

A focused study on SPACs

June 2022

Research Signals

The interval following the pandemic market bottom through the end of 2021 marked a heightened period of speculative investing, as investors and corporations were flush with cash due to monetary and fiscal stimulus. The proliferation of retail investors and sharp increase in SPAC issuance were indicative of this risk-on environment. However, as froth has been removed from the equity market since the start of 2022, mirrored in the SPAC market by an elevated level of scrapped deals and going-concern warnings, we perform an in depth examination of this asset class given the heightened importance of identifying signals that have distinguished the more successful SPAC listings.

- While SPAC media attention outstripped that of non-SPAC IPOs in late 2020 and early 2021, conventional IPOs outperformed SPACs by a large spread, though this lead was relinquished during the 2022 market downturn
- SPACs have tended to be celebrated on merger announcement days with average returns of 5.29%; however, the enthusiasm tailed off on redemption days (0.18%) and merger completion days (0.84%)
- From an alpha perspective, smaller SPACs outperformed their larger cap counterparts on a daily basis over our analysis period, while Implied Loan Rate, a securities lending indicator, was a strong signal over one- and five-day holding periods

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Overview of the SPAC market

Special purpose acquisition companies (SPACs) are an alternative initial public offering (IPO) system designed to raise capital for their managers to make acquisitions quickly and on an opportunistic basis. While a manager's past track record may be known, the investment merits of a SPAC's future purchases are not, thus it's often referred to as a "blank check company".

SPACs' lack of business or financial history, nor defined business case based on the firm's business operations and identified acquisition targets, differentiates them from conventional IPOs. Their purchase is reliant on investors' trust in its management to select, obtain and manage the right acquisition targets in the future. For issuers, listing rules for SPACs offer the potential for an accelerated route to flotation by avoiding the lengthy disclosure of and need to supply a track record commonly associated with conventional IPOs.

A SPAC generally has 18 to 24 months to identify a target private company that it usually plans to list on a stock exchange, otherwise it liquidates and the funds are returned to the investors. The timeline for US SPACs begins with the IPO typically listing units sold at \$10, containing both one share of common stock and a fractional warrant granting the right to purchase a common share for \$11.50, with capital raised deposited in a trust account invested in US government securities. Once a target company is announced, common shareholders have until the designated redemption date to redeem their shares based on their corresponding interest in the trust account, otherwise retained shares are converted to shares in the target company upon the merger closing date at which time the target company becomes a public entity.

Comparison of SPAC and non-SPAC IPO market attributes

With this background, we now present descriptive and performance statistics comparing SPACs with their counterparts in the broader IPO market. From Q1 2019 through Q2 2022, the number of SPACs issued (Figure 1) was 999, surpassing non-SPACs by 57 over the period. On a quarterly basis, SPAC issuance first took the lead in Q4 2020, and spiked to just over 300 during the highly speculative first quarter of 2021. Since 2022 when the stock market started its downward descent, both SPAC and non-SPAC IPO issuance have dropped to less than half of Q4 2021 issuance, with SPAC issuance sliding further in Q2 compared with non-SPAC IPO.

The average market capitalization of SPAC IPOs was \$272 million, with a median of \$232 million. For non-SPACs, the average was \$405 million, while the median was just \$169 million, indicating a higher skew in this segment, as confirmed by a maximum size of \$28,713 million, compared with \$4,000 million for SPACs (non-SPAC deal size data is available beginning Q2 2020). In general, the average size of non-SPACs on a quarterly basis (Figure 2) exceeded SPACs, with the largest margin occurring in Q2 2021.

Figure 1

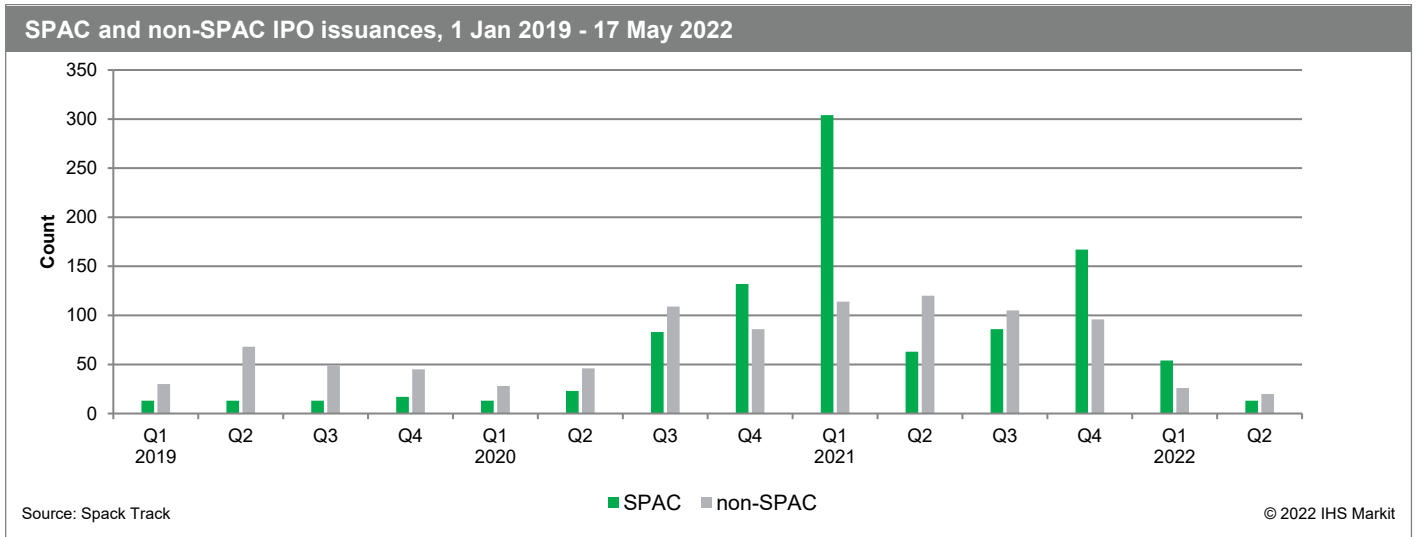
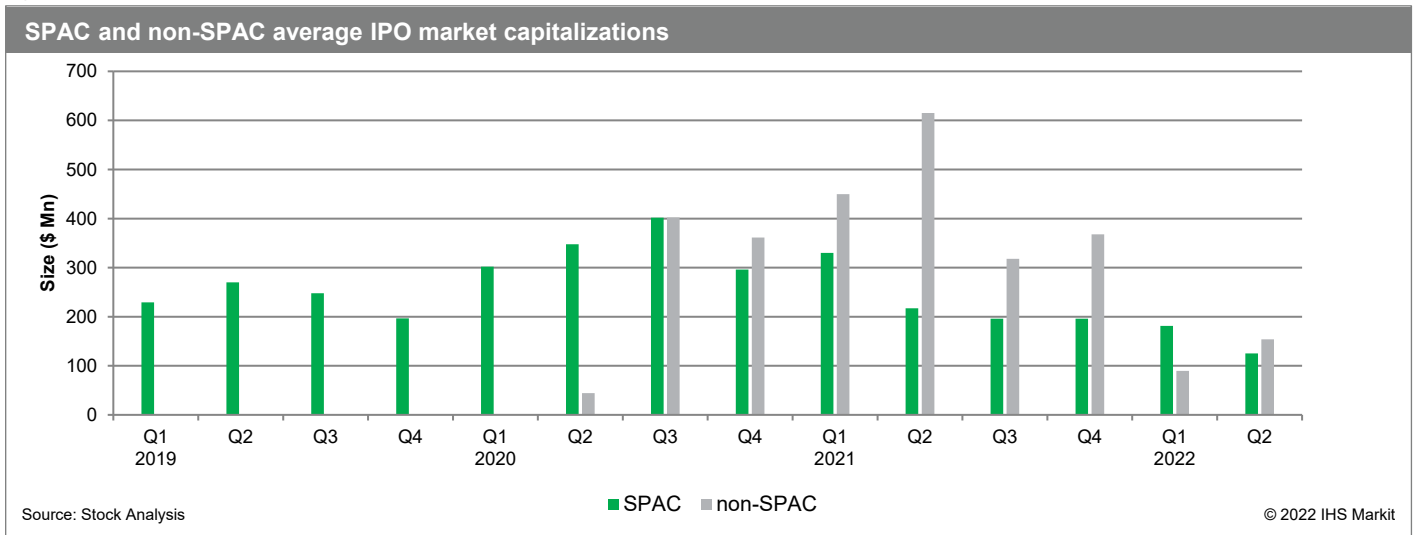


Figure 2



Next, we review the trend in the number of days it takes for SPACs to find and announce a merger target (Figure 3) and to subsequently close the deal (Figure 4). We observe a decrease in the number of days for SPACs to find a merger target, with an average of 541 days in Q1 2019 dropping to less than 100 days in Q4 2021. This number has been brought down as a result of more sponsors initiating their SPAC with a merger target already in mind in addition to investors becoming more familiar with the process. Meanwhile, no significant drop was found in the number of days to close the deal.

Figure 3

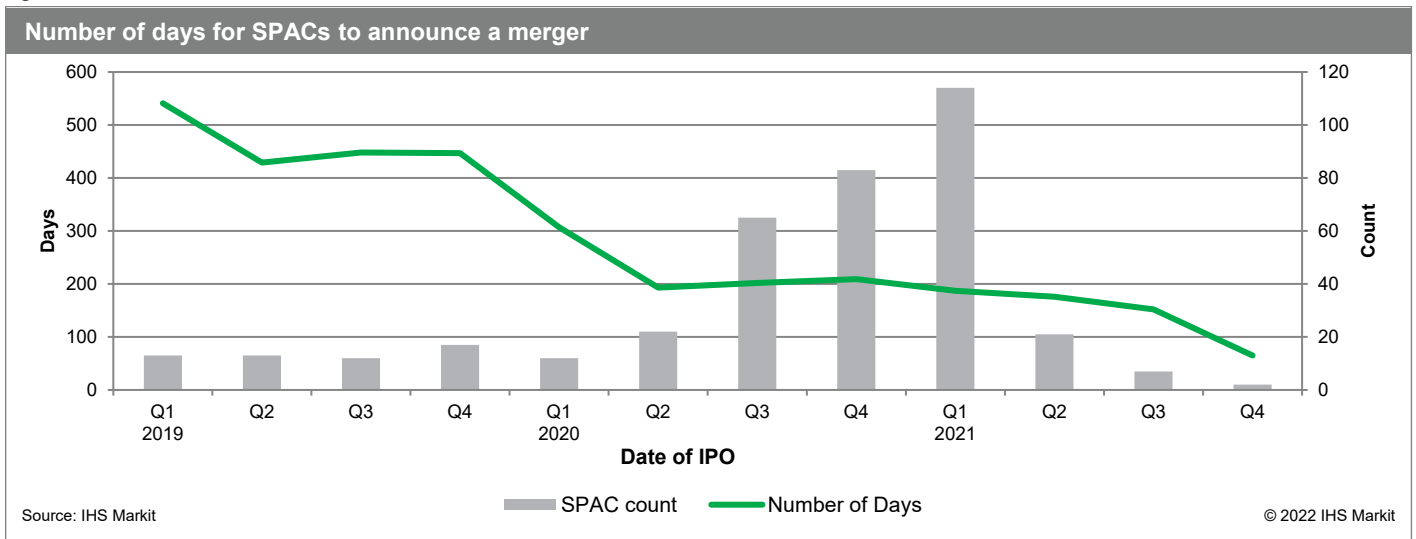
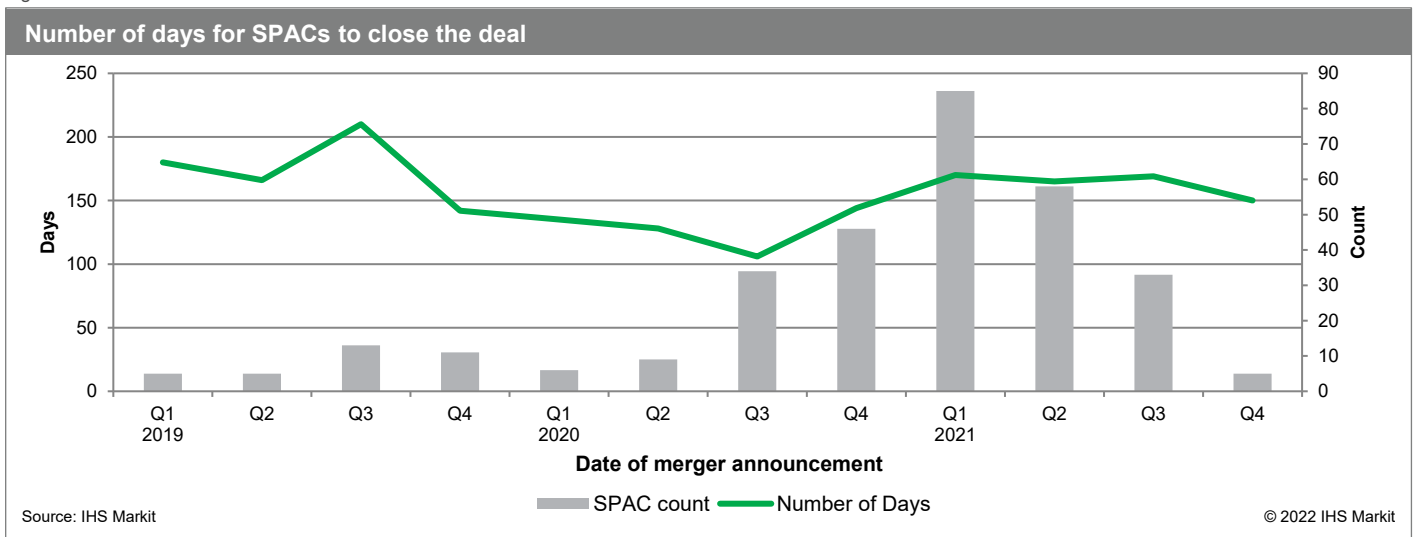


Figure 4



From a performance perspective, we report on cumulative returns for the SPAC and non-SPAC constituents on an equal-weighted (Figure 5) and market cap-weighted (Figure 6) basis. For all return analysis, we remove outlier daily returns in excess of 300%, which affected 8 SPACs and 19 non-SPACs.

On an equal-weighted basis, non-SPAC IPOs enjoyed a larger bounce off the pandemic low in March 2020 and outperformed SPACs by the largest spread of 148 percentage points in February 2021. However, the spread converged since that time, with SPACs just inching out a lead of 11.5 percentage points by May 2022. On a market cap-weighted basis, the performance spread was more pronounced in favor of non-SPACs, reaching as high as 372 percentage points in September 2021, indicating a greater skew to high return large caps.

Figure 5

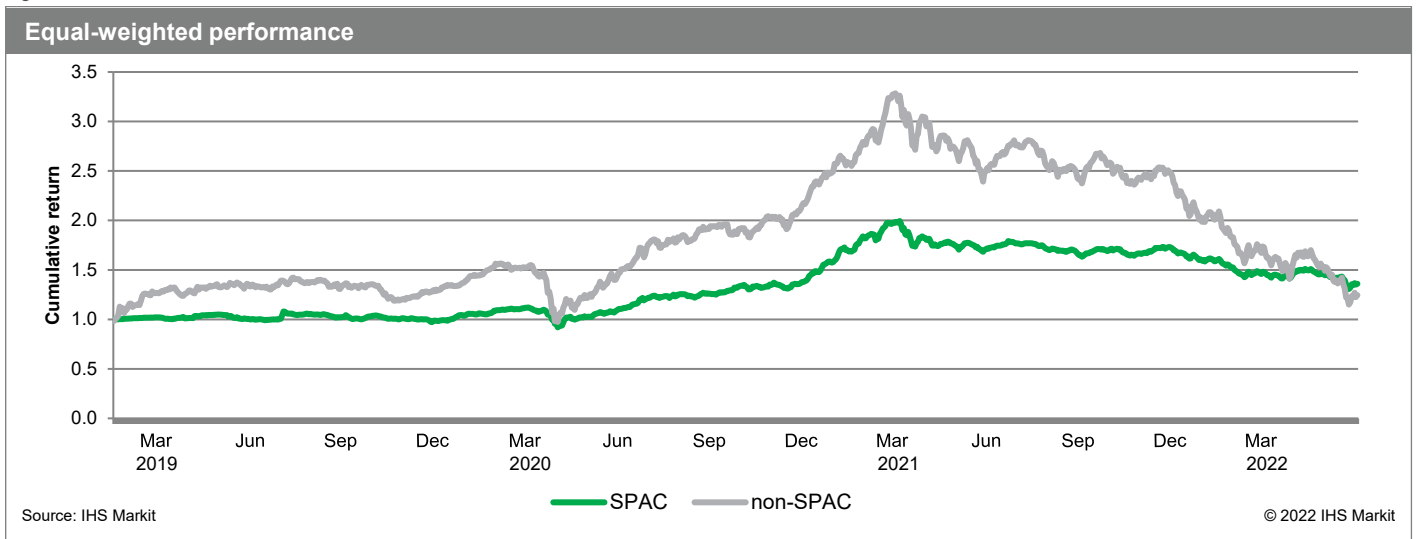
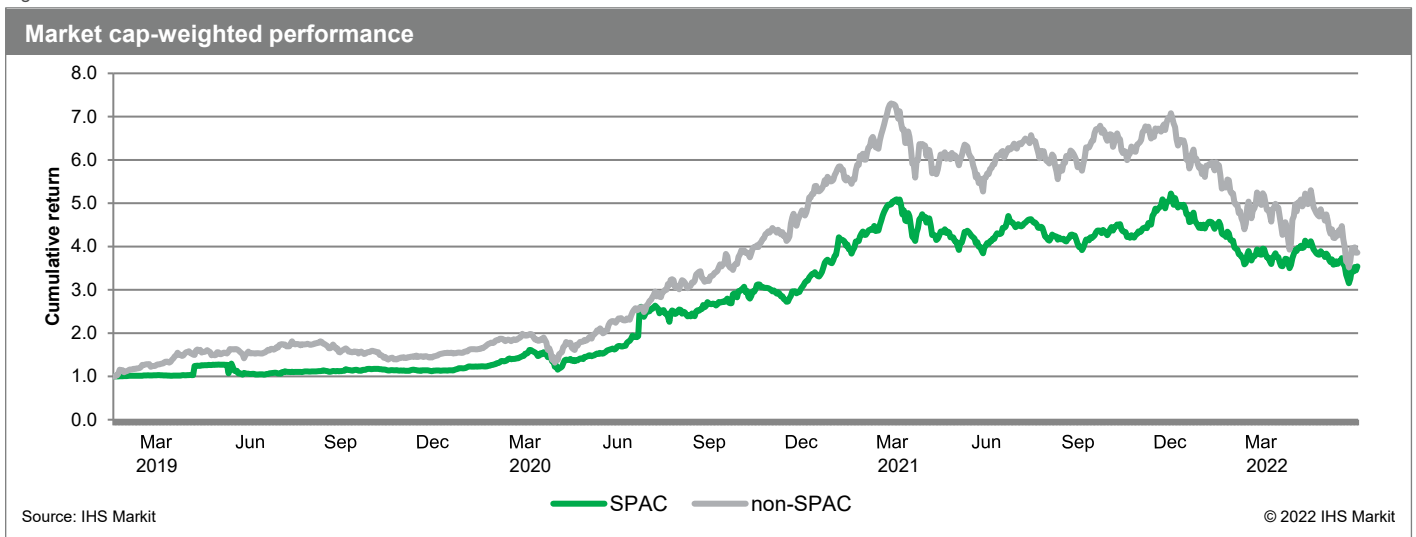


Figure 6



Lastly, we break down pre-merger (Figure 7) and post-merger (Figure 8) equal-weighted returns across the SPAC universe. Pre-merger cumulative returns had an impressive run in late 2020, peaking in February 2021, before leveling off throughout the remainder of the analysis period.

Post-merger returns enjoyed the spoils of the risk-on market environment following the March 2020 pandemic trough, with a cumulative return of 255% through the February 2021 series peak. However, returns have been on a general downtrend since that time, giving up the majority of the gains over that period.

Figure 7

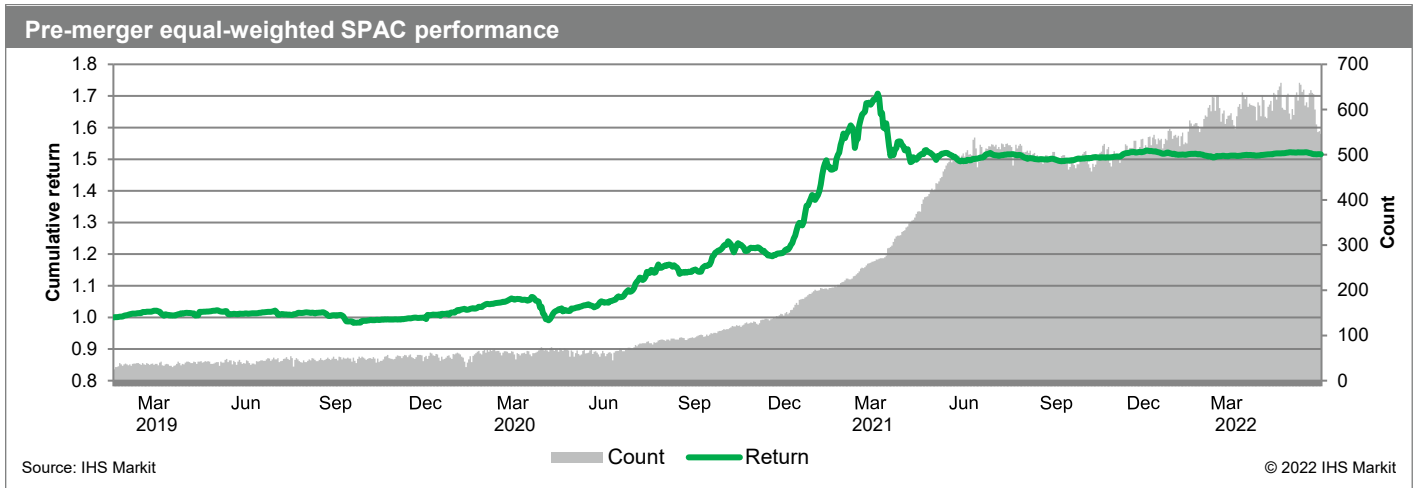
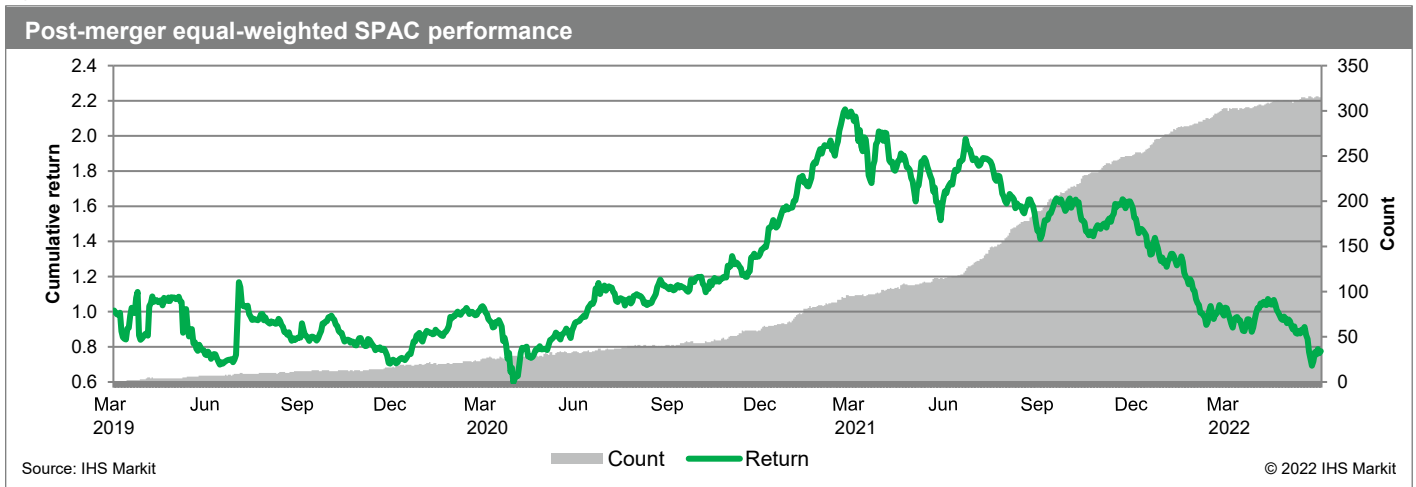


Figure 8



Event study around key dates

We focus next on market activity in the days surrounding SPAC merger announcements, redemption and completion dates (Table 2). On the merger announcement date, the average return for SPACs was a statistically significant 5.29%. The following day the average return was 1.27%, though not statistically significant.

Three days prior to the redemption date, an average return of -3.02% was observed and the prior day the return was -2.37%, both of statistical significance. Average returns around the merger completion date were not statistically significant; however, three months after the merger completion date (not reported here), an average total return of -11.57% was observed with high statistical significance.

We also remark that we tested our Social Media Indicators and Short Sentiment factors for predictability of returns around the key dates using simple correlation, linear regression and machine learning methods. Overall, we found no significant relationship between the signals and the prior and post event date returns.

Table 2

		10-day prior	3-day prior	1-day prior	Event day	Post -1day	Post 10-day
Merger announcement day	Count	400	400	400	399.00	400	400
	Mean	1.89%	0.89%	0.48%	5.29%	1.27%	1.81%
	Std dev	0.097	0.054	0.037	0.156	0.196	0.313
	Minimum	-40.61%	-14.53%	-11.55%	-17.65%	-38.63%	-61.50%
	Maximum	114.71%	60.31%	58.31%	115.90%	356.83%	535.04%
	p-value	0.0001	0.0009	0.0114	0.0000	0.1961	0.2472
Redemption day	Count	163	163	163	163	163	161
	Mean	-3.55%	-3.02%	-2.37%	0.18%	-0.23%	-1.05%
	Std dev	0.062	0.053	0.043	0.032	0.052	0.410
	Minimum	-28.43%	-28.43%	-28.43%	-10.06%	-18.73%	-63.45%
	Maximum	22.1%	18.55%	9.37%	12.89%	31.31%	375.21%
	p-value	0.0000	0.0000	0.0000	0.4605	0.5686	0.7456
Merger completion day	Count	307	307	303	307	307	299
	Mean	0.55%	1.35%	1.73%	0.84%	0.05%	-4.96%
	Std dev	0.266	0.266	0.187	0.129	0.578	0.361
	Minimum	-70.23%	-45.68%	-43.69%	-38.23%	-79.55%	-77.20%
	Maximum	342.99%	440.88%	257.61%	86.02%	911.71%	210.19%
	p-value	0.71580	0.37433	0.10922	0.25421	0.98687	0.01808

Source: IHS Markit

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We also examine volume on days surrounding SPAC merger announcements and completion dates. First, we summarize average and median daily trading volume over the days and month prior to and post event dates (see Tables A1 and A2 in the Appendix).

Around the merger announcement day, 20-day average trading volume picked up by more than two-fold from the prior day and continued to increase out to 10 business days before tapering off. For the redemption day, the 20-day average trading volume was similar from the day prior to the following day of the redemption and increased out to three-days post event, before dropping to levels one-month prior. Average trading values saw steady increases leading up to and post the event, with more than double the value out to one-month, and seven times the average trading volume pre merger. Results based on median daily trading value followed similar trends.

Taking a closer look at the distribution of traded value on the announcement day (Figure 9), we find that the top 10 SPACs by trading value captured just over 30% of the total volume. We also observe that the spike in trading value on the merger announcement day (Figure 10) carried over to the following day, before halving two days out.

Figure 9

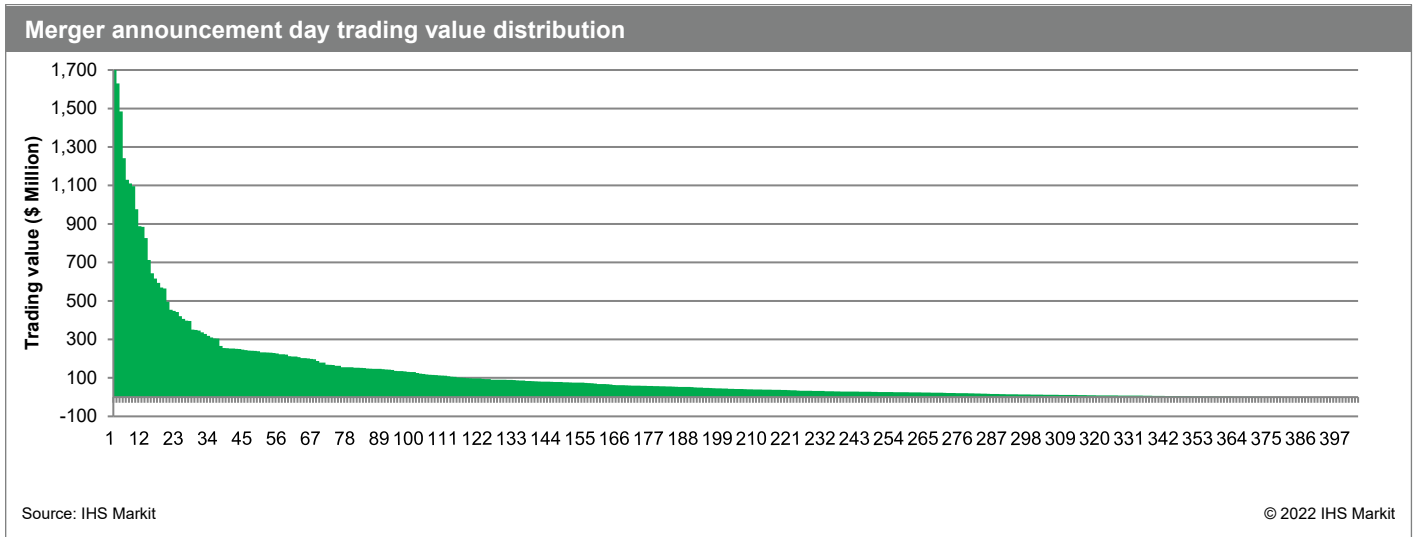
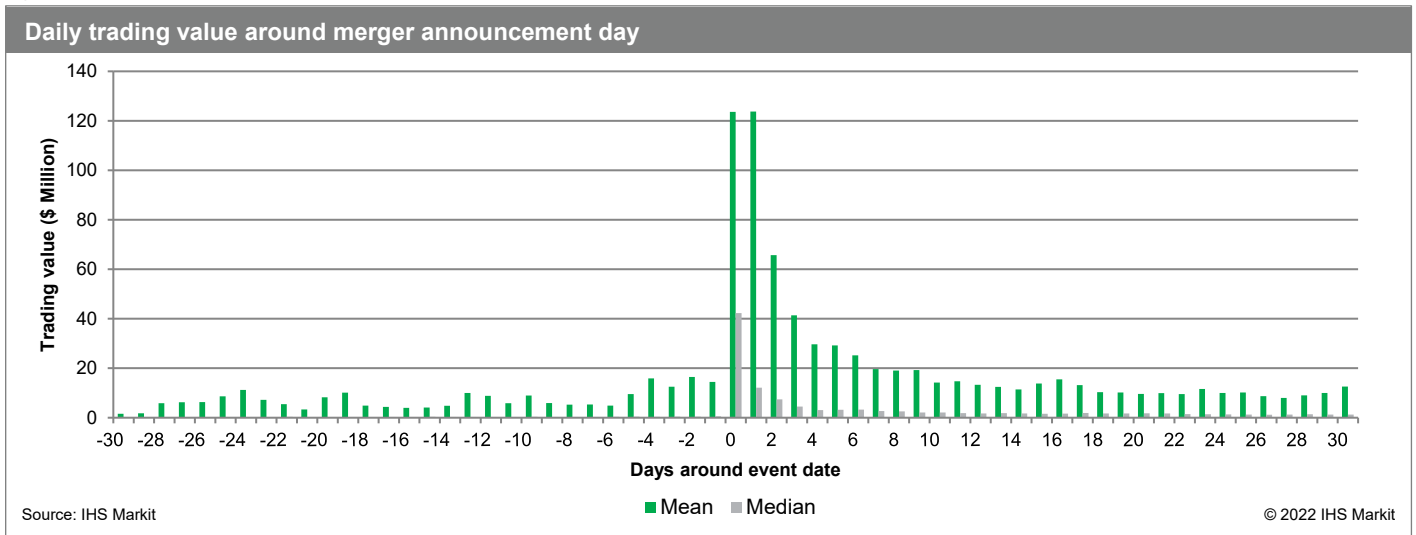


Figure 10



Alpha factors and SPAC performance

We round out our study by testing a set of factors for their predictability of SPAC returns. The factors span several styles including Social Media, Short Sentiment, Price Momentum, Liquidity and Size (see the Appendix for factor definitions and start dates).

Social Media Indicators (ranked in descending order)

- S-Score
- SV-Score
- S-Volume
- S-Score*SV-Score

Short Sentiment (ranked in ascending order)

- Implied Loan Rate
- Days to Cover
- Short Interest
- Demand Value Concentration

Price Momentum, Liquidity and Size (ranked in ascending order)

- 1-Month Active Return
- 14 Day Relative Strength Index
- 20-Day Median Daily Trading Volume
- 20-Day Average of Bid-Ask Spread-to-Price
- Natural Logarithm of Market Capitalization
- 5-Day Avg Trading Volume

To begin with, we present rank correlations between the rankings of each factor over the SPAC universe for the time periods based on each individual factors' availability following January 2019 and through May 2022 (Table 3).

We remark on several correlations of interest including that of Short Interest with S-Volume (-0.42), suggesting that SPACs with more short interest tend to also have more discussion on Twitter. Higher trading volume is also associated with larger SPACs (Natural Logarithm of Market Capitalization: 0.64) and a higher number of active brokers in the securities lending market (Demand Value Concentration: -0.68).

Table 3

Rank correlations, Jan 2019 - May 2022														
	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14
S-Score (F1)	1													
SV-Score (F2)	0.26	1												
S-Volume (F3)	0.09	0.10	1											
S-Score*SV-Score (F4)	0.81	0.22	0.10	1										
1-Month Active Return (F5)	-0.06	-0.03	0.01	-0.06	1									
5-Day Avg Trading Volume (F6)	0.08	0.44	-0.53	0.04	-0.12	1								
20-Day Avg of Bid-Ask Spread-to-Price (F7)	0.01	-0.10	0.16	0.01	-0.07	-0.35	1							
14 Day Relative Strength Index (F8)	-0.06	-0.06	0.03	-0.07	0.61	-0.11	-0.09	1						
Natural Logarithm of Market Capitalization (F9)	0.05	0.28	-0.34	0.03	-0.03	0.55	-0.40	-0.06	1					
20-Day Median Daily Trading Volume (F10)	0.08	0.45	-0.51	0.04	-0.14	0.86	-0.43	-0.15	0.64	1				
Demand Value Concentration (F11)	-0.08	-0.35	0.39	-0.05	0.17	-0.62	0.15	0.17	-0.47	-0.68	1			
Short Interest (F12)	0.08	0.38	-0.42	0.05	-0.16	0.66	-0.19	-0.16	0.35	0.72	-0.77	1		
Implied Loan Rate (F13)	0.03	0.13	-0.13	0.01	-0.07	0.03	0.35	-0.06	-0.14	0.01	-0.14	0.14	1	
Days to Cover (F14)	0.06	0.24	-0.24	0.05	-0.16	0.42	-0.07	-0.16	0.36	0.49	-0.70	0.89	0.12	1

Source: IHS Markit

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Social Media Indicators

Turning to factor performance, we begin with focus on the Social Media Indicators, which analyze social media data streams to estimate market sentiment, and present results over the full SPAC universe along with pre- and post-merger universe break outs. We report decile spread and information coefficient (IC) statistics. The decile spread is computed as the difference between average returns of the top 10% (decile 1) and bottom 10% (decile 10) of ranked names, while the IC is a cross-sectional gauge measuring the rank correlation between factor scores and subsequent returns.

Table 4 summarizes primary performance results for 1-day holding periods through 28 April 2022 and supplemental statistics are included in the Appendix (see Table A3). We highlight a couple factors with particularly strong performance including S-Score which posted an average daily spread of 0.27% over the post-merger period, with a cumulative spread of 94.6% (Figure 11). The best performance was seen in 2020 (66.8%), while 2021 (10.2%) and 2022 (5.9%) cumulative spreads were positive though milder.

S-Score*SV-Score, a computed factor combining tweet sentiment and volume, was also a successful signal over the full SPAC history, with an average daily spread of 0.10%. The robust 47.8% cumulative spread (see Figure A1 in the Appendix) was especially driven by 2020 performance (108.8%), while 2021 (-31.2%) was a down year and 2022 (2.9%) was flat.

Table 4

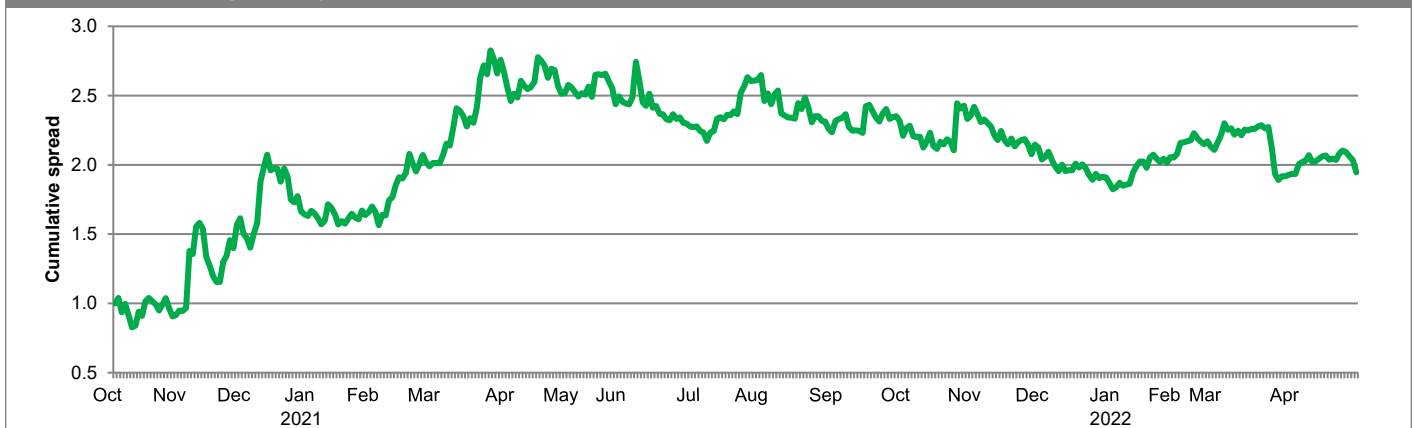
Social Media Indicators 1-day performance statistics, through Apr 2022

		Decile spread		Cumulative decile spread			IC		
		Average	IR	Full history	2022	2021	2020	Average	Std dev
Full SPAC universe	S-Score	0.10%	4.60%	47.6%	0.3%	-17.3%	78.0%	0.00	0.13
	S-Score*SV-Score	0.10%	4.58%	47.8%	2.9%	-31.2%	108.8%	0.00	0.13
	S-Volume	-0.35%	-9.74%	-85.5%	-45.4%	-59.6%	-34.3%	-0.05	0.23
	SV-Score	0.04%	1.29%	-7.5%	4.3%	-24.1%	16.8%	0.02	0.21
Pre-merger universe	S-Score	0.01%	0.61%	-1.3%	-4.7%	-20.1%	29.8%	-0.01	0.14
	S-Score*SV-Score	0.06%	3.80%	28.6%	-1.0%	-20.9%	64.2%	-0.01	0.14
	S-Volume	0.06%	1.58%	-5.9%	-20.1%	-25.3%	57.5%	-0.04	0.21
	SV-Score	-0.03%	-1.12%	-27.6%	3.5%	-20.7%	-11.8%	0.01	0.18
Post-merger universe	S-Score	0.27%	6.22%	94.6%	5.9%	10.2%	66.8%	0.00	0.16
	S-Score*SV-Score	0.22%	4.91%	57.6%	-0.1%	19.6%	32.0%	0.00	0.15
	S-Volume	-0.45%	-12.89%	-84.0%	-47.7%	-53.8%	-33.8%	-0.03	0.18
	SV-Score	-0.33%	-6.66%	-81.0%	-11.9%	-68.9%	-30.7%	-0.01	0.17

Source: IHS Markit

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Figure 11

S-Score post-merger 1-day decile spread performance

Source: IHS Markit

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Short Sentiment

Next, we report on performance for factors from our Short Sentiment factor suite which tap into short sale data from the securities lending market. We review factor primary (Table 5) and supplemental (see Table A4 in the Appendix) 1-day performance statistics through 17 May 2022 over the SPAC universe.

Implied Loan Rate was a particularly effective signal within this style group. It is a measure of the cost of borrowing a stock, with higher fees suggestive of high shorting demand or low supply. Over the full SPAC history, this factor recorded an average daily spread of 0.32% which cumulated to 600.6% (Figure 12). While results in 2019 (563.6%) were key to the solid performance, 2021 (39.7%) and 2022 (29.2%) results demonstrated

a high level of consistency with outperformance in 60% of days. Performance was stronger for the post-merger universe, with a cumulative spread of 297.5% over the full analysis period (see Figure A2 in the Appendix).

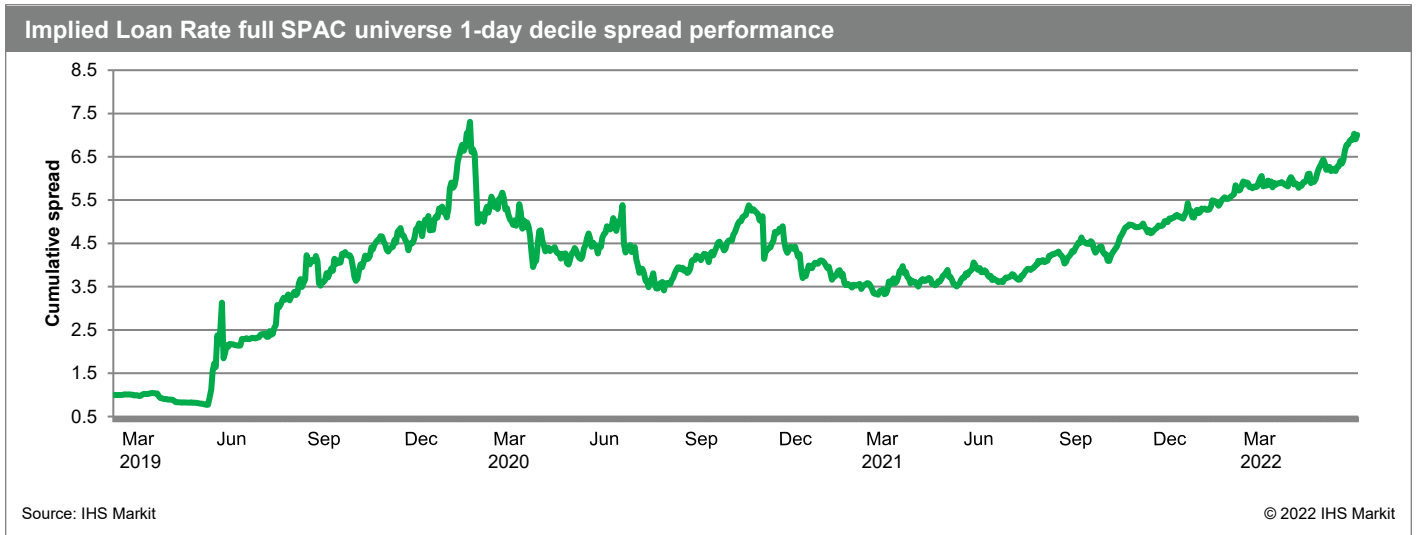
Table 5

Short Sentiment 1-day performance statistics, through May 2022										
-		Decile spread		Cumulative decile spread					IC	
		Average	IR	Full history	2022	2021	2020	2019	Average	Std dev
Full SPAC universe	Implied Loan Rate	0.32%	8.02%	600.6%	29.2%	39.7%	-41.5%	563.6%	0.03	0.16
	Days to Cover	0.10%	3.83%	70.7%	44.0%	13.8%	-3.7%	8.1%	0.03	0.23
	Short Interest	-0.04%	-1.01%	-60.2%	39.4%	35.4%	-66.9%	-36.3%	0.05	0.26
	Demand Value Concentration	-0.15%	-5.08%	-77.4%	-39.0%	-42.1%	-28.3%	-10.6%	-0.04	0.26
Pre-merger universe	Implied Loan Rate	0.05%	2.37%	25.1%	-0.9%	-9.9%	-28.8%	96.8%	0.01	0.20
	Days to Cover	-0.11%	-3.30%	-71.1%	2.6%	-2.4%	-83.2%	71.9%	0.01	0.20
	Short Interest	-0.22%	-6.80%	-88.4%	4.0%	12.4%	-91.5%	16.9%	0.01	0.21
	Demand Value Concentration	0.11%	4.18%	55.8%	-5.2%	-16.4%	114.3%	-8.4%	-0.02	0.17
Post-merger universe	Implied Loan Rate	0.31%	6.84%	297.5%	33.7%	82.3%	-20.9%	106%	0.04	0.19
	Days to Cover	0.15%	2.64%	0.8%	12.4%	21.1%	1.6%	-27.2%	-0.03	0.19
	Short Interest	0.17%	2.74%	-13.0%	15.8%	16.1%	-23.2%	-15.8%	0.01	0.22
	Demand Value Concentration	-0.51%	-7.04%	-99.8%	-16.3%	-55.3%	-93%	-93.4%	0.01	0.19

Source: IHS Markit

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Figure 12



Source: IHS Markit

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We also track 5-day performance (overlapping periods) through 11 May 2022 for the Short Sentiment factor primary (Table 6) and supplemental (see Table A5 in the Appendix) results over the SPAC universe. Again, Implied Loan Rate performance was notable with a cumulative spread of 876.6% over the post-merger universe (Figure 13) and 365.1% over the full SPAC universe (see Figure A3 in the Appendix).

Table 6

Short Sentiment 5-day performance statistics, through May 2022

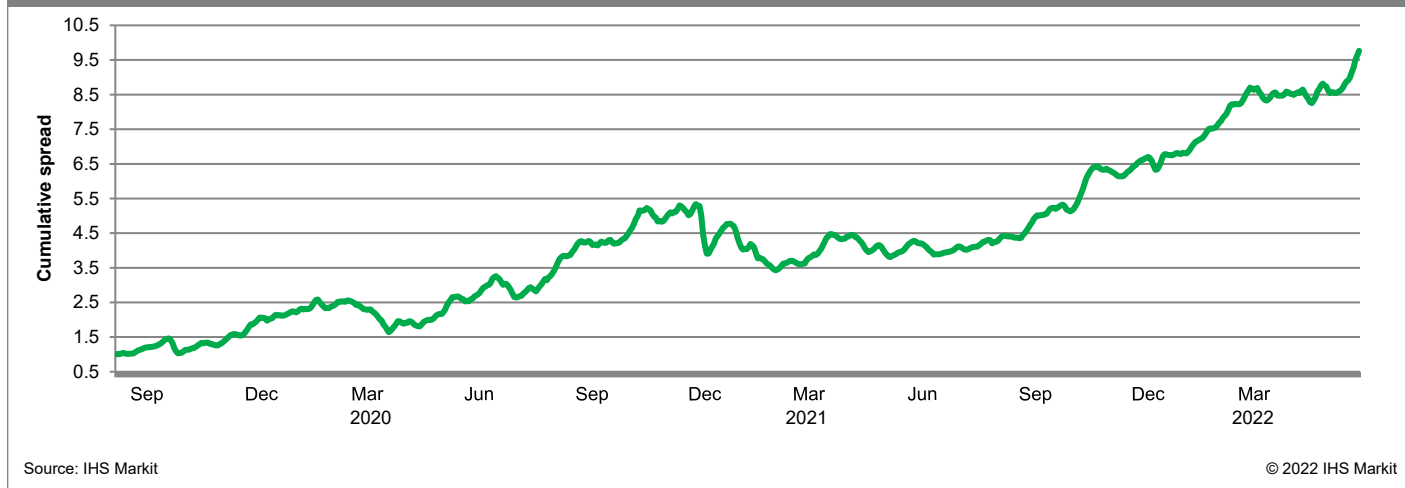
	Decile spread		Cumulative decile spread					IC		
	Average	IR	Full history	2022	2021	2020	2019	Average	Std dev	
Full SPAC universe	Implied Loan Rate	0.20%	15.59%	365.1%	29.2%	53.7%	-20.1%	193.2%	0.01	0.03
	Days to Cover	0.14%	10.97%	191.5%	47.6%	32.6%	27.7%	16.6%	0.01	0.05
	Short Interest	0.04%	2.81%	28.1%	52.4%	52.0%	-44.3%	-0.7%	0.01	0.06
	Demand Value Concentration	-0.08%	-5.78%	-48.9%	-33.6%	-43.1%	29.1%	4.7%	-0.01	0.06
Pre-merger universe	Implied Loan Rate	-0.02%	-1.32%	-24.1%	2.4%	-6.7%	-44.8%	44.0%	0.00	0.04
	Days to Cover	-0.15%	-6.75%	-73.7%	10.9%	6.7%	-87.4%	76.9%	0.00	0.04
	Short Interest	-0.32%	-14.80%	-92.7%	8.0%	16.3%	-94.0%	-3.0%	0.00	0.05
	Demand Value Concentration	0.17%	11.92%	155.9%	-7.1%	-13.0%	206.7%	3.2%	0.00	0.04
Post-merger universe	Implied Loan Rate	0.35%	19.92%	876.6%	35.2%	83.9%	67.1%	135.0%	0.01	0.04
	Days to Cover	0.15%	6.87%	134.1%	7.7%	29.3%	174.5%	-38.8%	-0.01	0.04
	Short Interest	0.10%	4.49%	67.6%	14.2%	54.0%	38.0%	-30.9%	0.00	0.04
	Demand Value Concentration	-0.28%	-11.22%	-88.4%	-13.7%	-44.0%	-66.5%	-28.0%	0.00	0.04

Source: IHS Markit

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Figure 13

Implied Loan Rate post-merger 5-day decile spread performance



Source: IHS Markit

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Price Momentum, Liquidity and Size

Lastly, we review Price Momentum, Liquidity and Size factor primary (Table 7) and supplemental (see Table A6 in the Appendix) daily performance statistics through 17 May 2022 over the SPAC universe. Smaller cap SPACs outperformed large caps by a wide margin, as gauged by Natural Logarithm of Market Capitalization (ranked to favor small caps), contributing to a robust cumulative spread of 834.5% over the full SPAC universe (Figure 14). Outperformance was consistent throughout the analysis period, with positive cumulative spreads in each year and 97% confidence level (Table A6).

Within the post-merger universe, 20-Day Median Daily Trading Volume posted a marginally higher average daily spread (0.44%) relative to Natural Logarithm of Market Capitalization (0.43%); however, the volatility was higher (see Figure A4 in the Appendix), resulting in a lower information ratio (IR) of 6.95% compared with 8.53% for the latter. Lastly, we remark on two other outperforming signals including 20-Day Average of Bid-Ask Spread-to-Price in the pre-merger universe with a cumulative spread of 232.4% (see Figure A5 in the Appendix) and 14 Day Relative Strength Index in the post-merger universe with a cumulative spread of 276.6% (see Figure A6 in the Appendix).

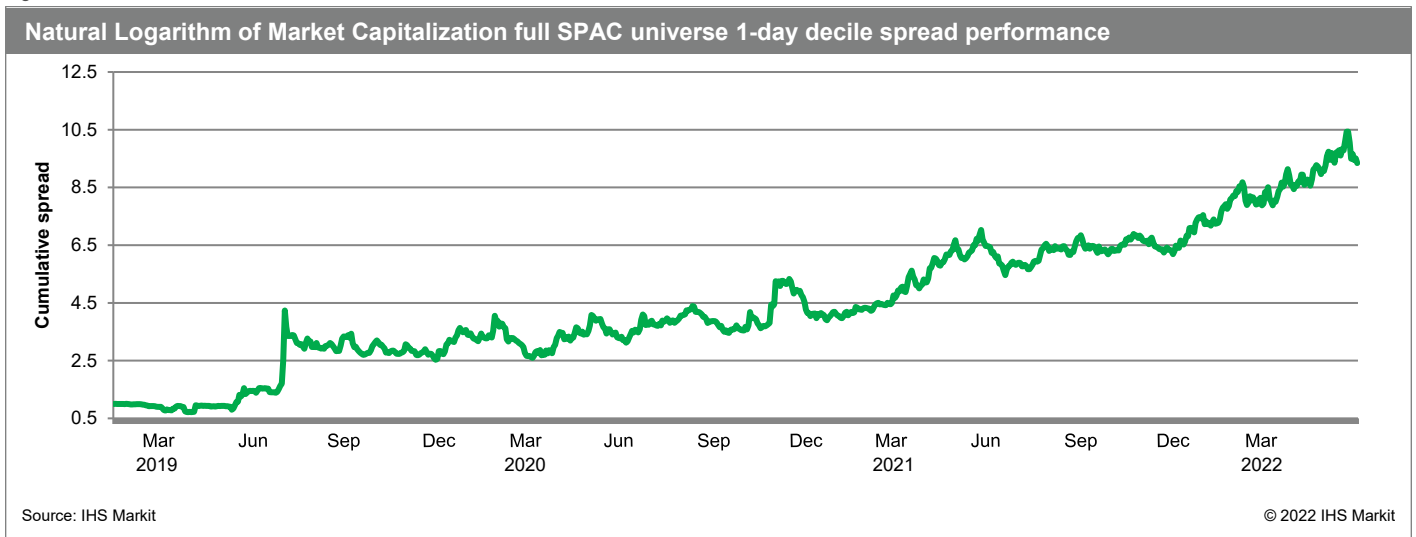
Table 7

Price Momentum, Liquidity and Size 1-day performance statistics, through May 2022										
		Decile spread		Cumulative decile spread				IC		
		Average	IR	Full history	2022	2021	2020	2019	Average	Std dev
Full SPAC universe	1-Month Active Return	0.14%	2.77%	-13.2%	9.1%	115.6%	-38.6%	-39.9%	0.00	0.19
	14 Day Relative Strength Index	0.06%	1.19%	-52.7%	-20.4%	56.7%	-11.3%	-57.2%	-0.01	0.17
	20-Day Median Daily Trading Volume	0.16%	3.70%	79.4%	26.0%	59.7%	-13.0%	2.4%	0.03	0.25
	20-Day Average of Bid-Ask Spread-to-Price	-0.07%	-1.65%	-73.0%	15.6%	0.6%	-66.1%	-31.6%	0.03	0.15
	Natural Logarithm of Market Capitalization	0.35%	8.07%	834.5%	26.6%	79.0%	19.9%	244.0%	0.01	0.19
	5-Day Avg Trading Volume	-0.02%	-0.60%	-49.7%	34.3%	45.0%	-61.4%	-33.0%	0.03	0.23
	1-Month Active Return	0.06%	1.67%	3.8%	6.0%	55.2%	-61.4%	63.6%	0.03	0.18
Pre-merger universe	14 Day Relative Strength Index	0.03%	0.90%	-12.0%	6.6%	42.9%	-31.8%	-15.2%	0.02	0.16
	20-Day Median Daily Trading Volume	-0.18%	-4.56%	-84.9%	3.8%	17.6%	-82.1%	-30.6%	0.01	0.21
	20-Day Average of Bid-Ask Spread-to-Price	0.17%	7.99%	232.4%	-4.0%	-5.1%	29.6%	181.3%	0.01	0.16
	Natural Logarithm of Market Capitalization	-0.02%	-0.76%	-36.5%	3.4%	17.4%	-15.8%	-37.9%	0.01	0.17
	5-Day Avg Trading Volume	-0.20%	-9.93%	-84.5%	4.5%	41.8%	-82.2%	-40.9%	0.01	0.19
	1-Month Active Return	0.33%	5.22%	100.2%	31.1%	173.0%	-48.9%	9.4%	-0.01	0.20
Post-merger universe	14 Day Relative Strength Index	0.31%	6.47%	276.6%	-3.5%	123.3%	-10.5%	95.2%	-0.01	0.18
	20-Day Median Daily Trading Volume	0.44%	6.95%	430.8%	4.8%	24.1%	153.6%	61.0%	0.00	0.22
	20-Day Average of Bid-Ask Spread-to-Price	-0.08%	-1.24%	-92.7%	-1.0%	32.0%	-74.7%	-77.9%	0.02	0.20
	Natural Logarithm of Market Capitalization	0.43%	8.53%	749.3%	20.2%	52.7%	412.7%	-9.8%	-0.03	0.18
	5-Day Avg Trading Volume	-0.06%	-1.09%	-82.6%	19.2%	10.5%	-83.7%	-19.1%	0.01	0.23

Source: IHS Markit

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Figure 14



Conclusion

A new SPAC is a “blank check company” lacking a detailed investment thesis, thus its purchase is reliant on investor trust in its management to select, obtain and manage the right acquisition targets. They have risen in popularity over recent years, especially during the period of heightened speculation and froth in equity markets during the post-pandemic economic recovery.

At its peak, SPAC issuance outpaced traditional IPOs by over two-and-a-half times in Q1 2021. However, the average size of non-SPACs has exceeded SPACs in general, with the largest margin occurring in Q2 2021. Equal-weighted performance has also favored non-SPACs, with the largest spread occurring in February 2021, though the spread has converged since that time.

The number of days for SPACs to find a merger target has decreased, with an average of 550 days in Q1 2019 dropping to less than 100 days in Q4 2021, though no significant drop was found in the number of days to close the deal. SPACs recorded an average return of 5.29% on merger announcement days, 0.18% on redemption days and 0.84% on merger completion days.

From a factor perspective, looking at rank correlations of SPACs based on Social Media Indicators, Short Sentiment, Price Momentum, Liquidity and Size scores, we find that SPACs with more short interest tend to also have more discussion on Twitter (S-Volume: -0.42) and higher trading volume (20-Day Median Daily Trading Volume: 0.72). Higher trading volume is also associated with larger SPACs (Natural Logarithm of Market Capitalization: 0.64) and a higher number of active brokers in the securities lending market (Demand Value Concentration: -0.68).

Finally, over the full SPAC universe, factors with strong positive alpha based on decile spreads include S-Score*SV-Score on a daily basis (average: 0.10%; cumulative: 47.8%), Implied Loan Rate on both 1-day (average: 0.32%; cumulative: 600.6%) and 5-day (average: 0.20%; cumulative: 365.1%) time horizons and Natural Logarithm of Market Capitalization on a daily basis (average: 0.35%; cumulative: 834.5%).

Appendix

Tables and Figures

Table A1

		Average 20-day trading volume around key dates (million shares)								
		1-month prior	10-day prior	3-day prior	1-day prior	Event day	Post 1-day	Post 3-day	Post 10-day	Post 1-month
Merger announcement day	Count	370	380	394	396	398	399	404	404	393
	Mean	0.34	0.40	0.36	0.38	0.80	1.08	1.27	1.57	1.37
	Median	0.07	0.06	0.06	0.06	0.28	0.36	0.45	0.53	0.37
	Minimum	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	Maximum	58.40	78.93	57.68	58.64	57.18	64.62	71.94	68.23	52.54
Redemption day	Count	155	155	155	155	155	154	153	155	155
	Mean	0.44	0.50	0.60	0.66	0.68	0.71	0.89	0.44	0.50
	Median	0.17	0.20	0.34	0.40	0.40	0.42	0.53	0.17	0.20
	Minimum	0.005	0.006	0.012	0.028	0.032	0.033	0.031	0.005	0.006
	Maximum	11.97	10.57	11.10	11.70	11.65	11.49	12.48	11.97	10.57
Merger completion day	Count	292	292	292	292	292	292	289	282	248
	Mean	0.83	0.98	1.04	1.10	1.19	1.38	1.75	2.09	2.10
	Median	0.36	0.50	0.52	0.53	0.56	0.61	0.69	0.67	0.81
	Minimum	0.001	0.003	0.003	0.003	0.003	0.003	0.007	0.011	0.003
	Maximum	10.47	12.71	13.01	13.52	13.96	14.68	23.80	30.28	41.55

Source: IHS Markit

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Table A2

		Median 20-day trading volume around key dates (million shares)								
		1-month prior	10-day prior	3-day prior	1-day prior	Event day	Post 1-day	Post 3-day	Post 10-day	Post 1-month
Merger announcement day	Count	370	380	394	396	398	399	404	404	393
	Mean	0.18	0.29	0.25	0.27	0.28	0.31	0.36	0.76	0.86
	Median	0.02	0.02	0.02	0.02	0.03	0.03	0.04	0.13	0.18
	Minimum	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002
	Maximum	25.61	67.50	45.17	52.69	52.69	61.95	67.92	63.07	38.30
Redemption day	Count	155	155	155	155	155	154	148	155	155
	Mean	0.30	0.34	0.40	0.45	0.46	0.48	0.58	0.30	0.34
	Median	0.09	0.12	0.18	0.22	0.22	0.24	1.09	0.09	0.12
	Minimum	0.001	0.001	0.004	0.004	0.004	0.003	0.004	0.001	0.001
	Maximum	10.59	9.29	9.29	10.45	10.45	10.45	10.82	10.59	9.29
Merger completion day	Count	292	292	292	292	292	292	289	282	248
	Mean	0.61	0.75	0.80	0.83	0.88	0.96	1.23	1.48	1.58
	Median	0.21	0.30	0.31	0.32	0.33	0.36	0.45	0.46	0.60
	Minimum	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.005	0.002
	Maximum	9.26	10.84	10.84	12.02	14.09	15.05	14.61	21.45	27.71

Source: IHS Markit

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Table A3

Social Media Indicators 1-day performance statistics, through May 2022							
		Count	Decile spread		Decile spread cumulative		
			t-stat	p-value	Decile 1	Decile 10	Average
Full SPAC universe	S-score	521	1.05	0.295	99.2%	27.7%	19.3%
	S-score*SV-score	521	1.04	0.297	42.6%	-7.4%	20.4%
	S-volume	461	-2.09	0.037	-83.3%	21.4%	-0.2%
	SV-score	521	0.30	0.768	-16.1%	-47.2%	21.5%
Pre-merger universe	S-score	508	0.14	0.891	49.3%	48.5%	66.5%
	S-score*SV-score	508	0.86	0.392	72.8%	32.2%	68.7%
	S-volume	446	0.33	0.738	26.9%	37.1%	54.3%
	SV-score	508	-0.25	0.801	51.4%	59.5%	71.2%
Post-merger universe	S-score	367	1.19	0.234	10.0%	-55.4%	-49.3%
	S-score*SV-score	367	0.94	0.348	-60.2%	-81.2%	-50.3%
	S-volume	356	-2.43	0.015	-90.0%	-39.0%	-49.3%
	SV-score	367	-1.28	0.203	-78.5%	-30.1%	-47.3%

Source: IHS Markit

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Table A4

Short Sentiment 1-day performance statistics, through May 2022							
		Count	Decile spread		Decile spread cumulative		
			t-stat	p-value	Decile 1	Decile 10	Average
Full SPAC universe	Implied Loan Rate	807	2.28	0.023	16.5%	-95.7%	10.9%
	Days to Cover	808	1.09	0.277	15.3%	-61.5%	23.0%
	Short Interest	808	-0.29	0.774	-18.3%	-9.5%	16.0%
	Demand Value Concentration	750	-1.39	0.165	-61.7%	59.9%	14.6%
	Implied Loan Rate	786	0.66	0.507	85.1%	0.1%	98.3%
Pre-merger universe	Days to Cover	783	-0.92	0.355	45.5%	124.5%	119.4%
	Short Interest	788	-1.91	0.057	30.3%	387.2%	118.3%
	Demand Value Concentration	590	1.02	0.310	101.0%	31.4%	94.0%
	Implied Loan Rate	687	1.79	0.073	36.2%	-89.5%	-27.0%
Post-merger universe	Days to Cover	687	0.69	0.489	6.5%	-39.5%	-15.6%
	Short Interest	687	0.72	0.473	55.9%	-43.7%	-19.6%
	Demand Value Concentration	684	-1.84	0.066	-85.4%	66.0%	-10.5%
	Implied Loan Rate	687	1.79	0.073	36.2%	-89.5%	-27.0%

Source: IHS Markit

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Table A5

Short Sentiment 5-day performance statistics, through May 2022

		Count	Decile spread		Decile spread cumulative		
			t-stat	p-value	Decile 1	Decile 10	Average
Full SPAC universe	Implied Loan Rate	804	4.42	0.000	30.6%	-75.5%	6.9%
	Days to Cover	804	3.11	0.002	34.8%	-59.6%	7.0%
	Short Interest	804	0.80	0.426	26.5%	-16.6%	11.5%
	Demand Value Concentration	743	-1.57	0.116	-35.0%	27.3%	9.8%
Pre-merger universe	Implied Loan Rate	763	-0.37	0.715	129.8%	148.7%	72.2%
	Days to Cover	759	-1.86	0.063	45.7%	278.8%	72.2%
	Short Interest	765	-4.09	0.000	32.2%	1155.1%	81.7%
	Demand Value Concentration	573	2.85	0.004	205.7%	20.3%	70.5%
Post-merger universe	Implied Loan Rate	684	5.21	0.000	23.7%	-89.4%	-21.2%
	Days to Cover	684	1.80	0.073	-4.8%	-62.4%	-20.2%
	Short Interest	684	1.17	0.241	74.4%	-14.3%	-19.4%
	Demand Value Concentration	682	-2.93	0.003	-64.6%	117.7%	-15.5%

Source: IHS Markit

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Table A6

		Count	Decile spread		Decile spread cumulative		
			t-stat	p-value	Decile 1	Decile 10	Average
Full SPAC universe	1-Month Active Return	823	0.80	0.427	59.7%	-43.7%	32.7%
	14 Day Relative Strength Index	823	0.34	0.733	27.2%	-14.1%	32.2%
	20-Day Median Daily Trading Volume	782	1.03	0.301	283.8%	12.9%	34.3%
	20-Day Average of Bid-Ask Spread-to-Price	823	-0.47	0.635	-24.1%	-17.6%	24.3%
	Natural Logarithm of Market Capitalization	823	2.32	0.021	504.5%	-60.4%	31.1%
	5-Day Avg Trading Volume	823	-0.17	0.862	42.4%	39.8%	31.7%
	1-Month Active Return	823	0.48	0.633	108.3%	30.0%	63.4%
Pre-merger universe	14 Day Relative Strength Index	823	0.26	0.797	62.6%	61.3%	66.9%
	20-Day Median Daily Trading Volume	782	-1.27	0.203	54.8%	594.5%	69.8%
	20-Day Average of Bid-Ask Spread-to-Price	823	2.29	0.022	126.3%	-48.7%	49.5%
	Natural Logarithm of Market Capitalization	823	-0.22	0.827	7.9%	55.7%	64.7%
	5-Day Avg Trading Volume	823	-2.85	0.005	2.8%	394.9%	65.9%
	1-Month Active Return	687	1.37	0.172	334.8%	-68.9%	-20.0%
	14 Day Relative Strength Index	682	1.69	0.092	260.9%	-54.5%	-12.8%
Post-merger universe	20-Day Median Daily Trading Volume	661	1.79	0.074	352.4%	-64.5%	-12.0%
	20-Day Average of Bid-Ask Spread-to-Price	685	-0.33	0.745	-18.3%	-37.8%	-21.5%
	Natural Logarithm of Market Capitalization	687	2.24	0.026	340.1%	-65.3%	-21.0%
	5-Day Avg Trading Volume	682	-0.28	0.777	-48.9%	-37.4%	-10.3%

Source: IHS Markit

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Figure A1

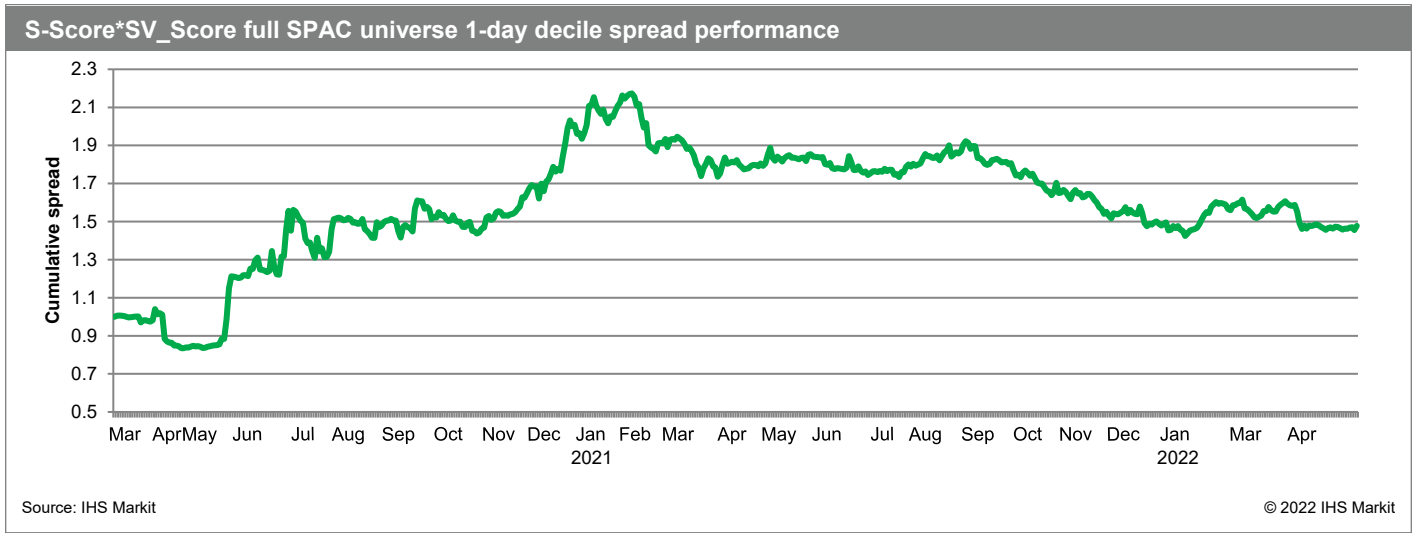


Figure A2

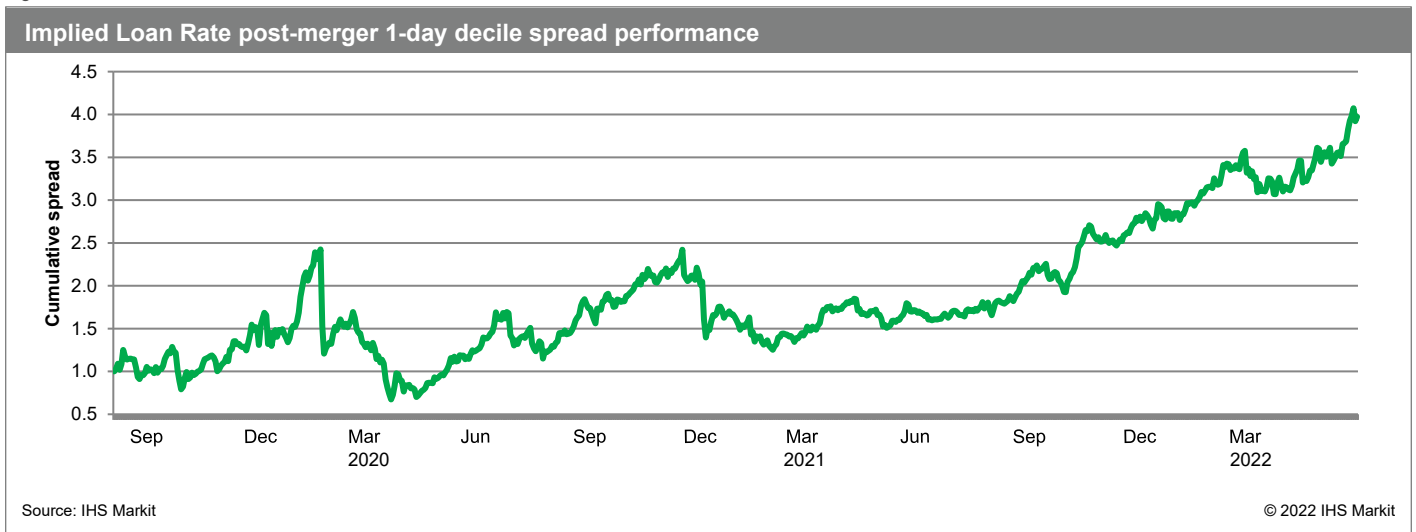


Figure A3

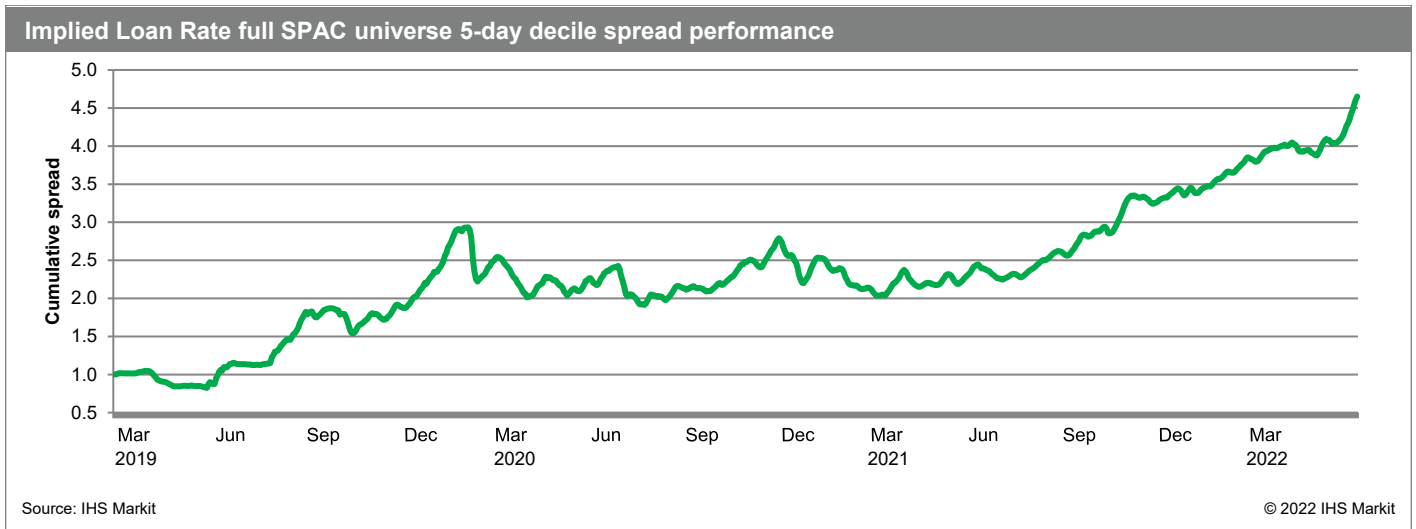


Figure A4

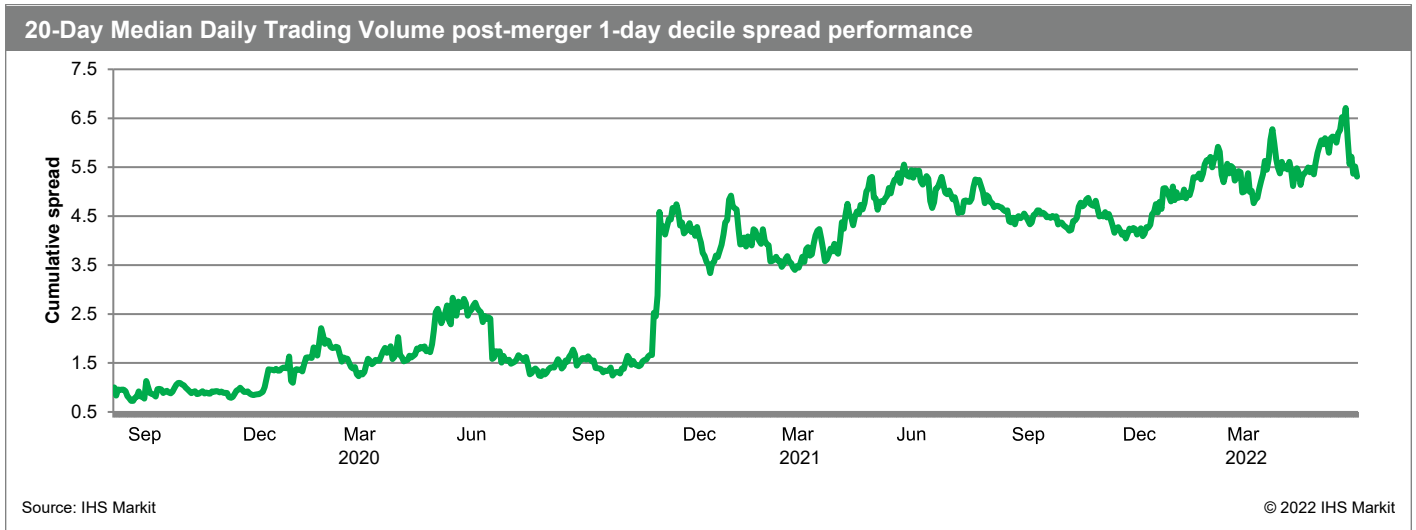


Figure A5

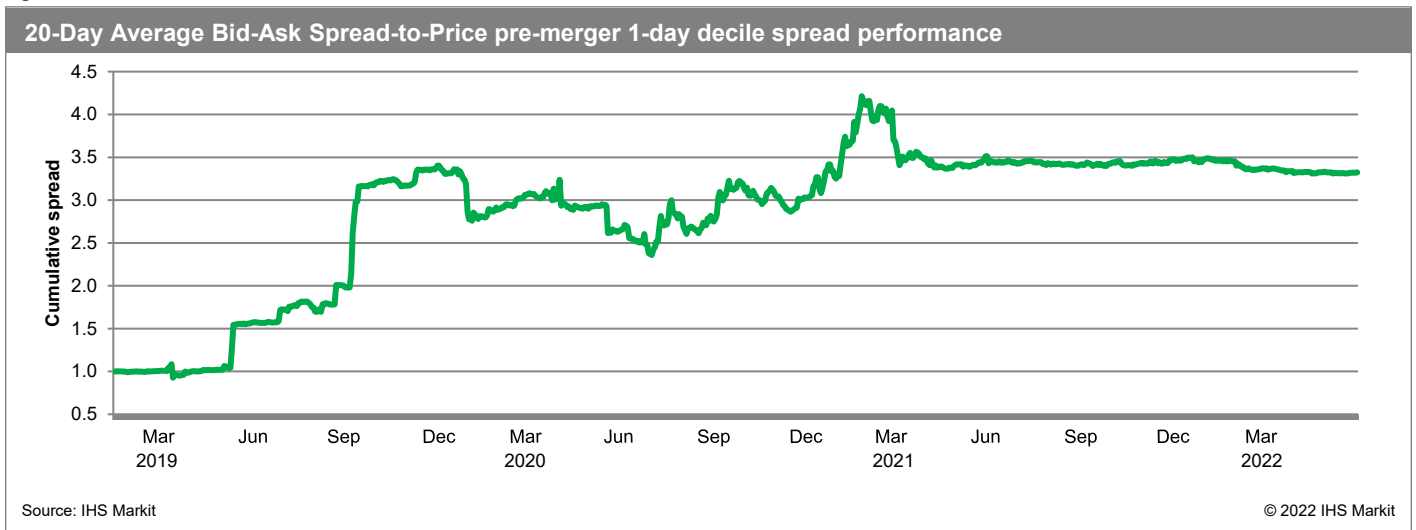
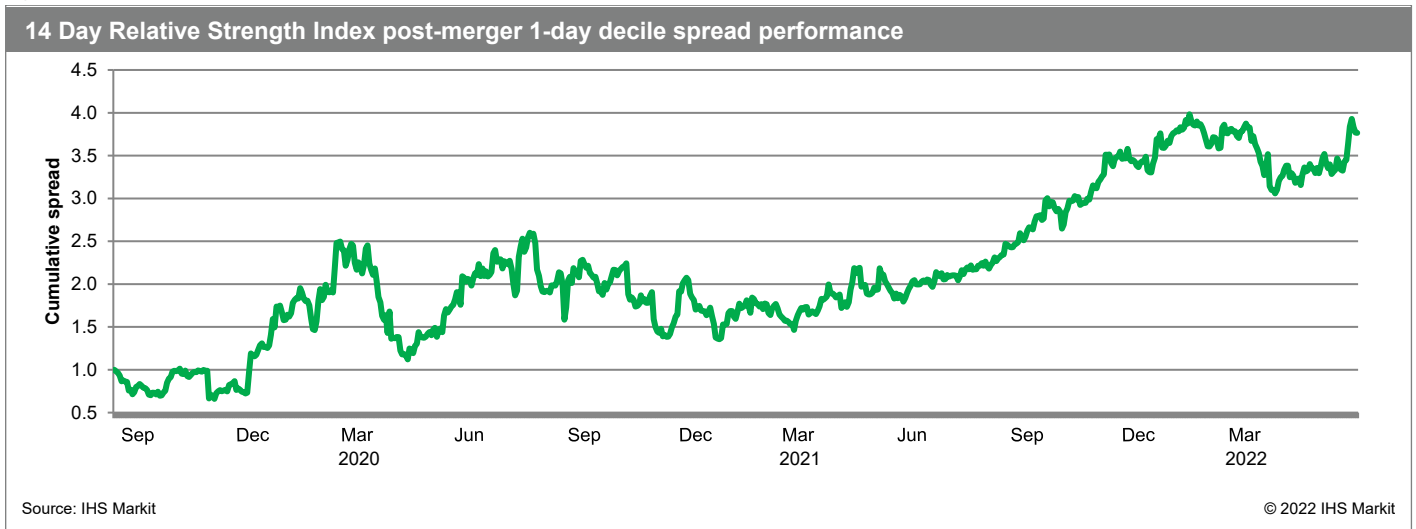


Figure A6



Factor definitions

S-Score - Z-score normalization of the exponentially weighted sentiment score over a 20-day period, ranked in descending order (start date: pre-merger 7 January 2019; post-merger 28 October 2019)

SV-Score - Z-score normalization of the indicative tweet volume over a 20-day period, ranked in descending order (start date: pre-merger 7 January 2019; post-merger 28 October 2019)

S-Volume - Number of indicative tweets used to calculate the sentiment score, ranked in descending order (start date: pre-merger 7 January 2019; post-merger 28 October 2019)

S-Score*SV-Score - Combination of the S-Score and SV-Score, ranked in descending order (start date: pre-merger 7 January 2019; post-merger 28 October 2019)

Implied Loan Rate - Value and time weighted average fee for the rate charged by the custodian to the borrower of a security, ranked in ascending order (start date: pre-merger 1 January 2019; post-merger 18 February 2019)

Days to Cover - Number of days it would take to buy back the total quantity of stock borrowed in the market based on the average volume traded in the last 30 trading days, ranked in ascending order (start date: pre-merger 1 January 2019; post-merger 18 February 2019)

Short Interest - Number of shares borrowed in the market relative to the total shares outstanding, ranked in ascending order (start date: pre-merger 1 January 2019; post-merger 18 February 2019)

Demand Value Concentration - Distribution of broker demand, where a very low ratio indicates a large number of active brokers and a high ratio indicates very few active brokers, ranked in ascending order (start date: pre-merger 1 January 2019; post-merger 18 February 2019)

1-Month Active Return - A stock's price percent change from month t-1 to month t, ranked in ascending order (start date: pre-merger 1 January 2019; post-merger 18 February 2019)

14 Day Relative Strength Index - Average up/down price moves over prior 14 days, ranked in ascending order (start date: pre-merger 1 January 2019; post-merger 18 February 2019)

20-Day Median Daily Trading Volume - 20 days median daily volume traded, ranked in ascending order (start date: pre-merger 1 January 2019; post-merger 18 February 2019)

20-Day Average of Bid-Ask Spread-to-Price - 20-day moving average of a stock's daily composite bid-ask spread deflated by its daily closing price, ranked in ascending order (start date: pre-merger 15 January 2019; post-merger 19 February 2019)

Natural Logarithm of Market Capitalization - Natural logarithm of the cubic of a stock's total market value, ranked in ascending order (start date: pre-merger 1 January 2019; post-merger 18 February 2019)

5-Day Avg Trading Volume - Five days average trading volume, ranked in ascending order (start date: pre-merger 1 January 2019; post-merger 18 February 2019)

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