



**Master thesis Accounting and Auditing**

## **The relation between market reaction and SPAC litigations**

**Name: Marjon Freijssen**

**Student number: 506942**

**Supervisor: J. Yu**

**Second assessor: J. Zhang**

**Abstract:** I examine the market reaction to SPAC litigation and the optimistic revenue forecast of those SPACs. There is a negative market reaction to SPAC litigation and if the revenue forecast is more optimistic the chance of litigation is higher. The sample of SPAC litigation cases comes from Stanford Law School – Securities Class Action Clearinghouse. The results of the first test show that the market does not seem to react to SPAC litigation cases. The results of the second test show that the forecast error is not significant and the over-optimistic forecast has thus no effect on the market reaction around the litigation date.

Keywords: SPACs, SPAC litigation, market reaction, optimistic forecast revenue

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## 1. Introduction

This paper examines the market reaction to SPAC litigation cases. Private companies go public because they want to raise money from public investors. The company offers its shares to the public through a stock issuance which is called an initial public offer (IPO). For a few years, there is a new “form” of IPO, called special purpose acquisition company (SPAC). Broadly speaking, SPACs are blank check companies. They have no specific business plan or operations. Its purpose is to go public and merge with or acquire a private company so that the private company does not have to go public anymore because the SPAC has already public shares (Shachmurove & Vulcanovic, 2017). SPACs are an upcoming way to go public. SPACs are especially upcoming in 2020, with a record of new SPACs and in 2021 this growth trend continues (Baker, 2021). With the growth of SPACs, there is also a growth in litigations against SPACs. “SPAC-Related Filings – 2022 Update” (2022) represents the SPAC-related files as a percentage of the total securities class action lawsuits. In the first four months of 2022 25% of all litigations are due to SPACs.

As Dimitrova (2017) and other researchers mention there are a lot of bad SPAC deals where shareholders lose their money because “bad” SPACs lead to short-term gains but significant long-term losses. This is mainly due to agency problems between the sponsors and shareholders. Shareholders can avoid this problem if they would listen to the market because the market could already see in advance whether it was a value-destroying merger or acquisition (Jenkinson & Sousa, 2011). If there are agency problems and therefore misleading information, shareholders can start a lawsuit. This can be seen in the "Securities Class Action Clearinghouse: Filings Database" (2022) on the Stanford Law School website, which shows SPAC litigation cases since 2019. There are currently many litigation cases still added to this list. Despite the increasing number of lawsuits, SPACs are still increasing, and investors are still buying their shares. In general, lawsuits destroy firm value, also in the case of mergers and acquisitions. It is therefore likely that the SPAC litigation cases have the same result and investors are cautious about investing in SPACs, but this does not seem to be the case. It is very relevant for the literature and society why these SPACs keep increasing despite the increasing litigations and how the market thus reacts to the SPAC litigations. The motivation of the study is that the SPACs and especially SPAC litigations are relatively new, therefore there is little research about the market reaction, which makes this study important. The first hypothesis is, that there is a negative market reaction to SPAC litigations. An important reason for litigation is highly optimistic forecasts. Those forecasts gave a positively biased

view of the expected firm value which gives misleading information to investors. In general, litigations about optimistic forecasts cause again negative firm results and poor performance. The second hypothesis is if the forecast is more optimistic there is a negative market reaction.

To test both hypotheses, 61 SPAC litigation cases are used. Those cases are from 30 January 2019 till 1 May 2022. This paper uses the stock price change as a proxy for the market reaction. In all tests is the litigation date of all the cases important to determine the stock prices. The CRPS database is used to gather the stock prices from 2019 to 2022. For the first test regarding hypothesis one, there are eight SPACs that have a litigation date after May 29 2022. For those SPACs, there is not enough data available, which results in a sample of 53 SPAC cases. For the tests regarding hypothesis two, there is some missing data in the control variables which results in a sample of 32 SPAC cases.

The results of the first test show that the market does not seem to react to SPAC litigation cases. The decrease in stock price before the litigation date could mean that investors already knew the litigation would be announced and reacted beforehand. The results of the second test show that the forecast error is not significant and the over-optimistic forecast has thus no effect on the market reaction around the litigation date. This may be due to the safe harbor rule that protects SPACs from lawsuits, so it is in principle more likely that the forecast is overstated. The results of this research are relevant for scholars, investors, and firms who want to go public. This paper extends the scholar's knowledge about SPACs and SPAC litigations. It is important for investors to know how beneficial these SPACs are and how other investors react to SPAC litigations. Investors with more knowledge can better anticipate on bad SPAC deals if they listen to the market beforehand. Firms who want to go public should take the disadvantages into account and see if the advantages outweigh the disadvantages. In the long term, it is not beneficial to merge with a SPAC and in the short run, it could cause problems due to the possible litigation cases and the market that already reacts to this possibility in advance. The limitations of this study are mainly due to the limited sample and limited control variables.

## **2. Literature and hypothesis development**

### **2.1. *The process of a SPAC***

SPAC is an abbreviation of 'special purpose acquisition company'. Stanford Law School describes SPACs as "companies with no commercial operations that are formed strictly to raise capital through an IPO for the purpose of acquiring one or more unspecified

businesses or assets” (“Securities Class Action Clearinghouse: Filings Database”, 2022). The Security and Exchange Commission (SEC) defines SPAC as a blank check company. This is a company with “no specific business plan or purpose or has indicated in its business plan is to engage in a merger or acquisition with an unidentified company, other entity or person”. Blank check companies most of the time involve speculative investments (Shachmurove & Vulcanovic, 2017). Both definitions amount to an empty shell with a bag of money and without a business process bent on merging.

SPACs have their own process compared to an IPO or M&A. The process starts with people who want to establish a SPAC. Those people are according to PricewaterhouseCoopers (n.d.) experienced managers or a sponsor with nominal invested capital. Shachmurove & Vulcanovic (2017) added that the managers who initiate the SPAC are most of the time well-known public figures with a good reputation, a lot of knowledge, and skills. Those determinants serve as a warranty that a SPAC would create value when they have merged with an appropriate target company. The management team sells about 80 percent of the shares and keeps a little part of the shares, about 20 percent. When the intention to establish a SPAC is there, the SPAC needs to file a FORM S-1 with the SEC, where the intention of the IPO is described. Management makes some preparative moves for the eventual IPO. The IPO event consists of issuing ‘units’. This unit consists of one common share and a money warrant, where the warrant can also be a part of a warrant. The SPACs issue their securities above \$5, which enables investors to freely participate in the price discovery process and avoid the SEC rules regarding penny stocks and other offerings from a blank check company. The funds of the shareholders are then held in escrow accounts, where funds are stored in trust while two or more parties finish a transaction. The SPAC has a maximum of two years to find a company that is called the target company. When a target company is found, the acquisition is announced via the press and 8-K forms. The important part for the managers is to get approval for merging from the shareholders in the final shareholder meeting. If management gets sufficient support from the shareholders to merge, the acquisition takes place. Sufficient support means 60 to 70 percent of all the shareholders who are in favor of the deal. If they do not get sufficient support, so less than 60 or 70 percent, they can look for a new target company or shareholders can elect to redeem their shares and the funds are returned to the shareholders on pro-rata bases. If the SPAC does not find a target company within the given time frame, they are liquidated, and the funds are also redeemed to the shareholders (Shachmurove & Vulcanovic, 2017).

In the past years, it has been noticed that management buys warrants and units just before the acquisition, to be certain that the deal will be complete. This phenomenon occurs primarily due to the greater uncertainty of shareholders about acquisition approval (Shachmurove & Vulcanovic, 2017). Lakicevic, & Vulcanovic (2013) described this phenomenon more extensively. They give a simple calculation that illustrates why management wants the deal to occur and this is their top priority. They observe that SPAC management has 2.76 percent of total funds, which does not change during the SPAC process. This indicates that after the merger a stock price higher than \$1 means a positive return to management. If shareholders are thus more uncertain, managers want to make sure they merge so they can get a positive return. When there is no merger, the SPAC must liquidate and management loses all their initial investment, and their reputation can be damaged. When the deal does occur and a merger or acquisition takes place, this results for founders in a reward of 20% of the equity of the firm (Jenkinson & Sousa, 2011).

Lakicevic & Vulcanovic (2013) looked at the investor perspective in the SPAC process and why they want to invest. Investors are basically overall buyers that own approximately 78.2 percent of the SPAC equity during the IPO. By purchasing the SPAC units, the investors provide 97.24 percent of the cash and the founders provide 2.76 percent of the cash. The difference between the funds of the investors (cash) and the ownership they get with their contribution (equity) leads to a significant share dilution. On the other hand, an advantage is that investors can decide at any moment before the acquisition to get their investment back. They can get on average 96 percent back of their initial investment (Lakicevic & Vulcanovic, 2013). Shachmurove & Vulcanovic (2017) described that this advantage compensates for the dilution. Investors can for example sell their warrants and hold shares until the acquisition date, which can result in a minimal positive return. Shachmurove & Vulcanovic (2017) address another advantage of a SPAC for investors. They mention that SPACs are designed so that shareholders receive payoffs similar to those received from holding a risk-free bond plus a call option. Jenkinson & Sousa (2011) mention three other advantages of investing in a SPAC. Investing in SPACs is of very low risk, high levels of control, and potential equity gain. Investors can observe the markets' view about a potential deal, so investors can anticipate their actions based on the market. When investors are convinced, they vote in favor of the deal.

In the past four years, the number of SPACs increased. According to Baker (2020), large private equity houses and hedge funds are now also SPAC sponsors and mainstream institutional investors are now also shareholders. This results in an increase in the amount of

money, the quality, and the value of assets. This can be a possible explanation for the growth of SPACs. Dimitrova (2017) completed Baker by referring to the recent trend in the private equity industry. This industry wants to find an alternative and more flexible structure of fund-raising, which likely causes the popularity of SPACs to remain. The examination of Dimitrova's paper suggests that due to the difference between the incentives of managers and investors, there are sometimes no better alternatives than SPACs.

## ***2.2. Hypothesis development***

### ***2.2.1. Market reaction to SPAC litigations***

Although there is a lot of noise around the existence of SPACs and the growing number of allegations, the SPACs are still increasing during the past years. The market seems therefore unimpressed by the litigation cases and does not seem to react negatively. It is therefore relevant to examine why the market does not seem to (negatively) react to these allegations. When looking at the completed SPAC mergers and acquisitions, a lot of these agreements have a positive abnormal return in the short run, especially around the announcement date (Dimitrova, 2017; Lakicevic & Vulcanovic, 2013). Dimitrova (2017) also finds that although the announcements of acquisitions of SPACs are received positively by the market, on average SPACs perform poorly, especially in the long run. Research suggests a failure rate of 58.09 percent (Vulanovic, 2017). Frost (2022) and many other researchers conclude that a lot of SPAC mergers and acquisitions are not profitable for investors or even really bad deals where investors lose their money. Despite these risks of losses in the long-term, there are still a lot of investors who keep investing in SPACs and the number of SPACs continues to grow. Jenkinson & Sousa (2011) confirm this by showing that shareholders approved more than one-half of the acquisitions and invest in SPACs which were already classified as value-destroying on the announcement date. They conclude that when shareholders went along with the proposal of the SPAC sponsor and did not listen to the market, the average cumulative returns went down by 39 percent in half a year and by 79 percent in a year. Investors do not seem to react to negative market predictions. It is possible that this behavior can also occur in SPAC litigation cases. Jenkinson & Sousa (2011) conclude that SPAC investors should listen to the market regarding the acquisitions for their own benefit because the market is informative.

Dimitrova (2017) mentions several causes of the value destruction of SPACs. Most of the value destruction is because managers rather have a bad acquisition than no acquisition.

This situation can occur when the deadline for merging is close. Managers become more desperate, and they no longer look at the performance of the target company. Jenkinson & Sousa (2011) reveal a unique trade during the week before the decision date of the acquisition. One-third of the outstanding shares issued were traded this week. There were not many transactions, but the transactions consist of many shares. An explanation Jenkinson & Sousa (2011) mention was that sponsors buy the shares of large investors who are against the acquisition, so these investors do not have any further influence on the decision and the sponsors are in charge. In this case, it can be stated that the smaller investors are possible free riders on the information and judgment of the large investors. When management put their own interest first and not the shareholders', this can create agency problems. Agency problems can lead to acquisitions by managers that do not maximize shareholder value (Chung et al. 2020). Shareholders can then litigate firms when they want to express their dissatisfaction with management or if they want to discipline management. Another possible explanation is that investors have blind faith in the sponsors' value-generating skills Jenkinson & Sousa (2011). Chu & Zhao (2021) claim that litigation risk destroys firm value because of managers' incentive changes which keep managers from making efficient business decisions before the acquisition. They mention that litigation threat can cause managers to choose the least risky acquisition instead of the acquisition which is most value-creating. On the other hand, Chung et al. (2020) mention that litigation threat can cause managers to choose the most value-creating acquisition, so litigation is less likely. However, when there is a reduced threat of a lawsuit, the chance of managers choosing value-destroying acquisitions can still increase. They also show that when there is a possible acquisition and the target firm is subject to shareholder litigation, it is less likely that the acquisition takes place.

Arena & Ferris (2017) examine the stock price reaction when there is a lawsuit regarding companies with a merger and acquisition. The results show that after a lawsuit filing, the stock price declines on average by 2 percent. The market reacts thus negatively to the filing of litigation. Arena & Ferris (2017) also noticed that when a company is accused of fraud, they sustain significant market losses. Little research has been done if there is also a negative market reaction to SPACs with litigation. This paper will fill this gap and based on prior research, the first hypothesis is:

***H1: There is a negative market reaction to SPAC litigations.***

### ***2.2.2. SPAC litigation disclosure***

Blankespoor et al. (2022) mentioned that SPACs are possibly increasing due to their focus on forward-looking information that is included in the disclosure. In the disclosure, managers can mention their future expectations about earnings and performance. Investors rely on this forward-looking information, so it is important that it gives a good reflection of reality. Blankespoor et al. (2022) found evidence that the SPAC mergers provide revenue forecasts including highly optimistic projections. These forecasts are even bigger when the length of the forecast period increases. These highly optimistic projections result from sponsors who really want the deal to occur and the substantial profits they will receive. When forecasting revenue growth rates are compared between the SPACs and the traditional IPO, it can be stated that the forecast revenue growth rates are much higher for SPACs (Blankespoor et al., 2022). Rose (2021) was also referring to the optimistic projections of firms in her research. She mentions that the difference between traditional IPOs and SPACs in reporting revenue forecasts is the disclosure-based liability exposure.

The difference in disclosure-based liability can be explained by the safe harbor for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995 (PSLRA). This safe harbor for forward-looking statements is a provision that makes it harder for investors to win a lawsuit alleging that forward-looking statements were misleading. Companies with an IPO are excluded from this safe harbor, so excluded from this provision. Companies who are doing an IPO are thus not prohibited from a forward-looking statement, only there are more risks regarding a forward-looking statement. Those risks are increased disclosure-based liability exposure. Companies therefore often choose to not include forward-looking statements and do not mention the future expectation of their earnings and performance, so they will not be accused of misleading statements. This will reduce the change of liability exposure. The SPACs are not excluded from this safe harbor, because they are seen as merger and acquisition companies. They are thus more protected against liability exposure when going public, with a smaller chance of being sued for misleading forward-looking statements (Rose, 2021 & “SPAC Mergers, IPOs, and the PSLRA’s Safe Harbor: Unpacking Claims of Regulatory Arbitrage”, 2022).

After the merger, Blankespoor et al. (2022) find that the revenue forecast of the SPAC’s prevalence and length declined to a level that is more comparable to the benchmarked firms. They also find that when sufficient time has passed, the firms meet only 35 percent of the forecast. Dambra, Even-Tov & George (2021) conclude that SPAC’s



acquisitions are overly optimistic and mislead and hurt investors. They also stated that SPACs relatively underperform in the long term. They do not find specific evidence of how these investors react, except that investors find the revenue forecast disclosure value relevant despite the optimism. It is still unclear how the market reacts to SPAC's optimistic disclosures, other than the negative returns, but it seems to be different compared to the general acquisitions.

When investors want to sue a company that has substantially misled them with their forecast, the SEC rule 10b-5 gives the shareholders this opportunity. In general, the firms who are sued experience a period of poor price performance relative to the firms who are not sued. Before firms misled shareholders for a specific fixed-length period, the so-called misleading information period, the firm experience positive returns in the period. In this misleading information period, the firms experience abnormal negative returns (Beck & Bhagat, 1997). Francis, Philbrick & Schipper (1994) also saw this negative return in the misleading period. They concluded when there are positive preannouncement returns and there is a disclosure about unfavorable earnings, there is a severe negative reaction. Investors must consider that it is hard to sue a company that had an overly optimistic forecast. Litigants must not only prove that the company released poor forecasts but also that the company itself did not believe it could achieve those forecasts (“How The SPAC Boom Could Trigger More Lawsuits” - LAW360, 2021).

Although it is harder for SPACs to get sued, there are several SPAC litigation cases. There are three SPAC litigation cases described in Appendix B including their forecast and actual revenue. Baker (2021) distinguished two types of SPAC lawsuits. Those are disclosure-based and process-based lawsuits. The SPACs do not contain any operating history, so there is a limited opportunity for a disclosure-based lawsuit. The process-based litigation is based on the sponsors who rush into an acquisition because they do not want to lose their initial investment, which will only happen if there is no deal independent of the kind of deal. They do not consider the quality of the target company and shareholders might lose money if it is a bad deal. There are a few studies regarding optimistic revenue forecasts, but it is not clear to what extent the forecasts were optimistic and if this is related to litigation cases. It can be stated that overly optimistic forecasts are related to negative returns which upset shareholders and can lead to litigations. It is only not clear if more overstated forecasts lead to more litigation cases. Based on prior research mentioned above, the second hypothesis is:

**H2:** *If the forecast is more optimistic there is a negative market reaction.*

### **3. Sample Selection and Research Design**

#### **3.1. *Sample selection***

I will use the "Securities Class Action Clearinghouse: Filings Database" (2022) on the Stanford Law School website to examine the American SPAC litigation cases, hereinafter referred to as SCAC. On May 1 2022 there are 61 cases. The first litigation case is filed on 1/30/2019 and the last litigation which is included in the database is filed on 4/22/2022. Those 61 cases are used in this research and will all be examined individually. In this litigation list are the following details shown: the name of the SPAC company, the filing date of the litigation, the district court (in which district the court is located), exchange (which stock market the SPAC operates on), the ticker of the SPAC, and sector in which the SPAC company is operating. Clicking on the SPAC there is a brief summary of the complaint, the company & securities information and the First Identified Complaint (FIC) is included and described. Next to the filing date, there are also the class period start and end dates. The class period means a precise time frame where the defendant committed the alleged injury to the class ("What is a class period", 2018). The filing date is used for this research because this is the first moment stakeholders become acquainted with the allegation. The filing date is when there is a first identified complaint issued.

There are a few categories on which the litigations are built. The two main categories are the following: "The Company's public statements were materially false and misleading at all relevant times" and "Defendants' positive statements about the Company's business, operations, and prospects were materially misleading and/or lacked a reasonable basis". The specific reason differs between the companies but comes down to the same. For the few remaining companies, there are some other reasons, for example, The Proxy Statement is false and misleading, the Complaint alleges as a result of Defendant's wrongful conduct, the defendants failed to disclose material facts to investors, and at last, defendants have breached their fiduciary duties.

#### **3.2. *Research design***

There are no preformed databases with SPAC litigations yet, so this database has to be compiled manually. Important variables for the database are the SPAC company name, the ticker of this company, the merger date, the sector, and the litigation filing date from the SCAC database. Further SPAC information is looked up via the website SPAC Track ("SPAC track"), which contains the former SPAC name, the target company, IPO date, IPO

size, leadership, underwriters, and the stock price. The former SPAC name with its ticker, the target company, and the IPO date are used to complete the database. The manually composed database in Excel is called database 1 hereafter and can be seen in table 1. Added to this database is the merger size and the Standard Industrial Classification code (SIC) from the U.S. securities and exchange commission (SEC).

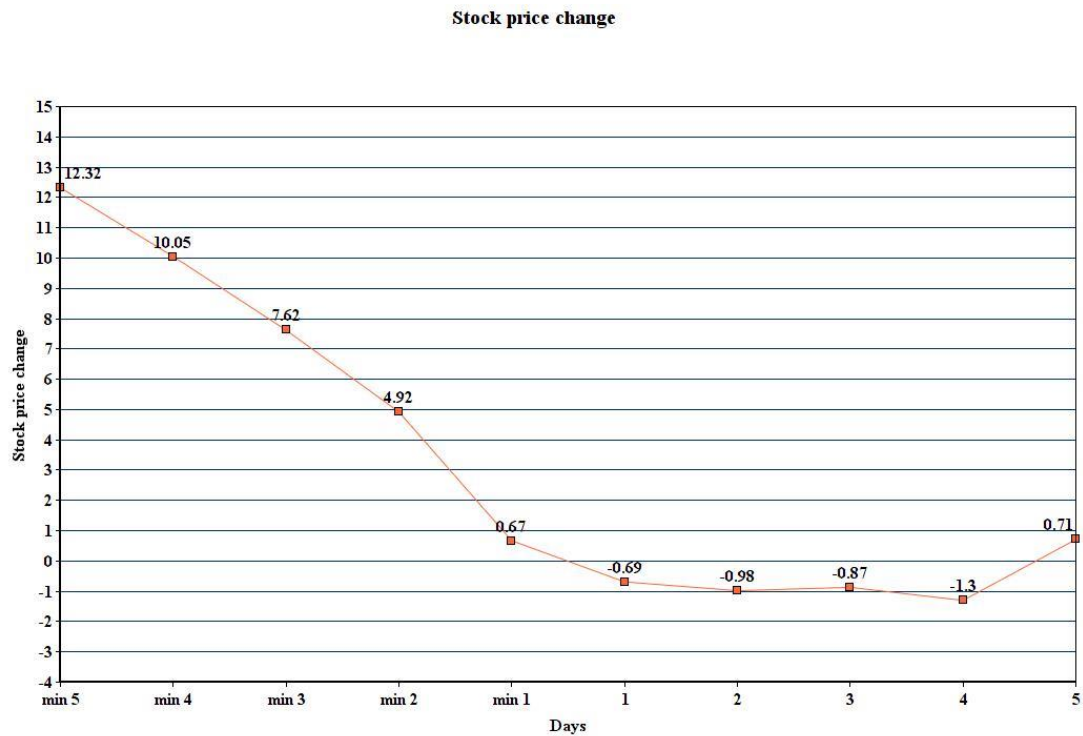
### ***3.2.1. First test***

The first test examines the effect of a litigation case on the market. The stock price change is the dependent variable which is a proxy for market reaction. So, the first test revolves around the examination of the change in stock price after the litigation date. The data for the stock price is gathered through WRDS. The data comes from the daily stock files page from the stock/security files in the CRPS database. Some companies have been sued when they were still addressed under the previous name. The tickers of the 61 SPAC litigation cases and their previous SPAC names are used as company codes to search in the US database of CRPS. The time frame is from 1/1/2019 till the last day possible, which is 3/31/2022. This means that the database will not include the companies with allegations after this date which are: VLTA, EMBK, LCID, MYPS, LILM, LICY, BKKT, and IRNT. This can be seen in Panel A of Table 3. The variables used from the database are the tickers, company names, and stock price changes with their dates. This database will be called database 2 hereafter.

At first, I looked at the SPAC litigation date and which SPAC name is relevant to use, the current SPAC name or the former SPAC name. This formed a new list of SPAC names. In the first database, there is information about the litigation case and the second database contains stock prices. In both the databases the ticker and the litigation date are concatenated which illustrates a certain code. The concatenated outcome in database 1 is being looked up in database 2 to get the stock price on the litigation dates. There are five trading days in a week because the stock market is closed on the weekend. For the companies with a litigation date outside the trading days (HFFG, NKLA, GOEV, and CCIV) the following Monday is chosen as the litigation date. The same procedure is followed when obtaining the stock price seven days prior and seven days after the litigation date. Each week contains a weekend, so each week has in general five trading days in which the market can react and therefore contains stock information. Next, the percentage changes in the stock price for each day for all companies can be computed. This is computed with the litigation date as the base. For each day, the average change in stock price is calculated and a line chart is formed with those

percentage changes. This chart can be seen in figure 1. The same steps are executed in the weeks around the litigation date. This can be seen in figure 2.

**Figure 1:** Stock price change days around the litigation date



The figure represents the percentage change in stock price. The litigation date is when the first identified complaint is issued. Dates after the litigation date are indicated with a plus sign and dates before the litigation date are indicated with a minus sign. This figure shows the daily percentage change one week before the litigation date and one week after the litigation date. The stock price numbers indicate the change between this date and the litigation date.

**Figure 2:** Stock price change weeks around the litigation date



The figure represents the percentage change in stock price. The litigation date is when the first identified complaint is issued. Dates after the litigation date are indicated with a plus sign and dates before the litigation date are indicated with a minus sign. This figure shows the weekly percentage change three weeks before the litigation date and three weeks after the litigation date. The stock price numbers indicate the change between this date and the litigation date.

After calculating the stock price before and after the litigation date, the paired t-test is used to compare those stock prices and calculate the difference. The stock prices before the litigation date are thus compared to the stock prices after the litigation date. The t-test looks if the difference between stock prices is different from zero and if the difference is significant.

### 3.2.2. *Second test*

Most of the SPAC litigation cases are related to over-optimistic revenue forecasts. The second test looks at the impact of those revenue forecast allegations on the market reaction of SPAC litigation cases. This is done by examining the difference between the forecasted revenue and the actual revenue, called forecast error (FE). The revenue forecast and actual revenue are gathered from the Securities and Exchange Commission (SEC). In the Edgar database on the SEC website are company filings collected. By filling in the ticker or the company name, all the filings of the specific company can be found. The revenue forecast can be gathered through the SEC s-4 filing or the SEC 425 filings. The s-4 filing is relevant when a publicly-traded company wants to register any material information regarding a

merger or acquisition. It often also contains information about their prospectus after the merger. The 425 filing is a prospectus document about the company's business combination. Both often contain forecasted information, which is important for this research. The actual revenue is gathered through the 10-k form or the 20-f form. The 10-k report is the annual report about the financial performance of a publicly-traded company. The 20-f form is for companies outside the US but with listed equity shares traded inside the US. I gathered all information and made two groups: the 2021 revenue forecast, and the 2021 actual revenues. When all the data is entered there are some missing values for 2020 or 2021. To make the revenue forecast list and the actual revenue list comparable, a company is deleted when there is a missing value in one of the two lists. There are 23 firms that do not have a forecast revenue or an actual revenue or both. There are also five firms that have a forecast but the forecast is after 2021, so these cannot be included in the sample. The sample selection can be seen in Panel B of Table 2. For some litigation dates, the actual revenue is already known but for most litigation dates, the actual revenue is not known yet. To which company this applies can be seen in Table 4 Panel B. For the companies which do not know the actual revenue on the litigation date, it is assumed they know it. The market reaction is again determined by the stock price which is gathered the same as the first hypothesis. The stock prices of the days around the litigation date are used again. For the second test are three different dates used to determine the stock price change (SPC). The SPC 1 exist of the stock price difference between one day before the litigation date and one day after the litigation date. SPC 2 exists of the stock price difference between two days before the litigation date and two days after the litigation date. SPC 3 exists of the stock price difference between three days before the litigation date and three days after the litigation date.

For the regression, I want to use some control variables to prevent omitted variable bias. Tandon & Malhotra (2013) and Gatua (2013) gave an overview of factors that have an influence on the stock price. Tandon & Malhotra (2013) mention that relevant factors for determining the stock price are earnings per share (EPS), dividend per share (DPS), yield, and the book value per share (BPS). Sharma (2011) came to the same relevant variables. Gatua (2013) mention other papers which have other relevant variables like macroeconomic factors, profitability, size, and multiple ratios. Menaje (2012) stated that next to the earnings per share the return on assets (ROA) is relevant for determining the stock price. Looking at the SEC forms and Yahoo finance there are several measures that can be used as control variables. Looking at the literature and the measures available there are a few measures that contain enough data and are relevant control variables to the stock price change, which are

basic earnings per share (EPS), tangible book value (BV), merger size (MS), and SIC code (SIC). The SIC is included in the regression by means of a factor. The periodicity is yearly to get the same variable outcomes as the release of the 10-k report. Sunworks (SUNW) is the only company that does not have an actual merger, so there is no merger size that causes Sunworks to be removed from the sample, which can be seen in Panel B of Table 2. Some control variables which were mentioned in previous papers cannot be used due to too few values. This involves DPS and ROA. The regression is then computed with the above compound database. The second hypothesis will be accepted or rejected based on the following three regression:

$$SPC1 = \beta_0 + \beta_1 FEt + \beta_2 EPS_t + \beta_3 BV_t + \beta_4 MS + \beta_5 SIC + \epsilon t \quad (1)$$

$$SPC2 = \beta_0 + \beta_1 FEt + \beta_2 EPS_t + \beta_3 BV_t + \beta_4 MS + \beta_5 SIC + \epsilon t \quad (2)$$

$$SPC3 = \beta_0 + \beta_1 FEt + \beta_2 EPS_t + \beta_3 BV_t + \beta_4 MS + \beta_5 SIC + \epsilon t \quad (3)$$

The variable definition is included in Appendix A and t represents the year 2021. The descriptive statistics of the regressions can be seen in Panel A of Table 4.

## 4. Empirical Results

### 4.1. Market reaction

When looking at figures 1 and 2, it looks like the litigation has a negative effect on the market, because the stock price decreases in the days after the litigation date. In the first days after there is a decline in stock price, but on the seventh day, this decline has stopped and is even positive. The weeks after the litigation date show a little stock price decline. This would mean that a litigation case has a negative impact on the stock price, but these declines in stock prices are very small. Taking the weeks before the litigation into account the decrease in stock price already started earlier and was a lot bigger than after the litigation date. It is possible that the effect was captured before the litigation date.

The descriptive statistics of the first hypothesis can be viewed in Panel A of Table 3. This panel shows the summary of stock prices of the days used in the paired t-test. It gives the mean, median, standard deviation, minimum, and maximum of the stock prices on a specific day. The days vary from five trading days before the litigation date to five trading days after the litigation date and the data consist of 53 SPACs.

The paired t-test results in a few significant outcomes. The null hypothesis means that the paired difference does equal zero in the population. If the p-value is significant, this means that the null hypothesis must be rejected and the paired difference is different from zero. The outcomes which are significant [-2,1], [-3,1], [-3, 2], [-4, 4], [-4, 2], [-4, 1]. There are significant effects when the days prior to the litigation date are longer ago. This effect is not visible the other way around. Looking at the four days before and one day after the litigation date, the difference is significant on a 5% level. But one day before the litigation date and four days after, the difference is not significant at all. This is also the same for the three days before the litigation date and one day after the litigation date which has a significant difference at a 10% level. However one day before the litigation date and three days after the litigation date there is no significant difference. All the tests with only one day before the litigation date are insignificant, independent of the days after the litigation date. This can imply that the decreasing effect is mainly before the litigation date and not after the litigation date, so it seems that the market reacts to the litigation before it is even announced. It is not sure if this is due to the litigation, but there might be an association. The difference before the litigation date is thus greater, so the more days back in time the bigger the difference. The difference is smaller after the litigation date which does not cause a significant effect. This effect corresponds to the effect shown in Figure 1. It can mean that the market does not respond significantly to litigation cases or the market has already foreseen the litigation case so the effect is mainly captured before the litigation date. This can be seen in Panel B of Table 3 which contains the results of the paired t-test.

#### ***4.2.Over-optimistic forecast revenue***

Panel A of Table 4 shows the descriptive statistics of the variables of the second test. It shows the mean, median, standard deviation, minimum, and maximum of the stock price changes and the control variables, and the dates show 32 observations. All three regressions have one significant control variable. In the first regression, the MS has a negative significant coefficient at a 5% significant level. The EPS in the second regression has a positive significant coefficient at a 10% significance level. At last, the third regression has a positive significant EPS coefficient of 5% significance level. This significant coefficient means that those coefficients have a significant influence on the market reaction.

The other variables are not significant. The variable of interest (FE) is not significant, so it does not have a significant influence on the market reaction. This means that the forecast



error of the SPACs does not seem to play an important role in influencing the stock price. If the forecast has no significant effect on the market it is not likely that it causes a higher chance of litigation. It thus seems that the investors attach little value to the optimistic forecast error. Investors may take the safe harbor rule into account and therefore expect the forecast to be more optimistic because SPACs can be sued less quickly. Another plausible explanation can be that investors already noticed beforehand that the forecasts are too optimistic and not realistic compared to the benchmark firms, so they do not attach much value to the forecast. This means that the market does not significantly change due to over-optimistic forecasts, looking at those three regressions. The results of the regressions can be seen in Panel C, D, and E of Table 3.

## **5. Conclusion**

This study investigates whether the market reacts to SPAC litigation cases. The results show that the market does not seem to react negatively to SPAC litigation cases and the first hypothesis is thus rejected. The decrease in stock price after the litigation is announced is not significant. However, the decrease in stock price before the litigation is announced is significant. This could mean that the investors already knew the litigation would be announced and reacted beforehand. One of the most common allegations is due to an over-optimistic forecast. The second test examines if the forecast is more optimistic the chance of litigation is more likely. The results show that the forecast error is not significant and has thus no effect on the market reaction around the litigation date. If the forecast has no significant effect on the market it is not likely that it causes a higher chance of litigation which also rejects the second hypothesis. It seems that the market does not severely react to the over-optimistic forecasts. This may be due to the safe harbor rule that protects SPACs from lawsuits, so it is in principle more likely that the forecast is overstated.

This study is subject to several caveats. The dataset is limited because it only contains 61 firms. It is therefore hard to examine this dataset because often a few companies drop out so there are only a few remaining companies. This is also the case with control variables. There are more control variables that influence the stock price but they do not contain enough data to use them because there would be three companies left. It would be better if more control variables are included. Future researchers might be able to use more SPAC litigation cases which increases the sample and maybe more control variables can be included in the regressions.

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## Appendix A: Variable Definitions

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### Variables Included in Over-Optimistic Forecast Revenue

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#### *Variable: Definition:*

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<i>SPC</i>	The stock price change of SPACs with litigation calculated through the difference between days before the litigation date and days after the litigation date
<i>FE</i>	Forecast error which is the difference between the forecasted revenue and the actual revenue about the year 2021 of SPACs with litigation
<i>EPS</i>	Basic earnings per share of the year 2021.
<i>BV</i>	Tangible book value per share of the year 2021.
<i>MS</i>	Merger or acquisition size of the SPAC with the target company

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## Appendix B: Example of three SPAC litigations

### Summary of three SPAC litigations

#### *MP Materials Corp.*

The complaint is that the SPAC performed inadequate due diligence into MP materials and overstated its due diligence efforts and expertise regarding identifying target companies and as a result the financial prospects post-business combination were overstated. The merger company is in the business of mining rare earth metals and had, according to the complaint, artificially inflate its profits and was not economically viable to harvest for rare earth metals and the public statements of MP Materials Corp. were therefore materially false and/or misleading.

Forecasted revenue of MP Materials Corp.

<i>(USD in millions)</i>	Forecast Year Ended December 31, (1)			
	2020E	2021E	2022E	2023E
Revenue	\$ 102	\$ 171	\$ 349	\$ 415
Adjusted EBITDA (2)(3)	\$ 29	\$ 82	\$ 172	\$ 252
Capital expenditures	\$ 35	\$ 149	\$ 10	\$ 42
Free cash flow (4)	(\$ 36)	(\$ 96)	\$ 102	\$ 138
Cash balance (5)	\$ 512	\$ 367	\$ 429	\$ 566

Actual revenue of MP Materials Corp

<i>(in thousands, except percentages)</i>	For the year ended December 31,		
	2021	2020	2019
<b>Revenue:</b>			
Product sales	\$ 328,563	\$ 133,697	\$ 73,017
Other sales	3,389	613	394
Total revenue	331,952	134,310	73,411
<b>Operating costs and expenses:</b>			
Cost of sales <sup>(1)</sup>	76,253	63,798	61,261
General and administrative	57,215	26,868	11,104
Advanced projects, development and other	4,573	140	—
Depreciation, depletion and amortization	24,382	6,931	4,687
Accretion of asset retirement and environmental obligations	2,375	2,255	2,094
Royalty expense	—	2,406	1,885
Write-down of inventories	1,809	—	—
Settlement charge	—	66,615	—
Total operating costs and expenses	166,607	169,013	81,031
<b>Operating income (loss)</b>	165,345	(34,703)	(7,620)
Other income, net	3,754	251	4,278
Interest expense, net	(8,904)	(5,009)	(3,412)
<b>Income (loss) before income taxes</b>	160,195	(39,461)	(6,754)
Income tax benefit (expense)	(25,158)	17,636	(1)
<b>Net income (loss)</b>	\$ 135,037	\$ (21,825)	\$ (6,755)
<b>Adjusted EBITDA<sup>(2)</sup></b>	\$ 219,077	\$ 42,609	\$ 1,934
<b>Adjusted Net Income (Loss)<sup>(2)</sup></b>	\$ 168,374	\$ 21,240	\$ (7,767)

#### *Nikola Corporation*

The complaint is that the SPAC did not engage in proper due diligence regarding its merger with a zero emissions transportation systems provider Nikola. The target company overstated its capabilities and the experience and background of key employees and as a result, the public statements of the combination were therefore materially false and/or misleading.

Forecasted revenue of Nikola Corporation

(in millions)	Forecast				
	Year Ended December 31,				
	2020P	2021P	2022P	2023P	2024P
Total Revenue	\$ —	\$ 150	\$ 300	\$ 1,414	\$ 3,226
Gross Profit	—	38	58	301	719
EBITDA(1)	(211)	(245)	(175)	(66)	213
Capital expenditures(2)	(156)	(298)	(296)	(369)	(673)

(1) Earnings Before Interest, Taxes, Depreciation and Amortization.

(2) Capital expenditures for hydrogen stations are expected to be funded with approximately 60% equity and 40% debt. Capital expenditures related to our manufacturing facility are expected to be funded with 80% equity and 20% debt.

## Actual revenue of Nikola Corporation

NIKOLA CORPORATION  
CONSOLIDATED STATEMENTS OF OPERATIONS  
(in thousands, except share and per share data)

	Years Ended December 31,		
	2021	2020	2019
Solar revenues	\$ —	\$ 95	\$ 482
Cost of solar revenues	—	72	271
Gross profit	—	23	211

## *Clover Health Investments, Corp.*

The complaint is that Clover Health Investments, a Medicare Advantage insurer, prior to the merger has been under active investigation by the U.S. Department of Justice for issues like undisclosed deals with related parties, and failed to disclose this investigation. The public statements of the combination were therefore materially false and/or misleading.

## Forecasted revenue of Clover Health Investments, Corp.

(\$ in millions)	Year ended December 31,			
	2020E	2021E	2022E	2023E
Total revenues	\$ 671	\$ 880	\$ 1,219	\$ 1,723
Gross profit(1)	\$ 121	\$ 102	\$ 178	\$ 281
Adjusted EBITDA(2)	\$ (43)	\$ (82)	\$ (31)	\$ 16
Medical care ratio, net(3)	82.9%	89.3%	85.7%	84.0%

## Actual revenue of Clover Health Investments, Corp.

	Years ended December 31,		
	2021	2020	2019
Revenues:			
Premiums earned, net (Net of ceded premiums of \$489, \$599, and \$532 for the years ended December 31, 2021, 2020, and 2019, respectively)	\$ 799,414	\$ 665,698	\$ 456,926
Direct Contracting revenue	667,639	—	—
Other income	4,943	7,190	5,340
Total revenues	1,471,996	672,888	462,266

This appendix shows the summary of the litigation cases of MP materials, Nikola and Clover Health investments. The content comes from the "Securities Class Action Clearinghouse: Filings Database" (SCAC). Next to the litigation cases the forecast revenue and the actual revenue for each company are shown, where the data comes from the Securities and Exchange Commission (SEC) database.

**Table 1.** SPAC information of 20 SPAC cases

SPAC name	Ticker SPAC	Litigation date	Former SPAC name	Ticker Former SPAC	Private company name	Merger date	IPO date	Merger or acquisition size	SIC code
Nikola Corporation	NKLA	17-8-2020	VectolQ Acquisition Corp	VTIQ	Nikola Corporation	3-3-2020	15-5-2018	3.3 billion	3711
Sunworks, Inc.	SUNW	22-10-2020	Sunworks, Inc.	SUNW	Peck Company Holdings, Inc.	10-8-2020	1-3-2016	-	3661
QuantumScape Corporation	QS	5-1-2021	Kensington Acquisition Corp	KCAC	QuantumScape	3-9-2020	26-6-2020	3.3 billion	3690
Clover Health Investments, Corp.	CLOV	5-2-2021	Social Capital Hedosophia Holdings Corp. III	IPOC	Clover Health Investments, Corp	6-10-2020	22-4-2020	3.7 billion	8090
Immunovant, Inc.	IMVT	19-2-2021	Health Sciences Acquisition	HSAC	Immunovant Sciences Ltd.	2-10-2019	9-5-2019	556 million	2836
MultiPlan Corporation	MPLN	24-2-2021	Churchill Capital III Corp	CCXX	Multiplan Corporation	12-7-2020	14-2-2020	11 billion	6200
Velodyne Lidar, Inc.	VLDR	2-3-2021	Graf Industrial Corp	GRAF	Velodyne Lidar, Inc	2-7-2020	12-6-2018	1.8 billion	3569
XL Fleet Corp.	XL	8-3-2021	Pivotal Investment Corporation II	PIC	XL Fleet Corp	22-12-2020	11-7-2019	350 million	3714
Lordstown Motors Corp.	RIDE	18-3-2021	DiamondPeak Holdings Corp.	DPHC	Lordstown Motors Corp.	3-8-2020	28-2-2019	1.6 billion	3711
Canoo Inc.	GOEV	5-4-2021	Hennessy Capital Acquisition Corp IV	HCAC	Canoo Holdings	1-12-2020	1-3-2019	2.4 billion	3714
Romeo Power Inc.	RMO	16-4-2021	RMG Acquisition Corp	RMG	Romeo Systems, Inc.	5-10-2020	7-2-2019	900 million	3714
Churchill Capital Corporation IV	CCIV	19-4-2021	Churchill Capital Corporation IV	CCIV	Lucid Motors	22-2-2021	30-6-2020	4.4 billion	6770
Skillz Inc.	SKLZ	7-5-2021	Flying Eagle Acquisition Corp	FEAC	Skillz	2-9-2020	6-3-2020	3.5 billion	7374
Danimer Scientific, Inc.	DNMR	15-4-2021	Live Oak Acquisition Corp.	LOAK	Danimer Scientific, Inc.	5-10-2020	6-5-2020	890 million	2821
Virgin Galactic Holdings, Inc.	SPCE	28-5-2021	Social Capital Hedosophia	IPOA	Virgin Galactic Holdings Inc.	9-7-2019	14-9-2017	1.5 billion	4700

Draftkings Inc.	DKNG	2-7-2021	Diamond Eagle Acquisition Corp	DEAC	DraftKings and SBTech	7-4-2020	10-5-2019	3.3 billion	6022
Paysafe Limited	PSFE	10-12-2021	Foley Trasimene Acquisition Corp. II	BFT	Paysafe limited	7-12-2020	18-8-2020	9 billion	7389
MP Materials Corp.	MP	22-2-2022	Fortress Value Acquisition Corp	FVAC	MP Materials Corp.	1-11-2020	30-4-2020	1.5 billion	1000
Lucid Group, Inc.	LCID	1-4-2022	Churchill Capital Corp IV	CCIV	Lucid Motors	22-2-2021	30-7-2020	4.4 billion	3711
Li-Cycle Holdings Corp.	LICY	19-4-2022	Peridot Acquisition Corp.	PDAC	Li-Cycle	10-8-2021	23-9-2020	1.67 billion	4955
<p>20 of the 61 SPACs are listed in more detail. The data is gathered from “Securities Class Action Clearinghouse: Filings Database” (SCAC). The details in this table contain the ticker, the litigation date, the former SPAC name with its ticker, and the private company name. It also includes the IPO date of the SPAC company, the date of the merger between the SPAC company and the private company with the merger size, and the Standard Industrial Classification (SIC) code of the SPAC. The company Sunworks (SUNW) does not have a merger value, because the merger did not go through.</p>									

**Table 2. Sample Selection**

<b>Panel A: Sample Selection for the Market Reaction to Litigation</b>	
All SPAC with a litigation in the period from 1 January 2019 till 4 May 2022	61
Less: SPACs with a litigation date on May 30 2022 and later	8
Number of firms used in market reaction to litigation	<b>53</b>
<b>Panel B: Sample Selection for Over-Optimistic Forecast Revenue</b>	
All SPAC with a litigation in the period from 1 January 2019 till 4 May 2022	61
Less: SPACs without an s-4 report or an 425 report	22
Less: SPACs with forecasts after 2021	5
Less: SPACs with no actual revenue available	1
Less: SPACs with no final merger	1
Number of firms used in over-optimistic forecast revenue	<b>32</b>

Panel A details the sample selection process for the market reaction to SPAC litigations. Panel B details the sample selection process for the over-optimistic forecast disclosure of the SPACs with litigation.



**Table 3. Market reaction**

<b>Panel A: Descriptive statistics of daily stock returns of 53 observations</b>					
Days	Mean	Median	Standard Deviation	Minimum	Maximum
-5	13.70	9.61	17.643	0.19	115.20
-4	13.33	9.35	16.166	0.17	101.00
-3	12.96	9.20	15.777	0.14	98.29
-2	12.53	9.03	14.484	0.16	84.45
-1	11.73	8.33	11.818	0.22	51.80
+1	11.73	8.39	12.398	0.18	63.03
+2	11.77	8.02	12.450	0.18	62.00
+3	11.69	7.97	12.106	0.20	56.79
+4	11.57	8.25	11.789	0.18	53.14
+5	11.80	0.21	12.011	0.21	56.56

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**Panel B: Cumulative returns**

Days	Mean of difference	T value	P-value
[-1, 1]	-0.001	-0.003	0.998
[-2, 1]	0.805	1.898	0.063*
[-1, 2]	-0.047	-0.160	0.873
[-2, 2]	0.759	1.620	0.111
[-1, 3]	0.036	0.131	0.897
[-3, 1]	1.231698	1.819	0.075*
[-2, 3]	0.841	1.455	0.1517
[-3, 2]	1.186	1.678	0.099*
[-3, 3]	1.268	1.576	0.121
[-4, 4]	1.760	1.864	0.068*
[-4, 2]	1.557	1.954	0.056*
[-2, 4]	0.962	1.489	0.143
[-1, 4]	0.157	0.576	0.567
[-4, 1]	1.602	2.116	0.039**
[-5, 5]	1.896	1.604	0.115

Panel A provides descriptive statistics for days before and after the litigation date used in market reaction analyses through stock prices. Panel B provides the paired t-test which tests the change in stock price. The change in the stock price is the difference between the stock price of the days before the litigation date and the stock price of the days after the litigation date. The first column shows the days before and after the litigation date. The minus sign shows the days before the litigation date and the plus sign shows the days after the litigation date. The second column provide the difference between the two stock prices, the third column provide the t-values, and the last column shows the p-value with the significance levels where \*, \*\*, \*\*\* indicate the statistical difference from zero at <0.10, <0.05, and <0.01 levels, respectively.

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**Table 4. Over-optimistic forecast revenue**

<b>Panel A: Descriptive statistics of the over-optimistic forecast revenue</b>					
Variable	Mean	Median	Standard Deviation	Minimum	Maximum
<i>SPC 1</i>	-0.012	-0.031	0.103	-0.170	0.406
<i>SPC 2</i>	-0.021	-0.061	0.132	-0.251	0.332
<i>SPC 3</i>	-0.047	-0.070	0.137	-0.338	0.322
<i>FE (x1,000)</i>	-7,743	-20,675	210,420	-650,278	594,776
<i>EPS</i>	-1.484	-1.190	1.194	-7.383	1.399
<i>BV (x100,000)</i>	4,215	3,492	8,322	-13,940	34,050
<i>MS (x100,000)</i>	17,650	14,000	16,167	1,000	75,740
N			32		

<b>Panel B: Indicating whether the actual revenue is known at the litigation date</b>	
SPACs	Actual revenue known at the litigation date
NKLA	No
TRIT	No
CLOV	No
XL	No
GOEV	No
RMO	No
SKLZ	No
DNMR	No
SPCE	No
DKNG	No
LOTZ	No
MNTS	No
VIEW	No
KPLT	No
APPH	No
ZEV	No
OWLT	No
DNA	No
PSFE	No
RDW	No
DM	No
TALK	Yes
ASTR	Yes
BFLY	Yes
MP	Yes
CANO	Yes
VLTA	Yes
LCID	Yes
MYPS	Yes
LICY	Yes
BKKT	Yes
IRNT	Yes

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**Panel C: Regression Results [-1, 1]**

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*Dep: SPC [-1,1]*

Variable	Coeff.	Std. Error	p-value
<i>Intercept</i>	-0.022	0.102	0.832
<i>FE</i>	0.000	0.000	0.636
<i>EPS</i>	0.014	0.011	0.203
<i>BV</i>	0.000	0.000	0.103
<i>MS</i>	-0.000	0.000	0.031**
N		32	
Adj R <sup>2</sup>		0.057	
Industry Fixed Effects		Yes	

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**Panel D: Regression Results [-2, 2]**

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*Dep: SPC [-2,2]*

Variable	Coeff.	Std. Error	p-value
<i>Intercept</i>	-0.034	0.139	0.811
<i>FE</i>	0.000	0.000	0.990
<i>EPS</i>	0.026	0.014	0.086*
<i>BV</i>	0.000	0.000	0.621
<i>MS</i>	-0.000	0.000	0.244
N		32	
Adj R <sup>2</sup>		-0.060	
Industry Fixed Effects		Yes	

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**Panel E: Regression Results [-3, 3]**

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*Dep: SPC [-3,3]*

Variable	Coeff.	Std. Error	p-value
<i>Intercept</i>	-0.033	0.144	0.819
<i>FE</i>	-0.000	0.000	0.416
<i>EPS</i>	0.032	0.015	0.045**
<i>BV</i>	0.000	0.000	0.875
<i>MS</i>	0.000	0.000	0.917
N		32	
Adj R <sup>2</sup>		-0.074	
Industry Fixed Effects		Yes	

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Panel A provides descriptive statistics for variables used in over-optimistic forecast revenue analyses. Panel B shows the 32 SPACs used in the second test. This table illustrates if the actual revenue is known at the litigation date. If the actual revenue is known there is 'Yes' noted and if the actual revenue is not known there is 'No' noted. If it is not known, it is assumed that the investors know the actual revenue on the litigation date. Panel C, D, and E report the regression results of the over-optimistic forecast revenue analyses. The dependent variable is the stock price change and shows how the stock price changes due to the FE, EPS, BV, MS, and industry fixed effects. Panel C shows the SPC one day before the litigation date and one day after the litigation date. Panel D shows the SPC two days before the litigation date and two days after the litigation date. Panel E provides the SPC three days before the litigation date and three days after the litigation date. The second column shows the coefficient, the third column shows the standard error, and the last column shows the p-value where \*, \*\*, \*\*\* indicate the statistical difference from zero (two-tailed) at the <0.10, <0.05, and <0.01 levels, respectively. Variable definitions are included in Appendix A.

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