The effect of earnings forecast optimism on market reaction to litigations against SPACs

Abstract: Private companies going public via special purpose acquisition companies have become popular, while relevant litigation has also increased dramatically. This paper examines whether underwriter reputation and the earnings forecast optimism have an impact on market reaction to litigations against SPACs. By using a number of SPAC samples involved with litigation, we found that investors have a positive reaction when sued SPACs disclose less optimistic earnings rejections. Nevertheless, the underwriter's reputation doesn't significantly influence revenue forecast optimism.

Keywords: FLS, Underwriter Reputation, Market Reaction, Information Asymmetry, Conflict of interests

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1.Introduction

Going public via a special purpose acquisition company (SPAC) becomes more popular among private companies in the past few years. In 2010. only 0.3% IPOs were launched through SPACs with raise of $0.1 billion. While in 2020. 54.9% IPOs raised $75.3 billion through SPACs in total. Moreover. SPAC had raised over $100 billion within the first 2 quarters of 2021 (Gahng, et al., 2021). SPAC not only creates opportunities for private companies who want to go public in a highly volatile market but also contains potential risks. Based on the latest SPAC-related filings (2022), SPAC-related lawsuits account for 16 percent of all cases filed in 2021, much higher than 1-2 percent in 2019 and 2020. Moreover, 25 percent of securities class action lawsuits filed are related to SPAC so far in 2022. Considering the rapid growth of SPAC IPOs and relevant lawsuits. this paper investigates market reactions towards SPAC IPOs involved with litigation.

Several reasons can explain the surge in SPAC IPOs. On the one hand. the coronavirus pandemic arises extreme volatility in the capital market, where a company's value drops dramatically overnight. As a result of the epidemic, numerous firms have postponed their initial public offerings (IPOs) because of the increasing market uncertainty. Going public via SPAC has more certainty of execution. Shareholders have more confidence in SPACs as they have a price certainty. They have the priority to receive their money whenever SPAC is liquidated, or they don't agree with the merger proposal and hence claim the redemption (Kanamalla, 2021). On the other hand, traditional IPOs go public through collaborations with investment banks and underwriters, where they are not allowed to promote shares until they begin to trade based on provisions. However, SPACs have more flexibility to promote themselves. Traditional IPOs take a great liability risk, (e.g., litigation risk) when providing earnings forecasts. However, SAPCs don't need to take the liability for disclosing forecasts to the public, under the protection of the Safe Harbor Provision (Blankespoor et al., 2021).

Nevertheless, Safe Harbor Provision creates a loophole for SPAC sponsors and target companies to mislead public shareholders with low-quality future projections. Based on current scrutiny of class lawsuits from Stanford Law School, all SPACs involved with litigation are alleged for disclosing misleading or fraudulent information and insufficient due diligence. Existing literature shed light on the information asymmetry and agent problem between sponsors and shareholders. Because of SPAC's special compensation structure for the sponsor, the benefit of completing a business combination is huge even if the merger is underperformance and leads to share price decreases. Besides, failing to acquire a private

company on time may result in SPAC declaring liquidation, where sponsors lose all of their money (Klausner & Ohlrogge, 2021). Sponsors, therefore, have incentives to provide an optimistic forward-looking statement (FLS) to induce shareholders to vote favorably for the merge, while taking less liability for the integrity and authenticity of FLS under the protection of Safe Harbor Provision (Dambra et al., 2021). However, FLS enables companies to explain their strategy growth to shareholders, which reduces information asymmetry. Hence, we hypothesize that optimism in earnings forecasts is not related to stock price reactions to SPAC litigations.

Underwriters, as crucial stakeholders and intermediaries between SPAC issuers and shareholders, actively participate in performing due diligence. If SPACs underwritten by prestigious underwriters are sued for insufficient due diligence, it can generate high reputation costs for underwriters. To prevent reputation loss, prestigious underwriter's tend to provide enough investigation on target company and deliver more reliable information to shareholders (Karim et al., 2013). Nevertheless. the failure of the merger also leads to fewer commission fees. Underwriters may perform insufficient due diligence to achieve acquisition approval, as they don't have to take full responsibility for it. It's unclear shareholder's reaction toward the underwriter. Thus, we hypothesize that underwriter reputation is not related to forecast optimism.

To assess the above predictions, I first identify SPACs involved in lawsuits from Stanford Law School filings and then collect data for predicted and actual revenue from Form-10K and S4 on the website EDGAR Company Filings. To investigate reaction, we collect data from COMPUSTAT North America. Underwriter rank is based on the Carter-Manaster Rank list (1990). Sample data includes 33 sued SPACs in the U.S, from 2019 to 2022. According to our empirical result, sued SPACs tend to disclose optimistic earnings projections, with only 30% of companies meeting the forecast. It has a significant negative influence on the stock market around official lawsuit filing day. However, underwriter reputation is not significantly correlated with forecast optimism. It implies that high reputable underwriters can't prevent the target company from disclosing optimistic projections.

This paper contributes to current literature on the stock response to company projections in the SPAC setting. Previous literature shows optimistic FLS stimulates shareholders to approve the merger during the de-SPAC period (Dambra et al., 2021). By focusing on the period after the de-SPAC transaction, this paper examines whether forecast optimism still influences shareholders, when SPAC is involved with litigation. Moreover, prior studies investigate the influence of underwriter reputation on earnings forecast accuracy under

traditional IPO settings (Karim et al., 2013). There is an obvious lack of analysis into the impact of SPAC underwriters who take different responsibilities. This paper fills the gap in previous studies on the correlation between underwriter's reputation and forecast optimism, extending previous literature on SPACs.

Investigating the impact of underwriter quality on market reaction is socially relevant. Because of the conflict of interest, sponsors can make use of information asymmetry to mislead shareholders to vote for the unfavorable merger deal. Underwriters as important middlemen, who actively participate in the investigation of company information authenticity, can help mitigate conflicts of interest. Besides, the SEC has proposed that underwriters should take additional liability for insufficient due diligence to protect investors from misleading information. This paper stresses the importance of an underwriter and can be evidence for regulators to approve the proposal. It also stimulates underwriters to take more responsibility to protect shareholders' interests. Investigating shareholder's reaction to the company's predicted future performance also has social relevance. It encourages sponsors to disclose more accurate projections, which helps investors make better decisions. Besides, precise evaluation of the target company helps reduce destructive competition between different sponsors and maintain market order.

2. Literature Review and Hypothesis Development

2.1 An Overview of SPAC

A Special purpose acquisition company (SPAC), known as a "blank-check company". goes public without any operating activities. It is merely founded to merge with a private company, which subsequently takes charge of SPAC's listing, thus enabling their shares to be listed. SPAC is organized by sponsors, who hire underwriters to help it go public as a shell company through an assurance IPO. The underwriter fee is divided into both fixed and variable parts, in which the variable part accounts for a larger amount. SPACs go public by selling units instead of shares, for specifically $10. Each unit also comprises a common share and fractional warrant to purchase extra shares at a certain price (usually $11.5). All the IPO proceeds are put in a trust account until it achieves business combination or goes liquidity. Sponsors are given a maximum of 24 months to buy a private company with their initial investment and funding from SPAC public shareholders. Shareholders have to vote for or against the proposed business combination. If a SPAC successfully merges with the target company, sponsors usually receive 20% of SPAC post-IPO stock at a nominal price as compensation. However, if sponsors fail to merge with the target company within SPAC's lifetime, they have to give the money back to

public shareholders via SPAC trust. Since the founder shares are not included in the liquidation, sponsors receive nothing but end up losing their original investment.

After launching IPO, SPAC sponsors usually start to talk with a number of potential companies about the likelihood of the acquisition. Once both sides show enough interest during the discussion. SPAC will commence into official negotiation with the target company. During this phase, sponsors are allowed to acquire private information from the target company and carry out due diligence to detect all potential financial or legal risks. The goal of the sponsor is to provide an acquisition offer that is sufficient for the private company to agree to the merger, while still insufficient for public shareholders to redeem their shares. SPAC is subjected to public shareholders' votes. If the result is favorable. the SPAC and target company will continue with the merger. known as De-SPAC. Meanwhile. SPAC sponsors usually raise additional capital by selling extra SPAC units to private-investment- in- public equity, which is so-called pipe financing.

[Insert Figure 1 here]

2.2 Information Asymmetry and Agent Problem

Information asymmetry may exist during the De-SPAC transaction. According to Cheng, Li, and Tong (2016), information asymmetry exists when one party has access to more information than the other during the transaction. Compared to SPAC sponsors and the target company, shareholders don't have access to private information and have to fully rely on the information provided by the sponsor when they vote for or against the business combination. Besides, the financial information of a private company will not be audited until it goes public. The lack of supervision from the third-party results in a higher degree of information asymmetry.

Agent problem also arises as shareholders grant sponsors the authority to choose a prospective target company on their behalf and take the consequences of the loss (Kellerman & Fischer. 2022). As a "shell company without any operating activities, SPAC receives financial funding because shareholders trust SPAC sponsors, who usually have experienced business executives and private equity firms. SPACs allow investors to invest in a good management team (sponsors), where they believe the sponsors will make a profitable deal in the future that boosts the value of the investment. The ideal situation is that experienced sponsors merge with a company that has great growth potential and is highly profitable, where stock price increases after the acquisition. However, if SPAC shareholders are unsatisfied with the private company picked by sponsors, they are allowed to redeem the shares for a liquidation price of 10 euros per share plus interest when SPAC submits a merger proposal. According to

SPAC trust provisions, redeeming shareholders have priority to receive the money from the trust. When all shareholder redemption requirements have been fulfilled, SPAC sponsors can use the rest funds for acquisitions.

Therefore, there is a conflict of interest between SPAC sponsors and shareholders. On the one side, if sponsors fail to merge within the SPAC life cycle, the shell company goes into liquidity and sponsors lose all their investment. If sponsors choose to merge with a bad financial performance company, which may result in a decrease in future stock price, they may still make a profit out of it. According to Jenkinson and Sousa (2011), sponsors are compensated with founder shares with a huge discount after launching SPAC IPO, which is much lower than the initial issue price of $10. Since per founder share is so low, sponsors benefit substantially because of the acquisition, even if the acquisition leads to decreasing stock prices in the future. Hence, the SPAC management team is more prone to conduct a value-decreasing merger before they run out of time, while shareholders prefer a liquidation to avoid loss. On the other side, if most of the shareholders disagree with the merger proposal and claim the redemption, the acquiree may break the agreement once the rest of the capital in the trust falls short of the SPAC's merger agreement's minimal capital requirements. It may also lead to SPAC liquidation. Under this circumstance, the management team has motives to acquire a company at the expense of shareholders and deter them from redeeming stocks (Klausner et al., 2021).

Due to the unusual compensation structure, sponsors have perverse motives to complete a business combination and rush into a merger at the expense of investors, leading to litigation afterward. Many SPAC IPOs are sued for lack of due diligence in the past few years. For instance, shareholders of MP Materials Corp. (Ticker: MP) recently filed a complaint against MP Material’s CEO, CFO, COO, SPAC who made it public, Fortress Value Acquisition Corp., and its sponsor, Drew McKnight who is the CEO of the SPAC responsible for the business combination. MP Materials Corp. owns and operates one of the largest integrated rare earth mining and processing facilities in Mountain Pass, North America. Rare earth is a significant component in numerous industries, including autonomous vehicles, wind turbines. etc. The suit alleges that SPAC exaggerated its due diligence efforts and capabilities in selecting suitable corporations for acquisition. SPAC overlooked substantial red flags, such as abusive transfer prices, compliance practices, and MP’s profitability. Moreover. Mountain Pass has verified that mining for rare earth is not economically feasible. MP's stock price dropped 14.5% after the news was revealed, leading to a huge loss for shareholders.

2.3 Safe harbor provision

The Private Securities Litigation Reform Act (PSLRA) was approved in 1995 to limit abusive lawsuits that hamper the company's capacity to disclose forward-looking statements to investors. Safe Harbor Provision contained in the PSLRA restricts a company's liability for providing FLS. It mentions that if a firm discloses proper cautionary statements. the firm is not accountable when it doesn't meet the forecast unless the firm lies to the public on purpose. The regulation raises the bar for a plaintiff who intends to sue the company. Hence, it encourages more firms to communicate their growth strategies and forecast to shareholders (Johnson et al., 2001). However, due to the concerns about the disclosure authenticity and completeness provided by speculative private companies, traditional IPOs are excluded from the Safe Harbor Provision. Because of higher litigation risks, companies going public via traditional IPOs prone not to disclose any quantitative information about their future projections that might affect investors' decisions. Unable to communicate growth projections to potential investors makes it harder for companies to raise money.

SPACs provide an alternative for private firms to go public while disclosing predicted future performance under the protection of Safe Harbor Provision. During de-SPAC transactions, the FLS of merger companies is usually displayed in investor presentation slides and proxy statements which have the same functionality as the IPO prospectus. Nevertheless, to improve the protection of SPAC shareholders, the Security and Exchange Commission (SEC) drafted a proposal of new regulations and modifications regarding SPACs in March 2022. The proposal dedicates to synchronizing de-SPAC transactions with traditional IPOs. It suggests greater liability of providing predicted future performance for more parties (e.g., underwriters) as well as changing the definition of "blank check company" to prevent SPACs from the protection of Safe Harbor protection. Besides, it also suggests disclosing underwriter status and liability. Underwriters who actively participate in the de-SPAC transaction are seen as a middleman between the issuer and shareholders. They are important gatekeepers to stock markets. Although underwriters are not legally obligated to perform due diligence, SEC said that they still have certain responsibility to perform reasonable due diligence. Besides, SEC believes that the quality of investigation on SPAC targets will be higher when more parties are accountable for the due diligence. It will benefit public shareholders.

2.4 Hypothesis Development

SPAC is known for its high information asymmetry between private companies, who know better about the company's current financial performance and its anticipated future cash flow, and sponsors, who want to acquire the private company and share the ownership and risks. The SEC advocates for providing more disclosure. Align with SEC, disclosing forward-looking

statements (FLS) increases information transparency and reduces valuation uncertainty to some extent by sharing more information with mergers and investors (Bédard. Coulombe & Courteau. 2008). Thus, it may help shareholders in voting for or against the business combination. Besides. since many private companies only have little prior performance. FLS enables the management to communicate their growth strategy to potential investors (Klausner et al., 2021). To summarize, FLS can be used as a communication tool. which helps decrease information asymmetry to some extent.

However, FLS may contain misleading or fraudulent information. According to Klausner et al. (2020), one of the main advantages of going public via SPAC over a traditional IPO is the difference in liability when providing a forecast for future performance. Since the forward-looking statement provided by SPAC is under the protection of Safe Harbor Provision, it is more difficult for shareholders to win the lawsuit when they allege the disclosure is misleading. Target companies and SPAC sponsors might arbitrage liability regimes as a "license to lie" to persuade shareholders to vote for the business combination (Dambra et al., 2021).

Besides, since FLS plays an important role in the acquisition narrative and is frequently used to evaluate private companies, it may be misused by target companies and sponsors. SPAC targets tend to provide optimistic FL, which indicates a higher valuation of the private company and leads sponsors to overestimate the company's future profitability. Therefore, it's easier for target companies to negotiate the higher purchase price, while most SPAC IPOs only achieve 35% of their forecast (Klausner et al., 2021). Despite sponsors can perform due diligence and carry out investigation on the target company, there is a number of reasons for them to accept higher purchase price on the basis of optimistic earnings forecast. On the one hand, sponsors have fierce competition with other sponsors or private equity funds under limited time. when acquiring the target company. To win the bid, they may have to offer a higher purchase price even if it exceeds the target company's true value. On the other hand, the sponsor automatically gets 20% shares with a huge discount when the acquisition is completed. Even if the share price drops after the acquisition, the benefit of a successful merger is still high enough for sponsors to complete the merger at the expense of shareholders (Blankespoor. et al., 2021). Since all sued SPACs recorded by Stanford Law School are alleged for disclosing misleading or fraudulent information, this paper comes up with a second hypothesis to further identify if FLS also plays a role in misleading shareholders in the de-SPAC period.

H1: Optimism in earnings forecasts is not related to stock price reactions to SPAC litigations.

Underwriters are significant stockholders of SPAC, who are involved in both IPO and business combination periods. They cooperate with sponsors in performing due diligence, aiming for obtaining a better understanding of the target company. Besides that, they also actively served as an advisor for the SPAC by negotiating with prospective companies and making an evaluation of the target company. Hence, underwriters can help negotiate a favorable acquisition price for SPAC shareholders and stimulate the target company in providing more accurate and precise information (Gosen, 2021). Besides, underwriters spend extensively on building a good reputation. The quality of the target company investigated by the underwriters is considered as their performance, which influences the reputation. Reputable underwriters are expected to provide sufficient company investigation and give good advice on the merge deal. Inadequate due diligence on a target company can lead to a combination with a bad performance company, which damages shareholders' interest and the underwriter's reputation. Especially prestigious investment banks have higher reputation costs than low reputable underwriters. To protect reputation loss, those underwriters are incentivized to avoid opportunistic target companies who may attempt to mislead shareholders by providing optimistic projections (Karim et al., 2013). According to Boeh and Southam (2011), prestigious underwriters help disseminate more credible information to shareholders, which increases the possibility of post-merger survival.

Notwithstanding, underwriters may have contradictory incentives because of the unique compensation structure. Unlike traditional IPOs, the total underwriter fee is split into 2 parts: one is received directly after IPO is launched and the rest part is saved in the trust with shareholders' capital. Underwriters can receive it after the approval of the business combination (Shachmurove & Vulanovic, 2017). Lakicevic and Vulanovic (2013) compare the ratio of fixed and variable underwriter fees. In general, total compensation is 7 percent of the gross proceeds. in which 3.94 percent was paid immediately after IPO and 3.06 percent deferred part relies on the success of the acquisition. The conditional proportion of the commission fee motivates underwriters to increase the probability of a successful merger by enhancing acquisition quality. The scare of the incentive of avoiding failure of the acquisition aligns the underwriter's interest with the sponsors. When underwriters are under the pressure to complete the acquisition, they may perform insufficient due diligence and agree to less accurate financial information provided by the target company, leading to an optimistic forecast. To investigate the influence of underwriter reputation, our second hypothesis is

H2: Underwriter reputation is not related to Earnings forecast optimism.

3. Data and research methodology

3.1 Sample Selection

To investigate whether forecast Optimism influences shareholders' reaction toward SPAC litigation, this paper firstly identifies all sued US-listed SPACs from Stanford Law School. It shows a total of 63 SPACs involved in Federal Securities Class Action lawsuits from January 2019 until May 2022. To assess the company's revenue forecast optimism, company's earnings projections and actual revenue are manually collected from proxy statements and investor presentations via SEC EDGAR. To calculate cumulative abnormal stock return (CAR), this paper uses daily stock returns from CSRP based on the identified SPAC tickers. The sample construction process is displayed in table 2. Starting from 63 initial sued SPACs. I exclude (1) SPACs that don't complete acquisition (2 obs.), (2) where there are no revenue projections available (5 obs.), (3) where revenue projection starts from 2022 afterward and can't be verified (5 obs.), (4) where SPACs are unable to file financial statements on time (5 obs.), (5) where published financial statements are false and unreliable (3 obs.), (6) where security registration terminates (1 obs.), (7) where sued cases were voluntarily dismissed (2 obs.), (8) where revenue forecast or actual revenue is 0 and can't be assessed (5 obs.). The values of control variables for the first hypothesis, including deal size, IPO proceeds, redemption rates, warrants, underwriter and SPAC industry, are collected from SPAC Research and SPAC Track. The rankings of underwriters in this paper are based on Carter-Manaster Rank (1990), which is aligned with Cumming et al. (2014) and Abreu (2021). The values of control variables for the second hypothesis, such as SPAC size and leverage ratio before the merger. are collected from COMPUSTAT North America. For the missing data, I review S-4 filings from SEC EDGAR. I check each website of SPAC target companies to determine their ages when the business combination is announced.

[insert table 1 here]

To assess the shareholders' reaction towards forecast optimism when SPACs are involved in lawsuits, this paper uses event study methodology and the OLS regression model. In specific, we estimate the stock return two days before and after the filing day, based on the trend of previous stock returns. This procedure is used to predict market reaction if there is no litigation involved. Then we compare the difference between the predicted and actual stock returns. Following the application of these procedures, we exclude 1 more observation due to the missing value of stock returns in CSRP. As a result, there are 33 SPACs left for analysis.

3.2 Research design

3.2.1. Event study model

This paper analyses the impact of a company's forecast optimism on shareholders' reaction when SPACs are sued. To assess market reaction, we refer to previous literature and use event studies to investigate the influence of SPAC litigation. Event study methodology has been widely acknowledged as the main method for investigating stock market reaction to a certain event in the previous study. For instance, Dambra et al. (2021) use an event study to assess how the stock market reacts to optimistic earnings projections after SPACs report earnings forecasts in investor presentations. Aarli and Bjørsvik (2021) also use an event study to see if target company or sponsor earnouts influence capital market reaction from 2020 to 2021. Unlike previous literature that uses the announcement day of FLS as event day, this paper assesses CAR based on the filing day of Security Class Action. Before calculating abnormal stock return, we first need to predict the expected normal return when there is no litigation, following the method of Brown et al. (1985), Strauss (2022), and Dambra et al. (2021):

$$R_{it} = \partial + \beta R_{mt} + \epsilon_t \quad (1)$$

Where R_{it} represents expected normal return of SPAC i on day t. R_{mt} stands for the market return on day t. Here we use S&P 500 index as market return.

According to Brown and Warner (1985), prediction window must be more than 30 days. while Mackinlay (1997) suggests an ideal estimation window of 120 days. We adopt the 30-day prediction window because a large prediction timeframe follows with missing data, which can lead to our sample decrease. Due to information leakage. shareholders may react to the expected litigation several days before the official filing day (Strauss. 2022). Hence, our estimation window is [-41. -11] before the filing day.

To measure abnormal stock returns. we compare the difference between expected normal return and actual stock return in equation 2:

$$AR_{it} = R_{it} - R_{mt} \quad (2)$$

Where AR_{it} stands for the abnormal return of stock i on day t

To diminish the influence of other activities that might affect market reaction, event timeframe is suggested to be as short as possible. In line with Blankespoor et al. (2018) and Dambra et al. (2021). we use five trading days [-2. +2] as our main event window. By summing up all abnormal stock returns over the event window, we get cumulative abnormal returns, see equation 3:

$$CAR_i = \sum_{t-2}^{t+2} AR_i \quad (3)$$

Where CAR_i represents the cumulative abnormal return of stock i. over 2 days before and after the Federal security class action filing day.

3.2.2. Earnings forecast optimism model

To test optimism in revenue projections, we use earnings forecast Bias (EFA) as our independent variable. It's defined as the difference between the company's projected and actual earnings divided by actual earnings for the first-year t and second-year t+1 following the business combination. The equation is as follows:

$$EFA_t = \frac{(forecast_t - actual_t)}{actual_t} \quad (4)$$

When EFA_t is above 0, de-SPAC mergers overestimate the revenue and don't meet the forecast, vice versa. The higher is, the more optimistic the earnings forecast is. According to Blankespoor et al. (2021), earnings projections disclosed by de-SPAC mergers are generally biased. with only 35% of earnings, forecasts are reached. With the above model. we can see the result of companies' actual revenue realization. Dambra et al. (2021) also argue that target companies tend to be overly optimistic about their future profitability and disclose high earnings projections, to obtain a higher voting rate from shareholders.

3.2.3. Market reaction towards forecast accuracy model

This paper analyses the influence of earnings forecast optimism on the stock market when SPACs are involved in lawsuits. We use panel data from 2019 to 2022, with a sample of sued US SPACs. In addition, to account for ignored differences across SPACs and to eliminate the effect of time-invariant omitted variables, we add time and company fixed effects to the model. The following OLS regression model is adapted from Strauss (2022) and Dambra et al. (2021):

$$CAR_t = \beta_1 + \beta_2 EFA_t + \beta_3 ln\_deal\_size + \beta_4 Redemption + \beta_5 Warrant + \beta_6 ln\_IPO\_Proceeds + \beta_7 Vulnerable\_industry + e \quad (5)$$

where dependent variable is cumulative abnormal stock return (*CAR*) for 5 days event window. Independent variable is earnings forecast accuracy (EFA_t). e is error term.

The rest variables are control variables. $ln\_IPO\_Proceeds$ is the number of proceeds received by SPAC IPOs. Since IPO proceeds are substantially skewed, we use log transformation to enhance the fit of the regression model. After deducting administrative expenses, the rest proceeds are saved in an escrow account and will be used for future acquisitions. According to Strauss (2022). SPAC IPOs have a higher chance to be involved in litigation when they receive higher proceeds. Therefore, the SPAC company is expected to suffer from the higher negative abnormal returns due to higher litigation probability. ln_deal_size is deal size measured in logarithm. It's also known as SPAC size, which is the price that sponsors agree to pay to the target company for the acquisition. Deal size initially

reflects the valuation of merged companies. Cumming et al. (2014) find that SPAC sponsors may accept higher deal size to boost their remuneration, based on the unique compensation structure of SPAC. However, it hurts shareholders' interest as they have to pay more for the business combination. Thus, SPACs with higher deal size tend to have higher negative abnormal returns. $Redemption$ refers to the probability of shareholders redeeming the shares. reflecting shareholders' confidence in the acquisition decision. A high redemption rate indicates shareholders' uncertainty about the merger (Klausner et al., 2022). Shareholders assume those merge deal have higher chance to fail or be involved in lawsuit in the later stage. Therefore, a high redemption rate indicates shareholders' uncertainty about the merger (Klausner et al., 2022). Shareholders assume those merged deals have a higher chance to fail or being involved in lawsuits in the later stage. Therefore, a high redemption rate is expected to have higher negative abnormal stock returns. *Warrant* is the price of an option to buy SPAC IPO shares either at the end of the merger transaction or 12 months after IPO launches (Dambra. et al., 2021). Since warrant can dilute existing shares of SPAC shareholders. it stimulates shareholders to not exercise redemption rights and vote for the business combination. As a consequence of decreased dilution effect, the stock price is likely to increase (Gahng et al., 2021) $Vulnerable\_industry$ is a dummy variable, which equals 1 if it's a technology company and 0 otherwise. Technology companies are vulnerable to a lawsuit and negative abnormal stock returns according to previous literature. So, it's important to include it as a control variable.

3.2.4. Underwriter reputation model

Underwriter plays an important role in investigating target companies' financial performance and performing due diligence. To assess the impact of underwriter reputation on SPAC forecast accuracy. we adapt the methodology from Lin and McNichols (1998)

$$EFA = \beta_1 + \beta_2 Rank + \beta_3 \ln\_Size + \beta_4 Age + \beta_5 Leverage + \beta_6 Bsize + \beta_7 Horizon + e \quad (6)$$

Where EFA is dependent variable. $Rank$ as independent variable. It represents underwriter rank based on Carter-Manaster Rank (1990). Higher ranks implicate higher quality underwriters. As a gatekeeper, the reputable underwriter is expected to stimulate target companies to provide more accurate revenue forecasts. As for control variables, the model includes the target company's financial characteristics, board, and forecast traits. $\ln\_Size$ is the logarithm of the target company's total assets before going to the public. Hagerman and Ruland (1979) argue that large companies can make more accurate revenue projections as they

are better at coping with unexpected situations. Thus, it's expected to have a positive relationship with forecast accuracy in SPACs too. Age is a total number of months from the date of the beginning of the company until the date of the deal announcement. An older company usually provides more accurate earnings forecasts. as it has more historical earnings records that can be used as a reference. Future revenue is less predictable for young companies as they face more uncertainties (Mnif, 2019). $Leverage$ is the logarithm of the target company's total debt divided by total assets before completing the business combination. It measures companies' risks of going bankrupt: companies with high leverage are riskier and less likely to pay off all their debts. Mnif (2009) discovers that companies that have a high leverage ratio tend to disclose more optimistic revenue projections. $Bsize$ is the total amount of independent directors on board. Non-executive directors have a significant influence on companies' corporate governance and credibility. It's expected to have a negative relationship with optimistic earnings forecast. $Horizon$ is the period from the day when revenue projections is disclosed until the actual revenue is realized. It's known as an important possible factor that influences revenue projections (Bulut &Er, 2010). A short horizon is argued to have a negative correlation with earnings forecast accuracy. According to Ammer (2015), a shorter forecast horizon usually leads to a more accurate forecast as there are fewer uncertainties during a short period.

4. Empirical results

4.1 Descriptive statistics for all variables

Table 2 displays descriptive statistics for 33 SPACs involved in lawsuit. To exclude outliers from the sample data, all observations are winsorized at 1st and 99th percentiles. As shown in the table 2. the mean and median of *CAR* are -0.007 and -0.512 respectively. It indicates stock market has a negative reaction towards SPAC litigation. Each Sued SPAC stock is traded with a total of $0.512 less than estimated return. over 5-day event window around case filing date. The mean of EFA_t and EFA_{t+1} are equal to 34.799 and 30.423 accordingly. It implies that both first- and second-year earnings forecasts after the merge is 30 times higher than actual earnings. Revenue projection for the first year is slightly more optimistic than for the second year. As opposed to the result based on the median of EFA_t (0.061) and EFA_{t+1} (0.414). which implies that second year revenue forecast is more optimistic than the first year. It aligns with the study of Blankespoor et al. (2021). The possible reason for the huge difference between mean and median may result from some outliers in limited sample data. Sued SPACs generally

hire reputable underwriters to help them with IPO launching and following the business combination. Those underwriters have an average rank of 7.5. The mean of *Deal_size* is 1353. indicating sponsors acquire the target company with 1353 million on average. However. the mean Size of the target company before the merge is 497.02 million. The huge gap between *Deal_size* and company size show that sponsors of sued SPACs pay a high premium to complete the deal. The average *Redemption* rate of sued SPAC has a low value of 0.276. It suggests that most shareholders have high confidence in the target company. only 27.6% of shareholders are doubtful about the deal and redeem their shares. Besides, sued SPACs offer an average of 1.169 warrants per unit. The average *IPO_Proceeds* received from shareholders is 503.2 million. The mean leverage ratio (44.4%) of the target company is considered low. indicating target companies have enough equity to run their business and are financed by debt under a healthy threshold. The average Age of target companies before the merge is 10 years old.

[insert table 2 here]

4.2 Earnings forecast optimism Analysis

Before investigating the impact of earnings forecast accuracy on the capital market. we first look into the attributes of all the projections disclosed by sued SPACs from 2019 to 2022. In contrast to the more often used short-term projection (e.g., quarterly or one year) in revenue-related indicators (Lansford et al.). we find that SPACs involved in litigation are prone to provide long-term earnings forecasts of over 4 years projection. From Panel A of Table 3. we can see average forecasting horizon continues increasing since 2020. The mean of projection years is 4. 4.8 and 5.1 for 2020. 2021 and 2022 accordingly. Besides. when I review each company's filings. I find that instead of providing earnings projections that can be immediately verified after the merge. some sued SPACs skip the first 2 years' earnings projections and disclosing forecasts starting from 2024. It makes it harder for shareholders to detect the target company's real financial status and profitability. Armstrong et al. (2007) explain that long-term earnings forecast allows managers of the target company to impart strategic bias to earnings forecast and increase the chance of receiving external funding. However. Kouprioucchina et al. (2014) argue that a long forecast horizon enables the company to provide a less biased forecast, as the company has enough time to perform effective earnings management to meet the forecast.

Panel B of Table 3 compares sued target company's earnings forecast and actual earnings for the first two years after the business combination. We find that 30 percent sued SPACs to meet forecasts in the first year and 28 percent sued SPACs to meet forecasts in the second year.

which is consistent with the findings of Blankespoor et al. (2021). Most of the earnings forecasts disclosed by sued SPACs are overestimated and cannot be beaten. We also notice that the earnings forecast is averagely 6.1% higher than the actual earnings in the first year but climbs to 41.1% in the second year. From Panel B. we can see that 42% of earnings forecast optimism is between 0 and 50%. while 49% of earnings forecasts optimism of the second year is over 50%. It suggests that earnings forecast becomes more optimistically biased over time.

[insert table 3 here]

4.3 Correlation Matrix Analysis

Table 4 shows the correlations between dependent, independent, and control variables in a correlation matrix. Since the majority of the correlation coefficients between control variables are less than 0.2, multicollinearity will not be a major issue. Thus, there is no need to remove any selected variables from 2 regression models. From the table, we find that IPO_Proceeds is positively associated with Deal_size (0.37), suggesting that sponsors tend to spend more money on business combinations when more shareholders invest in SPAC IPOs. Warrant and Redemption rate is also negatively correlated (-0.02), which supports the result found by Klausner et al (2021). It implies that the dilutive effect on SPAC shareholders caused by issuing warrants influences their decisions towards the merger deal. Hence, they are less likely to redeem their shares. Besides, both IPO_Proceeds (-0.08) and Deal_Size (-0.01) are negatively correlated with Redemption rates. It indicates that shareholders of sued SPACs have high confidence in the merger deal. They prefer not to redeem their shares under the condition that SPAC IPOs receive enough money, even if the merge is expensive. Leverage is positively correlated with target company Size (0.03). It implies that the bigger sued SPACs are, the more debts they are financed with.

[insert table 4 here]

4.4 Panel Linear regression of Earnings forecast Analysis.

We then investigate whether earnings projection optimism can influence shareholders' reaction when SPACs are involved with litigations. We concentrate on the correlation between earnings forecast optimism and stock returns in the 5-day event window surrounding the Securities Class Action filing date, based on Stanford Law School filings. Table 5 shows the regression results of the association between earnings forecast optimism and cumulative abnormal return. As a proxy for forecast optimism, we employee earnings forecast accuracy in the first year after the merge in column (1a) and earnings forecast accuracy in the second year in (1b). From table 5, we discover that earnings forecast accuracy has a moderate effect on shareholders' reactions when SPACs are involved with litigation. In column (1a), we find that

the first year is significantly correlated with a cumulative abnormal return, with a negative coefficient of 0.15. It suggests that when the first year's earnings forecast accuracy increases by 1, cumulative abnormal return decreases by 15%. In column (1b), the second year (-0.035) is also negatively correlated with the cumulative abnormal return, at a 5% significance level. It implies that cumulative abnormal return decreases by 3.5% when second-year earnings forecast accuracy increases by 1. Besides, EFA equals earnings projection minus actual earnings and then scaled by actual earnings. When EFA increases by 1, it means revenue forecast is overestimated 100% more than actual earnings. Hence, these two significant coefficients reveal that the more optimistic the earnings forecast that sued SPACs displayed, the more negatively the capital market reacts. We can reject the null hypothesis that optimism in earnings forecasts is not related to stock price reactions to SPAC litigations. In addition, the impact of earnings forecast accuracy after completion of business combination in the second year is much lower than in the first year. The possible reason can be sued SPACs on average have excessively high earnings forecast optimism in the second year than in the first year (see table 2), which reduces the impact of earnings forecast optimism on the stock market.

As for control variables, most of them are statistically significant at the 5% level. Deal size has a positive coefficient of 0.281 in the first year and 0.058 in the second year, meaning that if the offering price used for acquiring the target company increases by 1, cumulative abnormal returns will also increase 28.1% in the first year and 5.8% in the second year after the merge completion. It implies that shareholders react more negatively towards sued SPACs around the filing day when the sponsor spent more money on the acquisition. IPO_Proceeds (-0.42) has a negative influence on cumulative abnormal stock return in the second year, at a level significant of 10% ($P<0.1$). Increasing IPO Proceeds by one leads to a cumulative abnormal return reduced by 42%. A possible reason for the negative correlation can be that high proceeds create more incentives for sponsors to settle for suboptimal targets instead of taking risks of losing a deal and giving back all funding to shareholders. The result is also consistent with Strauss(2022), who argues that SPAC IPOs received higher proceeds are more likely to be involved in lawsuits than those with fewer proceeds. In addition, redemption rates and warrants have a huge impact on the capital market. Redemption rate has a significantly negative coefficient, while warrants have a significantly positive coefficient. Increases in redemption rate by 1 can result in a 50.5% decrease in CAR in the first year and a 74.5% decrease in the second year. When the warrant price increases by 1, CAR also increases 64.4% in the first year and 95.5% in the second year. The redemption rate shows shareholders' confidence in the transaction. A higher redemption rate suggests that shareholders have

predicted the bad transactions and redeem their shares, hence stock market will have a less negative reaction when the deal goes wrong.

[insert table 5 here]

4.5 Linear regression of Underwriter reputation analysis Analysis

Since earnings projections displayed in investor presentations are not audited, underwriters play an important role in carrying out due diligence and company investigations. We then investigate whether the underwriter's reputation has a positive influence on the SPAC target company's earnings forecast optimism by conducting an OLS regression analysis. To quantify each underwriter's reputation and quality, our independent variable (Rank) is based on the Carter-Manaster Rank list (1990). Table 6, columns 6a and 6b display the regression results of correlations between underwriter ranks and revenue forecast optimism in the first and second year after the merge completion. Reputation rank is positively correlated with earnings forecast optimism (7.701) in the first year, while negatively correlated with earnings forecast optimism (-1.224) in the second year. Since neither of them is statistically significant, we cannot reject the null hypothesis that underwriter reputation doesn't relate to earnings forecast optimism. One possible explanation can be that underwriters have no legal obligation to company investigation, leading to low quality of due diligence. Another possible reason can be the unique structure of the commission fee. Since underwriters will only receive another half of their commission fee after SPAC IPOs successfully merge with target companies, they may agree to settle for suboptimal target companies to complete the business combination on time.

As for control variables, company age, size, and leverage ratio are not statistically correlated with revenue forecast optimism, which is in line with the result of Ammer (2015). Board size (-67.427) is negatively associated with revenue forecast optimism after controlling the forecast horizon in the second year, at a level significant of 10% ($P<0.1$). It indicates that independent non-executive directors substantially improve the target company's corporate governance and forecast accuracy, which aligns with our previous expectations. Independent board member increases by 1 will lead to a 67-fold decrease in forecast optimism. Forecast horizon (-11.245) also has a negative coefficient, at a 10% significant level. Revenue forecast optimism will drop 11-fold if the forecast horizon period increases 1. It supports Ammer's (2015) argument that a shorter horizon stimulates more accurate prediction as fewer uncertainties will happen in a short prediction period.

[insert table 6 here]

5. Conclusion

Going public via SPACs has become popular since 2020, followed by increasing lawsuits

against SPACs. Unlike traditional IPO, SPACs are allowed to disclose projections without taking substantial liabilities under the protection of FLS. Therefore, sponsors and target companies may take advantage of FLS and provide inaccurate information to mislead shareholders. This paper investigates whether earnings forecast optimism in the SPAC prospectus influences market reaction to litigation against SPACs. Next, it investigates whether underwriter reputation effect earnings forecast accuracy. Our results reveal that revenue forecast is overestimated and has a significant negative influence on the stock market. The impact of earnings forecast on the stock market decreases in the second year after the completion of the business combination. However, underwriter reputation doesn't significantly affect earnings forecast accuracy. One possible explanation can be a less legal obligation on underwriters when conducting a company investigation. Another possible reason can be the incentive of receiving a deferred commission fee is higher than reputation costs.

Our research of revenue forecast verifies regulator and market concerns about overestimated projections, revealing less than one-third forecast is met. It stimulates regulators to reconsider the protection of FLS on SPACs and encourages further regulation proposals on SPACs. Besides, the significant negative correlation between forecast optimism and stock return alarms sponsors and target companies to consider shareholders' responses, before disclosing any projections. Although our result doesn't show a significant impact of underwriter reputation on forecast accuracy, it still helps SEC recognize the potential of underwriters and encourages them to further explore underwriter's capability of building a transparent market.

Several limitations apply to this paper. Firstly, our sample size is small, with only 33 sued SPACs in the U.S. from 2019 to 2022. It may decrease the power of the study and opportunities of discovering a true impact. Limited sample size may also lead to an overestimation of my research result. Secondly, the short time horizon also affects my research design. In this paper, we cannot further investigate whether earnings optimism still holds and whether the significant negative coefficient still holds during the whole projection period. Thirdly, though several control variables are included to increase the validity of the regression model in underwriter reputation analysis, certain important variables may still be left out, leading to the inaccuracy of the findings. Lastly, our sample is only focused on U.S. capital market, the result may be biased due to regional restrictions. For instance, shareholder needs to vote for the merger in the U.S., but it's not required in the UK. The different rules reduce the external validity of our results. Thus, it cannot be generalized to SPACs in other countries.

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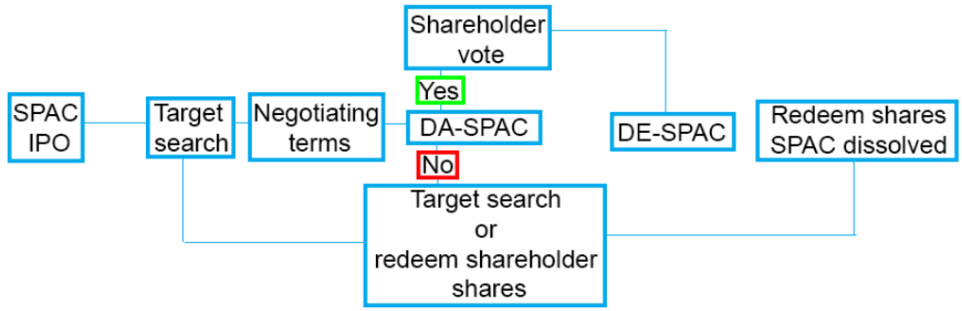


Figure 1 displays the stages of a special purpose acquisition company.

Table 1. Sample Selection

Sample Selection for SPAC revenue forecast optimism and cumulative abnormal return analysis	
All SPACs involved in Federal Securities Action lawsuits from 01-30-2019 to 05-31-2022	65
Less: SPACs that don't complete acquisition	(2)
Less: SPACs that don't provide revenue projections	(5)
Less: SPACs that revenue projections start from 2022 afterwards	(5)
Less: SPACs that are unable to file annual financial statements timely	(5)
Less: SPACs that terminate security registration	(1)
Less: SPACs that have false and unreliable financial statements	(5)
Less: SPACs that have forecast revenue or actual revenue as 0 and can't be assessed	(5)
Less: SPACs that are not covered by CSRP	(2)
Sample number	**33**

This table displays sample selection procedure for revenue forecast optimism and cumulative abnormal return analysis in detail.

Table 2. Descriptive Statistics

Panel A: Dependent and Independent Variables							
Variable	N	Mean	Min	P25	P50	P75	Max
CAR_5	33	-0.007	-0.352	-0.101	-0.512	0.084	0.560
EFA_t	33	34.799	-1	-0.003	0.061	1.381	996.194
EFA_{t+1}	33	30.423	-1	-0.097	0.414	2.001	596.828
Rank	33	7.5	0	8	8.5	8.5	9
Panel B: Control Variables							
Deal_size	33	1353	101	651	1114	1766	4400
Redemption	33	0.276	0	0.0005	0.079	0.515	0.923
Warrant	33	1.169	0.080	0.330	0.463	0.750	16.02
IPO_Proceeds	33	502.3	44	217.9	280.5	620.2	2073.1
Leverage	33	0.444	0	0.082	0.269	0.651	1.880
Age	33	10	1	5	17.000	32.000	56.000
Size	33	497.02	11.41	39.8	151.62	312.69	8360.41
Bsize	33	3.706	2	3	3	4	8
$Horizon_t$	33	12.386	5.933	9.475	12.733	15.033	17.933
$Horizon_{t+1}$	33	23.45	12	21.17	25.3	27.07	29.93
Vulnerable_industry	33	0.264	0	0	0	0.75	1

This table provides descriptive statistics for all the variables applied in regression models, with 1st and 99th percentiles winsorization.

Table 3. Earnings Forecast Analysis

Panel A. Earnings Forecast Attributes: Time Horizon

			Projection years						
Year	Total	Mean	0	1	2	3	4	5	>6
2019	4	6	0	0	0	1	1	1	1
2020	1	4	0	0	0	0	1	0	0
2021	20	4.8	0	1	1	2	4	7	5
2022	11	5.1	0	0	0	1	3	5	2

Panel B. SPAC Earnings Forecast Optimism

				Forecast Optimism (forecast minus actual) divided by actual revenue				
				Forecast<Actual			Forecast>Actual	
	N	Percentage meets forecast. %	Forecast optimism median. %	[-1. -25%]	[-25%. 0]	[0. 50%]	[50%. 2]	>2
1-year EFA	33	30%	6.1%	3%	27%	42%	9%	18%
2-year EFA	25	28%	41.4%	16%	12%	24%	21%	28%

Panel A presents frequency and horizon of earnings forecasts during the de-SPAC process. Panel B compares SPAC earnings forecasts during de-SPAC period to actual revenue.

Table 4. Correlation Matrix

Panel A. Correlation matrix for earning forecast analysis

	EFA_1	EFA_2	CAR	Deal_size	Redemption	Warrant	IPO_Proceeds	Vulnerable_industry
EFA_1	1.00							
EFA_2	0.99	1.00						
CAR	0.01	-0.02	1.00					
Deal_size	-0.05	-0.05	-0.09	1.00				
Redemption	-0.12	-0.12	-0.19	-0.01	1.00			
Warrant	-0.04	-0.05	0.10	0.05	-0.02	1.00		
IPO_Proceeds	0.12	0.10	0.05	0.37	-0.08	-0.02	1.00	
Vulnerable_industry	-0.12	-0.11	0.20	-0.02	0.31	-0.09	0.00	1.00

Panel B. Correlation matrix for underwriter reputation analysis

	Rank	Age	Size	Leverage	Bsize	Horizon1
Rank	1.00					
Age	-0.34	1.00				
Size	0.33	-0.38	1.00			
Leverage	-0.45	0.26	-0.43	1.00		
Bsize	0.19	0.34	0.62	-0.35	1.00	
Horizon1	-0.28	-0.05	-0.28	0.05	-0.42	1.00

Panel A shows correlations between each variable in earnings forecast analysis. Panel B shows correlations between each variable in underwriter reputation analysis. Variables definitions are in appendix.

Table 5. Regression of Earnings forecast optimism

	(5a)		*(5b)*	
Variable	Coeff.	p-value	Coeff.	p-value
EFA_t	-0.150	0.005***		
EFA_{t+1}			-0.035	0.030**
Ln_deal_size	0.281	0.026**	0.571	0.058*
Redemption	-0.505	0.005***	-0.745	0.023**
Warrant	0.644	0.027**	0.955	0.039**
Ln_IPO_Proceeds	-0.141	0.151	-0.420	0.096*
Vulnerable_industry	0.561	0.002***	0.665	0.011**
Industry F.E.		Yes		Yes
Year F.E.		Yes		Yes
N		33		33
Pseu-R^2/Adj-R^2		0.870		0.950

This table regression results of earnings forecast accuracy on cumulative abnormal return in the first year (column 5a) and second year (column 5b). Vulnerable_industry is a dummy variable. It equals to one if the SPAC is technology company and zero otherwise. Year and industry fixed effects are included in the model. Variables definitions are in appendix. Significance levels: * =0.1, ** =0.05, *** = 0.01

Table 6. Regression of underwriter reputation

	(6a)		*(6b)*	
Variable	Coeff.	p-value	Coeff.	p-value
$Rank_t$	7.701	0.678		
$Rank_{t+1}$			-1.224	0.935
Age	-0.464	0.931	2.782	0.562
Ln_Size	25.326	0.453	25.166	0.452
Leverage	25.072	0.800	-12.650	0.880
Bsize	-36.824	0.223	-67.427	0.061*
Horizon			-11.245	0.075*
N	33		33	
Pseu-R^2/Adj-R^2	-0.103		0.133	

This table regression results of underwriter reputation on cumulative abnormal return in the first year (column 6a) and second year (column 6b). Significance levels: * =0.1, ** =0.05, *** = 0.01

Appendix

Table 1. Sample Earnings Forecast Analysis

Company Name	SPAC	Ticker	IPO date	de-SPAC date		First Year	Second Year
Danimer Scientific. Inc.	Live Oak Acq	DNMR	06/05/2020	05/10/2020	Actual Revenue	47.333	58.749
					Forecast Revenue	51	117
					Optimism	0.0774	0.9915
Butterfly Network. lnc.	Longview Acq	BFLY	21/05/2020	20/11/2020	Actual Revenue	46.252	62.565
					Forecast Revenue	44	78.1
					Optimism	-0.0487	0.2483
Romeo Power Inc.	RMG Acquisition Corp.	RMO	08/02/2019	05/10/2020	Actual Revenue	8.974	16.804
					Forecast Revenue	11	140
					Optimism	0.2257	7.3313

*Sample Companies and Tickers are SPAC IPOs involved with litigation according to Stanford Law School Securities Class Action Filings (https://securities.stanford.edu/current-trends.html).

*All Relevant SPAC data is hand collected from company filings presented in SEC EDGAR website (https://www.sec.gov/edgar/searchedgar/companysearch.html).

*To access earnings forecast optimism. I review the financial statements from 10-K to obtain Actual Revenue and form 425 filings to acquire Forecast Revenue. Form 425 filings contain business combination agreement with the private target. which is usually in Exhibit 99.2. titled “Investor Presentation”. Those presentations are used for company promotion. and often contain multiyear projections of revenue. EBITDA. etc.

* Optimism is the difference between forecast revenue and actual revenue, scaled by actual revenue. Negative Optimism implies that the forecast has been met. Positive Optimism implies the failure of beating the forecast due to management’s forecast optimism.

Table 2. Variable Definitions

Variable	Definition
R_{it}	Expected normal return of SPAC i on day t.
R_{mt}	The market return on day t
AR_{it}	The abnormal return of stock i on day t
CAR_i	The cumulative abnormal return of stock i. over 2 days before and after the Federal security class action filing day
EFA_t	The difference between forecast revenue and actual revenue, scaled by actual revenue
$ln\_IPO\_Proceeds$	The number of proceeds received by SPAC IPOs
ln_deal_size	The price that sponsors agree to pay to the target company for the acquisition, measured in logarithm
$Redemption$	The probability of shareholders redeeming the shares.
Warrant	The price of an option to buy SPAC IPO shares either at the end of the merger transaction or 12 months after IPO launches
$Vulnerable\_industry$	A dummy variable, which equals 1 if it's a technology company and 0 otherwise
Rank	Underwriter rank based on Carter-Manaster Rank (1990)
ln $\_Size$	The logarithm of the target company's total assets before going to the public
Age	A total number of months from the date of the beginning of the company until t he date of the deal announcement
$Leverage$	The logarithm of the target company's total debt divided by total assets before c ompleting the business combination.
$Bsize$	The total amount of independent directors on board.
$Horizon$	The period from the day when revenue projections is disclosed until the actual r evenue is realized

Figure 1.1 Forecast revenue for Danimer Scientific. Inc. from 2020 to 2025

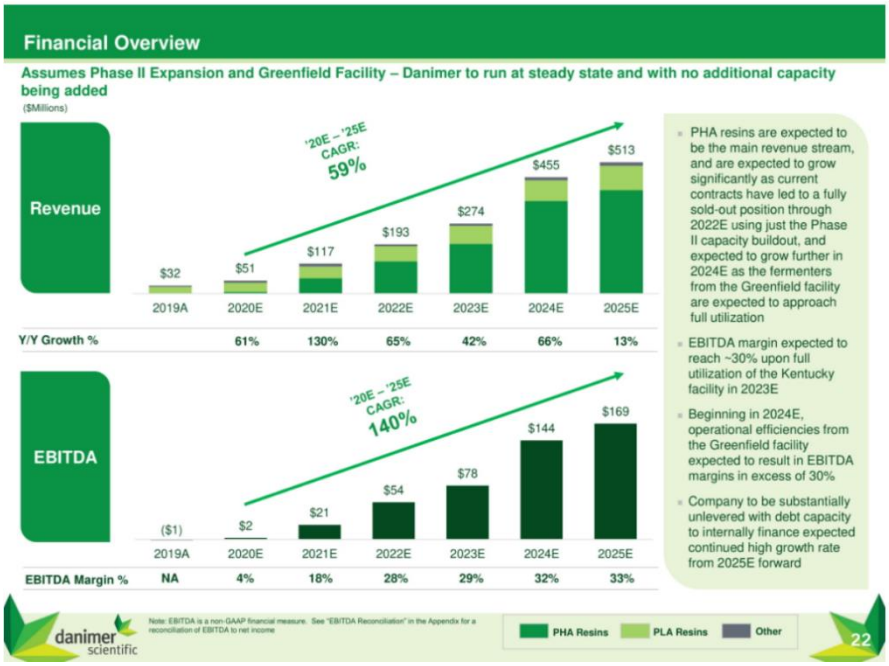
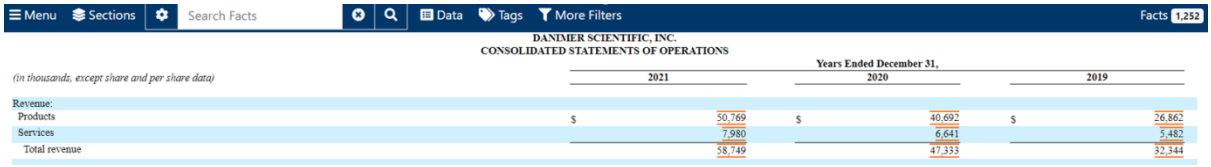


Figure 1.2 Actual Revenue for Danimer Scientific. Inc. from 2019 to 2021



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DANIMER SCIENTIFIC, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS

(in thousands, except share and per share data)	Years Ended December 31, 2021	2020	2019
Revenue:			
Products	$ 50,769	$ 40,692	$ 26,862
Services	7,980	6,641	5,482
Total revenue	58,749	47,333	32,344

Figure 1.3 Forecast revenue for Butterfly Network. lnc. from 2020 to 2024

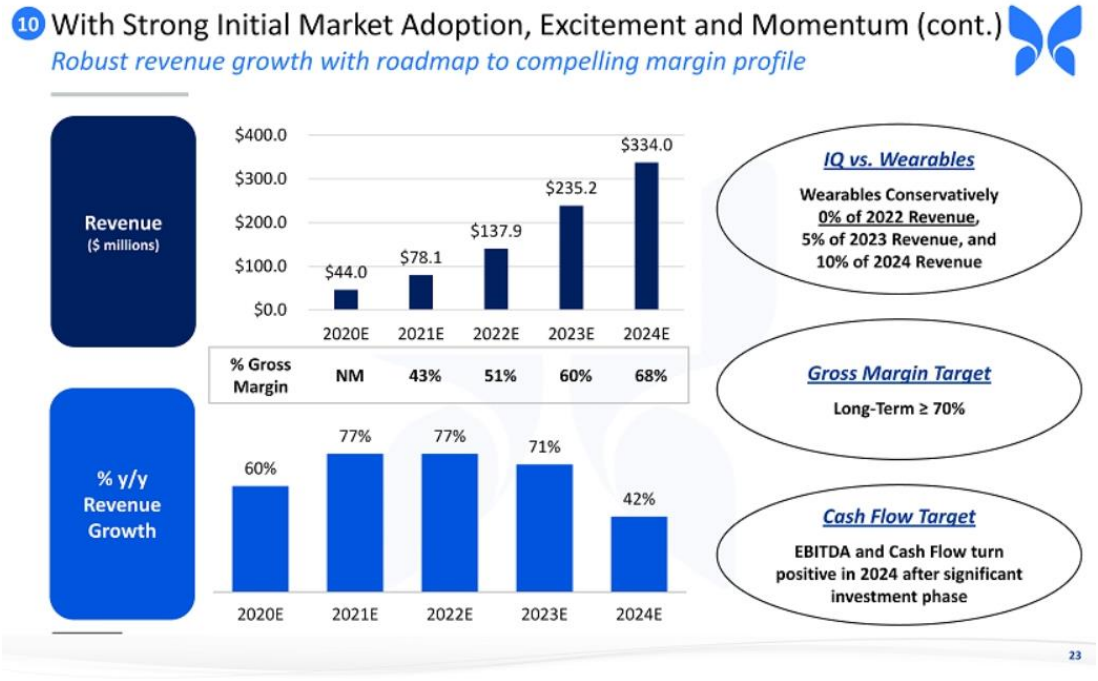

Figure 1.4 Actual Revenue for Butterfly Network. lnc. from 2019 to 2021

	2021	2020	2019
Revenue	$ 62,565	$ 46,252	$ 27,583
Cost of revenue	45,511	107,475	48,478
Gross profit	$ 17,054	$ (61,223)	$ (20,895)
Gross margin	27.3%	(132.4)%	(75.8)%
Add:			
Depreciation and amortization	536	140	16
Warranty liability policy change	(560)	—	—
Loss on purchase commitments	13,965	60,113	9,500
Inventory write-downs	582	2,570	—
Adjusted gross profit	$ 31,577	$ 1,600	$ (11,379)
Adjusted gross margin	50.5%	3.5%	(41.3)%

Adjusted EBITDA

Figure 1.5 Forecast revenue for Redwire Corporation from 2020 to 2025

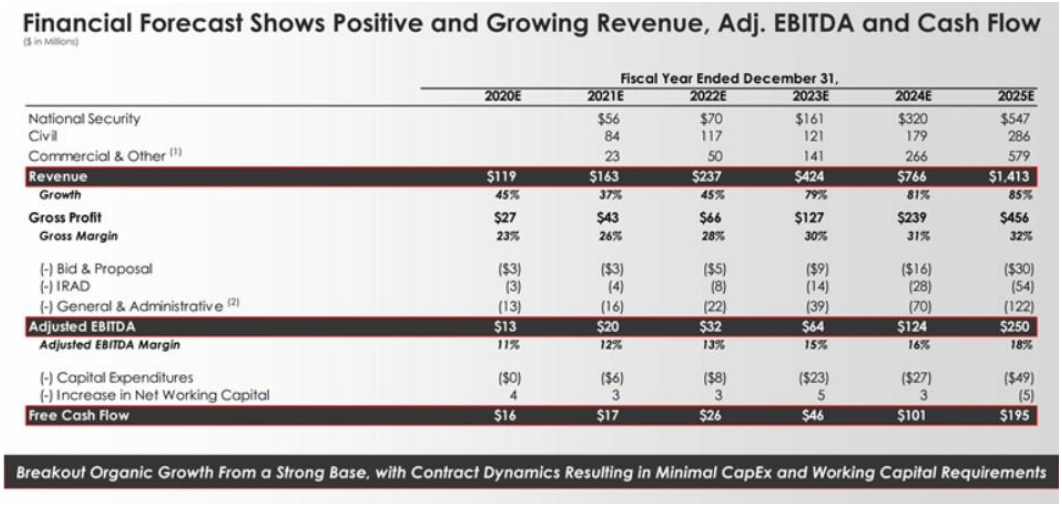

Figure 1.6 Actual Revenue for Redwire Corporation from 2019 to 2021

			Successor	
(in thousands, except percentages)	Year Ended December 31, 2021	% of revenues	Period from February 10, 2020 to December 31, 2020	% of revenues
Revenues	$ 137,601	100 %	$ 40,785	100 %
Cost of sales	108,224	79	32,676	80
Gross margin	**29,377**	**21**	**8,109**	**20**