SPAC performance: Post-Closure Trend Analysis

by

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I. Introduction

Special purpose acquisition companies (SPACs) have become an increasingly popular and increasingly controversial investment vehicle in the modern marketplace. SPACs operate as blank-check companies by collecting capital initially with the promise of locating an investment opportunity after some time has passed. They have been used in many high-profile transactions, including the IPOs of WeWork, DraftKings, and Virgin Galactic. These blank-check organizations initially have their stocks traded as companies with no underlying business operations but eventually undergo a merger with a privately-held target. This merger may be known as a de-SPAC and must be done within a timeframe of around two years before returning capital to investors becomes mandatory. The de-SPAC brings the target into the publicly-traded world as the merged company takes on the identity and financial characteristics of the target.

Because of the nature of a SPAC’s structure, which involves putting control over capital into the hands of a management team purely based on faith in leadership, the vehicle has been criticized as a poor financial structure, the excitement around which has been powered by a bull-run bubble based on speculative investing. Proponents of the investment mechanism, however, see the structure as a way for investors to capitalize on the expertise of intelligent investors, who are able to comb through a crowded landscape of privately held companies in order to find an undervalued firm.

While the SPAC market seems to be fluctuating in the level of activity, many notable figures both inside and outside of the financial sector have expressed interest in SPACs, including Shaquille O’Neal and Colin Kaepernick, showing how many view the vehicle as a reasonable path to financial leadership without industry experience. As such, an examination of
the space may help illuminate the effects at play around this interesting and popular investment opportunity.

II. SPACs: Special Purpose Acquisition Companies

The Mechanics of SPACs:

SPACs involve an IPO led by a management team that forms a public shell company. By issuing shares at a price of $10 per share, they can raise capital from any type of investor, thereby forming a public company (Bazerman). While this company does not have underlying business operations, as no materials or services are bought or sold, its market capitalization is calculated as any other publicly-traded company; by multiplying the current share price by the number of shares issued, the market capitalization can be calculated. This number, theoretically, does not vary significantly as it is generally close to the total amount of capital raised by SPAC management. This capital, which stays in an interest-bearing account until management determines to use it to finance an acquisition, is generally the only asset for the company while the stockholder’s equity is generally equal to the sum of management’s investment into the SPAC and the investments of other investors into shares of the company.

After fundraising has taken place, the target search period of the SPAC begins. During this time, management searches for a suitable non-public target company for an acquisition. If such a target is not found by a deadline set out by management, typically 2 years after the shell company’s IPO, the SPAC is “liquidated” with all shareholders receiving their investment, and any associated interest, back from the company, which is then dissolved (“How Special Purpose Acquisition Companies (SPACs) Work.”, PwC). This represents an undesirable outcome for most investors, who will have then only obtained a yield rate comparable to investment-grade fixed
income, which does not accurately reflect the risk they anticipated when investing in the equity market. Management, who typically contributes around 20% interest into the SPAC in the form of “founder shares,” sees this as especially negative, given the fact that they will have spent two years of time and effort for a marginal financial return.

If, however, a suitable target is appropriately found, a merger is able to go forward. As the shell company is still publicly traded, the merger must go through a shareholder vote. Because the value of the pre-merger stock is still $10 (in addition to any accrued interest), shareholders may choose to redeem their shares for this pre-merger value if they do not believe the target to be appropriate (“How Special Purpose Acquisition Companies (SPACs) Work.”, PwC). The proportion of shareholders who do this is reflected in the SPAC’s “redemption percentage.” In case a significant portion of the stockholder base withdraws from the deal and a shortage of capital is present, the SPAC management team generally bridges this financing gap by either contributing more capital, issuing additional shares to new investors (potentially through a private investment in public equity (PIPE), which involves a discount being offered to new investors), or raising debt. Because the liquidation of a SPAC without a merger is a low financial floor for the management team, these extra tools following shareholder withdrawal are likely to be used in order to salvage the deal, even at the cost of some of the upside of the post-merger stock’s appreciation.

**Case Study: Diamond Eagle Acquisition, A Prototypical SPAC:**

DraftKings, one of the most successful sports betting apps in the marketplace, recently went public through a SPAC acquisition, where it merged with Diamond Eagle Acquisition in April 2020 (“DraftKings Lists on the NASDAQ Following SPAC Merger”). The company,
which had capitalized on loosening government regulations across the United States, chose a SPAC as its method of going public, allowing it to speed up the process of transitioning from privately owned to the public markets during a time of substantial market volatility.

The SPAC stock price increased dramatically in the days leading up to the merger, closing at $17.53 on Thursday, April 23, 2020, representing a 75.3% increase from the shell company’s base share price (“DraftKings Inc”, Yahoo! Finance). This increase in price reflects that investors believed management’s efforts to find an underpriced deal was successful, as investors are willing to pay a premium to access DraftKings stock at a predetermined valuation.

The price of the merged company continued to increase as the merger was completed on Friday, April 24, 2020, with DraftKings shares closing at $19.35. This market excitement around the deal resulted in substantial financial returns for SPAC investors and quick access to public financing for the underlying target company, generally resulting in a prototypically successful SPAC merger.

Case Study: Digital World Acquisition Corp, An Atypical SPAC:

In contrast to Diamond Eagle Acquisition, Digital World Acquisition Corp has taken a very unconventional path during its lifetime as a SPAC. The SPAC, which IPO’d in October 2021, announced that it would pursue a merger with Trump Media & Technology Group, a technology company associated with former President Donald Trump (Mangan). Almost instantly, the stock price rose dramatically, including a 357% increase on Thursday, October 21, as investors caught onto the hype associated with the underlying company and its social media product.
Even though the company’s merger has not been completed and the underlying company’s platform, Truth Social, has volatile technical features and engagement rates, the pre-merger SPAC stock is still trading at a substantial premium to its $10 basis, with the price consistently remaining between $40 and $50 per share (“Digital World Acquisition Corp”, Yahoo! Finance). Such a price premium and such substantial trading volatility during such an early stage of the SPAC’s lifespan are very uncommon.

While it is unknown how the stock of the post-merger Trump Media & Technology Group stock will perform, the Digital World Acquisition Corp SPAC represents a high-profile instance of the vehicle that behaves substantially outside of the norm.

A Brief History of SPACs:

SPACs were created in the early 1990s as a legal, regulated approach to forming a blank-check investment vehicle (Domonoske). While the new solution offered investors a safer investment option after a period of substantial fraud earlier in the century, SPACs remained a relatively unpopular choice for investors looking to capitalize on private equity opportunities. However, as time progressed and the equity bull run following the 2008 market crash began, investors began looking for alternatives to traditional investment opportunities in an effort to beat the market. As such, SPACs became much more popular among institutional investors, driving a dramatic increase in the amount of SPACs announced and the amount of capital raised by these SPACs. With SPACs becoming a much more mainstream way for companies to go public or for investors to achieve returns outside of traditional equity markets, examining how these stocks actually perform is very interesting.
Theorized Problems with SPACs:

Critics of SPACs have decried the product offering as a potential agency problem for managers as they come into control of a “war chest” of investor capital. This problem largely stems from the fact that, when raising capital for the SPAC, the management team must express to potential investors how they are confident in the market’s availability of suitable targets and, perhaps more importantly, confident in their own ability to find such opportunities even while the rest of the financial world is searching for the same theoretical target.

Because the incentives for managers to complete a merger, including the appreciation in value of their investment in the SPAC, management fees that accrue over the period, and the social and professional status associated with commanding such a large investment vehicle, are so high, critics fear that managers may tend to be overzealous with their target identification process, promoting poor deals as a way to ensure the closure of the SPAC. As market conditions change or as the time in the target search period elapses, managers may take poor deals as a way to avoid liquidation, which limits compensation to almost zero as investors are paid back with accrued interest since the initial blank-check IPO.

Uses of SPAC Research:

Being able to identify characteristics leading to failure and success in the SPAC space carries many benefits. For regulators, such information would help government agencies to find investment opportunities with distorted risk levels for potential investors. For investors in the market, this information could help develop trading strategies, drive positive alpha, and, eventually, help ensure efficient markets by ensuring the price of investments properly reflects the investment’s status.
What is unique about the pre-merger situation for SPACs?

One key point about studying SPACs involves taking advantage of the fact that SPACs are publicly traded even before identifying a target underlying company. While other methods of going public, including Initial Public Offerings or Direct Public Offerings, involve a company having shares sold publicly for the first time on a given day, the fact that the shell company of a SPAC is able to be traded before the merger is even completed provides the ability to analyze how market expectations around performance relate to real-world actual stock performance.

This feature is especially relevant when one considers the role of “hype” in the markets as news disseminates through organizations. Similar to how trading activity for a given stock often increases in the traditional markets when rumors begin to swirl about an upcoming merger or acquisition, trading activity is expected to be higher for companies that have more of a “buzz” around them. Because investors are excited about the merger, they may buy the stock with great frequency, representing increased expectations for strong future performance. However, this hype may cause a short-term bull run on the stock, artificially inflating the price above what the “true value” of the firm is. This “true” underlying value of the company may be exposed in the future, after quarterly reports about the firm’s operations are released, which would be manifested in the form of negative financial returns from the de-SPAC date price.

Because shares of SPACs are initially released at $10 per share while the company is still a blank-check shell looking for its target, share prices drastically far away from this benchmark before merger completion represent dramatic optimistic or pessimistic beliefs about the successf

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Example SPAC Case Study breakdown:

Clover Health Investments, Corp. has become well-known in the finance community for its rapid decline in value following its SPAC IPO. Specifically, the company merged with Social Capital Hedosophia Holdings Corp. III, a SPAC managed by Chamath Palihapitiya, a major player in the SPAC space, in early 2021. One month later, however, the medical insurance company was the subject of a blistering report by a short-selling institution, leading to an SEC investigation about the company’s refusal to announce its status as the subject of a Department of Justice investigation. After a short stint as a “meme stock,” where retail investors forced a short squeeze on the heavily-shorted Clover stock in June 2021, the stock gradually declined further, reaching below $3 per share at the beginning of 2022.

For a company whose SPAC shares were consistently priced above $10 even before the merger was conducted, this precipitous drop represents a stark contrast between what the SPAC managers and investors thought about the target company and what happened in reality. Given the short time between the merger’s completion and the beginning of the stock’s woes, it seems that much of the “hype” around the opportunity to invest in the SPAC did not materialize, perhaps because the hype was not surrounding sound financial analysis and rather involved absolute trust in management’s ability to properly vet potential targets.

III. Analyzing SPAC Returns

Stock market returns as a proxy for success for SPACs:

As is common with publicly-traded companies, the stock price can be used as a substitute for the success of a company. This is because the firm’s management has a responsibility to its shareholders to maximize stakeholder value in their role as a fiduciary party. Over time,
consistent reporting, as required by the SEC, can reasonably ground stock market expectations to
the reality of the strength of the underlying company.

However, when examining the financial performance over time of companies, it is also
important to recognize that these firms are also subject to changes in investor preferences from
the larger market. As such, adjusting for market returns allows for a better understanding of how
investing in the company, especially near its de-SPAC date, would return value for its
shareholders.

**Methodology:**

**Merger and De-SPAC Data:**

Data for the De-SPAC transaction of each company in the dataset came from Boardroom
Alpha, a data company that provides a SPAC research platform. This dataset provided valuable
qualitative information, such as the date of the merger, the size of the IPO in millions of dollars,
and the pre-merger SPAC ticker, that could be used by the public market return dataset in order
to better inform the sourcing of the dependent and independent variables.

**Public Market Return Data:**

In order to examine post-merger returns as the dependent variable, the stock price of a
given company, both in the present and on the date of the de-SPAC, was taken from Google
Finance, which took the opening market price for the stock on a given day. Returns were
generally calculated using the opening price from the day of the de-SPAC, the official day of the
merger between the target and acquirer companies. Market-adjusted returns, an alternative figure
that was used as the decision variable in some iterations of analysis, involve subtracting the
real-world market returns from an idiosyncratic stock’s financial return. While this helps limit
the effect of the overall stock market on individual stock performance, using the second measure
brings in concerns that the model may be exposed to general riskiness from a secondary location.

*Pre-Merger Figures for Trading Volume*

In order to examine how popular these SPAC companies were during the pre-merger time
frame, this paper takes advantage of the fact that the average daily volume of the stock is
provided handily by Google Finance. Generally, the stocks with the higher average daily number
of stocks sold are expected to be more celebrated by the market, as they involve more investors
attempting to buy shares of the company. These “hyped-up” firms should then experience higher
market prices and therefore reduced post-merger financial returns, as the company’s initial stock
price may have risen from $10, the benchmark for all SPACs, to a higher figure. While this paper
currently involves the average amount traded during the week leading up to the de-SPAC date,
this factor can be easily changed to extend the range of this project.

*IPO Size:*

The IPO size, the total dollar amount of equity offered to the public when a company
goes public, may provide an indication of how the company’s management views the IPO price
relative to the company’s underlying intrinsic value. Following the same reasoning as equity
offers when a company is acquiring another, it reasons that management would use equity
financing when they believe their own stock is overpriced. As such, an increase in the amount by
which the company uses equity financing may indicate an increased conviction that the
company’s stock price is too high, therefore indicating that the stock will not yield high returns in the future.

**PIPE Size:**

The PIPE size, the total dollar amount of funding from private investors taken in by management in order to finance the merger with the target company, may provide an understanding of how much of a gap in financing existed for management when approaching the acquisition. A larger gap may imply that the management team failed to convince shareholders of its vision, or it may imply that after careful consideration, management made the confident choice of pursuing a target whose size exceeds their purchasing power, representing confidence in their decision, which would be a positive signal to shareholders and the market.

**IV. Analysis:**

In the first regression, illustrated by the graph in Figure 1, we see a power series regression of the post-merger stock returns of SPAC companies against the volume of stock traded in the week preceding the merger. The negative power of the dependent variable (-.558) indicates that as the average trading volume was higher, the stock would perform more poorly in the time period following the merger. This supports the idea that “hype” around a SPAC, represented by more investors wanting to purchase shares of the company, encourages higher expectations of performance, thereby dampening returns when the underlying company is not able to meet the inflated financial expectations of investors. The regression’s $R^2$ value of .302 is a product of both the analysis and the volatile nature of individual stocks in the equity market. While higher $R^2$ values can be found in purely statistical analysis, a figure that implies 30.2% of
the variation in the dependent variable being explained by variation in the independent variable is a strong connection to draw when dealing with variables that can change drastically as stock trading continues.

The second regression, demonstrated by the graph in figure 2, illustrates the relationship between the post-merger market-adjusted returns of the public company for the 90 days following the merger. Market-adjusted returns were used instead of absolute returns in order to avoid noise in the data resulting from SPACs closing their merger before an economy-wide downturn in the equity markets; while there may be a connection between SPAC deal flow and a rising economic bubble, this analysis is focused on the market’s idiosyncratic response to SPAC stocks after some time has elapsed from the merger. While this analysis is meant to examine if a connection can be drawn between pre-merger market expectations for a given stock and performance in the public markets in the time period immediately following the SPAC closure, the low $R^2$ value associated with the regression indicates that a powerful linear relationship cannot be concluded to exist between the variables. The equation’s negative slope indicates that the more highly-traded a company is in the week before its merger, a sign indicating substantial market hype around the transaction, the worse the company can be expected to do in the quarter following the merger. While this does align well with the larger equity market rule-of-thumb that market excitement around a stock may drive its price up too high in the short-term, preparing it for greater losses in the long-term, the statistical significance of this regression is, again, not strong enough to power substantial conclusions.

In the third regression, found in Figure 3, we see a linear relationship between the post-merger market-adjusted returns of SPAC stocks and the IPO size (in dollars) of the company. In this graph, the positive slope of the line indicates that as the IPO size of the
company increases, so does the return of the stock in the future. This may be because bigger
SPACs and larger targets are more likely to be under more intense scrutiny as more capital from
investors is on the line. As such, due diligence on behalf of SPAC management may be more
robust in an attempt to prevent the stock collapse of a major (and likely highly-publicized) SPAC
merger. However, the low R\textsuperscript{2} associated with this connection limits the ability to strongly support
this theory. While it seems that smaller IPO size values may be associated with a higher
likelihood of poor performance in the equity market, the relationship is not statistically
significant enough to warrant a firm conclusion.

The fourth graph, shown in Figure 4, shows the relationship between post-merger stock
returns and the size of the PIPE (private investment in public equity) financing used for the
merger. Conventional wisdom around PIPE investment in SPAC mergers states that larger PIPE
financing indicates that management has identified too large of a target or has failed to convince
shareholders of the viability of the merger, meaning that the stock price of the company should
perform worse after the merger is completed. While this is supported by the negative coefficient
of the regression equation (-0.221), the low R\textsuperscript{2} value associated with the regression means that
the connection is not statistically significant enough to warrant a conclusion that solidifies this
connection in the realm of academia.

**Generalizations:**

This study can help examine some common “rules of thumb” that have been applied to
make general assumptions about future SPAC stock failure or success. As data accessibility
throughout the industry continues to increase, instances of logic that connect variables such as
the ones in this paper may be able to power deep learning-driven predictive analytics for pre-merger SPACs on behalf of regulators or investors.

In addition, the framework of this analysis, which involves using equity returns or market-adjusted returns as a proxy for the “success” of a company and any relevant independent variables for each company as a proxy for “forward-looking expectations”, will be valuable for future SPAC industry analysis. Especially as data becomes more prevalent and reporting systems become more standardized, the ability to change out the independent variable while keeping the dependent variable consistent will prove valuable for researchers.

V. Conclusion

Although the volatility of the SPAC industry and the uncertainty about the larger equity markets cloud some of the answers to questions of absolute relationships, SPACs are certainly an interesting area for similar analysis as investors look to find how pre-merger indicators can hint as to how the target company will perform financially after the merger.

While some variables seem to have limited statistical significance in their connection to post-merger equity market returns, it appears that the connection between post-merger returns and the average trading volume during the week before the merger is strong. This is a valuable connection between a data point that is easily observable at the time of a SPAC deal closing and future stock returns, which implies the connection may be able to help identify a forward-looking rule around the ability to predict SPAC returns.

As data becomes more widely available, it is important to note how rapidly the markets seem to move. Despite a rapid increase in SPAC issuance, which was accompanied by robust returns, in 2020 and 2021, it seems that 2022 has been unkind to these companies, representing
how quickly the industry may find itself in a downturn. As the regulatory framework and changing consumer sentiments work to catch up with the space, SPACs will continue to potentially act as both a benign way for a company to quickly go public and a way for managers to seize the opportunity to gamble with their investors’ blank check.
VI. Appendix:

Figure 1:

Power Series Model of Average Trading Volume During the Week Before a De-Spac Predicting Absolute Returns Following the De-Spac

![Graph]

Figure 2:

Linear Model of Average Trading Volume During the Week Before A De-SPAC Predicting Market Predicting the Market-Adjusted Returns During the 90 Days Following the De-SPAC

![Graph]
Figure 3:

Chart includes only IPO Sizes below $1 Billion due to data constraints

![Linear Model of IPO Size Predicting Market-Adjusted Return Following the De-SPAC](image)

*Market-Adjusted Solo Returns: 4.94E-04x + 0.659, R² = 0.024*

Figure 4:

Chart includes only PIPE Sizes below $1 Billion due to data constraints

![Power Series Model of PIPE Size Predicting Absolute Returns Following the De-SPAC](image)

*Returns Since De-Spac: 0.805x^(0.221), R² = 0.016*
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