A Retrospective of SPACs

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Abstract

This paper analyzes the correlation between passive ETF investments and SPAC pricing along with the roles and impacts of each party involved within the de-SPAC process. We find that ETFs serving as passive investment vehicles are primary holders of SPACs as seen through the -15.56% median decline in SPACs following the delisting of SPAK, a leading SPAC based ETF. We further analyze the opportunities within the de-SPAC process for insiders to receive personal benefits through the means of payouts, founder shares, and more.

Keywords: SPACs, Shell Companies, ETFs, Passive Investing, De-SPACs

Consider a scenario in which one's investment has plummeted by 90% overnight. This is not a hypothetical scenario, but a recurring reality in the world of de-SPACs, where companies post-IPO face extreme volatility and dramatic selloffs. The recent increase in usage of SPACs as an alternative to traditional IPOs emphasizes the importance of understanding the risks that are weighed against the investor.

Throughout our research, we analyze a dataset containing over 550 of the most recent de-SPACs from 2016 to 2024. Our data includes the extent of the sell-off that occurred after the de-SPACs; the drawdown experienced when entering short positions; and the monetary effects of ETFs. We find that of these de-SPACs, a staggering 99% fall below their initial share price. This suggests that these stocks are overvalued, where the fall in price reflects the actual underlying value. According to NYU Law School Professor Michael Ohlrogge, "These companies were aware the valuation the SPAC was giving them was exceptionally generous. It's a no-brainer to take advantage of that." (McGinty et al.) Despite this drop in price, no SPACs dropped below $0.01 prior to the end of the lock-up period, which is when founders are allowed to sell their shares. Since founder shares are typically bought for nominal prices, around $0.0001 per share, a net profit is ensured for these particular shares if the de-SPAC process finalizes successfully. Individual investors are compensated if the SPAC merger doesn't go through. (Jenkinson & Sousa 3-5) This creates a possibility for a conflict of interest between the two parties involved. We also believe that passive ETFs have been a considerable source of funding for these SPACs.

We believe this paper meaningfully contributes to the realm of SPAC-based research by establishing a connection between passive ETFs and SPACs, as well as examining the incorporated risk factors within these ETFs. These risk factors were highlighted through insider involvement, the Fama French Three Factor Model, and the analysis of past SPAC to ETF price correlation data.

I. Background

Imagine waking up to find that the value of your investment has plummeted by 90% overnight. This is not a hypothetical scenario, but a recurring reality in the A SPAC is a Special Purpose Acquisition Company, a shell company created specifically for the purpose of raising capital through a public offering to acquire or merge with an existing private company. SPACs offer an alternative, faster route for a private company to go public compared to the traditional IPO (Initial Public Offering) route.

SPACs have existed for decades; however, their popularity has only recently surged in global markets. Originating in the 1980s, the concept of a SPAC was initially coined as a "blind pool", where investors would invest in a shell company without any prior knowledge of how their money would be used. However, these companies faced immense criticism because they rarely benefited the investors, enriching the promoters who took fees at the cost of investors. The concept of SPACs began with the investment bank GKN Securities in the early 1990s, run by David Nussbaum. GKN Securities redefined the concept of blind pools, introducing several changes that would help protect the investor. GKN Securities introduced the concept of holding raised capital in interest-bearing escrow accounts. The escrow accounts ensured that capital was protected until a viable acquisition target was approved by shareholders. Crucially, a defined investment timeline was required for all SPACs, typically between 18 to 24 months. If no acquisition is made within this period, all capital is returned to the respective investors. Additionally, GKN recognized the importance of investor participation. GKN created new provisions which allow shareholders to vote on and approve any proposed acquisition. Going into the early 2000s, early pioneers such as EarlyBirdCapital, led by aforementioned Nussbaum, continued redefining the concept of a SPAC, fighting to gain legitimacy in the financial sphere. However, SPACs only began gaining significant traction in the late 2010s and early 2020s. (Shachmurove & Vulanovic 14-23)

When the COVID-19 pandemic broke out in late 2019, markets became increasingly more volatile globally, making traditional IPOs challenging. SPACs quickly became a popular alternative to traditional IPOs, offering a more flexible and faster route for private companies to enter public markets. (Karnjanonun 1-17)

Today, a SPAC is formed by a group of sponsors or founders that contribute initial capital to initiate the SPAC, who typically receive a stake in the SPAC as compensation through founder shares. The SPAC goes public through an IPO, which includes selling units to investors. After establishing the SPAC, the management team identifies a suitable private company to merge with, after which the SPAC and the target company sign a letter of intent that includes the proposed valuation and other key deal terms. Once both parties agree on the terms, they enter a merger agreement which legally binds them to complete the transaction. The SPAC files a proxy statement with the SEC (Securities and Exchange Commission) providing a detailed report about the target company and the proposed merger. SPAC shareholders must then vote to approve the merger. If the majority votes in favor, the deal can proceed. Once shareholder approval is obtained, the SPAC and the target company close the merger. The SPAC changes its name to

reflect the target company's identity and begins trading under a new symbol. This ending step is often referred to as a "de-SPAC". Often, additional capital is raised through a Private Investment in Public Equity (PIPE) transaction which involves selling shares to institutional investors, providing extra funds for the merger or future growth. (Blankespoor et al. 6-7)

II. Analysis of Previous Papers

Heyman's paper "From Blank Check to SPAC: The Regulator's Response to the Market, and the Market's Response to the Regulation", Heyman suggests that SPACs have been used to bypass regulations passed by the "Penny Stock Reform Act", retaining many of the previous benefits of the blank check company while still retaining investor protections. He details some of the benefits of SPACs for investors, including the ability for them to gain "...exposure to private equity style deals without having millions of dollars to invest" (Heyman 548-549). Seeing as these shares are exchanged for small sums on the market, there is a possibility of significant returns for the investor. On the other hand, there are also many potential dangers. Continuing to hold a position pertains to the same risk as a long-term investment in any other small-cap growth company. Private equity investors are also incentivized, as SPACs provide a lucrative, low-risk and cheap avenue to make additional profits. This causes confusion as to why investors continue to take their chances with SPACs.

The analysis in Blankespoor et al.'s paper "A Hard Look at SPAC Projections", discovers that the projections provided by SPACs are overly optimistic in their valuation forecasts. They report: "For the sample of SPAC mergers with observable post-merger revenue, we find that only 35% of firms meet or beat their projections. This proportion declines for forecasts that are longer horizon, and non-serial SPAC sponsors miss forecasts by greater percentages." (Blankespoor et al. 1) Although it is understandable that these firms would want to remain confident in the longevity of the business, it is worrying that investors are misled by these inaccurate statistics. It suggests that instead of choosing to remain transparent and honest with the investors, these firms choose to misdirect them and provide false hope and unrealistic expectations.

According to the analysis in Spamann and Guo's paper "The SPAC Trap: How SPACs Disable Indirect Investor Protection", they believe the investor protections inherent in most public securities keep most investors safe without fully comprehending the business and the terms. However, SPACs remove this defense because of the two possible compensations offered from the SPAC share, either the redemption value or a post-de-SPAC share. While the first option is typically selected by knowledgeable investors, uninformed investors choose the second, either intentionally or automatically, by default. Seeing as the SPAC share value pre-de-SPAC is at a higher payoff, these novice investors pay more than necessary. These margins are exploited by SPAC sponsors and other IPO investors, allowing them to make profits from the SPAC even if the value collapses. We further investigate this point by examining the relationship of passive-ETFs to these SPACs. We find significant correlation and evidence suggesting that clueless investors are contributing significantly to these profit margins.

III. SPAC v. IPO Process

In the SPAC process, companies are exempt from a series of hindrances that are generally involved in IPOs. This lack of oversight consists of the lack of disclosure within investors, essentially leaving the future of the merger and company on the management team. (Anconetani et al.) This is further emphasized within the valuation of the equity being based purely off of the management team as well as the potential post-merger value which will not be subject to financial audit. (Agarwal 3) IPOs on the other hand are subject to a series of hindrances that overall slow down the public offering process in exchange for the safety of investors. First, the target company must file a detailed prospectus to ensure investors can evaluate a specific business and its prospects. Next, the IPO equity will be valued based on the current market conditions and stock price, along with a mandatory financial audit.

Additionally, there is an overall increase in mandatory financial transparency with regulators and banks. The final difference is the lockup period which all sponsors and insiders are subject to, ensuring the immediate liquidation of mass funds will not occur. These differences further emphasize the most probable current and future use of de-SPAC events to publicize an SPAC company. The most probable use overall favors the company over the individual investors. (Spamann & Guo 2-5) This potential favoring of the company can be analyzed through a series of key aspects that are solely embedded within SPACs. First, the emphasis on fast-tracking the public offering process along with the valuation completely relying on the management team's valuation. The most probable usage of these SPACs would then be for sponsors and company executives to gather funding through PIPE investors with these overinflated valuations and benefit off the consequent financial packages and founder's shares. These overinflated valuations and aspects of the de-SPAC public offering aren't seen throughout traditional IPOs, further indicating the usage of SPACs as a means to benefit insiders within the company. (Lin)

A. Drawbacks of de-SPACs

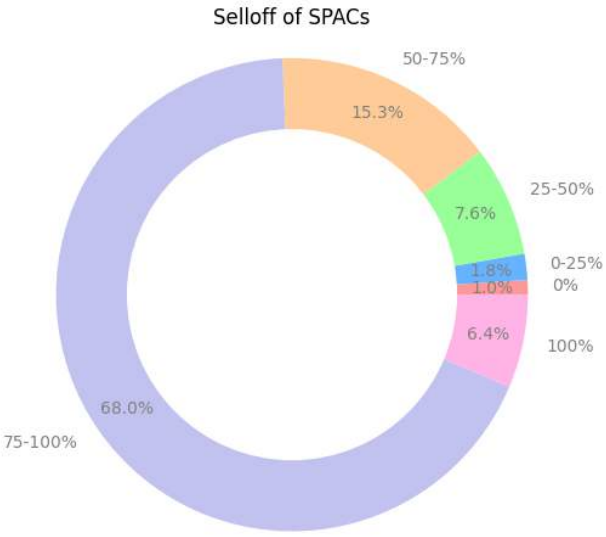
With the supposed drawbacks of de-SPACs, the continued use of de-SPACs is questionable. Since the de-SPAC process is a less regulated public transition route route, there have been multiple instances of corrupt internal practices and exploitation of ignorant investors in this emerging process. (Henriksson & Hansson) For example, in the SEC v. Shvartsman case in $DJT and $DWAC, insiders utilized confidential information to capitalize on the merger before it was announced. Some parties involved in these fraudulent de-SPACs were repeat offenders, like Shvartsman, revealing a lack of regulation within the market. More than 50% of de-SPACs involve insider trading in 2023 according to the WSJ. (McGinty et al.) This lack of oversight heightened the risk of future instances of internal corruption. Since then, the SEC has implemented further regulation to minimize such behavior and attempt to secure SPAC's longevity as a means of public offering. The SEC has adopted new rules to protect investors in SPAC IPOs and de-SPAC transactions by increasing investor disclosure, sponsor compensation, and dilution. (SEC)

B. Corrupt Internal Practices

In recent years, a common sentiment has grown that the industry of SPACs are corrupt as a whole. This has been difficult to prove due to lack of substantive evidence. However, our findings paint industry practices as a scheme in which high-level executives attempt to take advantage of their own company for personal profits, putting the underlying stock and company in jeopardy. We arrive at this conclusion through three main suspicions. Firstly, more than 50% of de-SPAC'd companies involved insider selling, (McGinty et al.) SPAC management teams overestimate post-merger value, and operating company executives clearly understanding the consequences of de-SPAC mergers.

It is undeniable that de-SPAC'd companies may be manipulated by insider traders, often in the form of a substantial sell-off in price directly following the de-SPAC. This is confirmed through a recent research study in which "[out of] 460 companies that did SPAC deals, 232 [consisted of] insider sales based on a review of SEC filings." (McGinty et al.) This research further solidifies the claim of internal corruption within de-SPAC mergers along with providing potential participants and specific parameters regarding percentage increase in the underlying equity that may be implemented in the form of regulation. These parameters also provide potential solutions to insider trading such as limiting insider ownership as a majority of sell-offs are incited by shareholders with more than 10% ownership. Specific internal roles are also mentioned such as corporate officers or the SPAC management team, which highlights further insight and proof of the corrupt process that occurs internally. (U.S. Securities and Exchange Commission)

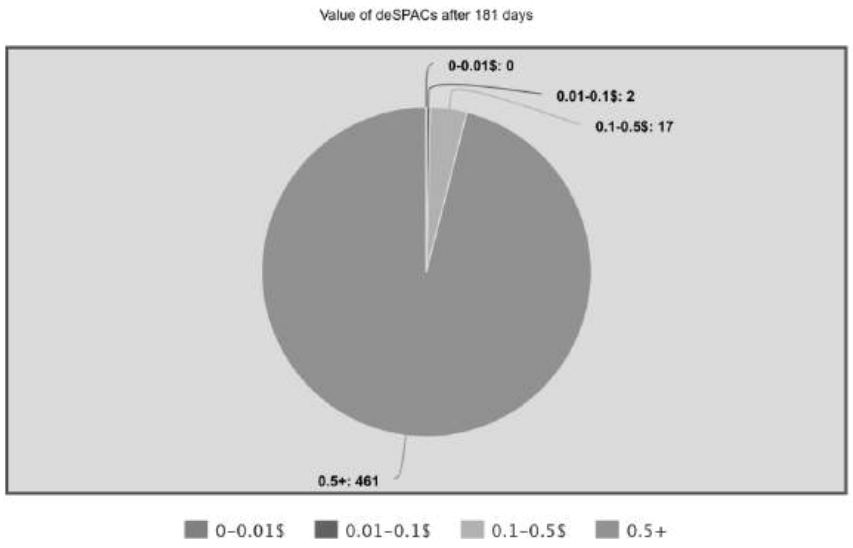
Another key suspicious indicator is the fact that SPACs are known to fail with no supposed benefit for the target company, yet these companies continue to participate in this IPO process. Our data shows that the de-SPAC process results in immense sell-offs in price post-de-SPAC. From our data, which we were given by SPAC Research, we find that there is a significant increase in the volatility of the underlying stock after de-SPACs events. This typically causes the equity's price to fall significantly, often to a point where recovery is near unattainable. These sell-offs occurred in over 95% of all the cases we analyzed. 89.7% of the time, the underlying stock falls over 50%. Only occasionally, in exceedingly rare circumstances, will the price of the stock increase above the opening price, in 1% of cases. A potential rational reason would be insider benefits to specific company executives and SPAC sponsors. SPAC sponsors generally benefit due to the fact that they receive 20-25% of founders shares and associated warrants following the de-SPAC,



meanwhile target company CEOs receive lump sum payouts, stock warrants, and founder shares. (Spamann & Guo 2-5) This has previously been assumed to be further motivation for insider collaboration and trading by several research institutions, some even concluding that "executives from private companies targeted by (or themselves courting partnership with) SPACs have often extracted significant financial packages from SPAC transactions [additionally] insiders have won big despite post-combination share prices plummeting." (Mignardi) This provides clear motive and benefits to each individual insider party adding to the argument of internal corruption within the collaborating parties. Additionally, it allows the opportunity for a potential bypass of recent regulations that mandate publicizing internal disputes. This is because all those involved in the merger understand the result of the de-SPAC is the devaluation of their company in exchange for the monetary benefits to insiders. This in turn may result in no conflict in interests, allowing for all insider trading and operations to remain private throughout the process.

IV. Incentives for SPAC Executives

Due to various factors, we believe that it is largely in the interests of company executives to go public through a SPAC. Such factors include the speed of the entire process, the fact that sponsors are compensated with these founder shares, and a greater incentive for the process to complete successfully. (Jenkinson & Sousa 3-5)



One of the key benefits of choosing SPAC when deciding to IPO is the swift registration of the company. A typical SPAC merger can take as few as three to five months to complete, while a traditional IPO can take around nine to twelve. (Shachmurove & Vulanovic 14-23) This discrepancy can be attributed to the shell company being publicly listed, which avoids many of the regulations and steps in a standard IPO. This shortened process allows the marketers of the SPAC to effectively capitalize on their marketing.

The ability to purchase a huge percentage of founder shares at a nominal price is largely weighted in the founder's favor. These founder shares are typically priced around $0.0001, as is the case for $ATP for example. According to our data, this indicates that in every case, even years after a merger or extreme outliers, the founders will always redeem profits from these shares. (Fortney 6) The only possibility for these founders to not turn a profit through these shares is if the deal fails. Regardless, in a failing de-SPAC the founders don't lose their shares,

the shares remain illiquid until a successful merger. It cannot be understated how advantageous this deal is for the founders, largely at the expense of investors. Our data shows that 0 out of the 480 post-de-SPAC publicly listed companies fall below $0.01 after 181 days after their closing date. Since the typical lockup period for founder shares is between 180-365 days (Moon 7-8), this data shows how lucrative de-SPACs are for the founders, even if the companies sells off after going public. (Anconetani et al.)

V. Data Collection Processes

A. SPAC Data

To begin, we utilize data given to us from spacresearch.com, containing 583 tickers of de-SPAC events, spanning from July of 2016 to July of 2024. The dataset encompasses the entirety of the recent rise and fall of SPAC deals, providing us a comprehensive representation of de-SPAC events. In addition, the dataset notes the date of close for every SPAC deal, which will prove vital for later data analysis Upon acquiring the dataset, we gather additional data from each SPAC ticker enabling us to perform further analysis. With the use of Python, Yahoo Finance, and other relevant libraries, we are then able to measure prices of the market open after the date of close, as standard investors are unable to purchase shares during aftermarket hours. We then calculate the maximum amount of drawdown an investor would have with a short position, along with the profit gained on the short position. We also record the number of trading days that pass from the time of going public until the minimum value is reached.

Consider the following entry from the dataset:

Ticker	Percent Min	Percent Max	Date Open	Date Min	Date Max	Missing Vals
ADGM	-50.0	16.75	2024-08-01	6	1	Y

B. SPAK ETF Data

Alongside data for de-SPAC events, we also must gather data on Defiance Next Gen SPAC Derived ETF (SPAK), the ETF used in this case study. This process is relatively straightforward, with all mutual funds being required to publicly disclose their portfolios on a quarterly basis (ETF.com). Thus, we are able to access the latest publicly available filing on the SEC's EDGAR database for SPAK, before its delisting (ETF Series Solutions). Finally, after cleaning the text file obtained from the SEC, we are left with a list of every stock in SPAK's holdings prior to delisting, as well as the amount of capital invested in each holding.

VI. Passive Investing, ETFs, and Their Effects on SPACs

Given the significant and well-documented decline in SPAC activity over the past few years—illustrated by the stark drop in capital raised, from $160.75 billion in 2021 to only $13.42 billion in 2022 (O'Connor & Nazir)—the question arises: why do SPACs still exist in today's market? Our paper has posited that due to high levels of information asymmetry and conflicting interests among key stakeholders during de-SPAC transactions, SPACs have evolved into a corrupt vehicle that disproportionately benefits insiders at the expense of retail investors. However, all this hinges on a certain level of external investment. With SPACs becoming a relatively niche form of investment, and with the continual failure of SPACs in recent years, it is puzzling why anyone would actively choose to invest in them today.

Thus, this section will propose a theory on the origins of external investment in SPACs.

A. Active v. Passive Investing

Traditionally, the financial world has been dominated by active investing. Even today, when one thinks of investments, they would imagine the busy scenes of wall street or an active day trader. Active investors engage in the proactive purchasing and selling of assets, aiming to outperform the market with their own information and beliefs. Passive investing on the other hand is defined as "an investing strategy that aims to maximize returns over the long run by keeping the amount of buying and selling to a minimum. It involves building a portfolio to mirror a market index and then holding onto those investments without reacting to market fluctuations." (Inspired Economist)

The influence of passive investing has grown significantly over the past few decades. In 1993, passive funds invested in U.S. stocks managed $23 billion of assets, representing only 3.7% of the combined assets of active and passive funds invested in U.S. stocks and just 0.44% of the U.S. stock market. By 2021, however, passive assets had surged to $8.4 trillion, overtaking active funds to account for 53% of the combined active and passive fund market and 16% of the entire U.S. stock market. (Jiang et al. 3)

In Gârleanu and Pedersen's paper "Active and Passive Investing: Understanding Samuelson's Dictum", they postulate a significant link between 'uninformed' investors and passive investors given that they both seek to maximize their performance subject to a minimal cost. Unlike active investors, who dedicate resources to research and analysis in an attempt to outperform the market, uninformed and passive investors accept market returns with minimal intervention.

Their findings reveal a critical insight regarding the behavior of passive traders. They argue that passive investors tend to be less informed compared to their active counterparts, often operating with limited knowledge about the specific assets they are purchasing, or in other words, this places them on the unfavorable side of the information asymmetry. This observation becomes particularly relevant in the context of SPACs, who are characterized by their high degree of information asymmetry. As revealed earlier in this paper, insiders and sponsors possess

far greater amounts of knowledge and insights about the business compared to the average investor. Thus, external investors for SPACs could potentially originate from passive sources.

B. Impact on SPACs

SPACs have attracted significant investment from passive funds in the past. Popular ETFs such as SPAK and SPCX were created solely to capitalize on the upcoming trend of SPACs during the late 2010s and early 2020s. (Dierking) (Likos) Many broader-based ETFs automatically include SPACs as part of their diversified holdings, usually in sectors relating to SPACs. (Chamberlain)

Our findings suggest that passive ETFs may play a significant role in artificially inflating SPAC prices, contributing to market inefficiencies that can be exploited by insiders.

Passive acquisition occurs automatically as part of the ETF's rebalancing or investment strategy, regardless of the actual value or performance potential of the SPAC. Consequently, increased demand generated by these ETFs can inflate SPAC prices, whose value, therefore, does not align with the underlying fundamentals of the business. This creates an environment where insiders, who are more informed about the true value of the SPAC, can capitalize on inflated prices by exiting their positions, often to the detriment of less-informed retail investors.

In other words, ETFs act as liquidity providers in markets that are not otherwise highly liquid.

C. Case Study: Defiance Next Gen SPAC Derived ETF

Defiance Next Gen SPAC Derived ETF (SPAK) was launched in September 2020, during the SPAC boom. It was an exchange-traded fund that focused primarily on SPACs and companies derived from de-SPAC events. SPAK aimed to track the performance of the Indxx SPAC & NextGen IPO index. The Indxx SPAC & NextGenIPO index, SPAK's underlying index, included both companies before and after de-SPAC merger events, reflecting a broad representation of the SPAC environment. As the first ETF specifically created for SPACs and SPAC-derived companies, SPAK sought to capitalize on the recent surge in interest in these blank-check companies.

Having launched during a time that coincided with the SPAC boom of the early 2020's, SPAK attracted significant attention from investors. The ETF experienced early success in both performance and capital inflows (Yahoo Finance). However, due to problems within the underlying fundamentals regarding countless SPAC companies, as outlined previously in this paper, several high-profile SPAC deals underperformed after their de-SPAC event.

DraftKing's all-time high stock price of $71.72 in March '21 has fallen ~84% to $11.67 per share as of June 2022, as the company continues to post operating expenses well above revenues, resulting in materially lower EBITDA of -$1.562bn. (Yahoo Finance)

Virgin Galactic's ATH of $59.41 per share has plummeted to $6.02 as the company expected FYE '21 revenues of $210mm and EBITDA of $12mm, whereas their actual FYE '21

results showed a much different story of $3mm in revenue and -$310mm in EBITDA. (Yahoo Finance)

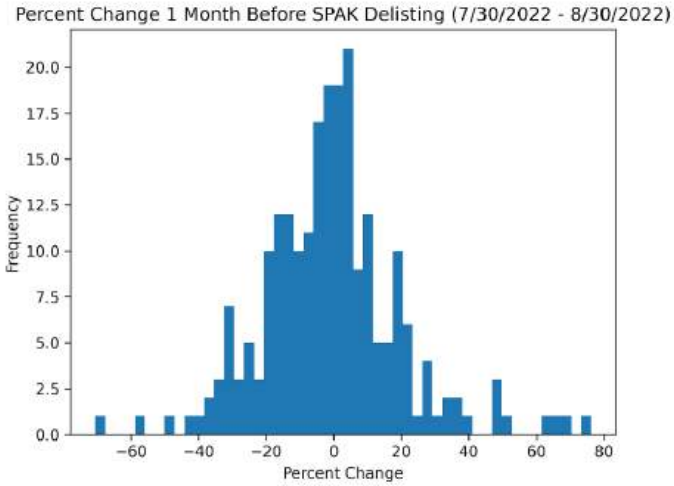
Similarly, Nikola's ATH stock price of $79.73 has decreased 91% amidst fraud accusations, as well as material misses in performance expectations. (Yahoo Finance)

Nikola projected an FYE '21 EBITDA of -$211mm, but ended up over 3x lower at -$685mm." (Paraboschi & Hill, 2022)

By mid-2021, SPAK's performance had declined sharply, and the ETF saw a drop in assets under management" (AUM). (ETFDB)

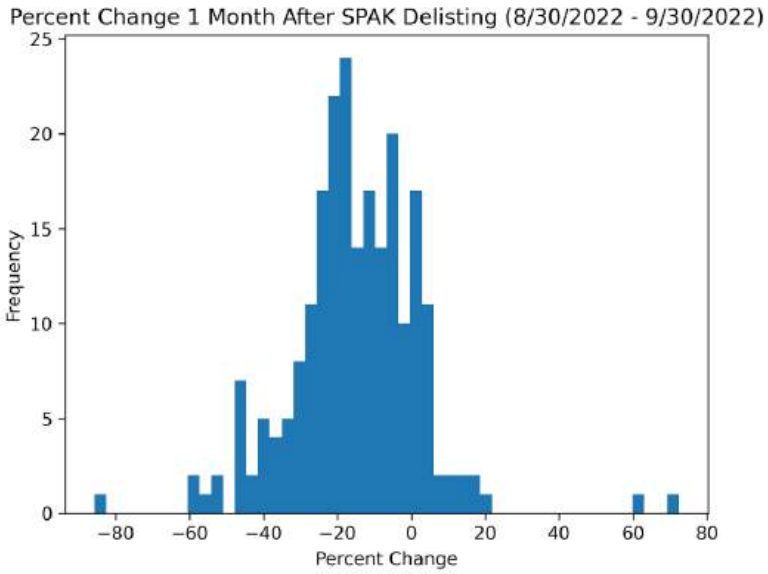
C.1. Statistics

The statistics surrounding the price changes of SPAK holdings before and after its delisting offer valuable insights into the broader impact of the ETF's collapse on the SPAC market. These figures, derived using Python to analyze SPAK holdings and SPAC performance data, highlight the downturn in value, both for SPAK-associated holdings and SPACs in general.



Average percent change: -0.91%
Median percent change: -1.32%

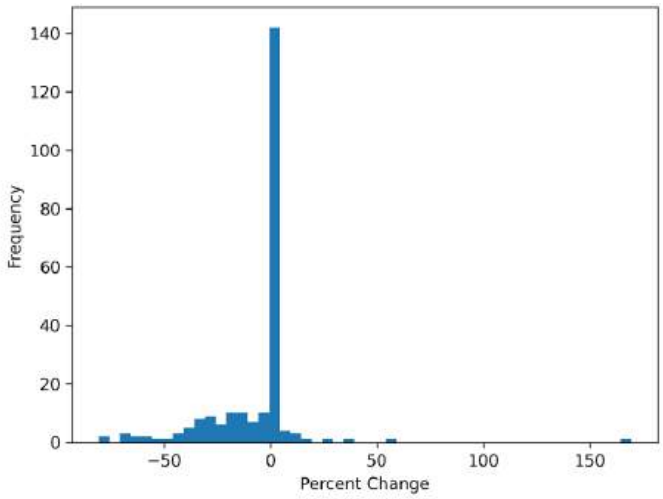
Before delisting, SPAK's holdings were already experiencing negative price performance, although the decline was relatively modest. An average decrease of just -0.91% suggests that investor sentiment toward SPACs was becoming increasingly negative, but this hadn't yet turned into a full-blown sell-off. The median price change of -1.32% reflects similar trends, indicating that the majority of holdings were seeing small, yet notable, declines. This modest drop could be attributed to market uncertainty about the future of SPACs, which were starting to face increasing scrutiny and regulatory pressure at the time.



Average percent change: -15.49%
Median percent change: -15.56%

The data paints a much bleaker picture following SPAK's delisting. The average percent change plummeted to -15.49%, with the median at -15.56%. This significant drop illustrates how closely tied the fortunes of these SPACs are to SPAK's existence. With the ETF no longer offering support and liquidity, many SPAC holdings experienced sharp declines, reflecting the growing lack of confidence in SPACE-related investments during this period. Price changes of all SPACs excluding SPAK holdings 1 month after SPAK's delisting 8/29/2022:

Price Changes of all SPACs Excluding SPAK Holdings 1 Month After SPAK's Delisting on 8/29/2022:



Average percent change: -7.172030278080107
Median percent change: 0.09920862061037806

When analyzing a broader perspective including SPACs, not just SPAK's specific holdings, a similar downturn is evident, although the decline isn't as drastic. The average percent change of -7.17% indicates a broader market trend of declining SPAC valuations, but the median change of 0.09% suggests that not all SPACs affected as heavily as SPAK's specific holdings. The wider spread between the average and median points to significant underperformance among a few key SPACs that dragged down the overall average.

C.2. Fama-French Three-Factor Model

In order to gain an in-depth understanding on the significance of SPAK, SPAK's performance using the Fama-French Three-Factor Model must be analyzed.

The Fama-French Three-Factor Model functions to explain the returns of an equity by incorporating additional risk factors. The model provides the option to break down SPAK's returns into three key components:

- **Market Risk Premium (Mkt-RF)**: This represents SPAK's sensitivity to overall market risk.
- **Size Factor (SMB - Small Minus Big)**: This measures SPAK's exposure to small-cap stocks, which tend to have an increased volatility.
- **Value Factor (HML - High Minus Low)**: This captures the favor toward value stocks (high book-to-market ratio) or growth stocks (low book-to-market ratio), helping us understand whether SPAK's returns are due to speculative, growth-oriented investments often seen through SPACs.

Given these variables, the Fama-French Three-Factor Model can be represented by the following equation.

$$R_{SPAK} - R\mathrm{F} = \alpha + \beta_1(M\kappa\tau - R\mathrm{F}) + \beta_2 SMB + \beta_3 HML + \epsilon$$

Where:

- R_{SPAK} is the return of SPAK.
- RF the risk-free rate.
- α is the model's intercept , or the portion of SPAK's returns that is not explained by the three risk factors.
- β1, β2, β3 are the sensitivities (factor loadings) to the market risk premium ($M\kappa\tau - R\mathrm{F}$) size factor ($SMB$), and value factor ($HML$), respectively.
- ϵ is the error term representing any unexplained return.

This model helps quantify the relationship between traditional market risks and SPAK's returns and whether its exposure to generally abstract small-cap and growth stocks contributes to the inflated prices seen in the SPAC market.

C.2.1. Key Findings

Using the Fama-French model, the following understandings can be observed:

Market Risk Premium ($M\kappa\tau - R\mathrm{F}$ coefficient = 0.0108):

SPAK's low market beta indicates that there is a relatively positive correlation to the market, yet an overall lack of sensitivity to broader market movements. This suggests that SPAK's returns aren't reliant on overall market trends and returns. Instead, other factors, such as further speculative small-cap companies and the SPAC market, likely play a more significant role. This lack of correlation to the broader market supports the claim that SPAK's returns are primarily reflective of the nature of SPAC investments, rather than being affected or driven by overall market fundamentals.

Size Factor (SMB coefficient = 0.0112):

The positive and statistically significant size factor indicates that SPAK is more involved with small-cap stocks, which generally indicates higher risk and volatility. Because SPACs are generally small-cap or micro-cap companies in the early stages of their growth

cycles that are valued based on post-de-SPAC potential, they rely heavily on investor optimism and future potential rather than current performance. This exposure to these small-cap stocks further supports the argument that SPAK's holdings contain inherent risk. This heavy implementation of small-caps can also explain why SPAK was a primary reason for inflated SPAC prices, as passive ETFs tend to buy these SPACs regardless of their performance and fundamentals..

Value Factor (HML coefficient = -0.0047):

The value factor involving a negative coefficient indicates that SPAK favors growth stocks rather than traditional value stocks. Growth stocks generally consist of higher valuations based on future earnings potential, which is a direct correlation to the nature of SPACs—many of which are micro-cap stocks with overestimated growth expectations based on the SPAC sponsors' valuation. This inherent favor toward growth stocks solidifies the argument that SPAK is a lead contributor to the inflation of SPAC prices, as passive investment ETFs such as SPAK concentrate on high-growth, speculative companies while disregarding past financials and performance.

C.3. Analysis and Implications

These statistics emphasize the differences between the performance of SPACs prior to and following the delisting of SPAK. Prior represented data reveals a correlation between the delisting of a SPAC-focused ETF and the decline in SPAC pricing. These drastic drops in price indicate that SPAK, as one of the largest and first ETFs focused on SPACs, acted as a pillar of support for the performance of SPACs by funneling passive investment into each liquidity pool. Following delisting, SPACs faced steeper sell-offs, further intensifying the already weakening market.

This sell-off could also be attributed to the drain of liquidity from SPACs as a whole. The delisting of ETFs such as SPAK results in SPAC shares demand falling, leading to a rapid devaluation process. Additionally, the high price volatility among SPACs, along with the increase in regulation from the U.S. Securities and Exchange Commission (SEC), likely aggravated these sell-offs and lack of investor confidence in the aftermath of SPAK's delisting.

The results of the Fama-French model further strengthen the argument that SPAK functioning as a passive investment vehicle plays a significant role in the inflation of SPAC prices. The significant involvement within small-cap and growth stocks, combined with the lack of correlation to broad market trends, indicates that SPAK's returns are driven by these speculative small-cap equities including SPACs.

This exposure to speculative small-cap stocks and SPACs can result in a feedback loop in which passive inflows leading into SPAK further inflate the pricing of SPACs, unrepresentative of their true value. As further shares of SPAK are purchased, the ETF is forced to purchase more of the SPACs, overall driving SPAC prices higher. This relationship between SPAK and SPACs can explain why many SPACs underwent significant price run-ups in 2020 and 2021, followed by significant periods of downturn as investor sentiment shifted.

As previously mentioned, the positive size factor (SMB) and negative value factor (HML) indicate that SPAK's holdings are heavily invested within small-cap and shell companies. These companies come with an inherent risk and generally tend to be more speculative, which supports the claim that SPAK contributed to the unrepresentative price runs in the SPAC market.

The automated allocation of capital to speculative SPACs causes passive ETFs like SPAK to inflate SPAC prices without considering the success or fundamentals of the underlying company. The results of the Fama-French model show that SPAK's performance is driven more by its involvement within the speculative small-cap, growth stocks and SPACs than by broad market performance, further solidifying the argument that passive investment inflows play a key role in the pricing increase of SPACs.

The moderate R-squared value (0.512) shows that broad market activity, size, and value explain part of SPAK's returns, yet the primary portion of returns is unaccounted for, likely being driven by SPAC-specific risks. This leaves investors at risk to generally randomized volatility and probable losses when SPAC valuations inevitably correct. The lack of significant alpha in the model implies that SPAK doesn't provide investors with excess returns, meaning there aren't compensations for the additional risk they are taking by investing in these speculative companies.

The Fama-French model indicates that SPAK's performance is strongly influenced by its exposure to SPACs and micro-cap, growth stocks. By gradually allocating capital to these riskier investments, SPAK contributes to the artificial price inflation in the SPAC market, ultimately adding to the several opportunities for insiders to profit while leaving individual investors exposed to significant risk. These findings support the broader argument that passive investment in SPACs through ETFs like SPAK further aggravates market inefficiencies and inflates prices beyond fair value levels.

In sum, the statistical data emphasizes the overall fragility of the SPAC market and the potential for volatile and unpredictable price swings in the absence of institutional support from passive investment vehicles such as SPAK. This supports the broader statement that passive ETFs play a key role in providing liquidity and supporting prices in generally volatile sectors of the market, such as SPACs.

VII. Live Portfolio Application

Although purchasing SPACs as long-term investment vehicles has been proven ineffective, the de-SPAC process still may present a notable opportunity to engage in the price sell-off that frequently follows these events. Previous analysis within this paper and historical data from 2016 to 2024 shows that 99% of de-SPAC scenarios result in price valuing under immediate post-de-SPAC value, demonstrating a consistent phenomenon that is likely to continue. Despite the high probability of these sell-offs, implementing a successful investment strategy comes with several challenges.

A significant challenge that may be faced is managing drawdown-related risk when attempting to short to fair value. After a de-SPAC, prices can exhibit unpredictable price

fluctuations before the significant sell-off, increasing the chances for substantial drawdown. The issue arises from the difficulty in accurately timing the sell-off and minimizing drawdown prior to the sell-off. Another issue faced by investors is managing risk in profitable scenarios. The sell-off is often rapid although it may take over 100 trading days to reach its bottom. This variation in timing makes it challenging to predict when the underlying stock will bottom out causing complications in position sizing decisions. This unpredictability complicates risk management for investors looking to maximize gains from profitable positions.

To effectively capitalize on the de-SPAC sell-off opportunity, a well-defined strategy that addresses key issues such as risk management and portfolio allocation is essential. In order to create an effective risk management strategy, we will use a method proven through backtesting historical data to determine the optimal risk-to-reward ratios and their corresponding win rates. By examining past de-SPAC events, investors can identify signatures in price and set strategic limits to balance potential losses and gains. For example, implementing a 13% drawdown limit while aiming for 71.16% profit provides a 5.47 risk-to-reward ratio. This strategy requires an approximate 15.47%-win rate to break-even but has a win rate of 29.79% in 2024 as of 7/28/2024. Year to date as of 7/28/2024, this risk management strategy has a win rate of 35.05% and in 2023 it had a win rate of over 27%. These risk management values simply function as an example that has been tested and can be adjusted based on historical analysis, but they should be refined continually with forward testing on new de-SPAC events to stay responsive to changing market conditions. To confront the issue of portfolio allocations, we have found that a 2% portfolio allocation per position will be most effective as a high-risk option, as many de-SPAC events can go for as long as 200 trading days before reaching 71.16% take profit.

$$RRR = \lambda\phi \div \varsigma$$

Where:

- RRR is the risk-to-reward ratio.
- $\lambda\phi$ is the take profit percentage.
- ς is the drawdown limit percentage.

$$BEW = \left(\frac{1}{1+RRR}\right) \times 100$$

Where:

- BEW is the break-even win rate.
- RRR is the risk-to-reward ratio.

Although this strategy historically is back-tested to work, real-life application is difficult due to liquidity issues as well as the fact that brokerages will not allow individual investors to short the company at its post-de-SPAC opening price right after its closing date. Individuals will only be allowed to short on the third day after opening day, complicating the backtesting process.

VIII. Conclusion

The volatility and danger of SPACs raise skepticism about why investors remain vested in the space. Instead of choosing to invest in a safe equity with consistent profits, SPACs have a notorious reputation for insider trading and dodgy deals, and one that is well-earned. We seek to identify the group of uninformed investors that continue to fuel the success of these SPACs.

Analyzing passive investment ETFs and their role in the SPAC market highlights the noteworthy correlation between ETFs such as SPAK and the inflation of SPAC prices. By passively acquiring SPAC stock shares, ETFs inadvertently contribute inefficiencies in market pricing, driving up the prices of SPACs which are disregarding underlying business fundamentals. This creates opportunities for informed insiders to profit from inflated valuations while leaving passive and retail investors exposed to the potential for significant losses when the price revaluates.

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