**Information Risk and Stock Returns of Companies**

**Going Public By Merging with SPACs**

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**Abstract**

The proposed new SEC (2022) rules suggest that the information risk may be unusually high for companies going public by merging with SPACs (“SPAC-IPOs”). We study the merits of this “information risk” hypothesis and then examine whether the high information risk also explains SPAC-IPOs’ stock underperformance. We find that relative to traditional IPOs, SPAC-IPOs are more likely to: (1) be associated with lower financial statement quality, (2) retain a non-Big 4 auditor, (3) be associated with lower earnings/accruals persistence, (4) avoid listing on the NYSE, and (5) get delisted from a stock exchange. These factors collectively suggest that the information risk is about 71% higher for SPAC-IPOs than for non-SPAC-IPOs. The higher risk persists three years into the SPAC-IPO’s public listing. Finally, we demonstrate that the variation in the information risk explains the poor stock performance of SPAC-IPOs. To the extent the regulatory initiatives are intended to address the information risk in de-SPAC transactions, SPAC-IPO investors are the likely beneficiaries of this regulation.

1. **Introduction**

Although only 59 special purpose acquisition companies (SPACs) were created in 2019, within a year, an additional 247 SPACs raised $80 billion and accounted for more than 50% of the new publicly listed U.S. companies (Bazerman and Patel 2021).[[1]](#footnote-1) By 2021, SPACs as an alternate venue for capital raising grew by more than ten times raising $144.52 billion (Ritter 2022). The explosive growth in SPACs has garnered the attention of regulators and media. One perception is that the reporting/disclosure requirements for initial public offerings by SPACs and for their subsequent business combinations with private operating companies (“de-SPAC” transactions) are less complete/reliable than for traditional IPOs (e.g., AFR 2021; IAC 2021; Rodrigues 2021; SEC 2022). To address any disparity in the information risk between de-SPACs and traditional IPOs, the U.S. Securities Exchange Commission (SEC) proposed new rules to strengthen the disclosure and financial reporting around SPAC and de-SPAC transactions (SEC 2022).[[2]](#footnote-2)

The preliminary findings of Kim, Park, Peterson, and Wilson (2022) that, relative to traditional IPOs, de-SPACs are associated with more restatements, with more internal control problems, and with more non-timely filings (i.e., lower financial statement quality) are consistent with information risk being higher for de-SPAC transactions. In this study, we formally investigate whether: (1) the information risk is higher for companies going public by merging with SPACs, which we call “SPAC-IPOs,” than others going public via traditional IPOs, which we call “non-SPAC-IPOs” (information risk hypothesis), and (2) the information risk is an explanation for the stock underperformance of SPAC-IPOs (Gahng et al. 2021). We define information risk as the probability that the information circulated by the company will be false or misleading (Louwers, Sinason, Strawser, Thibodeau, and Blay 2018).

A SPAC is typically established by a small group of experienced executives, or sponsors, who first raise capital and then enable a private company to become public by merging with the SPAC (Rodrigues and Stegemuller 2021). This operational structure increases the information risk in SPAC-IPOs because of inherent agency problems.[[3]](#footnote-3) We investigate several factors that may amplify this inherent information risk. First, we reexamine the findings in Kim et al. (2022) that SPAC-IPOs are associated with lower financial reporting quality than non-SPAC-IPOs. Because of a small sample (45 SPACs), and a bias towards larger SPACs (their sample is limited to larger Compustat firms), the estimates in Kim et al. (2022) may be biased downwards and unreliable (variance components may be underestimated). Estimates from a sample without such a selection bias are likely to provide a more accurate assessment of the true magnitude of the differences in financial reporting quality between SPAC-IPOs and non-SPAC-IPOs.

Second, we posit that the economic demand for non-Big 4 auditors is higher in SPAC-IPOs than in non-SPAC-IPOs. Because investors rely on the SPAC-sponsors’ ability to identify valuable targets, there may be less need for external monitoring of SPAC-IPOs. Potential conflicts of interest might also incentivize sponsors to avoid being monitored by high-quality independent monitors. Third, we conjecture that SPAC-IPOs are associated with lower earnings and accruals persistence than non-SPAC-IPOs. Because SPAC shareholders rely on their sponsors’ ability to value targets, earnings quality may be less relevant in SPAC-IPOs than in non-SPAC-IPOs. Also, to comply with GAAP reporting for public companies, SPAC-IPOs might need to make transitory accounting adjustments to meet SEC (PCAOB) reporting (auditing) requirements,[[4]](#footnote-4) thereby eroding persistence.

Fourth, we posit that SPAC-IPOs are more likely to avoid listing on the NYSE than non-SPAC-IPOs. Because it costs a company considerably more to list on the NYSE than to list on the NASDAQ or OTC, and since the NYSE initial listing requirements are also more stringent, SPAC-sponsors may avoid listing on the NYSE. Moreover, since stock prices on the NASDAQ tend to be more volatile than on the NYSE (Jiang, Kim, and Wood 2011), and warrant prices increase with volatility (Li and Wong 2005), SPAC sponsors and shareholders, who typically get warrants, might have a stronger preference for the NASDAQ to benefit from attractive warrant prices because of the added volatility. Fifth, we expect SPAC-IPOs to get delisted from a stock exchange more frequently than non-SPAC-IPOs. The higher frequency of delisting might be the outcome of a SPAC-IPO’s inability to meet its projections, to generate future cash flows or profits quickly, to meet its working capital needs, or to acquire additional funding (see Brown, Shakeout Threatens SPACS, WSJ, May 28-29, 2022).[[5]](#footnote-5)

Finally, and more importantly, we hypothesize that the higher information risk in SPAC-IPOs is a key explanation for the stock underperformance of SPAC-IPOs documented by Gahng et al. (2021) and Dimitrova (2017). If our proxies convey negative signals about the riskiness of SPAC-IPOs’ future performance, and this information risk represents a non-diversifiable risk factor, we expect investors to price this information.

Our SPAC sample is compiled from the *SPACInsider* database between 2010 and 2020. To avoid sample selection biases arising because Compustat coverage is limited to larger firms, we hand collect missing data from SPAC disclosures/filings with the SEC. Using traditional IPOs (non-SPAC-IPOs) as benchmark companies for our empirical tests, we document that SPAC-IPOs’ financial reporting problems are much more severe than previously documented. We find that a SPAC-IPO is nearly 350% (900%) as likely to be associated with a material weakness (restatement) as a non-SPAC-IPO, while the corresponding number in Kim et al. (2022) is 241% (293%).[[6]](#footnote-6) For the IPO year, we find no instances of non-timely annual filings by non-SPAC-IPOs, but 19% of the SPAC-IPOs are associated with delays in their annual filings (the corresponding number in Kim et al. is 14.6%).[[7]](#footnote-7)

Consistent with the first hypothesis, we find that SPAC-IPOs are more likely to retain non-Big 4 auditors than non-SPAC-IPOs. Holding other factors constant, our estimates suggest that a SPAC-IPO is eleven times as likely to retain a non-Big 4 auditor as a non-SPAC-IPO. We find that earnings persistence of SPAC-IPO firms is only 81% of that of non-SPAC-IPO firms. When we decompose earnings into cash flows and accruals, we find that the cash flows (accruals) persistence of SPAC-IPO firms is only 87% (46%) of that of non-SPAC-IPO firms. Therefore, consistent with the second hypothesis, we find that SPAC-IPOs are associated with lower earnings/accruals persistence than non-SPAC-IPOs. Consistent with the third and fourth hypotheses, we find that SPAC-IPOs are five times more likely to avoid listing on the NYSE and to get delisted from a stock exchange than non-SPAC-IPOs.

Because omitted correlated variables or differences in firm characteristics might also explain our results, we perform two distinct tests. First, we investigate cross-sectional variations within the SPAC-IPO sample by drawing on agency and risk considerations. Agency and information problems are expected to be lower in SPAC-IPOs when sponsors serve on their boards and act as internal monitors than when they do not. Similarly, agency/information problems are expected to be lower in SPAC-IPOs when a de-SPAC involves PIPE (private investment in public equity) transactions. PIPEs can act as external monitors and demand greater transparency/higher quality from SPAC-IPO management. Also, because a SPAC must find a merger target within two years of its formation, a target merging soon after the formation of a SPAC is likely to be less risky than one that merges with a SPAC at a later date. Our expectation is that the demand for audit-, control- and reporting-quality vary with differences in agency problems and risk. Second, we replicate our results using entropy balancing (e.g., Chapman et al. 2019; Francis and Wang 2021; McMullin and Schonberger 2020). We find mostly consistent results from the added tests.

To assess the magnitude of the information risk confronting SPACs across all the risk metrics, we construct an aggregate information risk score (*RISK*) by combining our individual information risk proxies.[[8]](#footnote-8) *RISK* is 71% higher for SPAC-IPOs than for non-SPAC-IPO for the initial year (Year t). For the Year t+1 (t+2), *RISK* is 77% (82%) higher for SPAC-IPOs than for non-SPAC-IPO. Thus, the heightened SPAC-IPO information risk does not dissipate, rather it increases monotonically for the three post-IPO years. Finally, as in prior studies, we find that SPAC-IPOs underperform following their merger with SPACs. More importantly, we document a robust relationship between *RISK* and SPAC-IPO stock returns for the post-merger periods. The results suggest that our information risk proxy is priced by investors.

The SEC (2022) proposed new rules suggest that the SPAC and de-SPAC transactions entail higher information risk than traditional IPO transactions. Our findings confirm that SPAC/SPAC-IPO investors are more at-risk than traditional IPO investors. The proposed SEC rules are expected to enhance the investors’ understanding of the information risk in de-SPAC transactions. For instance, the additional disclosures would lead to a better understanding about the inherent conflicts of interests, about the sources of dilution, about the fairness of these transactions, and about the sponsors' compensation, thereby lowering some of the uncertainty in de-SPAC transactions. Similarly, applying the legal liability provisions of the 1933 Act to de-SPAC transactions provide related parties with powerful incentives to increase the reliability of the reported/disclosed information (e.g., Venkataraman, Weber, and Willenborg 2008). Therefore, we expect the proposed rules to lower the information risk in de-SPAC transactions.

The rest of the paper is organized as follows. Section 2 describes the background on SPACs. Section 3 develops the related hypotheses. Section 4 describes the research design while Section 5 provides details about the sample selection. Section 6 presents the empirical results. Finally, Section 7 offers our conclusions.

1. **Background**

*2.1. SPAC Life Cycle*

As Figure 1 outlines, the life cycle of a SPAC can be partitioned into five distinct phases (Deloitte 2020).A SPAC’s life begins with its initial formation, followed by its IPO, its search for a target, a shareholder merger vote, and, finally, the close of an acquisition (or the return of the SPAC’s proceeds to investors in case of no merger).

During the formation phase, the sponsor, and often its management team, launches a SPAC by paying a nominal amount for an equity stake in the SPAC (“founders’ stock” or the “promote”). The founders’ stock (representing approximately 20 percent of the stock in the SPAC after its IPO) is intended as compensation for identifying a promising target and consummating a merger. The SPAC also selects legal counsel and underwriters and establishes its governing documents.

In the IPO (initial public offering) phase, a SPAC begins the process of making its public offering by filing an initial registration statement with the SEC and responding to any SEC comments. The SPAC then raises capital by issuing units (common shares and warrants), with the proceeds being held in a trust until a target is acquired. Subsequent to an IPO, common stock and warrants (usually exercisable after a merger is consummated) become separate tradable units.

The search for a suitable acquisition (target search phase) is similar to the process in a M&A transaction, whereby sponsors vet potential targets through an accelerated financial, legal, tax, and due diligence process. Although SPACs have historically been focused on positive EBITDA companies, more recently that has not always been the case.

The SEC proxy rules require SPAC shareholder approval before the completion of the de-SPAC process (Shareholder vote phase). Therefore, prior to the merger of the SPAC with a private company, SPACs are required to file a proxy statement with the SEC, obtain and respond to the SEC’s comments, mail the proxy to the SPAC’s shareholders, and hold a shareholder meeting. The sponsors and other founder shareholders typically commit at founding to vote their interest (generally representing 20 percent) in favor of a transaction, which decreases the number of additional common shares needed to vote in favor of the merger.

During the final acquisition close phase (de-SPAC), the target merges into the SPAC and becomes a publicly traded entity.[[9]](#footnote-9) A special Form 8-K (“Super 8-K”) must be filed within four days of the acquisition and it must contain substantially the same information that would be required in a registration statement for companies that go through a traditional IPO. Further, the sponsors’ founders’ shares and warrants are locked up for a specified period (the “lock-up period”) starting from the date of the Super 8-K filing.[[10]](#footnote-10) The lock-up period is typically one year, subject to negotiation at the inception of the SPAC.

*2.2. Financial Reporting Requirements*

According to Deloitte (2020), the financial reporting requirements for a target in a SPAC merger must be completed in a compressed SPAC merger timeline leading up to the proxy statement or Form S-4 filing. The reporting requirements include preparation of the following items: (1) annual financial statements in compliance with public company GAAP, with the SEC rules, and with PCAOB standards, (2) interim financial statements, (3) pro-forma financial information, (4) MD&A and market risk disclosures, and (5) other nonfinancial information for a Form S-4 (proxy statement) and Super 8-K.

*2.3. Differences between SPAC- and Non-SPAC-IPOs*

There are several notable differences between SPAC- and non-SPAC-IPOs. First, contrary to a traditional IPO, a SPAC acquisition allows a private company to effectively go public without making arrangements directly with underwriters, conducting roadshows, or preparing a prospectus to sell its securities to the public. A SPAC merger (from the merger announcement date to the completion date) usually occurs in 3–6 months on average, while an IPO usually takes 12–18 months. Second, a target company being acquired by a SPAC is able to privately negotiate a fixed valuation with the SPAC-acquirer by setting a fixed dollar “purchase price” which may not be the case with the pricing in traditional IPOs especially in a volatile market.[[11]](#footnote-11) Third, SPAC sponsors additionally raise debt or PIPE funding to complete the transaction. This funding also ensures a completed transaction even if some SPAC investors redeem their shares. Fourth, SPAC transactions often present an opportunity for companies to simplify deal terms by using a public-company-style acquisition approach based on an enterprise value without negotiating working capital, cash, debt, or transaction expense adjustments. Fifth, SPAC sponsors often are experienced financial and industrial professionals. They can tap into their network of contacts to offer management expertise or take on a role themselves on the board of the target firm after it becomes a public company. In contrast, traditional IPOs are not associated with any type of sponsors.

*2.4. New SEC Reporting Requirements*

On March 30, 2022, the SEC (2022) announced new rules intended to enhance the disclosure and investor protections in SPACs and in subsequent business combinations between SPACs and private operating companies. The following is a brief summary of the four key provisions of the new rules.

* ***Disclosure and Investor Protection***. The proposed rule would require added disclosures: (1) with respect to compensation paid to sponsors, potential conflicts of interest, dilution, and the fairness of the business combination, for both the SPAC IPOs and de‑SPAC transactions, (2) about the target company, the background of the transaction, material terms and effects of the proposed de-SPAC transaction, and (3) about the age of financial statements, the SPAC’s financials following the closing of a de-SPAC transaction, and the financial statements required for businesses acquired by the target company.
* ***Business Combinations Involving Shell Companies***. The proposed rule requires that: (1) the SPAC’s business combination be treated as a sale of securities requiring the filing of a registration statement thereby treating the de-SPAC transaction as a sale for the purposes of the Securities Act of 1933, and (2) the underwriters of a SPAC’s IPO, and those that facilitate the de-SPAC transaction, be considered as underwriters within the meaning of Section 2(a)(11) of the Securities Act of 1933, and (3) the target company be a co-registrant when a SPAC files a registration statement on Form S-4 or Form F-4 for a de-SPAC transaction, i.e., the target company’s directors and officers are held accountable to investors by making them liable for disclosures in the registration statement.
* ***Projections***. The proposed rules seek to amend the definition of “blank check company” to make the liability safe harbor in the Private Securities Litigation Reform Act of 1995 (PSLRA) for forward-looking statements, such as projections, unavailable in disclosure documents filed by SPACs.
* ***New Safe Harbor under the Investment Company Act of 1940***. Creates a safe harbor such that, if a SPAC: (1) maintains assets comprising only cash items, government securities and certain money market funds, (2) seeks to complete a de-SPAC transaction after which the surviving entity will be primarily engaged in the business of the target company, and (3) enters into an agreement with a target company to engage in a de-SPAC transaction within 18 months after its IPO and complete its de-SPAC transaction within 24 months of such offering, it will not be considered as an investment company under the Investment Company Act of 1940. Thus, SPACs may rely on the safe harbor provisions to provide forward-looking statements and avoid being subject to registration as investment companies under the Investment Company Act of 1940.

1. **Hypotheses Development**

Since the precision of financial information is lower for companies with lower quality financial statements (Reidl and Serafeim 2011), one implication of the Kim et al. study is that the information risk is higher for SPAC-IPO investors than for non-SPAC-IPO investors. We consider additional attributes that exacerbate this information risk.

*3.1. Information Risk Sources*

*3.1.1 Economic Demand for Auditing Services*

The value of auditing arises from its ability to assure that the financial statements faithfully reflect the client's underlying economics (DeFond and Zhang 2014). Lower information asymmetry and agency conflicts decrease the demand for greater third-party assurance. As industry experts and skilled professionals, sponsors are likely to possess proprietary information about private companies’ operations and management thereby lowering information asymmetry problems between management and outside investors that may be descriptive of traditional IPOs.[[12]](#footnote-12) Further, the large equity ownership stake of sponsors in the merged company reduces potential agency conflicts between management and outside investors. Consequently, the benefits from retaining high-quality auditors like the Big 4 are lower in SPAC-IPOs than in non-SPAC-IPOs. Because the Big 4 charge more than non-Big 4 (Palmrose 1986; Choi, Kim, Liu, and Simuic 2008; Ghosh and Siriviryakul 2018), the net benefits of retaining a Big 4 are lower in SPAC-IPOs than in non-SPAC-IPOs. Therefore, for efficiency reasons, SPAC-IPOs are more likely to retain non-Big 4 auditors than non-SPAC-IPOs.

Alternatively, the presence of sponsors may exacerbate agency conflicts and/or information asymmetry problems. Because their future compensation is lost in the absence of a merger, sponsors also have incentives to avoid dissolution of a SPAC by merging with riskier targets. Therefore, SPAC-sponsors have powerful incentives to avoid being monitored by Big 4 auditors who are more likely to underscore the riskiness of de-SPAC transactions. Both arguments suggest that the preference for non-Big 4 auditors is higher in SPAC-IPOs than in non-SPAC-IPOs. Therefore, our first hypothesis states as follows.

*Hypothesis 1: SPAC-IPOs are more likely to retain non-Big 4 auditors than non-SPAC-IPOs.*

Because financial reporting and disclosure quality (or the precision of financial information) are lower for companies with non-Big 4 auditors than with Big 4 auditors, the first hypothesis suggests that the information risk is higher for SPAC-IPOs than for non-SPAC-IPOs.

*3.1.2. Earnings and Accruals Persistence*

Earnings and accruals persistence are expected to be lower in SPAC-IPOs than in non-SPAC-IPOs for several reasons. First, because SPACs rely on sponsors’ ability to identify private companies with attractive growth opportunities, outside SPAC-investors may attach less importance to reported earnings and accruals quality. Second, weaker disclosure controls and procedures might have an indirect effect on the quality of earnings/accruals. Third, to the extent SPAC-IPOs are less likely to retain Big 4 auditors, and financial reporting quality is a function of auditor size, we expect earnings/accruals persistence to be lower in SPAC-IPOs than in non-SPAC-IPOs. Fourth, SPAC transactions involve complex financial reporting including i[dentifying the accounting acquirer](https://dart.deloitte.com/USDART/home/publications/deloitte/financial-reporting-alerts/2020/spac-transactions#SL675017964-542464), accounting for [earn-out arrangements](https://dart.deloitte.com/USDART/home/publications/deloitte/financial-reporting-alerts/2020/spac-transactions#SL718698580-542464) and [complex financial instruments](https://dart.deloitte.com/USDART/home/publications/deloitte/financial-reporting-alerts/2020/spac-transactions#SL725742806-542464), and p[ublic company disclosure requirements](https://dart.deloitte.com/USDART/home/publications/deloitte/financial-reporting-alerts/2020/spac-transactions#SL675017840-542464) and adoption dates for new accounting standards (PwC 2021), which might individually and collectively erode earnings quality.

*Hypothesis 2: Earnings and accruals persistence is lower in SPAC-IPOs than in non-SPAC-IPOs.*

Our second hypothesis also suggests that information risk is higher for SPAC-IPOs than for non-SPAC-IPOs because financial reports are less informative about the future prospects of the company when earnings and accruals are less persistent.

*3.1.3. Stock Exchange Listing Choice*

There are several potential explanations for SPAC-IPO firms favoring NASDAQ or OTC over NYSE. First, the exchange related costs are considerably higher on NYSE. For instance, the listing fee on the NASDAQ exchange is between $50,000 and $75,000 while the listing fee on the NYSE exchange is $250,000. Further, the annual listing fee for NASDAQ exchange is only $27,500 while that cost on the NYSE exchange is more than eighteen times higher ($500,000). To minimize their upfront cost, SPAC-sponsors may not prefer the NYSE. After the SPAC merges with a target, the SPAC-IPO typically continues to trade on the same exchange as the SPAC.

Second, a common perception is that the NASDAQ stock exchange is geared towards growth stocks with potentially more volatile stock prices (Jiang, Kim, and Wood 2011). Since SPAC sponsors and shareholders get warrants along with equity, they might have a stronger preference for the NASDAQ exchange because the added volatility is likely to generate more attractive warrant prices (Li and Wong 2005).[[13]](#footnote-13) Finally, because the NYSE listing requirements are more stringent than other stock exchcange listing requirements, SPAC/SPAC-IPOs may avoid NYSE.[[14]](#footnote-14) Therefore, our third hypothesis states as follows.

*Hypothesis 3: SPAC-IPOs are more likely to avoid listing on the NYSE than non-SPAC-IPOs.*

The third hypothesis again suggests higher information risk for SPAC-IPOs than for non-SPAC-IPOs because, relative to other stock exchanges, NYSE requires more detailed listing disclosures, which is likely to lower the information risk for NYSE companies. For instance, NYSE additionally requires initial listing requests to include (1) corporate bylaws, (2) five years of annual shareholder reports, (3) the current year’s Form 10-K, (4) a proposed schedule of expected stock distribution, and (5) a proxy statement from the current year’s annual shareholder meeting.

*3.1.4. Delisting*

Most firms delisted from a stock exchange are unable to meet the numerical standards of an exchange including minimum net income, a minimum number of round lot shareholders, and a minimum market value of shares outstanding. Additional criteria may include failure to meet good accounting practices, creation or perpetuation of conflicts of interest, inability to meet current debt obligations, and/or abnormally low selling price or trading volume (Sanger and Peterson 1990). Firms are also delisted from a stock exchange because of extreme poor performance.

Because SPAC-IPOs share some of the characteristics associated with delisted companies, the likelihood of a delisting is higher for a SPAC-IPO than for a non-SPAC-IPO. For instance, SPAC-IPOs underperform in the long run (Gahng et al. 2021 and Dimitrova 2017), they issue overly optimistic revenue growth and other long-term projections which are subsequently revised downward (Blankespoor, Hendricks, Miller, and Stockbridge Jr 2022), and they are plagued with various financial reporting problems (Kim et al. 2022). Anecdotal evidence is also consistent with our expectation. For instance, an article in WSJ (May 28-29, 2022) states “the [SPAC boom](https://www.wsj.com/articles/when-spacs-attack-a-new-force-is-invading-wall-street-11611378007?mod=article_inline) brought a wave of companies to the public markets promising years of rapid growth and profits to investors. Two years since [the boom](https://www.wsj.com/articles/spacs-are-the-stock-markets-hottest-trend-heres-how-they-work-11617010202?mod=article_inline) began, many of these companies are already warning they may go bust.”

*Hypothesis 4: SPAC-IPOs are more likely to get delisted from a stock exchange than non-SPAC-IPOs.*

Our fourth hypothesis again suggests that the information risk is higher for SPAC-IPOs than for non-SPAC-IPOs because prior studies conclude that delisted companies are associated with higher information risk (Sanger and Peterson 1990).

*3.2. Information Risk and Stock Returns*

Prior studies find that SPAC-IPOs tend to underperform the market. For instance, Gahng et al. (2021) find that an investor who purchases a stock of the SPAC-IPO on the first day the company starts trading publicly and holds the stock for one (three) years, the mean return for the holding period is -8.1% (-0.7%). The equally weighted market return for the corresponding holding period is 16% (41.1%). Therefore, the market-adjusted return for the one (three) year holding period is -24.7% (-40.4%). Using Fama-French three-factor model, Gahng et al. (2021) find that the average monthly one- (three-) year risk-adjusted excess return is about -1.7% (-1.9%).

Prior theoretical and empirical studies draw linkages between information risk and the cost of equity, i.e., the required rate of return (e.g., Lambert, Leuz and Verrecchia 2007; Kravert and Shevlin 2010; Reidl and Serafeim 2011). Drawing on this line of literature, we hypothesize that if the firm-specific disclosures identified in our study serve as negative information signals about SPAC-IPOs’ future performance, and the information risk represents a non-diversifiable risk factor, we expect investors to price this information. Under these conditions, the information risk proxies should explain the SPAC-IPOs’ underperformance. Conversely, if the information risk does not represent a non-diversifiable risk factor, we do not expect investors to price this information. Stated in an alternative form,

*Hypothesis 5: The information risk is priced by SPAC-IPO investors.*

1. **Research Design**

While both SPAC- and non-SPAC-IPOs raise public funds, they vary in their methods to raise those funds. Exploiting this key differential, we use matched non-SPAC-IPOs as benchmark companies for our empirical tests, where matching is done by year and the amount of funds raised (without replacement). For the SPAC-IPO, the event year corresponds to the year the target is acquired by the SPAC. For the non-SPAC-IPO, the event year corresponds to the year the IPO is completed.

*4.1. Information Risk Proxies*

*4.1.1. Economic Demand for Auditing Services*

To estimate the differences in the economic demand for auditing services between SPAC- and non-SPAC-IPOs, we estimate a logistic regression similar to the Lawrence, Minutti-Meza, and Zhang (2011) specification. Additionally, we include funds raised from the IPO/SPAC (Willenborg 1999), whether the SPAC/IPO is an emerging growth company, and whether the company is incorporated outside the U.S. Therefore, we estimate the following model:

*NONBIG4 = β0 + β1SPAC-IPO+ β2PROCEEDS+ β3ASSETS + β4ASSETTURNOVER + β5CURRATIO + β6LEVERAGE + β7ROA + β8EGC + β9FOREIGNFIRM + FIXED EFFECTS +ε*  (1)

The dependent variable (*NONBIG4*) is set to one if the auditor is not a Big 4 firm, and zero otherwise. *SPAC-IPO* is an indicator variable equal to one for target companies acquired by SPACs, and zero for non-SPAC-IPOs. According to Hypothesis 1, *β1* is positive. The control variables are defined as follows. *PROCEEDS* is the natural logarithm of proceeds from the SPAC or IPO transaction. *ASSETS* is the natural logarithm of total assets. *ASSETTURNOVER* is the ratio of total revenue to total assets. *CURRATIO* is current assets to current liabilities. *LEVERAGE* is the ratio of total debt to total assets. *ROA* is the ratio of net income before extraordinary items to total assets. *EGC* equals one if a company is an emerging growth company, and zero otherwise.[[15]](#footnote-15) *FOREIGNFIRM* is an indicator variable equal to one if the firm is incorporated outside of the U.S., and zero otherwise. We also include industry fixed effects (Fama-French 12 industry classification).

*4.1.2. Earnings and Accruals Persistence*

Prior studies use earnings persistence as a proxy for financial reporting quality because higher earnings persistence suggests more predictable earnings (e.g., Penman and Zhang 2002; Francis, LaFond Olsson, and Schipper 2004). Consistent with the premise that earnings persistence serves as metric for earnings/reporting quality, empirical studies document that more persistent earnings are associated larger stock price reactions (Kormendi and Lipe 1987; Collins and Kothari 1989) and with lower costs of capital (Francis et al. 2004). Therefore, we rely on earnings persistence as a second proxy for financial reporting quality. To capture differences in earnings persistence between SPAC- and non-SPAC-IPOs, we estimate the following model.

*EARNt = γ0 + γ1SPAC-IPO + γ2EARNt-1 + γ3SPAC-IPO×EARNt-1 + FIXED EFFECTS* + *εt* (2)

*EARN* is income before extraordinary items scaled by the end of the year total assets for year t. The coefficient *γ2* measures earnings persistence of non-SPAC-IPOs, while *γ3* measures the incremental difference in earnings persistence between SPAC- and non-SPAC-IPOs. According to Hypothesis 2, *γ3* is negative. We also decompose earnings into accruals and cash flows to investigate whether the differences in persistence are attributable to the variations in the predictability of accruals. Accordingly, we estimate the following model.

*EARNt = γ0 + γ1SPAC-IPO + γ2CFOt-1 + γ3SPAC-IPO×CFOt-1 + γ4ACCt-1 + γ5SPAC-IPO×ACCt-1*

*+ FIXED EFFECTS* *+ εt* (3)

*CFO* is cash flows from operationsand *ACC* is income before extraordinary items less cash flows from operations. Both *CFO* and *ACC* are scaled by the end of year t total assets.[[16]](#footnote-16) The coefficient *γ4* measures the ability of accruals to predict future earnings in non-SPAC-IPO. The coefficient *γ5* measures whether the ability of accruals to predict future earnings in SPAC-IPOs is incrementally different from that in non-SPAC-IPOs.

*4.1.3. Stock Exchange Listing Choice*

Firms on the NYSE stock exchange are perceived as being a more stable with less volatility than those traded on the NASDAQ stock exchange. Therefore, we rely on the stock exchange listing choice as an additional proxy for differences in risk between SPAC- and non-SPAC-IPOs. As in Bushee and Leuz (2005), we model stock exchange listing choice as a function of size, profitability, and leverage. We augment the model with the IPO proceeds to capture the amount of capital firms are raising, segments to measure firm complexity, and whether or not a firm is an emerging growth company as they are subject to lower disclosure requirements.

*NONNYSE = β0 + β1SPAC-IPO+ β2PROCEEDS+ β3ASSETS+ β4SEGMENTS + β5ROA + β6LOSS + β7LEVERAGE + β8EGC + FIXED EFFECTS + ε* (4)

The dependent variable *NONNYSE* equals one for companies that list on NASDAQ or OTC, and zero otherwise. According to Hypothesis 3, *β1* is positive.

*4.1.4. Delisting*

Delisting from stock exchanges can be voluntary or involuntary; voluntary delistings are the result of a choice by the firm whereas involuntary delistings arise from breaches of exchange regulations and/or bankruptcy (Macey et al. 2008). Thus, we rely on involuntary delistings as an additional proxy for differences in risk between SPAC- and non-SPAC-IPOs as they contain information about the beliefs of the stock exchange regarding the firms quality, its future prospects and its inability to meet the listing requirements. We model the likelihood of a delisting as follows.

*DELISTED = β0 + β1SPAC-IPO+ β2PROCEEDS+ β3ASSETS+ β4ASSETTURNOVER + β5CURRATIO + β6LEVERAGE + β7ROA + β8ZSCORE + β9EGC + β10FOREIGNFIRM + ε* (5)

The dependent variable *DELISTED* equals one for companies that are involuntarily delisted from the stock exchange, and zero otherwise. According to Hypothesis 4, *β1* is expected to be positive. The control variables model the determinants of delisting. IPO proceeds (*PROCEEDS*) capture the amount of capital firms are raising; more capital helps meet the minimum capital requirements of the stock exchanges. Additionally, larger (*ASSETS*), more efficient (*ASSETTURNOVER*), more liquid (*CURRATIO*), more solvent (lower *LEVERAGE*), and more profitable (*ROA*) firms should have a lower likelihood of delisting. Firms subject to less bankruptcy risk (*ZSCORE*) should also have a lower likelihood of delisting while emerging growth companies (*EGC*) are younger and more volatile which may lead to a higher probability of delisting. Foreign firms (*FOREIGNFIRM*) are more likely to be dual listed in their home country and the U.S. and potentially more likely to delist and remain trading only on their home stock exchange.

*4.2. Information Risk Metric and Stock Return*

As in Gahng et al. (2021), we use market-adjusted one-year buy-and-hold stock return (*CAR*) as a measure of the stock return underperformance of SPACs. We compute *CAR* for Year t (the year the SPAC-IPO merges with the SPAC and starts trading publicly), Years t+1 and t+2. The computation of *CARt* is slightly different from *CARt+1* and *CARt+2*. Because the number of trading days for the Year t is expected to vary across SPAC-IPOs depending on the deal closing date and the fiscal year-end of the company, we compute annualized *CARi,t* for SPAC-IPO *i* as follows.

(6)

where is the SPAC-IPO deal closing date, is the last trading day in the third month after the fiscal year end of , is the delist day, is the day *d* SPAC-IPO common stock return, is the value-weighted CRSP index return for day , is the total number of trading days to compute . We end our cumulating period three months after the fiscal year-end to ensure that information contained in the annual reports can be disseminated into the stock price within the return holding period. We compute *CARi,t+1*for SPAC-IPO *i* as follows.

(7)

where is the first trading day of the fourth month of fiscal year t+1, is the last trading day in the third month after the fiscal year end of t+1.

We construct an aggregate information risk metric (*RISK*) by combining the low financial reporting quality metrics in Kim et al. (2022) with our information risk proxies. Specifically, *RISK* is the sum of the following metrics where each individual metric is assigned a score of one if SPAC-IPO is associated with a an internal control weakness, a restatement announcement, a non-timely annual filing, a non-Big 4 auditor, low persistence, or non-NYSE listing (NASDAQ or OTC). The low persistence equals one if a SPAC-IPO accruals are above the median value, and zero otherwise. We use the restatement announcement (and not whether a current period financial statement is restated subsequently) because the stock market reacts to the announcement of a restatement of a prior period financial statement. Also, by construction, investors will not know whether current period financial statements are subsequently restated. For the same reason, we do not include the subsequent delisting of a SPAC-IPO in the measurement of *RISK*.

To examine the association between SPAC-IPO pricing and information risk, we estimate the following OLS regression specification.

*CAR = β0 + β1RISK+ ε* (8)

According to Hypothesis 5, *β1* is expected to be positive if information risk is priced by investors.

1. **Data and Sample Selection**

*5.1. Sample Selection*

Our SPAC sample consists of all SPAC transactions that successfully completed an acquisition of a private target company between 2010 and 2020 as listed in *SPACInsider* database. *SPACInsider*, a trusted resource for current information on the SPAC market, provides detailed SPAC information going back to 2009.[[17]](#footnote-17) Between 2010 and 2020, *SPACInsider* lists 163 SPACs that successfully acquired a private target company via a merger or an acquisition. We could not locate SEC filings for 10 target companies following their merger with a SPAC. Additionally, financial data are yet to be filed by eight target companies. Thus, our final sample consists of 145 successful SPAC acquisitions completed between 2010 and 2020. We obtain financial statement data from Compustat, audit-related data from Audit Analytics, and returns data from CRSP. All other data not included in these databases are hand collected.

Following the timing convention from prior literature on IPOs and reverse mergers, we define Year t as the fiscal year the SPAC acquisition is completed (e.g., Teoh, Welch, and Wong 1998; Armstrong et al. 2016; and Abbott, Gunny, and Pollard 2017). Panel A of Table 1 details the yearly distribution. 72.5 percent of the sample is concentrated between 2017 and 2020 of which one-third of the transactions occur in 2020. These findings show the dramatic rise in prominence of SPACs as a viable way to become public. Panel B of Table 1 provides industry composition using the Fama-French (1988) 12-industry classifications. A majority of the SPAC-IPOs are in finance, wholesale, and retail. Finally, Panel C details the country of incorporation of the companies that become public via SPAC transactions. The majority, 76.6 percent, are incorporated in the U.S. with a large proportion of the sample also incorporated in tax haven countries (e.g., Cayman Islands, British Virgin Islands, etc.).

*5.2. Sample Description*

For each SPAC-IPO observation, we identify a matched company that raised public funds via a traditional IPO. We match on SPAC acquisition year (Year t) and on the amount of funds raised from the public offering (*PROCEEDS*) without replacement. Panel A of Table 2 presents the descriptive statistics for the SPAC-IPO and non-SPAC-IPO firms for Year t. The median proceeds from the SPAC- and non-SPAC-IPOs are identical ($176 million) which is not surprising because we match on proceeds.

The average total assets of the SPAC-IPO firms is $713 million while the median is $310 million. The non-SPAC-IPO firms have comparable average total assets, but the median total assets is statistically significantly larger at $447 million. The variables capturing firm efficiency (*ASSETTURNOVER*), liquidity and risky current assets (*CURRATIO*), performance (*ROA* and *LOSS*), and financial leverage (*LEVERAGE*) have means (medians) of 0.81 (0.47), 4.23 (1.49), -0.20 (-0.05), 0.74 (1.00), and 0.29 (0.24), respectively, for SPAC-IPO firms. The corresponding numbers for the non-SPAC-IPO firms are 0.51 (0.32), 6.06 (2.66), -0.14 (-0.08), 0.70 (1.00), and 0.17 (0.06) with all differences being significant except for *ROA* and *LOSS*. SPAC-IPO firms have more segments (mean natural logarithm 0.27) and discontinued operations (mean 0.03) than non-SPAC-IPO firms (means of 0.03 and 0.00, respectively). SPAC-IPO firms exhibit less financial distress than traditional IPO firms; 57 percent of SPAC-IPO companies have an Altman-Z score greater than or equal to 3.0 compared to 28 percent for traditional IPO companies. More SPAC-IPO firms qualify as emerging growth companies than non-SPAC-IPO firms, while the number of firms incorporated outside of the U.S. is similar between the two groups.

Panel B of Table 2 presents the means for the SPAC-IPO and non-SPAC-IPO firms after entropy balancing on the first moment. As expected, entropy balancing eliminates differences in the means between the two groups which reduces any concerns that the differences between treatment and control groups in the regression specifications are attributable to the differences in the control variables.

1. **Empirical Results**

***6.1. Information Risk for the IPO Year***

*6.1.1. Financial Reporting Quality*

Kim et al. (2022) limit their sample to 45 SPAC-IPOs covered by Compustat. Since Compustat tends to restrict its coverage to larger firms, and bigger firms are less likely to be associated with financial reporting problems, their findings might underestimate the true economic magnitude of the financial reporting problems. We re-examine their findings using a comprehensive sample of 145 SPAC-IPOs (we hand-collect any missing data from SEC filings).

As in Kim et al. (2022), in Panel A of Table 3, we find that material weaknesses in internal controls, restatement of financial statements, and non-timely annual filings occur more frequently for SPAC-IPOs than non-SPAC-IPOs. We find that while non-SPAC-IPO annual filings are never delayed in their first year, 19% of the SPAC-IPOs encounter delays in their annual filings in the first year. In Panel B, when we analyze differences in financial reporting quality using logistic regressions, and controlling for other factors that affect the outcome variables, we find consistent results (with and without entropy balancing).[[18]](#footnote-18) Holding other factors constant, our estimates suggest that a SPAC-IPO is nearly 350% (900%) as likely to be associated with a material weakness (restatement) as a non-SPAC-IPO. The corresponding number in Kim et al. (2022) is 241% (293%). Thus, our investigation indicates that the financial reporting problems are much more severe than previously documented. Because financial statement problems are a key determinant of information risk, our results suggest that the information risk is much higher for a SPAC-IPO than for a non-SPAC-IPO.

In Table 4, we tabulate the various issues related to material weaknesses, restatements, and non-timely filings. Panel A presents the causes of material weaknesses by the type of internal control issues and by the type of accounting policy issues, as disclosed under Section 302 of SOX (2002). We find that issues related to acquisition integration and management reviews are more common in SPAC-IPOs (43% and 34%, respectively) than in non-SPAC-IPOs (0% and 15%, respectively). The frequency of the other types of internal control issues (e.g., segregation of duties, financial closing processes, information technology access, and security) are similar across the two groups. When we analyze the types of accounting policy issues, we find that accounting issues related to warrants, revenues, liabilities and accrued expenses, and complex accounting issues (e.g., related party transactions, affiliated subsidiaries, and acquisitions) are more common in SPAC-IPOs than in non-SPAC-IPOs.

In Panel B, we find that, relative to non-SPAC-IPOs, SPAC-IPO restatements lead in the following accounting areas: (1) warrants, (2) liabilities and accrued expenses, (3) complex accounting issues including foreign currency operations, related party transactions, leases, and EPS, (4) core expenses, and (5) current assets. Relative to SPAC-IPOs, non-SPAC-IPO restatements are more frequently associated with other issues including the cash flow statement, income tax accounts, stock compensation, fixed asset accounts, and consolidations. In Panel C, we find that Restatements (39%), Control Issues (7%), Audit Incomplete (29%), Investing and Financing (43%), Distress and Restructuring (7%), and Act of God (7%) are some of the major reasons for the delays in annual filings in SPAC-IPOs .[[19]](#footnote-19)

*6.1.2. Economic Demand for Auditing Services*

The univariate results from Panel A of Table 5 indicate that SPAC-IPOs are more likely to retain a non-Big 4 auditor than non-SPAC-IPOs. The percentage of non-Big 4 auditors in the non-SPAC-IPO sample is 52% while that in the SPAC-IPO sample is only 14%. Therefore, non-SPAC-IPOs are almost four times as likely to retain a Big 4 auditor as SPAC-IPOs.

The results of the differences in the demand for audit services between SPAC-IPOs and non-SPAC-IPOs after controlling for other firm specific factors are reported in Panel B. The coefficient on *SPAC-IPO* is positive and statistically significant (2.394; *χ*2=24.12) in the first regression (without entropy balancing). Holding other factors constant, our estimates suggest that a SPAC-IPO is eleven times as likely to retain a non-Big 4 auditor as a non-SPAC-IPO. When we perform entropy balancing, we get similar results in the second regression. Thus, consistent with Hypothesis 1, we find strong evidence indicating that SPAC-IPOs are more likely to retain non-Big 4 auditors than non-SPAC-IPOs. Since information risk is higher for companies with a non-Big 4 auditor, our results suggest that the information risk is higher in SPAC-IPOs than in non-SPAC-IPOs.

*6.1.3. Earnings and Accruals Persistence*

Because of the effect of influential observations for a small sample size, as in Sloan (1996), we rely on decile rank regressions to estimate our persistence parameters. The results from Panel A of Table 6 show that the estimated coefficient on *EARNt-1* is positive and statistically significant (0.738; t-stat=11.74) in the first regression without entropy balancing. More importantly, the coefficient on the interaction term is negative and statistically significant (-0.144; t-stat=-1.76). Therefore, the earnings persistence of SPAC-IPOs is only 81% of non-SPAC-IPOs. The results are similar in the second regression with entropy balancing.

To provide further insights into the sources of the variations in earnings persistence, we decompose earnings into cash flows and accruals and then examine variations in the cash flow and accruals persistence between the two groups of firms. The results from Panel B of Table 6 show that the estimated coefficients on *CFOt-1* (0.678; t-stat=10.03) and *ACCt-1* (0.371; t-stat=6.16) are both positive and statistically significant in the regression without entropy balancing. More importantly, the coefficients on *SPAC-IPO\*CFOt-1* (-0.083; t-stat=-0.96) and on *SPAC-IPO\*ACCt-1* (-0.200; t-stat=-2.42) are both negative. Therefore, the cash flow (accruals) persistence of SPAC-IPO firms is only 87% (46%) of non-SPAC-IPOs. The results are similar when we perform entropy balancing.

Consistent with Hypothesis 2, our findings indicate that earnings persistence is lower in SPAC-IPOs than in non-SPAC-IPOs because of lower accruals persistence. Because future earnings are less reliable when earnings and accruals are less persistent, these results again suggest that the information risk is higher in SPAC-IPO than in non-SPAC-IPO.

*6.1.4. Differences in Stock Exchanges Listings*

Table 7 reports the results on the differences in the stock exchange listings between SPAC-and non-SPAC-IPOs. The univariate results from Panel A show that 15% (33%) of the SPAC-IPOs (non-SPAC-IPOs) list on the NYSE stock exchange. Thus, non-SPAC-IPOs are more than twice as likely to list on the NYSE stock exchange as SPAC-IPOs. Also, 79% (64%) of the SPAC-IPOs (non-SPAC-IPOs) list on the NASDAQ stock exchange. Thus, SPAC-IPOs have a 23% higher likelihood of listing on the NASDAQ stock exchange than non-SPAC-IPOs. The listing on OTC is a rare event for both groups of firms and the difference between the two groups is not statistically significant.

The logistic regression results from Panel B are consistent with the Panel A results. The coefficient on *SPAC-IPO* is positive and statistically significant (1.617; *χ*2=16.07) when *NONNYSE* is the dependent variable in the first regression without entropy balancing. Holding other factors constant, our estimates suggest that SPAC-IPOs are five times as likely to list on stock exchanges other than NYSE as non-SPAC-IPOs. The results are similar in the second regression after entropy balancing.

Consistent with Hypothesis 3, we find that SPAC-IPOs are more likely to avoid NYSE than non-SPAC-IPOs. Besides cost considerations, SPAC shareholders and sponsors with warrants might prefer the NASDAQ to benefit from the higher volatility in stock prices. Since non-NYSE (i.e., NASDAQ or OTC) firms tend to be riskier, these results also suggest that the information risk is higher in SPAC-IPOs than in non-SPAC-IPOs.

*6.1.5. Endogeneity and Variations in the SPAC Sample*

Although we attribute the differences between SPACs and non-SPACs to factors uniquely associated with SPAC-IPOs (e.g., SPAC-sponsors), omitted correlated variables or differences in firm characteristics might also explain our results. To address these concerns, we design three cross-sectional tests restricted to the SPAC sample—two tests from agency considerations and another from risk by drawing on hand-collected SPAC/SPAC-IPO data. The first test exploits the potential role of sponsors as internal monitors in mitigating agency problems subsequent to the SPAC’s merger with a target. When more sponsors serve on the board of the SPAC-IPO acting as internal monitors, agency and information problems are likely to be lower relative to when they do not serve on the SPAC-IPO board. Accordingly, we define *SPONSOR\_BOARD%* as the percentage of board members that are SPAC-sponsors. The second test exploits the role of PIPEs as sophisticated/institutional investors (e.g., private equity funds, hedge funds and other private financial investors) as external monitors in demanding greater transparency/higher quality from SPAC-IPO management. Accordingly, we define *PIPE* as one if PIPE investment is needed to complete the merger with the target, and zero otherwise. The third test links the duration between the SPAC formation and its merger with the target as a proxy for SPAC-IPO risk. Because sponsors typically have two years to merge with a target from the formation of a SPAC, sponsors are more likely to identify riskier targets as the duration lengthens and approaches the two-year deadline. Accordingly, we define *FIRSTYEAR* as one if the target merges with the SPAC within one year of its formation, and zero otherwise.[[20]](#footnote-20)

Because *SPONSOR\_BOARD%* represents the strength of internal monitoring, we expect *SPONSOR\_BOARD%* to be negatively associated with audit demand (there is less need for added monitors), with the effectiveness of controls and procedures, and with higher financial reporting quality proxies. Because *PIPE* represents greater external monitoring, we expect *PIPE* to be positively associated with audit demand, with the effectiveness of controls and procedures, and with higher financial reporting quality proxies. Because *FIRSTYEAR* represents less risky SPAC-IPOs, we expect *FIRSTYEAR* to be positively associated with audit demand (high-quality auditors are more likely to accept less risky engagements or less risky firms may prefer higher quality auditors), but negatively associated with the effectiveness of controls and procedures, and with higher financial reporting quality proxies.

The results on the three cross sectional tests are reported in Table 8. When *NONBIG4* is the dependent variable, the coefficient on *SPONSOR\_BOARD%* is positive and statistically significant, suggesting that the demand for high quality auditors is lower when sponsors serve as internal monitors of SPAC-IPOs. The coefficient on *PIPE* is negative and weakly significant, suggesting sophisticated investors demand higher audit quality. The coefficient on *FIRSTYEAR* is negative and statistically significant, suggesting that non-Big 4 retention is lower when SPAC-IPOs are less risky.

When *MATERIALWEAKNESS* is the dependent variable, the coefficients on *SPONSOR\_BOARD%*, *PIPE,* and *FIRSTYEAR* are all negative but only the coefficient on *FIRSTYEAR* is significant, suggesting that internal controls are more effective when SPACs merge with targets soon after their formation. When *RESTATE* is the dependent variable, the coefficients on *SPONSOR\_BOARD%* and *FIRSTYEAR* are negative but not significant while the coefficient for PIPE is positive but not significant. Finally, when *NONTIMELY* is the dependent variable, the coefficient on *PIPE* is negative and *PIPE* is the only variable that is weakly significant, suggesting that annual filings are less likely to be delayed when SPAC-IPOs entail PIPE investments.[[21]](#footnote-21)

*6.1.6. Differences in Stock Exchange Delisting*

Table 9 reports the results on the differences in the involuntary stock exchange delisting between SPAC- and non-SPAC-IPOs. The univariate results from Panel A show that 11% (2%) of the SPAC-IPOs (non-SPAC-IPOs) are subsequently delisted; the difference is statistically significant at the 1% level. Thus, SPAC-IPOs are five and half times as likely to be delisted as non-SPAC-IPOs.

The logistic regression results from Panel B are consistent with Panel A results. The coefficient on *SPAC-IPO* is positive and statistically significant (1.648; *χ*2=4.67 without entropy balancing). Holding other factors constant, our estimates suggest that a SPAC-IPO is five times as likely to be delisted as a non-SPAC-IPO. The results are similar in the second regression after entropy balancing. Consistent with Hypothesis 4, we find that SPAC-IPOs are more likely to be delisted than non-SPAC-IPOs.

***6.2. Information Risk for the Post IPO-Years***

Our results so far indicate that the information risk is higher for SPAC-IPOs than for non-SPAC-IPOs for the IPO year. However, it is possible that higher information risk may not persist beyond the merger year. A major feature of de-SPAC transactions is that SPACs are under time pressure to complete the merger within a short time span. Once a target company is identified, SPAC-sponsors must quickly prepare the necessary documentation for shareholder approval. Thereafter, as private company merging with a publicly listed company, the target company must submit a Form 4 and a Super 8-K, and also meet the filing requirements of a public company in the first year. By the second year, SPAC-IPOs may not be faced with the same time pressure as the first year. Hence, we investigate whether the information risk remains elevated for the post IPO-years (i.e., Years t+1 and t+2).

Panel A of Table 10 reports the mean values for the following risk factors for SPAC and non-SPAC-IPOs: *MATERIALWEASKNESS, RESTATE, RESTATE\_ANNOUNCE, NONTIMELY, NONBIG4, HIGHACCRUALS,* and *NONNYSE*. For restatements, we include whether: (1) current period financial statements are subsequently restated (*RESTATE*) and (2) there is a restatement announcement in the current period (*RESTATE\_ANNOUNCE*). Since our accruals persistence measure is based on a cross-sectional test, to assign firm-specific values we assign a score of one if the value of *ACC* is greater than the sample median, else zero (*HIGHACCRUALS*). We also report the mean values of the aggregate risk score (*RISK*).

Other than *HIGHACCRUALS,* all the other risk factors are statistically different between SPAC-IPOs and non-SPAC-IPOs for the Years t+1 and t+2. The mean value of *RISK* for SPAC-IPO (non-SPAC-IPO) in Year t is 2.67 (1.56). Thus, for the IPO-year, *RISK* is 71% higher for SPAC-IPOs than for non-SPAC-IPOs. For the Year t+1 (t+2), the risk score is 77% (82%) higher for SPAC-IPOs than for non-SPAC-IPOs. Thus, the information risk for the SPAC-IPO increases monotonically over the three years subsequent to the de-SPAC transactions.

In Panel B, we examine the differences in the individual risk factors for Years t+1 and t+2 after controlling for other firm characteristics and find results consistent with those in Panel A. Overall, the results from Table 10 indicate that the information risk of SPAC-IPOs remains high for the post-IPO years.

***6.3. Information Risk Metric and SPAC-IPO Returns***

Gahng et al. (2021) find that SPAC-IPOs underperform following their merger with publicly traded SPACs. We first replicate their findings using our sample of SPAC-IPOs in Table 11. Similar to Gahng et al. (2021), we compute one-year, two-year, and three-year buy-and-hold SPAC-IPO returns starting from the deal closing date. We find that the raw SPAC-IPO (CRSP equally weighted market-adjusted) return is -13.50% (-37.42%) for the one-year period, is -13.87% (-46.27%) for the two-year period, and is -24.31% (-63.63%) for the three-year period (Panel A). As in their study, we find that SPAC-IPO stocks underperform relative to the market and that the magnitude of this underperformance becomes larger over time.

In Panel B, we compute risk-adjusted SPAC-IPO portfolio returns based on the Fama-French three-factor model. We form portfolios in the calendar month by adding firms to the portfolio following a SPAC-IPO merger. We require at least two SPAC-IPOs for a given calendar month. Firms are retained in the portfolio for 12, 24, and 36 months unless a SPAC is delisted earlier. *MARKET* is the excess return of value-weighted CRSP index, *SMB* is the return on small stocks minus big stocks, and *HML* is the return on high book-to-market firms minus the return on low book-to-market firms, where all of the variables are measured for a given month. The dependent variable is the equally weighted or value-weighted monthly return for the portfolio of SPAC-IPOs for a given calendar month. The coefficient on *ALPHA* is negative for all the six specifications and it is statistically significant at the 5% level in five of the six specifications. The magnitude of the coefficient*s* varies between -0.014 and -0.025 suggesting that, controlling for the Fama-French factors, SPAC-IPOs underperform by 1.4% to 2.5% per month. These results are very similar to the results reported in Gahng et al. (2021).

More importantly,Table 12 presents the results of the relationship between information risk (*RISK*) and SPAC-IPO returns for different holding periods. In Panel A, we sort *RISK* into three portfolios and then report one-year buy-and-hold market-adjusted return (*CAR*) for each of the three portfolios. We first report the results for Year t, which represents the first fiscal year of the SPAC-IPO as a publicly traded company. For the three *RISK* portfolios, based on the firm-specific values from Year t, the mean (median) *CARt* is -0.055 (-0.088), -0.436 (-0.590), and -0.576 (-0.607) for the risk portfolios 1 (low), 2 and 3 (high), respectively. Thus, there is a monotonic decline in stock performance for SPAC-IPOs with higher composite risk scores.

For the second year (Year t+1), the mean (median) *CARt+1* is 0.431 (-0.081), -0.337 (-0.323), and -0.115 (-0.536) for risk portfolios 1 (low), 2 and 3 (high), respectively. Again we find a monotonic decline in median SPAC-IPO stock performance in the second year as the risk scores become bigger. These results underscore the strong relationship between information risk and SPAC-IPO returns for the post deal closing periods. In Panel B, we formally assess the statistical strength of the relationship between information risk and return using regression analyses. In the first regression, using *CARt*as the dependent variable, the coefficient on *RISKt* is negative and statistically significant at the 5% level*.* When we include *LEVERAGE* and *ROA* as control variables, the coefficient on *RISKt* remains negative and statistically significant. Similarly, when we use *CARt+1* as the dependent variable, the coefficient on *RISKt+1* is negative and statistically significant at the 5% level for both the regressions.

Our results from Table 12 provide persuasive evidence of an association between information risk and SPAC-IPO underperformance. Following their merger with SPACs, SPAC-IPOs underperform the stock market over one- to three-year periods and the magnitude of the underperformance is larger for SPAC-IPOs with more severe information risk problems. Our results suggest that there is considerable variation in the information risk within the SPAC-IPO cohort and that the information risk is embedded into the SPAC-IPO stock price.

**7. Conclusion**

In response to the growing concerns surrounding de-SPAC transactions, we provide evidence that private companies that go public by merging with a publicly traded SPAC are associated with lower financial reporting quality, with a lower demand for independent third-party monitoring, with higher chance of not being listed on NYSE, and with a higher likelihood of being delisted from a stock exchange compared to traditional IPOs. These findings suggest that the information risk is considerably higher for SPAC-IPOs than non-SPAC-IPOs. The organizational and operational structure of SPACs, investors’ reliance on SPAC-sponsors to identify suitable merger targets, the inherent agency conflicts and moral hazard problems work in tandem to increase the information risk in SPAC-IPOs. Our temporal analyses indicate that the heightened information risk of SPAC-IPOs does not dissipate, instead it persists into the post-IPO years.

To address various econometric concerns, we perform two additional tests. First, we examine whether, as predicted by agency theories, the presence of SPAC-sponsors on the board of the merged company, the participation of PIPE investors, the time elapsed between a SPAC launch and its merger with a target affects the SPAC-IPO’s auditor demand, and disclosure and reporting quality. Second, we also replicate our results using entropy balancing. We find mostly consistent results from these added tests.

Finally, as in prior studies, we find that SPAC-IPOs underperform following the deal closing date and this underperformance increases over time. More importantly, we demonstrate that our proxies for information risk explain the underperformance of SPAC-IPOs, indicating that the higher information risk of SPAC-IPOs is priced by investors. Our expectation is that the proposed SEC (2022) rules are likely to generate more careful vetting of the de-SPAC transactions.

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**Appendix A**

Variable Definitions.

|  |  |  |
| --- | --- | --- |
| *Experimental Variables* | | |
| *FIRSTYEAR* | = | an indicator variable equal to one if the target merges with the SPAC within one year of its formation, and zero otherwise. |
| *PIPE* | = | an indicator variable equal to one if a PIPE investment is made at the time of merger with the target, and zero otherwise. |
| *SPAC-IPO* | = | an indicator variable equal to one for firms that go public via a SPAC-IPO, and zero for non-SPAC-IPO matched-pairs. |
| *SPONSOR\_BOARD%* | = | the percentage of the SPAC-IPO firm’s board members that are SPAC sponsors. |
| *Other Variables* | | |
| *ACC* | = | income before extraordinary items less cash flows from operations scaled by the end of the year total assets for year t. |
| *ASSETS* | = | the natural logarithm of total assets. |
| *ASSETTURNOVER* | = | the ratio of total revenue to total assets. |
| *CFO* | = | cash flows from operations scaled by the end of the year total assets for year t. |
| *CURRATIO* | = | the ratio of current assets to current liabilities. |
| *DISCONTINUED* | = | an indicator variable equal to one if a firm has discontinued operations, and zero otherwise. |
| *EARN* | = | income before extraordinary items scaled by the end of the year total assets for year t. |
| *EGC* | = | an indicator variable equal to one if a firm qualifies as an emerging growth company, and zero otherwise. |
| *FOREIGNFIRM* | = | an indicator variable equal to one if the firm is incorporated outside of the U.S., and zero otherwise. |
| *HIGHACCRUALS* | = | an indicator variable to one if accruals are above the median, and zero otherwise. |
| *LEVERAGE* | = | the ratio of total debt to total assets. |
| *LOSS* | = | an indicator variable equal to one if income before extraordinary items is less than zero, and zero otherwise. |
| *MATERIALWEAKNESS* | = | an indicator variable equal to one if the management of a firm discloses material weaknesses in its disclosure controls and procedures, and zero otherwise. |
| *NONBIG4* | = | an indicator variable equal to one if the auditor is not Deloitte, Ernst & Young, KPMG, or PricewaterhouseCoopers, and zero otherwise. |
| *NONTIMELY* | = | an indicator variable equal to one if a firm’s current period (the IPO year) financial statement is not filed on time, and zero otherwise. |
| *NONNYSE* | = | an indicator variable equal to one if a firm lists on NASDAQ or OTC, and zero otherwise. |
| *PROCEEDS* | = | the natural logarithm of proceeds from the SPAC or IPO transaction. |
| *RESTATE* | = | an indicator variable equal to one for firms that subsequently restate their current period (the IPO year) financial statements, and zero otherwise. |
| *RESTATE\_ANNOUNCE* | *=* | an indicator variable equal to one for firms that announce a restatement during the fiscal year, and zero otherwise. |
| *RISK* | = | the sum of the following six indicator variables: *MATERIALWEAKNESS*, *RESTATE\_ANNOUNCE*, *NONTIMELY*, *HIGHACCRUALS, NONBIG4,* and *NONNYSE*. |
| *ROA* | = | the ratio of income before extraordinary items to total assets. |
| *SEGMENTS* | = | the natural logarithm of the number of operating segments. |
| *Z-SCORE* | = | an indicator variable equal to one if a company’s Altman Z-Score is above 3.0 (firms not in financial distress), and zero otherwise. |

**Figure 1**

**Special Purpose Acquisition Company (SPAC) Life Cycle**

18 – 24 months

**T1 T2 T3 T4 T5**

**Formation IPO Target Search Vote Close**

**T1: SPAC Formation**

The sponsor, and often its management team, launches a SPAC by paying a nominal amount for an equity stake in the SPAC (approximately 20 percent of the stock in the SPAC after its IPO), which is often referred to as “founders’ stock” or the “promote.” The founders’ stock is intended to compensate the initial investors for identifying a promising target and consummating a merger. The SPAC selects legal counsel and underwriters and establishes its governing documents.

**T2: IPO (Initial Public Offering)**

The SPAC files an initial registration statement with the SEC and responds to SEC comments. The SPAC then raises capital by issuing units (which individually consist of a common share and a warrant), and the proceeds raised are held in a trust until a target is acquired. After the IPO, the units are separated into shares of common stock and tradable warrants. The warrants are designed to provide additional compensation for the initial investment and are usually exercisable shortly after a merger is consummated.

**T3: Target Search**

The search for a suitable acquisition is similar to the process used in a typical M&A transaction, with sponsors vetting potential targets through an accelerated financial, legal, and tax due diligence process.

**T4: Shareholder Vote**

The consummation of a merger (SPAC and private target company) typically requires entities to file a proxy with the SEC, obtain and respond to the SEC’s comments, mail the proxy to the SPAC’s shareholders, and hold a shareholder meeting. The sponsor and other founder shareholders typically commit at founding to vote their interest (generally representing 20 percent) in favor of a transaction, which decreases the number of additional common shares needed to vote in favor of the merger.

**T5: Acquisition Close**

The target acquisition closes by merging into the SPAC and becomes a publicly traded entity. A Super 8-K must be filed within four days of the acquisition and must contain substantially the same information that would be required in a registration statement for companies that go through a traditional IPO. Further, the sponsor’s founders’ shares and warrants are locked up, typically for a year (the “lock-up period”) starting from the date of the Super 8-K filing.

Source: Private-Company CFO Considerations for SPAC Transactions (Deloitte 2020)

|  |  |  |
| --- | --- | --- |
| **Table 1** |  |  |
| Sample Distribution of the 145 SPAC-IPO firms. |  |  |
| Panel A: Year firms go public via SPAC-IPO | Frequency | Percent |
| 2010 | 1 | 0.7 |
| 2011 | 1 | 0.7 |
| 2012 | 5 | 3.5 |
| 2013 | 9 | 6.2 |
| 2014 | 5 | 3.5 |
| 2015 | 10 | 6.9 |
| 2016 | 9 | 6.2 |
| 2017 | 13 | 9.0 |
| 2018 | 22 | 15.2 |
| 2019 | 21 | 14.5 |
| 2020 | 49 | 33.8 |
| Panel B: Industry classification (Fama-French) |  |  |
| Business equipment | 7 | 4.8 |
| [Chemicals](file:///C:\Users\bburne17\Dropbox%20(UNC%20Charlotte)\SPAC\Tables\SPAC%20Tables%2024OCT2021.xlsx#RANGE!_ftn1) | 10 | 6.9 |
| Consumer durables | 12 | 8.3 |
| Consumer nondurables | 10 | 6.9 |
| Energy | 2 | 1.4 |
| Finance | 27 | 18.6 |
| Healthcare | 3 | 2.1 |
| Manufacturing | 2 | 1.4 |
| Other | 19 | 13.1 |
| Telephone and television | 11 | 7.6 |
| Utilities | 14 | 9.7 |
| Wholesale and retail | 28 | 19.3 |
| Panel C: Country of incorporation |  |  |
| Bahamas | 1 | 0.7 |
| Bermuda | 3 | 2.1 |
| British Virgin Islands | 4 | 2.7 |
| Canada | 1 | 0.7 |
| Cayman Islands | 17 | 11.7 |
| India | 1 | 0.7 |
| Ireland | 1 | 0.7 |
| Mexico | 1 | 0.7 |
| Marshall Islands | 1 | 0.7 |
| Netherlands | 2 | 1.4 |
| Switzerland | 1 | 0.7 |
| United Kingdom | 1 | 0.7 |
| United States | 111 | 76.6 |

For the sample of 145 SPAC-IPO firms, the table presents the annual distribution of SPAC-IPOs, i.e., the year a private company is acquired by a SPAC and the private target company starts trading as a public company (de-SPAC year), as well as the distribution by industry and by the country of incorporation.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 2** | | | | | | | | | | | | | | | | | |
| Descriptive Statistics. | | | | | | | | | | | | | | | | | |
| Panel A: Univariate comparisons between SPAC- and non-SPAC-IPOs | | | | | | | | | | | | | | | | | |
|  | |  | | SPAC-IPOs | | | | | |  | Non-SPAC-IPOs | | | | | | |
| Variable | | N | | Mean | Median | | Std. | | |  | Mean | | Median | | | Std. | |
|  | |  | |  |  | |  | | |  |  | | |  | | |  |
| *PROCEEDS* ($ million) | | 145 | | 220 | 176 | | 171 | | |  | 218 | | | 176 | | | 164 |
| *ASSETS* ($ million) | | 145 | | 713 | 310 | | 1,143 | | |  | 879 | | | 447\*\* | | | 1,315 |
| *ASSETTURNOVER* | | 145 | | 0.81 | 0.47 | | 1.14 | | |  | 0.51\*\*\* | | | 0.32\*\*\* | | | 0.75 |
| *CURRATIO* | | 145 | | 4.23 | 1.49 | | 10.41 | | |  | 6.06\* | | | 2.66\*\*\* | | | 10.29 |
| *ROA* | | 145 | | -0.20 | -0.05 | | 0.48 | | |  | -0.14 | | | -0.08 | | | 0.25 |
| *LOSS* | | 145 | | 0.74 | 1.00 | | 0.44 | | |  | 0.70 | | | 1.00 | | | 0.46 |
| *LEVERAGE* | | 145 | | 0.29 | 0.24 | | 0.28 | | |  | 0.17\*\*\* | | | 0.06\*\*\* | | | 0.22 |
| *SEGMENTS* | | 145 | | 0.27 | 0.00 | | 0.46 | | |  | 0.03\*\*\* | | | 0.00\*\*\* | | | 0.19 |
| *DISCONTINUED* | | 145 | | 0.03 | 0.00 | | 0.18 | | |  | 0.00\*\* | | | 0.00\*\* | | | 0.00 |
| *Z-SCORE* | | 145 | | 0.57 | 1.00 | | 0.50 | | |  | 0.28\*\*\* | | | 0.00\*\*\* | | | 0.45 |
| *EGC* | | 145 | | 0.66 | 1.00 | | 0.48 | | |  | 0.52\*\* | | | 1.00\*\* | | | 0.50 |
| *FOREIGNFIRM* | | 145 | | 0.23 | 0.00 | | 0.43 | | |  | 0.18 | | | 0.00 | | | 0.37 |
|  | |  | |  |  | |  | | |  |  | | |  | | |  |
| Panel B: Univariate comparisons with entropy balancing | | | | | | | | | | | | | | | | | | |
|  |  | | | | | | |  | With entropy balancing | | | | | | | | | |
| Variable |  | |  | | |  | |  | SPAC (N=145) | | | Non-SPAC (N=145) | | | Difference | | | |
|  |  | |  | | |  | |  |  | | |  | | |  | | | |
| *PROCEEDS* |  | |  | | |  | |  | 5.08 | | | 5.08 | | | 0.00 | | | |
| *ASSETS* |  | |  | | |  | |  | 5.67 | | | 5.67 | | | 0.00 | | | |
| *ASSETTURNOVER* |  | |  | | |  | |  | 0.81 | | | 0.81 | | | 0.00 | | | |
| *CURRATIO* |  | |  | | |  | |  | 4.23 | | | 4.23 | | | 0.00 | | | |
| *ROA* |  | |  | | |  | |  | -0.20 | | | -0.20 | | | 0.00 | | | |
| *LOSS* |  | |  | | |  | |  | 0.74 | | | 0.74 | | | 0.00 | | | |
| *LEVERAGE* |  | |  | | |  | |  | 0.29 | | | 0.29 | | | 0.00 | | | |
| *SEGMENTS* |  | |  | | |  | |  | 0.27 | | | 0.27 | | | 0.00 | | | |
| *DISCONTINUED* |  | |  | | |  | |  | 0.03 | | | 0.03 | | | 0.00 | | | |
| *Z-SCORE* |  | |  | | |  | |  | 0.57 | | | 0.57 | | | 0.00 | | | |
| *EGC* |  | |  | | |  | |  | 0.66 | | | 0.66 | | | 0.00 | | | |
| *FOREIGNFIRM* |  | |  | | |  | |  | 0.23 | | | 0.23 | | | 0.00 | | | |
| *EARNt-1* |  | |  | | |  | |  | -0.26 | | | -0.26 | | | 0.00 | | | |
|  |  | |  | | |  | |  |  | | |  | | |  | | | |

Panel A of the table presents descriptive statistics for private companies that go public via a SPAC transaction compared to traditional IPOs (non-SPAC-IPOs). For each SPAC-IPO observation, we identify a matched company that raised public funds via a traditional IPO. We match on SPAC acquisition year (Year t) and on the amount of funds raised from the public offering (PROCEEDS) without replacement. Panel B presents the means for private companies that go public via a SPAC transaction compared to the 145 matched-pair non-SPAC-IPO firms before and after entropy balancing on the first moment. For the variable *EARN*t-1, we limit the SPAC-IPO and non-SPAC-IPO firms to the 141 firms with these variables available. All continuous variables are winsorized at the 1st and 99th percentiles. See Appendix A for variable definitions. \*, \*\*, and \*\*\* represent statistical significance at the 10%, 5%, and 1% levels, respectively, for a two-tailed test. In Panel A, the stars denote whether differences between SPAC-IPOs and non-SPAC-IPOs are statistically signficant.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 3** |  |  | | |  |  | |  |  | | | |  |  | |
| Differences in Financial Reporting Quality Between SPAC- and non-SPAC-IPOs. | | | | | | | | |  | | | |  |  | |
|  |  |  | | |  |  | |  |  | | | |  |  | |
| Panel A: Univariate comparisons of material weaknesses, restatements, and non-timely annual filings | | | | | | | | | | | | | | | |
|  |  | | | |  | SPAC-IPOs | | | Non-SPAC-IPOs | | | | | Difference | |
| *MATERIALWEAKNESS* |  |  | | |  | 0.46 | | | 0.23 | | | | | 0.23\*\*\* | |
| *RESTATE* |  |  | | |  | 0.31 | | | 0.07 | | | | | 0.24\*\*\* | |
| *RESTATE* (Excluding warrant-related) | | | | |  | 0.22 | | | 0.07 | | | | | 0.15\*\*\* | |
| *NONTIMELY* |  |  | | |  | 0.19 | | | 0.00 | | | | | 0.19\*\*\* | |
|  |  |  | | |  |  | |  |  | | | |  |  | |
| Panel B: Logistic regression results estimating the likelihood of material weaknesses and restatements | | | | | | | | | | | | | | | |
|  | *MATERIALWEAKNESS* | | | | | | | *RESTATE* | | | | | | | |
|  | Proceeds Match | | | | Entropy Balanced | | | Proceeds Match | | | | Entropy Balanced | | | |
| Variable | Estimate | | χ2 | Estimate | | χ2 | Estimate | | | χ2 | Estimate | | | | χ2 |
| Intercept | -2.537\* | | 3.09 | -2.296 | | 2.28 | 0.466 | | | 0.06 | -0.379 | | | | 0.01 |
| *SPAC-IPO* | 1.216\*\*\* | | 9.91 | 0.827\* | | 3.69 | 2.232\*\*\* | | | 12.42 | 2.515\*\*\* | | | | 11.16 |
| *PROCEEDS* | -0.112 | | 0.14 | -0.163 | | 0.25 | -0.384 | | | 0.72 | -0.186 | | | | 0.09 |
| *ASSETS* | 0.072 | | 0.12 | 0.124 | | 0.30 | -0.128 | | | 0.22 | -0.274 | | | | 0.62 |
| *ROA* | -0.501 | | 1.18 | -0.274 | | 0.36 | 0.305 | | | 0.28 | 0.470 | | | | 0.69 |
| *LEVERAGE* | 0.098 | | 0.02 | 0.583 | | 0.48 | 0.881 | | | 1.06 | 1.812 | | | | 2.66 |
| *SEGMENTS* | -0.741\* | | 2.92 | -0.827\*\* | | 3.88 | -1.267\* | | | 3.51 | -1.878\*\* | | | | 6.30 |
| *EGC* | 0.485 | | 2.23 | 0.975\*\* | | 6.00 | -0.439 | | | 0.79 | -1.100\* | | | | 3.50 |
| *FOREIGNFIRM* | 1.002\*\*\* | | 8.89 | 1.324\*\*\* | | 10.76 | -1.149\* | | | 3.46 | -1.824\*\* | | | | 4.16 |
| *CURRATIO* | -0.025 | | 1.42 | -0.037 | | 2.59 |  | | |  |  | | | |  |
| *Z-SCORE* | -0.180 | | 0.22 | -0.598 | | 1.61 |  | | |  |  | | | |  |
| *DISCONTINUED* | 2.810\*\* | | 4.57 | 2.953\*\* | | 6.25 |  | | |  |  | | | |  |
| *BIG4* |  | |  |  | |  | 0.802 | | | 1.93 | 0.375 | | | | 0.30 |
|  |  | |  |  | |  |  | | |  |  | | | |  |
| Industry Fixed Effects | Yes | | | Yes | | | Yes | | | | Yes | | | | |
| Observations | 290 | | | 290 | | | 192 | | | | 192 | | | | |
| Likelihood Ratio | 62.59\*\*\* | | | 148.06\*\*\* | | | 37.41\*\*\* | | | | 57.61\*\*\* | | | | |
| Pseudo R2 | 0.19 | | | 0.23 | | | 0.18 | | | | 0.41 | | | | |

Panel A presents the mean proportion of firms with material weaknesses in disclosure controls and procedures, restatements, and non-timely annual filings for the IPO year for the SPAC- and non-SPAC-IPO samples and the difference in the mean numbers between the two groups. For restatements, the sample consists of the 96 SPAC-IPO and 96 matched non-SPAC-IPO firms with IPOs completed between 2010 and 2019 to allow time for misstatement discovery and disclosure. Panel B presents logistic regressions of the likelihood of material weaknesses in disclosure controls and procedures and restatements using the sample of SPAC-IPO firms matched on IPO proceeds to non-SPAC-IPO firms. Results are also presented after entropy balancing the matched sample on the first moment. \*, \*\*, and \*\*\* represent statistical significance at the 10%, 5%, and 1% levels, respectively, for a two-tailed test.

|  |  |  |  |
| --- | --- | --- | --- |
| **Table 4** | | |  |
| Explanations for Material Weaknesses, Restatements, and Non-timely Filings. | | | |
|  |  |  |  |
| Panel A: Comparison of material weakness issues | | | |
| *Issue* | SPAC-IPOs (N=67) | Non-SPAC-IPOs (N=33) | Difference |
|  |  |  |  |
| Lack of Segregation of Duties | 0.78 | 0.73 | 0.03 |
| Financial Close Processes | 0.67 | 0.70 | -0.03 |
| Information Technology Access and Security | 0.49 | 0.48 | 0.01 |
| Non-routine Adjustment Issues at Period End | 0.15 | 0.24 | -0.09 |
| Acquisition Integration | 0.43 | 0.00 | 0.43\*\*\* |
| Insufficient Management Review | 0.34 | 0.15 | 0.15\*\* |
| Other | 0.64 | 0.42 | 0.22\*\* |
| *Accounting Affected by Material Weaknesses* |  |  |  |
| Warrants | 0.16 | 0.03 | 0.13\* |
| Revenue | 0.15 | 0.03 | 0.12\* |
| Liabilities | 0.10 | 0.03 | 0.07 |
| Complex Issues | 0.21 | 0.03 | 0.18\*\* |
| Other | 0.52 | 0.18 | 0.34\*\*\* |
|  |  |  |  |
| Panel B: Comparison of restatement accounting issues | | | |
| *Accounting Issue* | SPAC-IPOs (N=30) | Non-SPAC-IPOs (N=7) | Difference |
|  |  |  |  |
| Revenue | 0.13 | 0.14 | -0.01 |
| Core Expenses | 0.23 | 0.14 | 0.09 |
| Current Assets | 0.17 | 0.14 | 0.03 |
| Liabilities | 0.27 | 0.00 | 0.27 |
| Warrants | 0.50 | 0.14 | 0.36\* |
| Complex Issues | 0.30 | 0.14 | 0.16 |
| Other | 0.13 | 0.57 | -0.44\*\* |
|  |  |  |  |
| Panel C: Comparison of reasons for non-timely filings | | | |
| Reason | SPAC-IPOs (N=28) | Non-SPAC-IPOs (N=0) | Difference |
|  |  |  |  |
| Restatement | 0.39 | 0.00 | 0.39 |
| Control Issues | 0.07 | 0.00 | 0.07\*\*\* |
| Audit Incomplete | 0.29 | 0.00 | 0.29\*\*\* |
| Investing and Financing | 0.43 | 0.00 | 0.43\*\*\* |
| Distress and Restructuring | 0.07 | 0.00 | 0.07 |
| Act of God | 0.07 | 0.00 | 0.07 |
|  |  |  |  |

Panel A presents the material weakness issues as well as the accounting affected by the material weaknesses for the SPAC- and non-SPAC-IPO samples. Panel B presents the restatement accounting issues for the SPAC- and non-SPAC-IPO samples. Panel C presents the reasons for non-timely filings for the SPAC- and non-SPAC-IPO samples. The category “Act of God” represents extreme weather events, an act of war, or death. \*, \*\*, and \*\*\* represent statistical significance at the 10%, 5%, and 1% levels, respectively, for a two-tailed test.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 5** |  |  |  |  |  | |  | |
| Differences in the Demand for Auditing Services Between SPAC- and non-SPAC-IPOs. | | | | | | | |
| Panel A: Univariate comparisons of the demand for non-Big 4 auditors | | | |  |  | |  | |
|  | SPAC-IPOs | | Non-SPAC-IPOs | |  | | Difference | |
|  |  | |  | |  | |  | |
| Mean | 0.52 | | 0.14 | |  | | 0.38\*\*\* | |
|  |  | |  | |  | |  | |
|  |  | |  | |  | |  | |
| Panel B: Logistic regression results estimating the demand for non-Big 4 auditors | | | | | |  | |
|  | Proceeds Match | | | Entropy Balanced | | | |
| Variable | Estimate | | χ2-stat | Estimate | | χ2-stat | |
|  |  | |  |  | |  | |
| Intercept | 8.399\*\*\* | | 25.03 | 8.597\*\*\* | | 26.94 | |
| *SPAC-IPO* | 2.394\*\*\* | | 24.12 | 2.726\*\*\* | | 23.81 | |
| *PROCEEDS* | -1.479\*\*\* | | 16.33 | -1.833\*\*\* | | 19.36 | |
| *ASSETS* | -0.414\* | | 2.98 | -0.167 | | 0.50 | |
| *ASSETTURNOVER* | 0.170 | | 0.69 | 0.109 | | 0.22 | |
| *CURRATIO* | 0.010 | | 0.16 | 0.008 | | 0.08 | |
| *LEVERAGE* | 0.146 | | 0.04 | -0.786 | | 0.76 | |
| *ROA* | 1.264\*\* | | 5.25 | 1.211\*\* | | 5.34 | |
| *EGC* | 0.584 | | 2.23 | 0.519 | | 1.74 | |
| *FOREIGNFIRM* | -1.103\*\* | | 5.11 | -1.136\*\* | | 5.11 | |
|  |  | |  |  |  | |  | |
| Industry Fixed Effects | Yes | |  | Yes | |  | |
| Observations | 290 | |  | 290 | |  | |
| Likelihood Ratio | 142.99\*\*\* | |  | 111.71\*\*\* | |  | |
| Pseudo R2 | 0.39 | |  | 0.39 | |  | |
|  |  | |  |  | |  | |

Panel A presents the mean proportion of non-Big 4 auditors in the SPAC-IPO and non-SPAC-IPO samples and the difference in the mean numbers between the two groups. Panel B presents the logistic regression results estimating of the demand for non-Big 4 auditors (*NONBIG4*) using a sample of SPAC- and non-SPAC-IPO firms. The first (second) regression reports the results without (with) entropy balancing on the first moment. \*, \*\*, and \*\*\* represent statistical significance at the 10%, 5%, and 1% levels, respectively, for a two-tailed test.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 6** |  |  |  |  | | |  |  | |
| Differences in Earnings, Cash Flows, and Accruals Persistence Between SPAC- and non-SPAC-IPOs. | | | | | | | | |
| Panel A: Regression results estimating earnings persistence using decile rankings | | | | | |  | | |
|  | Dependent Variable: *EARN*t | | | | | | | |
|  | Proceeds Match | | | Entropy Balanced | | | | |
| Variable | Estimate | | t-stat | Estimate | t-stat | | | |
|  |  | |  |  |  | | | |
| Intercept | -0.825 | | -1.10 | -2.274 | -3.90 | | | |
| *SPAC-IPO* | 1.894\*\*\* | | 3.73 | 3.388\*\*\* | 4.30 | | | |
| *EARNt-1* | 0.738\*\*\* | | 11.74 | 0.982\*\*\* | 11.99 | | | |
| *SPAC-IPO\*EARNt-1* | -0.144\* | | -1.76 | -0.404\*\*\* | -3.98 | | | |
|  |  | |  |  | | |  |  | |
| Industry Fixed Effects | Yes | |  | Yes |  | | | |
| Observations | 282 | |  | 282 |  | | | |
| Adjusted R2 | 0.58 | |  | 0.70 |  | | | |
|  |  | |  |  |  | | | |
| Panel B: Regression results estimating cash flows and accruals persistence using decile rankings | | | | | | | | |
|  |  | |  |  |  | | | |
| Intercept | -2.530\*\*\* | | -2.93 | -2.227\*\* | -2.26 | | | |
| *SPAC-IPO* | 2.713\*\*\* | | 3.53 | 2.160\*\* | 2.01 | | | |
| *CFOt-1* | 0.678\*\*\* | | 10.03 | 0.685\*\*\* | 8.61 | | | |
| *SPAC-IPO\*CFOt-1* | -0.083 | | -0.96 | -0.076 | -0.71 | | | |
| *ACCt-1* | 0.371\*\*\* | | 6.16 | 0.349\*\*\* | 5.04 | | | |
| *SPAC-IPO\*ACCt-1* | -0.200\*\* | | -2.42 | -0.176\* | -1.79 | | | |
|  |  | |  |  |  | | | |
| Industry Fixed Effects | Yes | |  | Yes |  | | | |
| Observations | 282 | |  | 282 |  | | | |
| Adjusted R2 | 0.56 | |  | 0.69 |  | | | |
|  |  | |  |  |  | | | |
|  |  | |  |  |  | | | |

The sample consists of the 141 SPAC-IPO and 141 matched non-SPAC-IPO firms with IPOs. Panel A presents decile rank regressions results, as in Sloan (1996), estimating the earnings persistence (*EARN*) for SPAC- and non-SPAC-IPO firms. Panel B presents decile rank regression results, as in Sloan (1996), estimating cash flows (*CFO*) and accruals (*ACC*) persistence for SPAC- and non-SPAC-IPO firms. The first (second) regression reports the results without (with) entropy balancing. \*, \*\*, and \*\*\* represent statistical significance at the 10%, 5%, and 1% levels, respectively, for a two-tailed test.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table 7** |  |  |  |  |  |  |
| Differences in Stock Exchange Listings Between SPAC- and non-SPAC-IPOs. | | | | | | |
| Panel A: Univariate comparisons of stock exchange listings | | | |  |  |  |
|  | SPAC-IPOs | | Non-SPAC-IPOs | |  | Difference |
|  |  | |  | |  |  |
| NYSE | 0.15 | | 0.33 | |  | -0.18\*\*\* |
| NASDAQ | 0.79 | | 0.64 | |  | 0.15\*\*\* |
| OTC | 0.06 | | 0.03 | |  | 0.03 |
|  |  | |  | |  |  |
|  |  | |  | |  |  |
| Panel B: Logistic regressions estimating the likelihood of not listing on the NYSE | | | | | |  |
|  | Proceeds Match | | | Entropy Balanced | | |
| Variable | Estimate | | χ2-stat | Estimate | | χ2-stat |
|  |  | |  |  | |  |
| Intercept | 3.800\*\*\* | | 6.98 | 7.075\*\* | | 7.34 |
| *SPAC-IPO* | 1.617\*\*\* | | 16.07 | 2.118\*\*\* | | 15.29 |
| *PROCEEDS* | -0.678\*\* | | 4.51 | -1.336\*\*\* | | 6.66 |
| *ASSETS* | -0.032 | | 0.02 | -0.016 | | 0.00 |
| *SEGMENTS* | 0.219 | | 0.21 | -0.259 | | 0.30 |
| *ROA* | -0.135 | | 0.04 | 0.007 | | 0.00 |
| *LOSS* | 0.361 | | 0.78 | 0.864 | | 2.46 |
| *LEVERAGE* | -0.867 | | 1.76 | -2.696\*\*\* | | 8.58 |
| *EGC* | -0.252 | | 0.50 | -0.629 | | 1.12 |
|  |  | |  |  |  |  |
| Industry Fixed Effects | Yes | |  | Yes | |  |
| Observations | 290 | |  | 290 | |  |
| Likelihood Ratio | 55.46\*\*\* | |  | 105.12\*\*\* | |  |
| Pseudo R2 | 0.17 | |  | 0.36 | |  |
|  |  | |  |  | |  |

Panel A presents the mean proportion of firms that list on the NYSE, NASDAQ, and OTC in the SPAC-IPO and non-SPAC-IPO samples and the difference in the mean numbers between the two groups. Panel B presents logistic regressions of the likelihood of not listing on the NYSE using a sample of SPAC- and non-SPAC-IPO firms. The dependent variable *NONNYSE* equals one when a SPAC- or non-SPAC-IPO does not list on the NYSE stock exchange, and zero otherwise. The first (second) regression reports the results without (with) entropy balancing on the first moment. \*, \*\*, and \*\*\* represent statistical significance at the 10%, 5%, and 1% levels, respectively, for a two-tailed test.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table 8** |  |  |  |  |  |  |
| Variations Within SPAC-IPO Sample: Sponsors’ Board Involvement, the Duration Between a SPAC Formation and its Merger with the Target, and PIPE Investment. | | | | | | |
|  |  |  |  |  |  |  |
|  | Dependent Variable: *NONBIG4* | | | | | |
|  | Estimate | χ2-stat | Estimate | χ2-stat | Estimate | χ2-stat |
|  |  |  |  |  |  |  |
| *SPONSOR\_BOARD%* | 4.854\*\*\* | 17.76 |  |  |  |  |
| *PIPE* |  |  | -1.027\* | 3.51 |  |  |
| *FIRSTYEAR* |  |  |  |  | -1.950\*\*\* | 19.60 |
| Controls/Fixed Effects | Yes/Yes |  | Yes/Yes |  | Yes/Yes |  |
|  |  |  |  |  |  |  |
|  | Dependent Variable: *MATERIALWEAKNESS* | | | | | |
|  |  |  |  |  |  |  |
| *SPONSOR\_BOARD%* | -1.983 | 2.50 |  |  |  |  |
| *PIPE* |  |  | -0.446 | 0.80 |  |  |
| *FIRSTYEAR* |  |  |  |  | -2.168\*\* | 6.12 |
| Controls/Fixed Effects | Yes/Yes |  | Yes/Yes |  | Yes/Yes |  |
|  |  |  |  |  |  |  |
|  | Dependent Variable: *RESTATE* (Excluding warrant-related) | | | | | |
|  |  |  |  |  |  |  |
| *SPONSOR\_BOARD%* | -2.979 | 2.52 |  |  |  |  |
| *PIPE* |  |  | 0.110 | 0.03 |  |  |
| *FIRSTYEAR* |  |  |  |  | -0.495 | 0.23 |
| Controls/Fixed Effects | Yes/Yes |  | Yes/Yes |  | Yes/Yes |  |
|  |  |  |  |  |  |  |
|  | Dependent Variable: *NONTIMELY* | | | | | |
|  |  |  |  |  |  |  |
| *SPONSOR\_BOARD%* | 0.997 | 0.36 |  |  |  |  |
| *PIPE* |  |  | -1.513\* | 3.80 |  |  |
| *FIRSTYEAR* |  |  |  |  | -2.564 | 2.41 |
| Controls/Fixed Effects | Yes/Yes |  | Yes/Yes |  | Yes/Yes |  |
|  |  |  |  |  |  |  |

The table presents the effects of sponsors’ continuing involvement on the board of directors of the SPAC-IPO, the effects of time elapsed between the launch of a SPAC and the merger with the target, and the effects of a PIPE investment at the time of merger with the target. The sample consists of the 145 private companies that go public via a SPAC transaction. For the restatement analyses, the sample consists of 96 SPAC-IPO firms completed between 2010 and 2019 to allow time for misstatement discovery and disclosure. See Appendix A for variable definitions. \*, \*\*, and \*\*\* represent statistical significance at the 10%, 5%, and 1% levels, respectively, for a two-tailed test.

**Table 9**

Delisting Differences Between SPAC- non-SPAC-IPOs.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Panel A: Univariate comparisons of delisting | | | | |
|  | SPAC-IPOs | Non-SPAC-IPOs | Difference | |
| Bankruptcy, declared insolvent | 3 | 0 |  | |
| Delinquent in filing or fee payment | 0 | 1 |  | |
| Does not meet exchange requirements | 4 | 0 |  | |
| Non-compliance with float or assets | 0 | 1 |  | |
| Insufficient capital, surplus, and/or equity | 2 | 0 |  | |
| Insufficient market makers | 2 | 0 |  | |
| Price below acceptable level | 4 | 1 |  | |
| Total delisted firms | 15 | 3 | 12 | |
| Sample with nonmissing PERMNOs | 137 | 145 |  | |
| Proportion of delisted firms | 0.11 | 0.02 | 0.09\*\*\* | |
| Panel B: Logistic regressions estimating the likelihood of delisting | | | | |
|  | Proceeds Match | | With Entropy balancing | |
|  | Estimate | -stat | Estimate | -stat |
| Intercept | 3.875\* | 3.76 | -0.475 | 0.06 |
| *SPAC-IPO* | 1.648\*\* | 4.67 | 1.624\*\* | 5.48 |
| *PROCEEDS* | -1.501\*\*\* | 8.24 | -0.367 | 0.52 |
| *ASSETS* | -0.047 | 0.02 | 0.248 | 0.62 |
| *ASSETTURNOVER* | -0.198 | 0.26 | -0.172 | 0.28 |
| *CURRATIO* | -0.286 | 2.43 | -0.008 | 0.00 |
| *LEVERAGE* | 0.476 | 0.18 | -0.136 | 0.01 |
| *ROA* | 0.042 | 0.01 | -0.041 | 0.01 |
| *Z-SCORE* | 0.608 | 0.77 | -0.112 | 0.03 |
| *EGA* | 0.094 | 0.03 | 0.021 | 0.00 |
| *FOREIGNFIRM* | -0.289 | 0.19 | -0.410 | 0.42 |
| Industry fixed effects | No |  | No |  |
| Observations | 282 |  | 282 |  |
| Likelihood Ratio | 48.377 |  | 23.278 |  |
| Pseudo R2 | 0.28 |  | 0.07 |  |

Panel A reports the frequency of delisted SPAC-IPOs and non-SPAC-IPOs, the mean proportion of delisting in the SPAC-IPO and non-SPAC-IPO samples, and the difference in the mean numbers between the two groups. Panel B reports the logistic regression results where the dependent variable is *DELISTED* (equals one if a firm is involuntarily delisted by the exchange, and zero otherwise). The first (second) regression reports the results without (with) entropy balancing on the first moment. Delisting information is acquired from CRSP as of March 2022. \*, \*\*, and \*\*\* represent statistical significance at the 10%, 5%, and 1% levels, respectively, for a two-tailed test.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 10** | | | | | | | | | | | |
| Differences in Temporal Risk Between SPAC- and non-SPAC-IPO IPOs. | | | | | | | | | | | |
| Panel A: Univariate comparisons in the post-IPO years | | | | | | | | | | |
|  | SPAC-IPOs | | | | |  | Non-SPAC-IPOs | | | |
| Years | t | | t+1 | | t+2 |  | t | t+1 | | t+2 |
| *MATERIALWEAKNESS* |  | | 0.39 | | 0.33 |  |  | 0.14\*\*\* | | 0.12\*\*\* |
| *RESTATE* |  | | 0.39 | | 0.33 |  |  | 0.04\*\*\* | | 0.06\*\*\* |
| *RESTATE\_ANNOUNCE* |  | | 0.37 | | 0.30 |  |  | 0.09\*\*\* | | 0.06\*\*\* |
| *NONTIMELY* |  | | 0.14 | | 0.17 |  |  | 0.01\*\*\* | | 0.04\*\* |
| *NONBIG4* |  | | 0.52 | | 0.51 |  |  | 0.13\*\*\* | | 0.16\*\*\* |
| *HIGHACCRUALS* |  | | 0.46 | | 0.48 |  |  | 0.52 | | 0.50 |
| *NONNYSE* |  | | 0.85 | | 0.89 |  |  | 0.65\*\*\* | | 0.59\*\*\* |
| *RISK* | 2.67 | | 2.73 | | 2.68 |  | 1.56\*\*\* | 1.54\*\*\* | | 1.47\*\*\* |
|  | Panel B: Regression results in the post-IPO years | | | | | | | | | | |
|  | | | t+1 | | | |  | | t+2 | | |
|  | | | Dependent Variable: *MATERIALWEAKNESS* | | | | | | | | |
|  | | | Estimate | | χ2-stat | |  | | Estimate | χ2-stat | |
| *SPAC-IPO* | | | 1.170\*\*\* | | 7.62 | |  | | 1.380\*\* | 4.43 | |
| Controls/ Industry Fixed Effects | | | Yes/Yes | |  | |  | | Yes/Yes |  | |
|  | | |  | |  | |  | |  |  | |
|  | | | Dependent Variable: *RESTATE* | | | | | | | | |
| *SPAC-IPO* | | | 2.692\*\*\* 15.31 2.380\*\*\* 7.72 | | | | | | | | |
| Controls/ Industry Fixed Effects | | | Yes/Yes Yes/Yes | | | | | | | | |
|  | | |  | | | | | | | | |
|  | | | Dependent Variable: *RESTATE\_ANNOUNCE* | | | | | | | | |
| *SPAC-IPO* | | | 1.568\*\*\* | | 10.61 | |  | | 1.542\*\*\* | 4.68 | |
| Controls/ Industry Fixed Effects | | | Yes/Yes | |  | |  | | Yes/Yes |  | |
|  | | |  | |  | |  | |  |  | |
|  | | | Dependent Variable: *NONTIMELY* | | | | | | | | |
| *SPAC-IPO* | | | 3.040\*\*\* | | 8.38 | |  | | 1.174 | 0.89 | |
| Controls/ Industry Fixed Effects | | | Yes/Yes | |  | |  | | Yes/Yes |  | |
|  | | |  | |  | |  | |  |  | |
|  | | | Dependent Variable: *NONBIG4* | | | | | | | | |
| *SPAC-IPO* | | | 2.451\*\*\* | | 22.01 | |  | | 2.474\*\*\* | 11.32 | |
| Controls/ Industry Fixed Effects | | | Yes/Yes | |  | |  | | Yes/Yes |  | |
|  | | |  | |  | |  | |  |  | |
|  | | |  | | | | | | | | |
|  | | | Dependent Variable: *HIGHACCRUALS* | | | | | | | | |
| *SPAC-IPO* | | | 0.395 1.08 0.207 0.15 | | | | | | | | |
| Controls/ Industry Fixed Effects | | | Yes/Yes Yes/Yes | | | | | | | | |
|  | | |  | | | | | | | | |
|  | | | Dependent Variable: *NONNYSE* | | | | | | | | |
| *SPAC-IPO* | | | 1.825\*\*\* 18.58 2.553\*\*\* 16.41 | | | | | | | | |
| Controls/ Industry Fixed Effects | | | Yes/Yes Yes/Yes | | | | | | | | |
|  | | |  | | | | | | | | |
|  | | | Dependent Variable: *RISK* | | | | | | | | |
| *SPAC-IPO* | | | 0.952\*\*\* | | 6.00 | |  | | 1.032\*\*\* | 4.88 | |
| Controls/ Industry Fixed Effects | | | Yes/Yes | |  | |  | | Yes/Yes |  | |
|  | | |  | |  | |  | |  |  | |
|  | | |  | |  | |  | |  |  | |

The table presents the mean values of the individual risk metrics, and an aggregate risk measure, for SPAC- and non-SPAC-IPOs. Panel A presents the mean values of *MATERIALWEAKNESS*, *RESTATE, RESTATE\_ANNOUNCE*, *NONTIMELY*, *NONBIG4*, *HIGHACCRUALS*, and *NONNYSE* for SPAC- and non-SPAC-IPO firms for Years t+1 and t+2. *RISK* is the sum of *MATERIALWEAKNESS*, *RESTATE\_ANNOUNCE*, *NONTIMELY*, *NONBIG4*, *HIGHACCRUALS*, and *NONNYSE*. The statistical significance of the differences in the risk metrics between SPAC- and non-SPAC-IPOs are denoted adjacent to the non-SPAC-IPO numbers. Panel B presents logistic regression results for the Years t+1 and t+2 with the exception of *RISK* which is estimated using ordinary least squares regressions. All continuous variables are winsorized at the 1st and 99th percentiles. See Appendix A for variable definitions. \*, \*\*, and \*\*\* represent statistical significance at the 10%, 5%, and 1% levels, respectively, for a two-tailed test.

**Table 11**

Long-term Stock Performance of SPAC-IPOs.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Panel A: Buy-and-hold return after deal closing date | | | | | | |
|  | RAW | CRSP-VW | CRSP-EW | Differences | |  |
|  | CRSP-VW | CRSP-EW |  |
|  |  |  |  |  |  |  |
| 1-Year | -13.502% | 19.208% | 23.917% | -32.709% | -37.419% |  |
| 2-Year | -13.870% | 30.750% | 32.403% | -44.620% | -46.274% |  |
| 3-Year | -24.313% | 39.506% | 39.314% | -63.819% | -63.627% |  |
|  |  |  |  |  |  |  |
| Panel B: Fama-French three factor model | | | | | | |
|  | 1-Year | | 2-Year | | 3-Year | |
|  | EW | VW | EW | VW | EW | VW |
|  |  |  |  |  |  |  |
| *ALPHA* | -0.025\*\*\* | -0.019\*\* | -0.014\* | -0.017\*\* | -0.021\*\*\* | -0.016\*\* |
|  | (-3.07) | (-2.17) | (-1.84) | (-2.18) | (-2.91) | (-2.24) |
| *MARKET* | 1.04\*\* | 0.965\*\*\* | 1.047\*\*\* | 1.086\*\*\* | 1.089\*\*\* | 1.134\*\*\* |
|  | (2.53) | (2.78) | (4.17) | (5.07) | (5.91) | (5.18) |
| *SMB* | 1.204\*\*\* | 1.039\*\* | 1.461\*\*\* | 1.332\*\*\* | 1.231\*\*\* | 1.148\*\*\* |
|  | (3.00) | (2.49) | (4.32) | (3.10) | (3.19) | (3.85) |
| *HML* | -0.043 | 0.058 | 0.167 | 0.263 | 0.278 | 0.146 |
|  | (-0.18) | (0.18) | (0.78) | (0.79) | (0.95) | (0.95) |
|  |  |  |  |  |  |  |

Panel A summarizes the average 1-year, 2-year, and 3-year buy and hold returns after deal closing date. The buy-and-hold returns are calculated by compounding daily raw returns. The sample consists of 137 SPAC-IPOs between January 2010 and December 2020. We require at least two SPAC-IPOs for a given calendar month. When the full 1-Year, 2-Year or 3-Year data are not available, we calculate the returns based on available data. Returns end on March 31, 2022. The CRSP-VW (-EW) return is the market return computed for the corresponding periods using CRSP value-weighted (equally weighted) market index. Panel B reports the results from the Fama-French three factor model. Firms are added to the portfolio in the calendar month following a SPAC-IPO and then kept in the portfolio for 1-, 2-, or 3-years, respectively, unless they are delisted earlier. *MARKET* is the excess return of the value-weighted CRSP index, *SMB* is the return on small stocks minus the return on big stocks, and *HML* is the return on high book-to-market firms minus the return on low book-to-market firms, all measured for a given month. \*, \*\*, and \*\*\* represent statistical significance at the 10%, 5%, and 1% levels, respectively, for a two-tailed test.

**Table 12**

Information Risk and SPAC-IPO returns.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Panel A: Information risk portfolios and SPAC-IPO returns | | | | |
| Rank | *CARt* | | *CARt+1* | |
| Mean | Median | Mean | Median |
| *RISK* |  |  |  |  |
| 1 | -0.055 | -0.088 | 0.431 | -0.081 |
| 2 | -0.436 | -0.590 | -0.337 | -0.323 |
| 3 | -0.576 | -0.607 | -0.115 | -0.536 |
| Panel B: Buy-and-hold abnormal return regressions | | | | |
|  | (1) | (2) | (3) | (4) |
|  | *CARt* | | *CARt+1* | |
| Intercept | 0.226 | 0.240 | 0.816\*\* | 0.694 |
|  | (1.07) | (0.97) | (2.36) | (1.61) |
| *RISKt* | -0.189\*\* | -0.191\*\* |  |  |
|  | (-2.56) | (-2.57) |  |  |
| *RISKt+1* |  |  | -0.260\*\* | -0.247\*\* |
|  |  |  | (-2.21) | (-2.08) |
| *LEVERAGE* |  | 0.147 |  | 0.451 |
|  |  | (0.45) |  | (0.72) |
| *ROA* |  | 0.316 |  | 0.532 |
|  |  | (1.37) |  | (0.83) |
| Observations | 137 | 137 | 81 | 81 |
| Adjusted R2 | 0.04 | 0.04 | 0.05 | 0.04 |

This table reports the results of the association between *RISK* and SPAC-IPO returns. *RISK* is the sum of the following six indicator variables: *MATERIALWEAKNESS*, *RESTATE\_ANNOUNCE*, *NONTIMELY*, *HIGHACCRUALS, NONBIG4,* and *NONNYSE*. *CARt* is the compounded daily returns from the deal-closing date to 3 months after fiscal year end (de-SPAC year t) divided by the number of trading days and multiplied by 252 trading days. *CARt+1*isthe compounded daily returns from the fourth month of the fiscal year t+1 to 3-month after fiscal year end of t+1. Panel A sorts *RISK* into three portfolios and then reports the mean and median *CAR* for each *RISK* portfolio. Panel B reports the results of regressing *CAR* on *RISK*. \*, \*\*, and \*\*\* represent statistical significance at the 10%, 5%, and 1% levels, respectively, for a two-tailed test.

1. In contrast to raising public funds directly from investors through an initial public offering (IPO), SPACs raise public funds with the intention of acquiring a private company with its IPO proceeds (Dimitrova 2017). Between 2010 and 2020, a total of 458 SPACs went public raising $117 billion. In contrast, over the same time-period, 1,339 traditional IPOs went public raising $364 billion (Gahng, Ritter, and Zhang 2021). [↑](#footnote-ref-1)
2. The SEC (2022, p. 66) asserts that the goal is to “align more closely the treatment of private operating companies entering the public markets through de-SPAC transactions with that of companies conducting traditional initial public offerings.” The proposed new rules and amendments would: (1) require additional disclosures about SPAC sponsors, conflicts of interest, and sources of dilution, (2) require additional disclosures regarding business combination transactions between SPACs and private operating companies (e.g., fairness of these transactions), (3) address issues relating to projections made by SPACs and their target companies. [↑](#footnote-ref-2)
3. SPAC agreements typically require completion of an acquisition within 18 to 24 months of its formation (PwC 2021). In the absence of finding a suitable target, their loss function may incentivize sponsors to identify targets that erode shareholder value. Also, as compensation for their efforts, SPAC-sponsors pay a nominal amount for a stake in the SPAC (typically 20%) (Deloitte 2020). Therefore, for a merger to succeed, sponsors only require 30% of the SPAC shareholders to vote in favor of a merger. [↑](#footnote-ref-3)
4. For instance, when merging with a SPAC, auditors of the target firm must consider the following SEC reporting considerations: (1) accounting for shares and warrants issued by the SPAC, (2) [classifying share-settleable earn-out arrangements](https://dart.deloitte.com/USDART/home/publications/deloitte/financial-reporting-alerts/2020/spac-transactions" \l "SL718698580-542464), (3) [share-based payment considerations](https://dart.deloitte.com/USDART/home/publications/deloitte/financial-reporting-alerts/2020/spac-transactions#SL725743284-542464), (4) Super 8-K requirements, and (5) for audits of fiscal years ending on or after December 15, 2020, critical audit matters (CAMs) must be included in auditors’ reports that refer to PCAOB standards, except when the registrant qualifies as an EGC (see Deloitte 2020 for details). [↑](#footnote-ref-4)
5. <https://www.wsj.com/articles/spacs-are-warning-they-may-go-bust-11653601111>. [↑](#footnote-ref-5)
6. Our analysis of control issue differences indicate that SPAC-IPOs are more frequently associated with acquisition integration and management review issues than non-SPAC-IPOs. Our analysis of accounting policy issues differences indicate that SPAC-IPOs are more frequently associated with accounting issues related to warrants, revenues, liabilities and accrued expenses, and complex accounting issues (e.g., related party transactions, affiliated subsidiaries, and acquisitions) than non-SPAC-IPOs. [↑](#footnote-ref-6)
7. Our odds ratios (for internal control weaknesses and restatements) are derived from logistic regression estimates. In contrast, Kim et al. (2022) appear to rely on OLS regressions and therefore odds ratios are not reported in their study. We compute the implied odds ratios from their study using the relevant univariate numbers reported in their Table 1. [↑](#footnote-ref-7)
8. *RISK* is the sum of six individual risk metrics scores where an individual risk metric is assigned a score of one if a SPAC-IPO is associated with an internal control weakness, a restatement announcement, a non-timely annual filing, a non-Big 4 auditor, above median accruals, or a non-NYSE listing (NASDAQ or OTC). Delisting is excluded from *RISK* because this information may not be available for the risk measurement period. [↑](#footnote-ref-8)
9. Although the amount of time between the deal announcement and the deal closing can vary greatly on the basis of the readiness of the operating company, it can be as short as four to six months. [↑](#footnote-ref-9)
10. The *Super* 8-K is essentially a Form 8-K that includes information that’s equivalent to the presentation and disclosure requirements of a Form 10 initial registration statement. A Super 8-K includes the following disclosure items: (1) Item 2.01, Completion of Acquisition or Disposition of Assets, (2) Item 5.01, Changes in Control of Registrant, (3) Item 5.06, Change in Shell Company Status, and (4) Item 9.01, Financial Statements and Exhibits. The Super 8-K should also include a discussion of risk factors in accordance with Item 105 of Regulation S-K, financial information as required by Items 301, 303, and 305 of Regulation S-K, financial statements as required by Regulation S-X, and the supplementary financial information as required by Item 302 of Regulation S-K. [↑](#footnote-ref-10)
11. Traditional IPO pricing is affected by market volatility and broader investor sentiment, which can vary significantly leading up to the time of pricing. However, SPAC mergers provide more certainty because of up-front pricing and valuation that is determined through negotiations that typically occur months before the transaction closes. [↑](#footnote-ref-11)
12. As industry veterans, SPAC-sponsors are often viewed as specialized private equity general partners. They serve as ad hoc underwriters who rely on their reputation and expertise to identify high valued private companies (Lewellen 2009). Practitioners tout sponsors’ superior abilities in identifying investment opportunities efficiently and reaching agreements with target firms swiftly (Rodrigues and Stegemoller 2021; Gahng et al. 2021). [↑](#footnote-ref-12)
13. Unit holders in the SPAC are allowed to keep their warrants even when they redeem their common shares, which can lead to heterogeneity in preferences for volatility amongst SPAC investors. Additionally, SPAC investors can vote in favor of a merger, but redeem their common shares, which can lead to different preferences related to the riskiness of target companies amongst investors. [↑](#footnote-ref-13)
14. For instance, NASDAQ requires a minimum of 1.25 million publicly traded shares, while NYSE requires initial issuance of at least 1.10 million shares, a minimum of 400 initial shareholders, and the market value of shares be at least $40 million. [↑](#footnote-ref-14)
15. Under Section 2(a)(19) of the Securities Act, an emerging growth company (EGC) has total annual gross revenues of less than $1.07 billion during its most recently completed fiscal year. The disclosure requirements for emerging growth companies are less stringent than for other public companies (e.g., less disclosures needed for executive compensation, audited financial statements for only two fiscal years, exemption from auditor attestation requirements of internal control over financial reporting). [↑](#footnote-ref-15)
16. To avoid the impact of influential observations, we convert *EARN*, *CFO* and *ACC* into decile rankings and then use those rankings in estimating equations (4) and (5) instead of using the raw values. [↑](#footnote-ref-16)
17. Because we focus on SPAC-IPOs and not on SPACs, i.e., the year the private target company merges with a SPAC and starts trading as a public company and not the year the SPAC gets listed on an exchange as a public company, our starting year is 2010 which is the first year a SPAC-IPO starts trading. [↑](#footnote-ref-17)
18. Because there is no variation in non-timely annual filings for the non-SPAC-IPO sample, we cannot estimate a logistic regression for non-timely filings. [↑](#footnote-ref-18)
19. When we exclude delays related to restatements and control issues, we continue to find significant differences in annual filings delays between SPAC-IPOs and non-SPAC-IPOs. [↑](#footnote-ref-19)
20. The mean (median) value of *SPONSOR\_BOARD%* is 23.5% (22.2%). The mean (median) value of *PIPE* is 0.59 (1.00). The mean (median) value of *FIRSTYEAR* is 0.10 (0). [↑](#footnote-ref-20)
21. When we use earnings persistence as the dependent variable, none of the coefficients on *SPONSOR\_BOARD%, PIPE, or FIRSTYEAR* is significant. One potential explanation for the statistically weaker results in our cross sectional tests is the lack of power. The frequency of some of the outcome variables is relatively small and this small sample size is reduced further when we condition on the SPAC observables. [↑](#footnote-ref-21)