average SPAC allows for 22.5 months for completion, although the median—24 months—is somewhat higher because a number of SPACs allow for fewer months to close a deal.

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36. See Johnson, *supra* note 8, at 180; Rodrigues & Stegemoller, *supra* note 14 (manuscript at 8).

37. CFA INST., THE NEW AGE OF SPECIAL PURPOSE ACQUISITION COMPANIES 1, 7 (May 2022), <https://www.cfainstitute.org/-/media/documents/article/position-paper/cfa-spac-investors.pdf> [<https://perma.cc/RU7S-YQ8G>].

38. Rodrigues & Stegemoller, *Exit, Voice, and Reputation*, *supra* note 30, at 876.

39. See Klausner, Ohlrogge & Ruan, *supra* note 4, at 236–37.

40. See *id.* at 237.

41. See *infra* Table 2 (showing price converging at \$10 per share).

42. Klausner, Ohlrogge & Ruan, *supra* note 4, at 242–46.

43. See Simon Moore, *SPAC Premiums Reach New Highs, Market Seems Frothy*, FORBES (Jan. 1, 2021, 9:30 AM), <https://www.forbes.com/sites/simonmoore/2021/01/01/spac-premiums-reach-new-highs-market-seems-frothy/?sh=5655c1183706> [<https://perma.cc/GP9X-CEQV>].

In short, the SPAC organizers basically offer this promise to their shareholders: Give us your money for a limited time, and we'll search for a target. Once we find one, you can stay with us or get your money back. And if we do not find a target, you get your money back then, too.

Now, a reader would be forgiven for assuming that the money being held in the trust account would go to fund the eventual acquisition, if it takes place. That used to be the case. But in SPACs today, shareholders can vote yes for a merger *but still* redeem their shares—a point that our companion paper discusses at length.<sup>44</sup> Keep in mind for now that the redemption right provides a species of guarantee, a floor below which the value of a SPAC share should not fall very far.

With these ground rules in place, the SPAC managers begin their time-limited hunt for an acquisition target. Once they identify one, negotiations begin. If these bear fruit, then the SPAC announces the proposed acquisition. It makes public disclosures explaining the business combination and the process whereby shareholders will vote to approve or reject the transaction.<sup>45</sup> If the SPAC obtains the necessary shareholder vote (as it does in every case in our sample where the business combination is voted upon), the private company merges with the public SPAC shell and begins trading, usually under a new trading symbol.<sup>46</sup> If the SPAC fails to identify a target or conclude a deal within the time specified in the IPO, then the shareholders receive their escrowed money back, and the sponsors receive nothing.<sup>47</sup>

### III. (IL)LIQUIDITY IN THE SPAC MARKET

The definingly novel aspect of the SPAC market is its ability to allow trading on the value of still-private firms. This Part will examine an important facet of the SPAC market: its liquidity. Although SPACs began listing over-the-counter, over the course of our sample period, they migrated to list almost exclusively on the NYSE and the NASDAQ.

But although SPACs trade on these national exchanges, their shares are fundamentally different from those of their fellow listed companies. Part III will discuss these data, and Part IV their implications—but first, we need to

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44. Rodrigues & Stegemoller, *supra* note 14 (manuscript at 10).

45. Sean Donahue, Jeffrey Letalien & Brian Soares, *Going Public Through a SPAC: Current Issues for SPAC Sponsors and Private Companies*, MORGAN LEWIS (Dec. 2, 2020), <https://www.morganlewis.com/-/media/files/publication/presentation/webinar/2020/morganlewisgpcaspacpresentation12022020.pdf> [https://perma.cc/4HYC-JPSH].

46. Rodrigues & Stegemoller, *supra* note 7 (manuscript at 10).

47. Vinay Datar, Ekaterina Emm & Ufuk Ince, *Going Public Through the Back Door: A Comparative Analysis of SPACs and IPOs*, 4 BANKING & FIN. REV. 17, 19 (2012); see also Bazerman & Patel, *supra* note 11.

set the stage. Thus, in this Part, we begin with an examination of liquidity and why it matters.

*A. Why Liquidity Matters*

Among the most prestigious and liquid markets are the familiar national exchanges, the NASDAQ and the NYSE. This is where most academic research focuses, and where most large U.S. companies list—the home of the Dow Jones Industrial Average, the S&P 500, even the Russell 2000, which comprises smaller cap stocks. Most readers, when they think of the stock market at all, will naturally think of these highly liquid national markets. These markets are extremely robust and efficient. Billions of shares trade on these markets every day.

“Liquidity” is a term of some complexity, and because it will be a focus of this Part, we unpack it into several components. First, *immediacy*: in modern markets, at least, when trading can be accomplished electronically, without the need for a phone call confirmation or similar intermediate step, trading is more liquid because it is faster. Second, in liquid markets the *bid-ask spread is tight*—buyers and sellers are in relative accord about the market price of the stock. Third, more liquid markets have more *depth*, a term that focuses less on the bid-ask spread and more on the amount of buy and sell orders.<sup>48</sup>

All these measures of liquidity matter to the retail investor because they translate into the ability of shareholders to quickly and cheaply buy and sell stock at a price close to its market value.<sup>49</sup> Illiquid companies are risky for several reasons: First, shareholders may be stuck with shares and unable to sell quickly without losing money.<sup>50</sup> Second, the share prices of illiquid companies are highly volatile, and can experience wide fluctuations.<sup>51</sup> And third, the transaction costs associated with any sales could be substantial, simply because no regular functioning market exists for the shares.<sup>52</sup> In a real sense, an illiquid market is not a market as we often think of it, because with fewer sales and less volume investors have less confidence in the price they are quoted to buy and sell at any given time.

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48. Joel Hasbrouck, Securities Trading: Principles and Procedures 11 (Nov. 21, 2022) (unpublished manuscript), <https://pages.stern.nyu.edu/~jhasbrou/STPP/drafts/STPPms13c.pdf> [<https://perma.cc/P4U4-T8JL>].

49. JOSHUA T. WHITE, OUTCOMES OF INVESTING IN OTC STOCKS 8 (2016).

50. Matthew Davis, *Illiquidity Raises Investment Risk*, NAT'L BUREAU ECON. RSCH. (June 2004), <https://www.nber.org/digest/jun04/illiquidity-raises-investment-risk> [<https://perma.cc/FWF7-8KYT>].

51. Yakov Amihud, Haim Mendelson & Lasse Heje Pedersen, *Liquidity and Asset Prices*, 1 FOUNDS. & TRENDS FIN. 269 (2005).

52. *Id.* at 269–70.

The online trading platform Robinhood emphasizes the risks illiquidity poses:

[I]lliquid securities are difficult to price. When many people want to buy or sell shares in a company, the price will generally find an equilibrium between the level of supply and demand. But when few people transact . . . it's much harder to discover the fair price for the security. Low liquidity also means that investors might not have the opportunity to sell their [illiquid shares] after buying them. If nobody wants to purchase the shares, they might be stuck in the investor's account.<sup>53</sup>

Our data on SPAC liquidity really tell two stories. The first, as SPACs evolve and move to the mainstream, is of a relatively illiquid market; the second, once SPACs proliferate on the national markets, is of a much more liquid market.<sup>54</sup>

## *B. Trading Data on SPAC (Il)liquidity*

### *1. Methodology*

Our sample construction begins with the advanced search function of Nexis Uni. We search under “Company and Financial” and “SEC Filings” to find all S-1 filings on EDGAR from January 1, 2010, to December 31, 2020. We include all SPACs that attempt to undertake an IPO, and we do so in order to show the broadest scope possible with respect to the SPAC form—how it begins, and how it ends. We use FactSet, EDGAR filings, and Nexis Uni to collect specific data related to the proposed IPO, the actual IPO, redemptions, votes, and any business combination. We only use CRSP to obtain volume, trading, and shares outstanding data. Thus, we analyze volume and trading data for only the NYSE and NASDAQ listed SPACs in our sample.

Importantly, our ending date of S-1s filed by December 31, 2020, gives each SPAC sufficient time to complete both an IPO and the contractual length of the search for a target. Extending the date to include 2021 transactions would leave an incomplete picture, since many of these SPACs have yet to either acquire a target or, if ultimately unsuccessful in their acquisition bid, to fully redeem their shares.

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53. *What Are Penny Stocks?*, ROBINHOOD (Feb. 23, 2021), <https://learn.robinhood.com/articles/22PQFMiMMbT4PZX5OdUQoP/what-are-penny-stocks/> [<https://perma.cc/D5Y4-JKSV>].

54. *See infra* Table 5.

In our Nexis Uni search of EDGAR filings, we specify that the filing must be done by a company with an SIC code of 6770, which is the code for blank check companies, of which SPACs are a subset.<sup>55</sup> We add the restriction that “6770” must be near the term “Standard,” which will appear in the phrase “Primary Standard Industrial Classification Code Number.” From this set of companies, we delete both 1) firms subject to Rule 419, and thus by definition not SPACs, and 2) firms that are operating companies, but somehow retain the 6770 SIC due to a past transaction involving a SPAC. These screens produce a sample of 559 firms that file an S-1 as a blank-check company from 2010 to 2020.

## 2. *Descriptive Statistics*

Table 1 shows the characteristics of SPACs by the year in which the firm files its initial S-1. It is important to note that the year of the initial S-1 filing and the year of the IPO can be different because of the time it takes to complete an IPO. Thus, SPACs represented in the row for 2011 likely complete their acquisition in 2013 or even 2014.

For the first three years of our sample, less than two-thirds of the firms that file an S-1 ever actually complete an acquisition. 2012 represents the most lackluster class—only two SPACs filed for an IPO and neither made it to the public market. In columns (2) through (5) of 2020, we document that, of the 318 SPACs that file an S-1 intending to undertake an IPO, 315 accomplish an IPO, and only 190 acquire a target. This sample year is the only year represented in our sample in which some SPACs are still in process (i.e., they have neither closed a deal nor liquidated); there are 49 such SPACs. If the acquisition of a target is a measure of SPAC success, and both an inability to undertake an IPO and liquidation represent failure, then 74.5% (380 of 510) of the SPACs in our sample are successful by this most basic and value-neutral of measures.

Perhaps the most noteworthy statistic in Table 1 is the sheer volume of SPACs in the 2020 vintage. The 318 that file an S-1 in 2020 exceed the *combined* number of SPACs organized over the earlier ten years: 2010–19 saw 241 total SPACs organized, 216 of which IPO’d. These numbers are certainly consistent with a surge in numbers during this period that many have (erroneously, in our view) termed a bubble. A corresponding trend of

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55. We rely on Nexis Uni because an EDGAR search leaves out valid transactions since the SEC reclassifies the SPAC SIC into the SIC of the target after acquisition. For example, Social Capital Hedosophia Holdings Corp. was a blank check company with SIC code 6770 until it acquired Virgin Galactic Holdings, Inc. After the acquisition, the name of the SPAC became the target’s name and it was reclassified under Transportation Services (SIC 4700).

the 2020 vintage is an avalanche of liquidations: seventy-six, up from a previous high of five in 2019.<sup>56</sup>

Finally, Table 1 documents a marked trend of listings moving from primarily the Over-the-Counter Bulletin Board (OTCBB) to the major national exchanges, the NYSE and NASDAQ. The OTCBB was the exchange of choice for the majority of SPAC IPOs in the first three years of our sample. For the middle years in our sample, 2014–16, SPAC IPOs listed almost exclusively on the NASDAQ. In the last four years of our sample, the NASDAQ maintained a majority position in listing SPACs, but the NYSE attracted 24.1% and 39.6% of the SPAC IPOs in the 2019 and 2020 vintages, respectively. This move away from over-the-counter trading to the national exchanges shows SPACs entering the mainstream over the course of our sample period. Further, it is consistent with the idea that the form represents a risk that investors are willing to bear.

In Table 2, we detail some of the main characteristics of the 531 SPACs that complete an IPO. SPACs evolved into a standard unit offering over the course of our sample period, with a near-ubiquitous unit price of \$10.00 containing a warrant with a strike price of \$11.50.<sup>57</sup>

The final five rows document a few additional characteristics about the SPAC form. Months allowed for SPAC managers to find and purchase a target range from twelve to twenty-seven months—the trend has been toward constricting the allowable time period, in part because of threats from regulators and litigation.<sup>58</sup> In a change from our initial study spanning 2003–08, the trust account has swelled to average above 100% of the IPO proceeds—providing a guarantee that a redeeming SPAC shareholder will receive all her money back. Though untabulated, the trust amount never falls below 100% of the offering proceeds after 2011. The sponsor/founders own roughly 20% of the SPAC after IPO. Finally, apart from some unique

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56. Accelerating this trend was the passage of the Inflation Reduction Act of 2022, which many had interpreted to impose a 1% excise tax on SPACs that failed to complete an acquisition and instead liquidate by redeeming shares. The excise tax applied beginning January 1, 2023, and several SPACs attempted to liquidate early, even before their initially planned expiration date, to avoid the effect of this tax. *IRS Guidance Answers Certain Questions for SPACs on Applicability of Excise Tax, but Some Uncertainty Remains*, ROPES & GRAY (Jan. 5, 2023), <https://www.ropesgray.com/en/newsroom/alerts/2023/01/irs-guidance-answers-certain-questions-for-spacs-on-applicability-of-excise-tax> [<https://perma.cc/V5FT-GHPF>]. Ironically, on December 27 the IRS issued guidance stating that such redemptions in the context of a liquidation would not be subject to the tax—too late to comfort the SPACs that liquidated early to avoid its threat. I.R.S. Notice 2023-3, I.R.B. 374 (Jan. 17, 2023).

57. The mean reported in this period obscures the fact that some units offered one-half of a warrant and have a \$5.75 strike price. Of course, the holder of the warrant could not obtain fractional shares, so any warrant exercise would be \$5.75 times 2, yielding the standard \$11.50 strike price for a full warrant.

58. Andrew Ross Sorkin et al., *Bill Ackman's SPAC Gets Sued*, N.Y. TIMES (Aug. 17, 2021), <https://www.nytimes.com/2021/08/17/business/dealbook/bill-ackman-spac.html> [<https://perma.cc/W4N7-A8QD>].

solutions to underwriting spreads, the median underwriting expense for the IPO is 5.5% of IPO proceeds, with 3.5% of the gross amount deferred until the de-SPAC.

In sum, Tables 1 and 2 show the increasing standardization and growth of the SPAC form over time, with a spike of activity in the 2020 vintage.

### 3. (II) liquidity

We examine the trading characteristics of SPACs in the remaining tables.

Choosing which SPACs to include in the liquidity analysis took careful consideration. Recall that a SPAC goes public as an empty shell—it more or less creates an option allowing the holder to own shares in a yet-to-be-identified private company if and when the SPAC managers acquire one. Until a SPAC successfully negotiates a deal with a target, its periodic filings are humdrum affairs, consisting of reports on the amount of interest the escrow account is earning, perhaps some changes in personnel, but not much else. If a securities market is a market in information,<sup>59</sup> then we would anticipate that before announcement of a deal, there would be little trading—simply because there has been no disclosure of information worth trading on. SPACs trade at around \$10 because that price represents the redemption value.

After announcement of a proposed deal, however, things change. Now the market for information on a still-private company can begin. Again, the price trades with a floor of \$10—it should only increase in price if the value offered by SPAC managers (and accepted by target shareholders) is less than the intrinsic value of the target. Because our interest is in characterizing this market, in Table 3 we separate SPACs that never announced a deal—that simply fold up shop and liquidate (Panel C). In contrast, Panel B includes both SPACs that complete a deal and those that announce a deal, but then ultimately fail to complete it and liquidate.

Table 3 provides a year-by-year comparison of liquidity, using three different measures. We average each measure by SPAC by year. Thus, any given SPAC likely appears in at least two of the years represented in the table, since most SPACs have a two-calendar year timespan.

The three measures of liquidity used in Table 3 are used in the remainder of our analysis. *Turnover* is a standardized volume measure. It is the daily volume of the stock scaled by the number of shares outstanding. This measure allows trading volume to be comparable across SPACs of different size. *Percent of no volume days* measures the number of days with no

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59. David Easley & Maureen O'Hara, *Price, Trade Size, and Information in Securities Markets*, 19 J. FIN. ECON. 69 (1987).

volume—that is, when not a single share trades—scaled by the number of available trading days. Finally, *number of trades* is a daily measure of the number of trades made on each date for a security. Only NASDAQ provides these data, so this measure is not available for all SPACs in our sample.

We use these three measures because using turnover alone, with its reliance on averages, risks masking the overall torpor of an illiquid market: a few high-volume days of trading can create an unrepresentative picture if there are weeks with no trading at all. As discussed below, we find such conditions early in the sample period.

Of the three measures used in this analysis, turnover is found most frequently in the literature. We use studies of IPOs as our baseline for understanding the relative liquidity of SPACs. For U.S. IPOs in the lock-up period mean daily turnover is 0.47% (1995–99),<sup>60</sup> it is 0.14% for IPOs on the Euronext (1995–2008),<sup>61</sup> 1.32% for London Stock Exchange IPOs (1998–2000),<sup>62</sup> and 0.94% during the first year for U.S. IPOs (1988–2009).<sup>63</sup>

Table 3 shows that trading volume of SPAC common stock in the early part of our data is relatively thin. In comparison to IPOs in the United States (even in the lock-up period), it would be a stretch to characterize SPACs as liquid. In Panel A of Table 3, average daily turnover does not exceed 0.25% until after 2017. Moreover, a third to well over half of trading days have no trading volume for the average SPAC prior to 2019. The average number of trades per day does not reach that of IPOs in the lock-up period (with a mean of fifty-nine) until 2018. Though a relatively small part of our sample, those SPACs that liquidate having never announced a deal exhibit lower liquidity measures than those that announce a transaction.

Liquidity improves dramatically in the later years of our sample, being comparable to IPOs on the LSE and the first year of trading for a robust sample of U.S. IPOs. SPAC liquidity improves markedly beginning in 2020 through the last quarter of 2022 (the most recent data available). Turnover in 2020 and 2021 is 1.3% and 1.9%, respectively. The average number of days with no trading falls well below 10% and the average number of trades per day is almost triple that of 2018, with 2020 and 2021 exceeding an average of over 1,000 trades per day. Overall, Table 3 is consistent with a

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60. Charles Cao, Laura Casares Field & Gordon Hanka, *Does Insider Trading Impair Market Liquidity? Evidence from IPO Lockup Expirations*, 39 J. FIN. & QUANTITATIVE ANALYSIS 25, 31 (2004).

61. Nesrine Bouzouita, Jean-François Gajewski & Carole Gresse, *Liquidity Benefits from IPO Underpricing: Ownership Dispersion or Information Effect*, 44 FIN. MGMT. 785, 791 tbl.1 (2015).

62. Andrew Ellul & Marco Pagano, *IPO Underpricing and After-Market Liquidity*, 19 REV. FIN. STUD. 381, 400 tbl.3 (2006).

63. TeWhan Hahn, James A. Ligon & Heather Rhodes, *Liquidity and Initial Public Offering Underpricing*, 37 J. BANKING & FIN. 4973, 4978 tbl.1 (2013).

marked shift in SPAC volume and trading as SPACs begin to trade on the NYSE and as the number of SPACs brought to market increases. We do not speculate on causality. Table 3.b compares IPO data from previous studies with SPAC turnover data, using SPACs that announce targets—the most liquid of the SPACs we observe.

In Table 4, we examine a few SPAC characteristics in light of liquidity measured at the firm level for the period from first trade to effective date. For all SPACs that announce an acquisition, we segment the data in turnover into quartiles. The table shows that these turnover quartiles exhibit significant differences with respect to the other liquidity measures, thus bolstering the idea that turnover is measuring a form of liquidity. In the lowest turnover quartile (quartile 1 in Table 4), 34.1% of trading days feature no volume at all, with the mean number of trades being 42. The mean percentage of no-volume days and trades for turnover quartile 4 (the highest turnover quartile) is 6.2% and 3,862, respectively. Moreover, the middle quartiles exhibit a monotonic improvement in liquidity for these two measures.

The remaining characteristics in Table 4 are consistent with the idea that liquidity is a proxy for SPAC quality. Average total redemptions monotonically decreases with each turnover quartile moving from 75% in the lowest quartile to 25% in the highest. Thus, those SPACs with the most trading volume, which is measured prior to final redemptions, exhibit the lowest percentage of redemptions. Moreover, the lowest quartile is also associated with over three times the number of 8-K, 3.01 filings, which are typically filed when the SPAC has failed to satisfy exchange listing requirements. Finally, in support of our previous work detailing the relatively problematic issue of empty voting, the percentage of votes approving the proposed acquisition exhibits no pattern across quartiles with regard to redemption, liquidity, or the future of the listing.

We next examine trading and volume around acquisition announcements and effective dates of the de-SPAC. Table 5 contains SPACs that announce an acquisition, even if they are unable to complete it. Thus, the number of observations around acquisition announcement will be larger than that around the effective date since not all acquisitions were completed.

Panel A of Table 5 documents relatively less liquidity in the thirty days prior to the announcement of an acquisition compared to thirty days after the acquisition. Further, the liquidity around the effective date is not uniformly better than the liquidity after the acquisition announcement, though the number of no-volume days significantly drops in each period measured and the number of daily trades almost quadruples after the effective date. Thus, our results here are consistent with an increase in

trading activity and relative volume being associated with information being provided about the potential target.

Importantly, Panel B of Table 5 shows the stark illiquidity of SPACs prior to the announcement of a potential target in the first eight years of our sample (2010 to 2017). Prior to the acquisition announcement mean (median) turnover is 0.10% (0.04%); most SPACs do not trade 40% of the time; and the average (median) number of trades per day is sixteen (four). Importantly, all of these measures significantly improve after the acquisition announcement. Yet, there are lingering illiquidity issues even after announcement as is evidenced by most SPACs having more than one in ten days with no trading (mean and median % no-volume days are 22.9% and 13.3%, respectively). The extent of illiquidity in the early SPACs is surprising. For comparison, we examine the volume of the top ten holdings of the Russell microcap index for 2018 and 2019.<sup>64</sup> We find that there is not a single day in this two-year period in which the trading volume is zero. The least liquid of the ten firms had a minimum single-day trading volume of 1,211. By comparison, in the most active segment of Panel B of this table prior to the de-SPAC, the *average* firm had 14.9% of its days with a trading volume of zero. Overall, these results go a long way in explaining the relatively anemic liquidity in the first three-quarters of our sample as seen in Table 3.

In summary, these tables indicate that in the first eight or nine years of our sample SPACs have relatively thin trading volume and number of trades and are plagued by a considerable number of days in which the stock does not trade at all. This early relative illiquidity gives way to a significantly more robust market for SPACs later in the sample period.

### *C. Regulatory Evidence of Liquidity Challenges in SPACs*

Liquidity matters because shareholders need to be able to get a good price for their shares, and to be able to trade in and out of them quickly. In most NYSE traded companies, and even most NASDAQ companies, liquidity is not a concern. Our data show that some SPACs, especially early in the sample period, face real liquidity challenges. This Part provides a different kind of evidence on SPAC liquidity, using the regulatory record.

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64. Microcap stocks range between \$50 million and \$300 million in market capitalization. CFI Team, *Microcap*, CONSUMER FIN. INST. (Mar. 19, 2023), <https://corporatefinanceinstitute.com/resources/capital-markets/microcap/> [<https://perma.cc/46AE-PY5Q>].

In recent years, the exchanges have consistently moved for ever more relaxation of the rules pertaining to SPACs.<sup>65</sup> Perhaps the most striking proposed changes were in the context of how many shareholders a company needed in order to list on one of the national exchanges. The NASDAQ imposed a 300 round-lot requirement and the NYSE imposed a 400 round-lot shareholder requirement.<sup>66</sup> One hundred shares constitute a round lot,<sup>67</sup> so the requirement for continued listing on both the NASDAQ and the NYSE was that SPACs, like all other publicly traded companies, have 300 such shareholders in order to continue trading on an exchange.<sup>68</sup> The origins of the 300-shareholder threshold are unclear, but 300 certainly is not a tremendously large number of shareholders for a publicly traded company.

Nevertheless, this 300-shareholder requirement has proved onerous for some SPACs—at least, if the exchanges themselves are to be believed. NASDAQ and the NYSE both found that SPACs “often have difficulty demonstrating compliance with the shareholder requirement.”<sup>69</sup> The exchanges did not find this failure to maintain 300 shareholders troubling—on the contrary, over a period from October 2017 to May of 2021, the exchanges engaged in a campaign to reduce the number of required SPAC shareholders down from 300 to a lower amount.

The most eye-popping request was the first one: in quick succession, in October and November of 2017, the SEC proposed rules, at the behest of the NASDAQ and the NYSE, that moved the minimum-shareholder number

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65. In 2017, while the NYSE successfully proposed the elimination of the conversion threshold that was the functional equivalent of a true supermajority vote on any proposed merger, it was also at work in reducing other requirements, including amending the requirements of the vote to a majority of all votes cast, not just votes cast by public shareholders. *Proceedings to Determine Whether to Lower the Initial Holders Requirement*, 83 Fed. Reg. 10530 (Mar. 5, 2018). It proposed reducing the aggregate market value required for initial listing from \$250 million to \$100 million, and the market value of publicly held shares from \$200 million to \$80 million. *Order Amending Initial and Continued Listing Standards for Special Purpose Acquisition Companies*, 82 Fed. Reg. 13905 (Mar. 10, 2017).

66. NASDAQ, INITIAL LISTING GUIDE 10 (Jan. 2023), <https://listingcenter.nasdaq.com/assets/initialguide.pdf> [<https://perma.cc/XQ7B-4QKT>]; N.Y. STOCK EXCH., OVERVIEW OF NYSE QUANTITATIVE INITIAL LISTING STANDARDS, [https://www.nyse.com/publicdocs/nyse/listing/NYSE\\_Initial\\_Listing\\_Standards\\_Summary.pdf](https://www.nyse.com/publicdocs/nyse/listing/NYSE_Initial_Listing_Standards_Summary.pdf) [<https://perma.cc/NA43-J3VS>].

67. *Rule 7.5. Trading Units*, N.Y. STOCK EXCH. (Dec. 30, 2015), <https://nyse.wolterskluwer.cloud/rules/52dd0a027d4610008d55005056883b3a0b?searchId=1170189571> [<https://perma.cc/NCD8-RRMS>].

68. NASDAQ, INITIAL LISTING GUIDE, *supra* note 66, at 10. NYSE requires 400 round-lot holders at IPO. N.Y. STOCK EXCH., NYSE IPO GUIDE 105 (3d ed. 2021), [https://www.nyse.com/publicdocs/nyse/listing/nyse\\_ipo\\_guide.pdf](https://www.nyse.com/publicdocs/nyse/listing/nyse_ipo_guide.pdf) [<https://perma.cc/E2ZM-U4V9>]; Proposed Rule Change to Adopt New Standards to List SPACs, 73 Fed. Reg. 15246 (Mar. 14, 2008).

69. Proposed Rule Change to Amend the Manual for SPACs to Lower Initial Holder Requirement, 82 Fed. Reg. 57632, 57633 (Nov. 30, 2017).

at SPAC IPO to 150 and *eliminated it entirely* once the SPAC was trading.<sup>70</sup> To restate, each of the major U.S. exchanges proposed to its regulator that a publicly traded SPAC could list on its exchange *with as few as one shareholder*. It is hard to see how such a drastic reduction in holders could be termed a market, let alone a publicly traded market.

These proposed rules did not become final, but the NYSE went back to the regulator the next year, this time asking for a reduction from 300 shareholders to 100.<sup>71</sup> The exchanges argued that a SPAC's value prior to the acquisition mainly consists of the trust account. Thus, there is less risk of "distorted prices"—historically, SPAC shares trade close to \$10 "even when they have had few shareholders."<sup>72</sup> Our data, described above, provides support for what the exchanges themselves have said: the premerger SPAC market tends to be illiquid. What the exchanges neglected to explain was the *ramifications* of that illiquidity. It was true, particularly in the early part our sample period (before the SPAC explosion), that there was very little trading before the de-SPAC.

If SPACs already faced liquidity challenges, as measured by the number of shareholders, the de-SPAC risks precipitating a true crisis. The de-SPAC grants shareholders the right to redeem and, as we describe in our companion piece, because the vote is decoupled from that redemption right, shareholders can and do vote for deals while redeeming their shares—sometimes in droves.<sup>73</sup> Any redemptions naturally would compound the problem of shareholder numerosity SPACs already suffered. Again, recoupling vote and redemption would do much to address this problem.

Another front of the SPAC deregulation campaign was the exchanges' efforts around the de-SPAC. They voiced concerns that verifying the presence of 300 shareholders is "especially burdensome" at the de-SPAC, because SPAC shareholders "typically have the right to request redemption of their securities until immediately before consummation and it is therefore impracticable for companies to identify the number of round-lot holders

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70. Order to Determine Whether to Approve or Disapprove a Proposed Rule Change to Modify the Listing Requirements Related to SPACs Listing Standards to Reduce Round Lot Holders, 83 Fed. Reg. 2278 (Jan. 9, 2018).

71. Proposed Rule Change to Reduce Continued Listing Standards for Public Holders from 300 to 100, 83 Fed. Reg. 52854 (Oct. 12, 2018) [hereinafter NYSE Proposed Rule Change from 300 to 100].

72. Order Disapproving a Proposed Rule Change to Amend the Manual for SPACs to Reduce Continued Listing Standards for Public Holders, 84 Fed. Reg. 28879, 28879 (June 14, 2019). NASDAQ analyzed the trading history of SPACs listed since 2010. All trade on average close to \$10, including those cited for noncompliance. NASDAQ also reviewed trading following announcement and observed no increase in volatility in the vast majority of cases. Proposed Rule Change to Modify the Listing Requirements Related to SPACs Listing Standards to Reduce Round Lot Holders, 82 Fed. Reg. 47269, 47269 (Oct. 4, 2017).

73. See Rodrigues & Stegemoller, *supra* note 14, at 29.

immediately.”<sup>74</sup> The exchanges first requested a “reasonable period of time” after the de-SPAC to demonstrate compliance,<sup>75</sup> and then specified fifteen days.<sup>76</sup> If the newly public company failed to meet those requirements after the reasonable time had elapsed, they reasoned that the exchange could begin delisting and immediately suspend trading of the securities.<sup>77</sup>

This reasoning ignores the insult it inflicts on already injured shareholders. If a de-SPAC’d company has fewer than 300 shareholders, then it is illiquid by at least one measure—too illiquid to trade on a national exchange. Suspending trading and commencing delisting merely strands shareholders with an illiquid investment. Indeed, during rulemaking, in response to the exchanges’ proposal, the SEC cited concerns about the risk that “a SPAC could complete a business combination and very soon thereafter be subject to delisting proceedings.”<sup>78</sup>

The SPACs themselves are alive to the risk that empty voting poses for liquidity after the de-SPAC. One SPAC, after describing the decoupling of economic interest from the vote, goes on to warn:

As a result, the Business Combination Proposal can be approved by stockholders who will redeem their Public Shares and no longer remain stockholders, leaving stockholders who choose not to redeem their Public Shares holding shares in a company with a less liquid trading market, fewer stockholders, less cash, and the potential

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74. NYSE Proposed Rule Change from 300 to 100, *supra* note 71, at 52856; *see also* Notice of Designation of a Longer Period for Commission Action on a Proposed Rule Change to Reduce Continued Listing Standards for Public Holders, 83 Fed. Reg. 62942 (Nov. 29, 2018); Proposed Rule Change to Amend Listing Rules Applicable to SPACs whose Business Plan Is to Complete One or More Business Combinations, 85 Fed. Reg. 59574 (Sept. 16, 2020).

75. NYSE Proposed Rule Change from 300 to 100, *supra* note 71, at 52855.

76. Proposed Rule Change to Amend Requirement Applicable to SPACs Upon Consummation of a Business Combination Concerning Compliance with Round Lot Shareholder Requirement, 85 Fed. Reg. 73121, 73122 (Nov. 9, 2020); Proposed Rule Change to Amend Listing Rules Applicable to SPACs Whose Business Plan Is to Complete One or More Business Combinations, 85 Fed. Reg. 83113, 83113 (Dec. 16, 2020).

77. Proposed Rule Change to Amend Requirement Applicable to SPACs Upon Consummation of Business Combination, 85 Fed. Reg. at 73122–23; Order Instituting Proceedings to Determine Whether to Approve or Disapprove Proposed Rule Change to Amend Listing Rules, 85 Fed. Reg. at 83114.

78. Proposed Rule Change to Amend the Requirement Applicable to SPACs Upon Consummation of Business Combination Concerning Compliance with Round Lot Shareholder Requirement, 86 Fed. Reg. 10379, 10380 (Feb. 12, 2021); Order Disapproving Proposed Rule Change to Amend Listing Rules Applicable to SPACs Whose Business Plan Is to Complete One or More Business Combinations, 86 Fed. Reg. 28407, 28410 (May 20, 2021) [hereinafter Order Disapproving a Proposed Rule Change] (“[B]y waiting for SPACs to demonstrate compliance with the Shareholder Requirement until after the closing of the business combination, non-compliant companies could be listed on the Exchange despite not meeting initial listing standards, and have their securities continue to trade until the delisting process has been completed.”).

inability to meet the listing standards of Nasdaq.<sup>79</sup>

The SEC ultimately rejected the NASDAQ's request for fifteen calendar days of proof.<sup>80</sup> The NYSE chose discretion as the better part of valor and withdrew its proposal.<sup>81</sup> Likewise, the minimum-shareholder requirement remains 300. But this Section has used this failed rulemaking to make a larger point: SPACs, by their own admission, have consistently struggled to meet the 300-shareholders requirement. Liquidity matters to markets, and we must be mindful of it as we consider any potential reform.

#### IV. RECOMMENDATIONS

SPACs create a market in information of still-private companies—and that market, by definition, suffers from increased information asymmetry as compared to the traditional public market. In a traditional IPO, trading only occurs after the accumulation of information, as we have seen. The question that we confront is whether to tolerate such a market and if so, on what terms.

As one point of reference, a public market that we have not discussed already exists in the context of lower liquidity and decreased disclosure: the over-the-counter (OTC) market. The OTC market lies on the borders of mainstream investing, to be sure, and most retail investors likely avoid it. Still, as we weigh the value of the SPAC market, it is highly relevant that we already countenance limited disclosure and relative illiquidity in a part of the public markets—even if it is the periphery. It is thus to the OTC market that we first turn.

##### *A. Disclosure Rules and Information Asymmetry Across Markets*

Before moving to recommendations, a contextual point is in order. We have so far discussed SPACs as creating a public market for privately traded companies, creating a kind of public/private realms binary. Yet “publicly traded” shares encompass variety in terms of disclosure rules, information asymmetry, and liquidity beyond the nationally traded exchanges. Given that SPACs inhabit a kind of liminal realm between public and private, we need to place them in this greater context.

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79. Apex Tech. Acquisition Corp., Notice of Special Meeting of Stockholders to Be Held on June 30, 2021 (Form S-4) (June 2, 2021), <https://www.sec.gov/Archives/edgar/data/1777921/000119312521180034/d175062d424b3.htm> [<https://perma.cc/UH5B-KWZ8>].

80. Order Disapproving a Proposed Rule Change, *supra* note 78, at 28410.

81. Withdrawal of Proposed Rule Change to Amend Requirement Applicable to SPACs Upon Consummation of Business Combination Concerning Compliance with Round Lot Shareholder Requirement, 86 Fed. Reg. 13433 (Mar. 2, 2021).

All things being equal, markets with more disclosure tend to be more liquid—markets thrive on information, and more disclosure generates more information on which to base trading decisions. But markets vary in terms of the level of disclosure they require. As we have seen, SPACs create a unique market in information of private companies. Thus, while their stock trades on the public markets, it does so with information asymmetries not usually seen in those markets.

The national exchanges—the NYSE and the NASDAQ—require quarterly disclosure of information for their listed companies, as well as more current updates on certain developments that occur between quarters. But these national exchanges are not the only public markets for stock in the United States. The OTCBB and the OTC Markets (a market formerly known as the Pink Sheets—to distinguish it from the OTCBB market, we will continue to use that older term) are also public markets, markets that feature fewer listing and disclosure requirements and less liquidity than the national exchanges. We will see in these markets—particularly in the Pink Sheets—interesting parallels to the early SPAC market, both in terms of liquidity and information deficits.

Some of this varied level of disclosure comes from legal requirements. The 1934 Act requires issuers to register with the SEC and file periodic reports if they (1) have assets of over \$10 million and more than 2000 shareholders of record, or more than 500 non-accredited investors; (2) are listed on a national securities exchange or have securities quoted on the OTCBB; or (3) have registered an offering under the '33 Act and have more than 300 shareholders of record.<sup>82</sup> In short, companies listed on the NASDAQ, the NYSE, and OTCBB companies also must file periodic reports with the SEC; Pink Sheets companies are not required to do the same.<sup>83</sup>

Obviously disclosure requirements and liquidity are related. The more information a company discloses, the fewer the information asymmetries. Fewer information asymmetries mean that more investors will be more likely to buy shares of the company—not only will they know more about it, but they know that future investors will benefit from future company disclosures, making the shares they buy today more saleable tomorrow. Thus, reliable disclosure translates into increased liquidity. Indeed, long before the '33 and '34 Acts, companies trading on the NYSE regularly disclosed information voluntarily, because it helped foster a liquid market

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82. 15 U.S.C. § 781(g).

83. Nicolas P.B. Bollen & William G. Christie, *Market Microstructure of the Pink Sheets*, 33 J. BANKING & FIN. 1326, 1327–28 (2009).

for their stock.<sup>84</sup> Yet not all firms opt into a mandatory disclosure regime, as the existence of the Pink Sheets makes plain.

Stocks list on the Pink Sheets for a wide variety of reasons. Some have delisted from the NYSE or NASDAQ because of economic distress—often bankruptcy.<sup>85</sup> Others are small company listings that do not have the requisite capitalization to list on other exchanges. A third group includes companies that are held by only a few holders and seldom traded.<sup>86</sup> A fourth group consists of large foreign issuers listed on their home exchanges that “elect to trade via ADRs on the Pink Sheets.”<sup>87</sup> This last group generally features higher prices and trading volume than the other categories of stock on the Pink Sheets.<sup>88</sup>

The existence of these markets presents something of a contradiction. The OTCBB, and particularly the Pink Sheets, feature thin liquidity and large spreads between bid and ask.<sup>89</sup> Studies have also shown that these shares trade at a discount to the national exchanges—when a stock tumbles from the NASDAQ to the Pink Sheets, for example, it faces a significant decline in price.<sup>90</sup>

Regulation of the Pink Sheets is a caveat emptor model—investors are generally on their own. Buying shares on the Pink Sheet, however, is not like buying them on the other exchanges. For example, Robinhood does not permit trading on the Pink Sheets.<sup>91</sup> Other brokerages that provide zero-cost trading do allow their customers to trade on the Pink Sheets, but at a cost of \$6.95.<sup>92</sup> Or investors can buy on the Pink Sheets from brokers.<sup>93</sup> These differences provide investors cues that the Pink Sheet market is different from other markets.

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84. See Carol J. Simon, *The Effect of the 1933 Securities Act on Investor Information and the Performance of New Issues*, 79 AM. ECON. REV. 295 (1989).

85. Bollen & Christie, *supra* note 83, at 1328.

86. *Id.*

87. *Id.*

88. *Id.*

89. *Id.* at 1327.

90. Michael K. Molitor, *Will More Sunlight Fade the Pink Sheets? Increasing Public Information About Non-Reporting Issuers with Quoted Securities*, 39 IND. L. REV. 309, 330 (2006); see also Venkatesh Panchapagesan & Ingrid M. Werner, *From Pink Slips to Pink Sheets: Market Quality Around Delisting from Nasdaq* (July 19, 2004) (unpublished manuscript), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=565325](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=565325) [<https://perma.cc/BSQ9-UNFP>].

91. Robinhood does not permit trading on the OTCBB or the Pink Sheets. See Lincoln Olson, *How to Buy OTC Stocks (Where to Buy Over-the-Counter Penny Stocks)*, WALLSTREETZEN (Apr. 28, 2023), <https://www.wallstreetzen.com/blog/how-to-buy-otc-stocks/> [<https://perma.cc/HW3D-HGHJ>] (“[Y]ou cannot buy penny stocks on Robinhood. Robinhood does not support trading OTC stocks.”).

92. See, e.g., Sam Levine & Blain Reinkensmeyer, *E\*TRADE Review*, STOCKBROKERS (Feb. 28, 2023), <https://www.stockbrokers.com/review/etrade> [<https://perma.cc/S6DX-B7QF>].

93. See Molitor, *supra* note 90, at 331.

Yet these shares nevertheless are “publicly traded,” in the sense that the retail investor has access to them. Herein lies the paradox of the Pink Sheets. The public is free to invest in Pink Sheet companies, even though they have not been through the vetting of the traditional IPO process. They feature no mandatory disclosure, and self-select levels of voluntary disclosure.<sup>94</sup> And they are much less liquid than the major exchanges. These features made them a fruitful ground for fraud in the 1980s, and set the stage for Congress to intervene with the Penny Stock Reform Act of 1990.<sup>95</sup>

The larger point is that on the fringes of the public markets, we already tolerate limited disclosure and relative illiquidity. The question then becomes whether, and on what terms, we extend those markets to include SPACs.

#### *B. (Tentative) Recommendations*

Our major contribution has been to spotlight the liquidity characteristics of the unique SPAC market. Where the ‘33 Act by design shielded retail investors from a market that trades as information unfolds over time, SPACs draw investors into this market.<sup>96</sup> Where retail investors typically hew to the liquid markets of the NASDAQ and NYSE, early SPACs were held by relatively few investors. Those that suffer large redemption levels experience the kind of liquidity more commonly associated with the Pink Sheets. Over time, as SPACs both became more common and migrated first to the NASDAQ and then to the NYSE, liquidity improved to a point that rivaled traditional IPOs.

First, our findings on liquidity bolster our argument in *Redeeming SPACs* by supporting reuniting ownership and the vote by requiring a redeeming shareholder to vote no on the transaction as she exits. Imposing this 50% threshold on redemptions would go a long way toward ensuring a liquid market for SPACs.

That reform accomplished, the main problem we see is that, although SPACs trade cheek by jowl with other public companies, their disclosure and to some extent their liquidity can radically differ from the more traditional firms that trade on those exchanges. This state of affairs is confusing at best, and misleading at worst. Pre-combination, as long as vote and redemption right are recoupled, the danger is relatively modest—

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94. The Pink OTC Markets label the level of disclosure firms provided, ranging from a skull and bones for companies being investigated for fraud, a stop sign for those not providing disclosure, among others. MICAH BLOOMFIELD, EVAN HUDSON & MITCHELL SNOW, REAL ESTATE INVESTMENT TRUSTS § 12.109 (Westlaw, Aug. 2021).

95. Riemer, *supra* note 33, at 932–33.

96. See Securities Act of 1933, 15 U.S.C. §§ 77a–77aa.

shareholders have the chance to get their money back, and will for the worst deals. But after de-SPAC, shareholders who remain with the company risk holding companies that drop in value and liquidity. And the market as a whole may suffer if it cannot distinguish de-SPAC'ing companies from conventional ones.

Potential paths of reform might make SPACs an IPO proving ground—rather than the training wheels model of the JOBS Act, we would substitute a learner's permit model. Recently de-SPAC'd companies could be separated from their traditional IPO counterparts until certain milestones had been met—milestones that could relate to timely disclosure, capitalization, liquidity, or a host of other possibilities. Until then, while the companies would continue to trade, they would trade in a way that made them easily distinguishable from the traditional firm. Alternatively, we could impose additional certification or disclosure requirements before investors could participate in these markets.

Whatever the path forward, this paper demonstrates that SPACs can create markets that are both illiquid to the point of sludge and also liquid on a scale that rivals that of traditional IPO firms. If we allow the SPAC market to continue, our data suggest that reunifying vote and redemption right should greatly enhance its liquidity. The larger policy question is whether the market SPACs create is worth the risks to which it exposes investors.

**Table 1. Time Variation of SPACs That File Their Initial Prospectus from 2010 to 2020**

This table displays 559 SPACs by the year (in column (1)) they file their original S-1. Column (2) shows the number of S-1s filed per year. Columns (3) and (4) display the number of SPACs from column (2) that accomplish an IPO and complete the de-SPAC process, respectively. The number of SPACs from column (2) that liquidate, thus redeeming all shares, is shown in column (5). The mean number of days elapsed from the initial S-1 to the IPO is in column (6). Column (7) is the mean number of days from the IPO to the effective date of the de-SPAC transaction. We do not calculate this value for 2020 given that there are 49 SPACs from the 2020 vintage that are still open as of January 5, 2023 (the time of the writing of this paper). Column (8) is the average amount raised at IPO, which is comprised of the IPO offering proceeds and the amount raised in the private placement occurring simultaneous to the IPO. The mean amount paid for the target in the de-SPAC is shown in column (9). Columns (11) and (12) show the percentage of firms that file (from column (2)) to list on the Nasdaq and NYSE, respectively. *Total Redemptions*, listed in column (12), shows total redemptions, which includes both redemptions at the final vote and extension redemptions, as a percentage of the number of units (typically the only redeemable shares) filed in the IPO. Column (13) shows *Yes Votes*, which is the number of yes votes cast for the business combination as a percentage of all votes cast.

(1)	(2) # of SPACs with initial S-1 filing	(3) With- draw IPO	(4) Com- plete deal	(5) Liqui- date	(6) Mean # of Days from initial to IPO	(7) Mean # of Days from IPO to Deal Close
2010	7	1	3	3	107	612
2011	22	7	12	3	176	656
2012	2	2	0	0	-	-
2013	12	0	9	3	50	586
2014	15	1	10	4	84	721
2015	21	5	14	2	53	787
2016	18	4	13	1	57	602
2017	37	0	34	3	34	683
2018	49	3	44	2	31	680
2019	58	2	51	5	31	595
2020	318	3	190	76	36	N/A

(1)	(8) Mean proc. raised at IPO (\$mil)	(9) Average deal value (\$mil)	(10) Listed on Nasdaq	(11) Listed on NYSE	(12) Total Redempt- ions	(13) Yes Votes
2010	\$91.5	\$268.1	14.3%	0.0%	64.7%	91.8%
2011	\$72.2	\$485.9	36.4%	0.0%	52.5%	97.2%
2012	-	-	0.0%	0.0%	-	-
2013	\$128.2	\$319.6	91.7%	0.0%	45.7%	94.3%
2014	\$153.4	\$612.7	93.3%	0.0%	70.6%	94.6%
2015	\$193.2	\$878.7	76.2%	0.0%	65.5%	97.1%
2016	\$264.7	\$736.4	77.8%	0.0%	38.2%	98.3%
2017	\$269.8	\$913.5	73.0%	27.0%	75.6%	96.3%
2018	\$212.7	\$962.1	67.3%	24.5%	48.0%	97.0%
2019	\$212.8	\$1,552.5	72.4%	24.1%	42.4%	96.7%
2020	\$299.4	\$2,634.5	59.1%	39.6%	57.4%	95.8%

**Table 2. Descriptive Statistics for All SPAC IPOs With Initial S-1 Filings from 2010 to 2020**

This table describes the basic characteristics of 531 SPACs which file for an IPO in 2010 to 2020 and subsequently complete an IPO (column (2) minus column (3) in Table 1). *Offering proceeds* is the product of number of units issued in the IPO and the unit filing price. *Private placement proceeds at IPO* is the amount raised in the private placement occurring simultaneous to the IPO. *Unit price* is the price paid for one unit of the SPAC at the IPO. *Warrants per unit* is the number of warrants contained in each unit. *Shares per warrant* is the number of shares that each warrant can be exercised for. *Warrant strike price* is the price the warrant holder must pay to obtain a share if exercising his unit. *Maximum months allowed for acquisition* is the number of months stated in the IPO prospectus that the SPAC has to close an acquisition. *% of offering proceeds in trust* is the amount of cash held in trust scaled by the amount raised in the IPO. *Shares of SPAC owned by "initial shareholders"* is the number of shares owned by stockholders prior to the IPO scaled by the total number of shares outstanding after the IPO. *Gross underwriter discount* is the proportion of the IPO proceeds paid to the underwriter(s) in the IPO. *Deferred portion of underwriter discount* is the proportion of the IPO proceeds paid to the underwriter(s) that is contingent upon completing an acquisition. All other

variables are defined in the caption to Table 1. *Total Redemptions* is the sum of redemptions at the final vote and extension redemptions scaled by the total number of units filed in the IPO. *Yes Votes* is the number of yes votes cast for the business combination as a percentage of all votes cast.

	Mean	Median	Minimum	Maximum	N
Offering proceeds (\$mil)	\$252.7	\$200.0	\$16.5	\$4,000.0	531
Private placement proceeds at IPO (\$mil)	\$7.3	\$6.6	\$0.8	\$65.0	531
Unit price (\$)	\$10.03	\$10.00	\$5.00	\$25.00	531
Warrants per unit	0.56	0.50	0.00	1.00	506
Shares per warrant	0.94	1.00	0.33	1.00	506
Warrant strike price (\$)	\$11.30	\$11.50	\$5.00	\$28.75	506
Maximum months allowed for acquisition	22.5	24.0	12.0	27.0	531
% of offering proceeds in trust	100.3%	100.0%	99.5%	105.5%	531
Shares of SPAC owned by "initial shareholders"	19.9%	20.0%	0.0%	75.7%	531
Gross underwriter discount	5.5%	5.5%	0.0%	7.5%	531
Deferred portion of underwriter discount	3.4%	3.5%	0.0%	5.0%	531
Total redemptions	58.8%	66.4%	0.0%	273.2%	356
Yes votes	96.2%	97.4%	73.9%	100.0%	373

**Table 3. Annual Liquidity Measures for SPACs That Have Either Completed an Acquisition or Liquidated**

This table examines mean liquidity measures for each firm for each year they trade as a SPAC. *Turnover* is volume scaled by the number of shares outstanding. *% of no volume days* is the number of days with no volume scaled by the number of trading days for the SPAC. *# of trades per day* is reported on CRSP for firms that listed on NASDAQ. Means are reported under each heading while the number of observations is reported in the column to the right of the characteristic. All variables are from CRSP and are available through March of 2022. We examine only SPACs that trade on the NYSE or Nasdaq. Panel A contains only those SPACs that have either completed an acquisition or have liquidated. Panel B is a subset of Panel A and contains only SPACs that announce a transaction. Panel C is a subset of Panel A and contains only those SPACs that both do not announce a deal and are liquidated.

Year	Turnover	N	% of no volume days	N	# of trades per day	N
Panel A.						
2011	0.10%	4	83.8%	4	2	4
2012	0.07%	11	68.0%	11	3	11
2013	0.20%	18	58.8%	18	11	18
2014	0.18%	22	41.0%	22	79	22
2015	0.19%	37	55.2%	37	43	37
2016	0.11%	40	53.9%	40	33	40
2017	0.25%	61	36.0%	61	52	54
2018	0.43%	90	34.5%	90	79	70
2019	0.38%	118	32.2%	118	40	85
2020	1.33%	257	8.4%	257	1,086	152
2021	1.86%	297	1.2%	297	2,590	178
2022	0.57%	127	3.0%	127	208	81
Panel B.						
2011	0.10%	4	83.8%	4	2	4
2012	0.07%	11	68.0%	11	3	11
2013	0.20%	18	58.8%	18	11	18
2014	0.19%	21	39.5%	21	83	21

2015	0.20%	35	55.0%	35	46	35
2016	0.11%	38	54.5%	38	35	38
2017	0.26%	59	35.6%	59	54	52
2018	0.44%	88	34.4%	88	80	69
2019	0.37%	116	32.0%	116	40	84
2020	1.41%	234	7.9%	234	1162	139
2021	2.20%	243	0.7%	243	3153	143
2022	0.80%	73	1.7%	73	299	46

## Panel C.

2011-2013	-	-	-	-	-	-
2014	0.00%	1	72.7%	1	1	1
2015	0.12%	2	59.3%	2	3	2
2016	0.08%	2	42.3%	2	7	2
2017	0.09%	2	49.9%	2	5	2
2018	0.15%	2	40.2%	2	6	1
2019	0.51%	2	44.7%	2	28	1
2020	0.49%	23	14.0%	23	274	13
2021	0.33%	54	3.2%	54	288	35
2022	0.25%	54	4.8%	54	87	35

**Table 3.b Comparison of SPAC and IPO Turnover Data**

Sample	Sample Period	Daily Turnover
US IPOs lock-up	1995-1999	0.47%
US IPOs 1st year	1988-2009	0.94%
Euronext IPOs	1995-2008	0.14%
LSE IPOs	1998-2000	1.32%
SPACs that announce an acquisition	2013	0.20%
	2017	0.26%
	2019	0.37%
	2020	1.41%
	2021	2.20%
	2022	0.80%

**Table 4. SPAC Characteristics by Turnover Quartile**

The mean liquidity characteristics in this table are measures for each SPAC for the entire period the firm is a SPAC. We report data only for those SPACs that announce an acquisition and either complete it or liquidate. *# of 8-K 3.01 Filings* is the number of 8-Ks filed by the SPAC with a section 3.01, which addresses either a notice of delisting, failure to satisfy a continued listing rule or standard, or is notice of a transfer of listing. All other variables have been defined in previous table captions. The last four rows of the table provide the difference between quartiles (or halves in the last row) along with asterisks representing the significance of a difference in means test. \*\*\*, \*\*, and \* represent significant differences at the 1%, 5%, and 10% level, respectively.

Quar- tile	Turnover ( <i>T</i> )	% of no volume days	Trades per day (NASDAQ Q only)	Total Redemp- tions	Yes Votes	# of 8-K 3.01 Filings
All	1.188% 411	16.0% 411	1,022 278	53.7% 385	96.2% 368	1.00 407
<u>Turnover Quartiles</u>						
1	<i>T</i> < 0.328%	34.1% 103	42 90	75.1% 94	95.5% 83	1.78 101
2	0.328% ≥ <i>T</i> < 0.655%	15.2% 102	184 75	62.0% 94	96.3% 90	0.94 102
3	0.655% ≥ <i>T</i> < 1.540%	8.3% 103	778 55	55.1% 97	95.8% 97	0.70 102
4	1.540% ≥ <i>T</i>	6.2% 103	3,862 58	24.5% 100	97.1% 98	0.59 102
<u>Differences</u>						
	(1) – (2)	18.9%***	-142***	13.2%**	-0.7%	0.84***
	(2) – (3)	7.0%***	-595***	6.9%	0.5%	0.25*
	(3) – (4)	2.1%	-3,083***	30.6%***	-1.3%**	0.11
	[(1)+(2)]	17.5%***	-2,254***	29.0%***	-0.5%	0.71***
	–					
	[(3)+(4)]					

**Table 5. SPAC Common Stock Trading Characteristics at Acquisition Announcement and Effective Date**

This table reports data only for those SPACs that announce an acquisition and either complete it or liquidate. The table shows mean liquidity measures for the 30 days prior to and 30 days after the three days including the acquisition announcement and the three days including the effective date, where Day 0 represents the day that the acquisition is announced or effective. Asterisks denote the p-value from a difference of means t-test. Asterisks designate differences between the current column and the one to the left. For example, asterisks in column (2) signify the significance of differences in means between column (2) and (1). \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

	Acquisition Announcement Date = Day 0		Effective Date = Day 0	
	<i>Days - 31 to -2</i>	<i>Days +2 to +31</i>	<i>Days -31 to -2</i>	<i>Days +2 to +31</i>
	(1)	(2)	(3)	(4)
Turnover				
Mean	0.68%	2.54%***	2.37%	3.23%
Median	0.24%	1.00%	1.37%	0.78%
Max	42.11%	27.71%	32.73%	108.68%
N	399	400	338	328
% No Volume				
Mean	15.1%	6.7%***	4.2%**	1.3%***
Median	0.0%	0.0%	0.0%	0.0%
Max	100.0%	93.3%	83.3%	100.0%
N	399	400	338	328
Number of trades				
Mean	513	2,808***	2,278	8,693***
Median	35	197	410	2,680
Max	28,192	46,116	48,972	195,500
N	270	271	226	223

Panel B. SPACs that filed for IPO in 2010–17

Turnover				
Mean	0.10%	0.78%***	1.03%	0.79%
Median	0.04%	0.30%	0.76%	0.28%
Max	0.96%	19.54%	10.00%	11.00%
N	100	100	87	85
% No				
Volume				
Mean	42.4%	22.9%***	14.9%**	4.6%***
Median	40.0%	13.3%	3.3%	0.0%
Max	100.0%	93.3%	83.3%	100.0%
N	100	100	87	85
Number of				
trades				
Mean	16	152***	276*	856***
Median	4	30	69	265
Max	438	2,498	2,962	7,658
N	91	91	78	73