

EMERGING TRENDS IN THE SPECIAL PURPOSE
ACQUISITION COMPANY MARKET:
IMPLICATIONS OF FRONT-END
IPO UNDERPRICING

by

James Griffin

Submitted in partial fulfillment of the
requirements for Departmental Honors in
the Department of Finance
Texas Christian University
Fort Worth, Texas

May 7, 2018

EMERGING TRENDS IN THE SPECIAL PURPOSE
ACQUISITION COMPANY MARKET:
IMPLICATIONS OF FRONT-END
IPO UNDERPRICING

Project Approved:

Supervising Professor: Swaminathan Kalpathy, Ph. D.

Department of Finance

William Moncrief, Ph. D.

Department of Marketing

ABSTRACT

Special purpose acquisition companies (SPACs) are a form of investment vehicle that has seen a significant degree of capital inflow over the last few years. In an effort to understand the trends driving inflows, I examined first-day returns associated with different portions of the market and compared those first-day returns with returns associated with traditional initial public offerings (IPOs). After conducting an event study test, I found that SPAC IPOs are on average underpriced to a more significant degree than traditional IPOs. I suggest that this dynamic occurs since investors have less information available to factor into the price discovery process, leading to greater uncertainty in the value of the investment. I additionally found that larger SPAC IPOs experience a greater degree of underpricing than smaller SPAC IPOs. I propose that this occurs as a function of the investor base with which SPAC tends to be associated with. SPACs looking to raise greater sums of money look to raise money from larger institutional investors, who have a greater ability to negotiate more favorable investment terms.

Introduction

I spent last summer working for the Credit Suisse Financial Institutions Group (FIG) in the Investment Banking & Capital Markets (IBCM) division. The experience exposed me to many intriguing financial processes, products, and business models. Perhaps the most intriguing of all concepts I came across during my time working for the investment banking group was an investment vehicle called the special purpose acquisition company (SPAC). As I began to talk with group peers about the vehicle and dynamics supporting the bucking trend, I found it much easier to come up with questions about the capital-raising technique than answers. I used this project as an opportunity to uncover and address several of those questions. After undergoing this extensive process, my questions primarily revolved around the potential impact of the popularization of this procedure on the greater economy and implications of SPAC market dynamics on other more traditional areas of investing. If the popularization of SPACs begins to account for a significant portion of the overall IPO market (traditional IPOs and otherwise), will it have a meaningful impact on systemic risk? How safe is the capital raised during the SPAC IPO process? Finally, what do the various trends visible in the SPAC market tell investors about potential dynamics and relationships in more traditional components of the IPO market and broader economy?

As I worked through the research process, I additionally uncovered a curiosity in the factors that contributed to the formation of a successful post-acquisition operating company. While I have found sufficient research on factors that lead to SPAC-shareholder approval, I am interested in determining what might lead to meaningful long-term returns for investors that engage in passive buy-and-hold trading strategies. Many current investors in these vehicles are activist investors looking to uncover arbitrage opportunities present due to liquidity-related

mispricing between the SPAC price and trust value. As SPACs become more available to retail investors, I want to explore whether these vehicles provide buy-and-hold investors with a structure that protects their fiduciary interests. More specifically, I would like to see if the vehicle performs the function it was initially devised to perform – provide alternative private-equity-esque investment opportunities for a broader base of investors (accredited investors and otherwise) with additional needs for liquidity.

In conducting my research for this thesis, I saw many parallels between the SPAC vehicle and private equity investing. This parallel drew my attention to the various divergences between the two vehicles. As private equity investing became more popular and gained traction in the news, such an opportunity captured the intrigue of a broader set of investors. Additionally, as more investors began to include private equity investments in their portfolio, drawbacks and risks inherent to the investment vehicle began to materialize. SPACs developed as a response to the selective nature of private equity investing and intrinsic shortfalls associated with private equity investment. Voice and exit were two excessively-striking sources of risk that seemed to be unavoidable within the private equity investment vehicle.

While the inflated returns associated with an investment in private equity drew widespread attraction from different corners of the market supplying capital for such funds, investors ultimately rediscovered that returns do not come without commensurate risk. The first and most obvious source of risk associated with a private equity investment is that it represents a very illiquid form of investing. Capital suppliers pledge a certain degree of capital to management upfront and are extremely limited in their ability to exit the position. Often, the private equity firm will allow investors to pull their capital prior to the agreed-upon maturity date of the investment, however, investors are not allowed to pull their investment all at once and

have restrictions imposed upon when and how often they are able to exit their position. This presents an excessive amount of market risk (depending upon the nature of the actual investments) and risk to an investor that might need to pull capital out of the fund to repay other commitments.

In addition to exit constraints, investors are limited in their voice regarding the management of their funds. Once investors pledge their capital, there is a significant degree of separation between financiers and decision-makers. While management teams agree to certain terms regarding the firms they are able to use investor-sourced capital to invest in, they have a significant degree of autonomy to make their own decisions regarding the management of the private equity fund. As these shortfalls within the private equity investment vehicle materialized contemporaneously with the broader intrigue in retail exposure to alternative forms of investing, the SPAC investment vehicle developed and slowly gained traction.

As I conducted research on SPACs in general and sought to identify where we have current gaps in our knowledge base, I found fairly little research has been done in the arena in relation to initial public offerings and other topics related to capital-raising techniques. Much of what has been done today represents a purely mechanical view of what a SPAC is and does not delve into questions relating to viability of the capital-raising method or broader implications of its popularization in the market. This provides me with a greater opportunity to produce some novel, contributory research in the field. Therefore, I plan on investigating underpricing in SPAC IPOs given different characteristics to see if I can determine how the SPAC market is similar and different to the traditional IPO market.

In the pages that follow, I will first walk you through the literature I consumed in an effort to build the context necessary to address this question. I read materials related to

examining the capital-raising options available to companies and managers who do not have enough resources to consider the traditional IPO route. I focused my researching efforts on reading material that specifically focused on the mechanics of raising capital through SPAC vehicles. The most detailed pieces of work devoted to studying this area often addressed characteristics that made it more or less likely for a proposed acquisition to be accepted by shareholders during the proxy vote. After building the context necessary to address this complicated subject in an academic setting, I worked with my advisor to devise a test designed to uncover contributory data to this burgeoning field. We decided to run an Eventus (offered through the Wharton Research Database Service) event study test in order to examine first-day returns among the SPACs that have occurred within the designated research window. I will explain the various inputs I submitted to the program for analysis, the constraints I employed to maximize the quality of the data, and the measures I used to examine the output. After examining all of the relevant information in the Methodology section of this paper, I will discuss my results and consider any revelations the event study might have suggested. Finally, I will propose further room for study in this relatively under-served field and spend a bit of time ruminating upon what this project meant to me and my academic (and professional) endeavors.

Literature Review

In an effort to better understand this investment vehicle, components supporting the ultimate approval of a proposed business combination, and components dictating the ultimate success of the capital-raising method as an efficient capital allocator, I parsed through numerous academic papers, books, and Internet sources. I conducted research that focused directly on SPACs while also considering ancillary trends such as growth in opportunities for capital-raising alternatives for small companies. In the following section I will synthesize the material I have

uncovered through my preliminary efforts at developing an understanding of SPACs and their implications for our financial system moving forward.

Before delving into implications of growth in the SPAC market it is crucial to understand the mechanics and basic underlying structure of a SPAC. A SPAC is a form of capital-raising in which an entity raises public funds for the sole purpose of acquiring a private company. Essentially, the SPAC raises money through a traditional initial public offering, conducts a target company selection process, proposes an acquisition to its shareholder base, then acquires the company if its shareholders approve of the choice. IPO proceeds are locked up in a trust account until management proposes an acquisition, at which point the funds are either used to acquire the proposed target (if the deal is approved by the shareholder base) or returned to shareholders in full (if the deal is rejected and no acquisition is made before the end of a two-year investment window). SPAC managers are typically constrained by a two-year time horizon during which they must propose an acquisition target to shareholders. If shareholders reject the proposed transaction, SPAC managers must find a new target before this timeline comes to a close. If shareholders approve the transaction and the SPAC acquires the private entity, the operating company becomes public through a reverse merger. Current regulation provides managers looking to engage in private equity-style investing (while focusing on a single company) with an opportunity to do so in a compliance-efficient manner. On the other side of the equation, this investment vehicle provides investors with a “bet on the jockey” opportunity to invest their money in a relatively low-risk structure.

As this structure straddles between the traditional IPO process and the reverse merger, it is fundamentally important to understand the underlying trends of both IPOs and reverse mergers in relation to the SPAC structure. Since the regulation that allows for reverse mergers to take

place institutes a fund-raising cap, it will be most informative to specifically consider small company capital raising trends (for purposes of my research, I considered IPOs that raised proceeds greater than \$100m as the market fundamentally changes when IPOs that raised less than \$100m are considered). Companies acquired by SPACs tend to be smaller as less capital is available to SPAC managers than private equity managers. On a broader financial level, initial public offerings have been the most consistent method for capital-raising on the primary equity markets, however, certain events and market conditions have created occasional spells during which the IPO has fallen out of favor. One such spell occurred in the early 2000s as a result of several market phenomena.

First, Sarbanes-Oxley shifted the focus of public market capital-raising from a pro-growth policy towards a policy directed towards shielding investors from fraud. The act was passed in the wake of the Enron and WorldCom accounting scandals and sought to protect investors from fraudulent financial reporting. While the act certainly served its intended purpose of protecting the investor, the act had the unintended consequence of stymying the ability of small companies to raise capital through the traditional IPO process. The act forced companies to hire an outside auditor and required both the CEO and CFO to personally certify the adequacy of the report. While the third-party auditor requirement has since been relaxed, the initial financial implications of the bill rendered the IPO too costly and risky for small company engagement.

In addition to Sarbanes-Oxley, several bills fundamentally changed the composition of the equity research industry and served to depopularize many small companies that were public. Regulation FD stiffened the material information disclosure process, while the Global Research Analyst Settlement erected a Chinese wall between the research and investment banking

departments of all diversified banks. In effect, the regulation stole away all incentive for research analysts to spend time covering smaller stocks. With the diminished amount of attention from Wall Street, small companies saw their liquidity drain and stock prices depress.

Each independent issue led smaller companies to search for alternatives to the traditional answer for listing on a stock exchange. This shift in attention led small companies to begin favoring the reverse merger as a method for going public. This method gained popularity between 2000 and 2010. These transactions were much less costly, faster, and relatively sheltered from the market (less prone to an “IPO window”). While IPO’s could raise more money, the companies considering the two options tended to be smaller in nature necessarily shifting importance away from this factor. Just as regulatory forces sent smaller companies looking to list on an exchange away from traditional IPO’s towards reverse mergers in the early 2000s, regulation similarly stifled the reverse merger as a viable option. Alleged fraudulent activity among Chinese companies looking to go public through the reverse merger process drew attention toward the diminished scrutinization inherent to the cost-advantage drawing attraction towards the procedure and resulted in heightened oversight. Authorities passed seasoning rules that forced reverse merger shells to trade over-the-counter for a minimum period of a year before applying to list on a national exchange. This way, public investors could receive access to a full fiscal-year of information before considering an investment in tradeable stock.

Similar to fluctuating demand characteristics driving the IPO and reverse merger market, trends in the SPAC market tend to rely upon regulatory changes. While SPACs first appeared in the 1980s in the form of blank check companies, the typical blank check company was a much riskier and fraudulent investment vehicle than the entity we have come to see in the market today. These blank check companies were notorious for overemphasizing the potential for value

creation of the intended acquisition to generate investment. These companies got away with such practices due to lackadaisical oversight and light reporting requirements. As a result, the Penny Stocks Reform Act of 1990 required greater degrees of disclosure and required an automated quotation system for pricing. In combination with Rule 419, which forced SPACs to store IPO proceeds in a trust account, the Penny Stocks Reform resulted in a significant dry-spell in SPAC activity. The market saw a subsequent wave in interest beginning in 2003, concurrent to the market shift from traditional IPOs to capital-raising alternatives. The popularity of the transaction grew in terms of number of deals and deal size until the financial crisis, at which point the market subsided. A recent resurgence in the trend serves as one of the main points of inspiration for this research. 2018 has already seen 43 SPAC IPOs raise \$10.1bn. The peak of SPAC activity occurred in 2007 when 66 IPOs raised \$12.1bn. While the process has commanded very little research attention in comparison to IPOs and even reverse mergers, the uptick in activity is generating newfound interest in the field. Current research is focusing on better understanding the structure, contributory factors leading to shareholder approval, and, ultimately, successful business combinations.

One of the more concrete examples of this improvement in industry research is the work published by Douglas Cumming, Lars Helge Hass, and Denis Schweizer in 2014. In their paper, the aforementioned authors explore various factors that result in greater chances of shareholder approval. Rather than focusing on current returns, the authors consider a variety of SPAC characteristics and run a logit model to consider the probability associated with each characteristic in contributing to an affirmative shareholder vote. This paper exposed many inconsistencies between the behavior of SPACs and commonly accepted characteristics of

corporations. I consider this work to be pivotal in the development of my personal understanding of the SPAC.

Essentially, one can divide SPAC characteristics into five distinct categories: structural data, IPO process data, ownership structure data, operations and performance data, and human capital data. Characteristics relating to each category have varying impacts on the ultimate proxy vote and the likelihood of an affirmative vote for a proposed business combination. One must take a holistic approach in considering whether or not a shareholder base is likely to vote to pursue a target acquisition company. After parsing through the Cumming (2014) paper, I learned that younger SPAC management teams, a minimization of underwriters, a sturdy average underwriter reputation, the diversification of shareholder interests and maximization of passive buy-and-hold investors, and increased management voting rights each contribute to greater chances for an affirmative shareholder vote (each characteristic contributing in varying degrees).

While some of the variables mentioned made logical sense, others exposed relationships that diverged from characteristics the business community had previously held to be true for corporations. For example, one might have expected experience to play a significant role in the likelihood of obtaining shareholder approval. One would expect shareholders to trust a manager with acquisition experience, business experience, and tenure more than they would trust a younger management team. Data actually supported a conclusion in the opposite direction. In fact, data meaningfully suggested there is a positive correlation between a younger average management age and shareholder approval likelihood. The proposed reasoning behind this phenomenon reflects several characteristics younger managements would seem to champion. Shareholders value the time, energy, proximity, and relative wealth incentive younger management teams bring to the table more than they value experience and maturity. Similarly,

one would expect a larger board to result in a poorer overall performance for the firm. Such a relationship has been firmly established among corporations through extensive academic research rooted in the views of Yermack (1996) and Eisenberg et. Al (1998). When it comes to SPACs, however, the relationship between board size and firm performance is positive and relatively insignificant. The most important takeaway from this datapoint is that contributory components for success in SPACs significantly differ from the characteristics that lead to success in typical corporations.

Ownership concentration additionally plays a significant role in the ultimate result of the proxy vote. Activist investors, specifically hedge funds and private equity firms, tend to be the most prevalent investors in SPACs. With that said, activist rationale for investing in these investment vehicles necessarily differs from their rationale for investing in traditional equities. Typically, these entities will invest in SPACs because they have identified a mispricing and are attempting to trade on an arbitrage opportunity. Typically, this arbitrage is presented when the SPAC shares are trading at a discount to the value of the trust account. This mispricing is grounded in the illiquidity of the SPAC vehicle and uncertainty associated with the ultimate acquisition. For that reason, many activists are less concerned with investing in a SPAC so they end up with shares in an operating company as they are with earning a potential risk-free profit from asset mispricing.

Given the nature of activist investor interest in this market, the logit model found a negative correlation between activist ownership and the probability of a shareholder approval. This supports the expectation prior to the regression test as one would expect shareholder approval to be less likely with an anti-acquisition major shareholder present in the capital structure. Often management will buy activist shares at a premium in order to increase chances

of an acquisition. Since management will only receive compensation if a deal goes through, it is much more costly for them on an opportunity cost basis to liquidate their SPAC than it would be to purchase activist shares at a premium in order to stack the deck and approve a proxy vote. Understandably, ownership interest prior to the proxy vote has an extremely significant positive correlation with shareholder approval likelihood.

As these dynamics expose the relationship between shareholder approval likelihood and payoff incentives for involved stakeholders, it should become apparent that it is imperative that all interests are as aligned as possible in these transactions. Especially if the SEC wishes to allow retail investors to invest their money in a SPAC, regulation must do its part to ensure individual investors are not subject to the complete whim of management and large activist shareholders. For this reason, I decided to focus my research on relative underpricing in SPAC markets as opposed to traditional IPO avenues, as well as among SPAC IPOs that raised greater than \$100m and less than \$100m. The rationale behind the latter distinction originated from the association of larger SPAC IPOs with larger institutional investors (sourced through a primary interview with a member of a prominent SPAC underwriter team). Research on traditional IPOs suggests that one would expect less underpricing in large company IPOs than small company IPOs due to the greater stability in cash flows and greater collateral available to support the investment. With the previous literary research in mind, I came to expect the opposite as larger investors attracted notoriety for engaging in greenmail with SPAC management teams and wrenching arbitrage out of the trust account structure. Therefore, I decided to look at underpricing in SPACs in comparison to more traditional IPOs to see if I could identify a deviation, then more specifically on large vs. small SPAC IPOs.

Research and Methodology

Extracting data on special purpose acquisition companies and sourcing return data proved to be excessively difficult. The first step in the process involved aggregating a list of all of the SPACs that have actually occurred during my research window. To avoid broader market-based influences, I began my research window on January 1, 2010. The financial crisis led to a virtual halt of capital inflow to the SPAC market (as many other areas of the market also saw a halt in inflows/increase in severity of outflows during this period). Market conditions began to ease in 2010, therefore, I began to aggregate data on SPACs that occurred starting after this date. I defined the other end of the research window as December 31, 2016. I chose this date so I could reserve the potential to analyze resolution data associated with each of the SPACs examined. As you will recall from my literature review section, SPACs exist as shell companies for two years. They resolve in one of two ways – through a shareholder-approved acquisition or liquidation of the trust account. Either way, the SPAC reaches its resolution within two years. I excluded SPACs that began trading after December 31, 2016 in the event I found a way to analyze post-acquisition trading results. Such an experiment proved to be complicated as long-term return analysis is difficult to conduct for traditional IPO companies. More specifically within the SPAC market, companies within the SPAC market are even more difficult to analyze post-acquisition due to the change in identity of the company literally (due to the change in ticker) and operationally (the company changes from a non-operational shell company to a company with operations). With that said, I stuck with my originally-defined window of SPAC IPOs that occurred between January 1, 2010 and December 31, 2016.

In order to identify all of the IPOs that occurred between the start and end of my research window, I conducted several iterations of screening. First, I utilized ProEdgar, a service that searches the EDGAR SEC database for specific keywords, to identify all registration statements

that were filed using the “Blank Check Company” SIC code (“6770”). This returned a relatively large base of companies representing the kind of companies for which I was specifically searching, as well as blank-check companies I wished to exclude (blank check corporations not utilized in a SPAC investment vehicle). In order to shave off the companies I did not want to examine, I performed a news search for each of the companies in my SPAC universe. I additionally used this method of research to confirm the first day of trading for each of the SPACs I included in my research. While this certainly was time-consuming, this was the only way to ensure I avoided pulling data for blank check companies that had not actually engaged in a SPAC IPO. If I performed a news search for a company that did not return any stories about an IPO or SPAC resolution, I redacted the company from my SPAC dataset. To confirm the accuracy of this set of companies, I sent my SPAC universe to the industry insider whom I had previously interviewed for review. While the insider could not send me his historical list of SPACs (due to the proprietary nature of the list), the insider confirmed that my list was accurate. After undergoing this rigorous form of data aggregation, I was left with a universe of 74 SPACs. In order to perform future tests on SPAC IPOs based on size of proceeds raised during the IPO, I additionally pulled data on the size and resolution of each SPAC IPO. I found this information using Bloomberg and cross-checked the data through performing the same news search I utilized to confirm the SPAC nature of each of the blank check companies.

After aggregating my list of SPAC companies and confirming the accuracy of the list, I was prepared to conduct my first-day return analysis. In order to conduct these tests, I utilized the Eventus platform available on the Wharton Research Database Service (WRDS). In order to perform this test, I simply needed to provide the program with a list of PERMNOs that represented the specific securities I wanted to test and the date that I wanted to examine. I

provided the list of those securities and dates to Eventus as my input and clarified the parameters of my test. I clarified that I would be looking at the security returns on market-adjusted basis to ensure my results reflected security-specific returns as opposed to returns impacted by broader market fluctuations. I additionally clarified I would be referencing the market on an equally-weighted and value-weighted basis.

Once I submitted the input group of securities with the parameters clarified, Eventus ran the event study test and returned an output page. The output page first included the amount of securities included in the input file, the amount of securities it needed to drop due to without recorded data, and a conciliatory figure listing the amount of securities with useable returns. The Eventus program required that any given security have 10 days of return data available in order to use the security for the event study test. After this summary page, the output listed each of the input securities and denoted which specific securities met the necessary constraints to be included in report results. Finally, the output report displayed mean abnormal returns on each of the first 10 days of trading for each of the securities included. The report additionally included the number of securities that experienced positive or negative returns each of the first ten days, as well as several figures measuring the statistical significance of the return data.

I utilized several different input lists to obtain various results. As I mentioned earlier, I divided my inputs by proceeds-raised (above and below \$100m) as well as considering all SPAC IPOs in comparison with all traditional IPOs that occurred during my research window. I underwent the same process for each of the aforementioned input universes in order to study the differences in mean abnormal first-day returns.

Results

SPAC IPOs - No Size Constraints

Market Adjusted Returns, Equally Weighted Index

Day	N	Mean Abnormal Return	Positive: Negative	Patell Z	Portfolio Time-Series (CDA) t	Generalized Sign Z
0	20	1.19%	8:12	34.512***	0.460	-0.625
+1	69	7.89%	40:29>	61.076***	3.049**	1.830*
+2	69	-2.16%	31:38	-13.878***	-0.833	-0.341
+3	71	0.50%	40:31)	-9.781***	0.193	1.581\$
+4	66	-0.48%	37:29)	0.183	-0.185	1.479\$
+5	69	0.80%	35:34	5.593***	0.311	0.624
+6	70	0.10%	32:38	0.621	0.038	-0.211
+7	74	0.01%	37:37	-1.285\$	0.005	0.522
+8	72	0.09%	29:43	0.868	0.034	-1.138
+9	71	0.19%	36:35	0.803	0.072	0.630
+10	67	7.11%	27:40	31.864***	2.747**	-1.095

The symbols \$,*,**, and *** denote statistical significance at the 0.10, 0.05, 0.01 and 0.001 levels, respectively, using a generic one-tail test. The symbols (< or >), > etc. correspond to \$,* and show the direction and significance of a generic one-tail generalized sign test.

Eventus (R) Software from Cowan Research, L.C.

Traditional IPOs - No Size Constraints

Market Adjusted Returns, Equally Weighted Index

Day	N	Mean Abnormal Return	Positive: Negative	Patell Z	Portfolio Time-Series (CDA) t	Generalized Sign Z
0	3	45.35%	3:0>	684.989***	245.157***	1.813*
+1	631	1.06%	338:293>>	8.584***	5.747***	2.941**
+2	631	0.25%	320:311)	1.029	1.340\$	1.506\$
+3	631	-0.10%	279:352<	-0.847	-0.542	-1.761*
+4	631	-0.26%	271:360<<	-2.665**	-1.407\$	-2.399**
+5	631	0.14%	330:301>	1.784*	0.751	2.303*
+6	631	0.18%	320:311)	0.588	0.999	1.506\$
+7	631	-0.24%	274:357<	-2.177*	-1.283\$	-2.160*
+8	631	0.13%	309:322	-0.112	0.711	0.630
+9	631	0.09%	310:321	1.252	0.499	0.709
+10	631	0.08%	289:342	1.503\$	0.406	-0.964

The symbols \$,*,**, and *** denote statistical significance at the 0.10, 0.05, 0.01 and 0.001 levels, respectively, using a generic one-tail test. The symbols (< or >), > etc. correspond to \$,* and show the direction and significance of a generic one-tail generalized sign test.

Eventus (R) Software from Cowan Research, L.C.

SPAC IPOs - Above \$100mm in Proceeds

Market Adjusted Returns, Equally Weighted Index

Day	N	Mean Abnormal Return	Positive: Negative	Patell Z	Portfolio Time-Series (CDA) t	Generalized Sign Z
0	17	3.16%	7:10	30.985***	0.612	-0.516
+1	32	15.20%	22:10>>	82.515***	2.939**	2.415**
+2	32	-2.24%	12:20	-9.616***	-0.433	-1.125
+3	33	-1.90%	18:15	-10.956***	-0.368	0.819
+4	29	-0.94%	14:15	-0.170	-0.182	0.091
+5	32	3.30%	20:12>	13.479***	0.639	1.707*
+6	31	-0.36%	15:16	-2.807**	-0.069	0.107
+7	34	-0.24%	16:18	-1.926*	-0.046	-0.043
+8	33	0.29%	12:21	2.504**	0.056	-1.273
+9	33	-0.20%	16:17	0.839	-0.039	0.122
+10	32	14.32%	13:19	45.143***	2.768**	-0.771

The symbols \$,*,**, and *** denote statistical significance at the 0.10, 0.05, 0.01 and 0.001 levels, respectively, using a generic one-tail test. The symbols (< or >) etc. correspond to \$,* and show the direction and significance of a generic one-tail generalized sign test.

Eventus (R) Software from Cowan Research, L.C.

SPAC IPOs - Below \$100mm in Proceeds

Market Adjusted Returns, Equally Weighted Index

Day	N	Mean Abnormal Return	Positive: Negative	Patell Z	Portfolio Time-Series (CDA) t	Generalized Sign Z
0	3	-10.00%	1:2	-21.047***	-13.263***	-0.460
+1	37	1.57%	18:19	6.418***	2.086*	0.252
+2	37	-2.09%	19:18	-10.008***	-2.769**	0.581
+3	38	2.58%	22:16)	-3.124***	3.426***	1.398\$
+4	37	-0.11%	23:14>	0.384	-0.151	1.899*
+5	37	-1.36%	15:22	-4.956***	-1.798*	-0.737
+6	39	0.46%	17:22	3.234***	0.612	-0.375
+7	40	0.23%	21:19	0.025	0.300	0.750
+8	39	-0.08%	17:22	-1.117	-0.108	-0.375
+9	38	0.53%	20:18	0.314	0.698	0.747
+10	35	0.52%	14:21	0.130	0.692	-0.781

The symbols \$,*,**, and *** denote statistical significance at the 0.10, 0.05, 0.01 and 0.001 levels, respectively, using a generic one-tail test. The symbols (< or >) etc. correspond to \$,* and show the direction and significance of a generic one-tail generalized sign test.

Eventus (R) Software from Cowan Research, L.C.

Discussion

Virtually all of the results that I uncovered countered the expectations that I had initially held upon approaching this project. I was initially doubtful I would see much abnormal underpricing in this market at all, let alone in comparison to the traditional IPO market. I had reasoned that the traditional IPO market deals with operating companies with real, discountable cash flows. Investors have something tangible and projectable that they can examine, and as more and more information is revealed to the market, the price will come to reflect the theoretical value of the company represented by the tradeable security. On the contrary, SPACs are not operating companies. They are essentially a bet on the jockey – a share in the potential future profits the SPAC manager decides to target as an acquisition. There are no cash flows for the market to value when the stock begins trading and no multiples for investors to compare to other securities they deem to be similar. In fact, there would not even be a valid comparable set of companies for investors to compare the security to. The bottom line is that investors plain and simple do not know what they are getting themselves into. Therefore, I expected that the security initiated through the initial front-end IPO would trade relatively stagnantly until news began to leak out for investors to digest. This, however, was not the case.

My tests showed that not only do SPACs see underpricing, they see much more underpricing than do traditional IPOs. Furthermore, when my data set was divided between SPACs that raised greater than \$100m and SPACs that raised less than \$100m, I was able to source exactly where the majority of underpricing was coming from. SPACs that raised greater than \$100m in their front-end IPO saw extremely significant underpricing (as represented by double-digit average abnormal first-day trading returns). This additionally ran counter to my expectations. In the traditional IPO market, and equity markets in general, one would expect

stocks representing smaller companies to exhibit more price volatility than larger companies. Cash flows from the operations of smaller companies tend to be more volatile, smaller companies have less collateral for investors to lean upon in times of distress, leading to the predominant view that an investment in a smaller company is a riskier investment than an investment in a large company. Investors expect to be compensated for risk, therefore, they expect greater returns from smaller companies. I expected this dynamic to translate to the SPAC market. As my data showed, however, first-day returns for larger SPACs tended to be much greater than first-day returns for smaller SPACs. In fact, underpricing associated with SPACs raising less than \$100m were much more in-line with first-day abnormal returns displayed by the traditional IPO event study test I ran.

As these are two separate conclusions, I will propose separate explanatory phenomena for each. I will begin by addressing underpricing in the SPAC market relative to the traditional IPO market. The fact that there are cash flows and an underlying, operational business for investors to examine presents a basis for the market to determine the price at which a security should sell. While different investors may have diverging views on the quality of the cash flows, prospects of future growth, and quality of collateral supporting their investment, at least there exists tangible, projectable data for investors to work with. SPACs represent a completely speculative investment. While the investment is certainly not an all-or-nothing gamble (given the protection of raised funds in a trust account and nearly-full return in the event of a liquidation), investors have no insight as to how valuable a SPAC investment might be. There is an extremely limited amount of information that is revealed to investors in the prospectus for any given SPAC. Essentially, investors in this corner of the market are only able to value the management team associated with the vehicle, the covenants governing the target company approval process, and

the conditions managing how proceeds are stored in the escrow account. I was able to find literature examining each of these three characteristics during my research process. With that said, the literature I found examining management team characteristics only addressed shareholder approval likelihood, not performance of the SPAC stock or post-acquisition company. Additional literature suggested that SPAC quality was originally much more related to significance of shareholder voice and has become much more dependent upon exit as represented by much higher trust account-to-proceeds-raised ratios (the average is now greater than 100%, which can occur when the management team increases their promote, or personal stake in the game).

In addressing the second conclusion to which my event study test pointed, one must consider this voice-to-exit trend exposed during my literature review. Today, SPAC investors are primarily concerned with their ability to exit an investment. With that said, the average retail investor does not have too much power on his or her own to dictate the terms of their exit, or more specifically, the terms of the SPAC trust account. Though the average retail investor might not have this power, large institutional clients do. Large, institutional clients are the primary shareholders invested in the SPACs that raise greater \$100m. I would posit that the reason larger SPACs experience more significant underpricing is because of the SPACs are associated with a more powerful and demanding investor base. The only way to actively manage the trust-account-to-proceed ratio is by substituting management contributions for less investor-raised proceeds in the IPO. SPACs associated with larger institutional investors are more secure investment vehicles than smaller SPACs associated with retail investor bases, but often begin trading at the same initial price as these smaller SPACs given the non-operating nature of the business funded by the security. Most SPACs begin trading at a price in the ballpark of \$8-10

per share. As the management team contributes to the fund and reduces the riskiness of the investment for external shareholders (in the event of liquidation), the share price responds accordingly.

This test was difficult to stage and run, and necessarily was not able to be perfect or airtight. The most glaring imperfection of this whole test was the quality of my sample. SPACs are still not an extremely popular form of capital-raising, therefore, I had to settle for a much smaller sample size than samples in tests examining underpricing in the traditional IPO market. While I narrowed my research window in an effort to reflect a sufficiently diverse, yet relevant period of market conditions, the condition of the market was much different at the beginning of my research window than it was at the end of my research window. I utilized an event study test that adjusted for market-related price action, however, some of my results may have been skewed by differences in the overall market not related to the specific SPAC I was looking to study.

As a final component of this project, I had an opportunity to consider potential areas for future research. There exists a major hole in research on the actual post-acquisition operating performance of companies acquired by SPACs. I considered looking into performing similar event study tests on the long-term trading performance of SPAC-acquired operating companies, however, I did not want extend the scope of this project beyond a point at which I felt I could study the nature of one question with sufficient diligence. As this field continues to be examined, I would expect academics to begin looking beyond the trading performance of SPAC-acquired firms and come up with ways to examine the accounting performance of SPAC-acquired companies.

Implications

The conclusions contained within this report are relevant for two main groups outside of the academic finance field – investors and managers looking to raise money to acquire a business. The implication corresponding to investors is much more significant and interesting to me, therefore I will address that implication in a much more detailed fashion.

At the risk of oversimplification, the investor base for the SPAC market is composed of retail (non-accredited) and institutional investors. For retail investors that desire exposure to a private equity-esque alternative investment, SPACs are just about the only way they can obtain that kind of exposure (assuming they do not meet the accredited investor criteria or have the significant capital necessary to invest in an actual private equity fund). With that said, the cards seemed to be stacked against the average non-accredited retail investor in the SPAC market. Since SPAC managers are not compensated for their work in searching for a suitable investment, the highest quality managers are not always the ones involved in SPAC management. These managers tend to seek more lucrative opportunities – like working for a private equity firm. Therefore, the quality of SPAC management teams tends to be lower than the quality of private equity management teams. The value of a private equity investment is entirely dependent upon a manager's ability to select a quality business and improve its operations. If retail investors are not able to invest in high quality management teams, it seems they would be better off avoiding this market altogether. Additionally, they are investing alongside much larger institutional investors with a much greater ability to negotiate terms of investment with SPAC management. Therefore, the average non-accredited retail investor has access to lower quality acquisition management teams in the SPAC market and has a much more insignificant ability to negotiate terms of investment than larger clients occupying spots within the same capital stack.

With regards to managers looking to raise capital for an acquisition, my data suggests that managers must make concessions to investors if they hope to appeal to larger, more powerful institutional investors. This is certainly not a new or novel idea, however, the underpricing evident in my research displays this concept prominently. Managers wishing to raise more money must give investors with access to such a base of capital reason to think investing that capital in a SPAC will result in adequate risk-adjusted returns.

Conclusion

Ever since I was first exposed to this investment vehicle as a part of the underwriting team last summer, I have been intrigued by SPACs. As an undergraduate finance student, I had been exposed to virtually every category of security – stocks, bonds, and derivatives. While SPACs certainly fit in to the stock component of this breakdown, they represented a corner of the SPAC market that I had not yet studied. I was invigorated by my introduction to a vehicle that represented a part of finance with which I had not been familiarized.

One of the main reasons I decided to pursue a degree in finance in the first place was the opportunity to apply what I studied in the classroom to my personal and professional life – and to such a significant degree. Therefore, when I was first exposed to SPACs over the course of my summer with Credit Suisse, my first desire was to understand the vehicle as a potential investor. Could the SPAC market present an opportunity for a retail investor like myself to recognize capital appreciation in a way that had not yet been discovered or fully appreciated by the broader market? This served as the genesis for my extended research into this field.

Specific to this project, not all private equity is the same. Quality of management is very different in different arenas of this market. Incentives are very strongly correlated with quality of management and performance. Since SPAC managers are not incentivized in the same kind

of way as private equity managers, they do not act as judiciously as private equity managers (or represent the same kind of quality as the average private equity fund manager). After working through this project, I would not consider devoting a significant portion of my personal portfolio to SPACs as an ordinary retail investor. It has become evident to me that the value of an investment of this kind is derived from benefits that are most extractable by large institutional investors.

While my research did not result in any actionable investment theses for my personal portfolio, I am grateful for my research on this subject for several reasons. First, my research in this specific area of the market has provided me with a blueprint for approaching a much broader portion of the market. For example, seeing the divergence in underpricing between large and small SPACs spurred me to question what the source of divergence in those two vehicles might have been. While the specific market powers at play in the SPAC market may differ from the powers at play in different areas of the market, the questions I learned to ask in response to the trends I examined in the data I extracted from my test are valuable in virtually any area of finance. Investors must learn to examine quantitative results and synthesize those numbers with qualitative sources of explanation.

References

- Barry, C. and V. Mihov. 2015. Debt financing, venture capital, and the performance of initial public offerings. *Journal of Banking and Finance* 58: 144-165.
- Benveniste, L. M., and P. A. Spindt. 1989. How Investment Bankers Determine the Offer Price and Allocation of New Issues. *Journal of Financial Economics* 24: 343-62.
- Berger, R. 2008. SPACs: An Alternative Way to Access the Public Markets. *Journal of Applied Corporate Finance* 20: 68-75.
- Chemmanur, T., Hu, G., Huang, J., 2010. The Role of Institutional Investors in Initial Public Offerings. *The Review of Financial Studies* 23: 4496-4540.
- Cox, D.R., 1972. Regression models and life-tables. *Journal of the Royal Statistical Society* 34, 187-220.
- Cumming, D., Hass, L., Schweizer, D., 2014. The fast track IPO – success factors for taking firms public with SPACs. *Journal of Banking & Finance* 47, 198-213.
- Dimitrova, L., 2017. Perverse incentives of special purpose acquisition companies, the “poor man’s private equity funds.” *Journal of Accounting and Economics* 63, 99-120.
- Eisenberg, T., Sundgren, S., Wells, M.T., 1998. Larger board size and decreasing firm value in small firms. *Journal of Financial Economics* 48, 35-54.
- Feldman, D., 2018. *Regulation A+ and Other Alternatives to the Traditional IPO: Financing your Growth Business Following the JOBS Act*. Hoboken, New Jersey: John Wiley & Sons.
- Floros, I.V., Travis, S., 2011. Shell games: on the value of shell companies. *Journal of Corporate Finance* 17, 850-867.

- Hale, L. M. 2007. SPAC: A Financing Tool with Something for Everyone. *Journal of Corporate Accounting and Finance* 18: 67-74.
- Jenkinson, T., Sousa, M., 2011. Why SPAC investors should listen to the market. *Journal of Applied Finance* 21, 38-57.
- Jog, V. and C. Sun. 2007. Blank Check IPOs: A Home Run for Management. *Carleton University Working Paper*.
- Kolb, J., Tykvova, T, 2016. Going public via special purpose acquisition companies: frogs do not turn into princes. *Journal of Corporate Finance* 40, 80-96.
- Lewellen, S.M., 2009. SPACs as an Asset Class. SSRN: <http://ssrn.com/abstract=1284999>.
- Loughran, T., Ritter, J., 2004. Why Has IPO Underpricing Changed Over Time? *Financial Management Autumn 2004*, 5-37.
- Loughran, T. and J. R. Ritter. 2002. Why Don't Issuers Get Upset about Leaving Money on the Table in IPOs? *Review of Financial Studies* 15: 413-43.
- Rock, K. 1986. Why New Issues Are Underpriced. *Journal of Financial Economics* 15: 187-212.
- Rodrigues, U., Stegemoller, M., 2011. Exit, Voice, and Reputation: The Evolution of SPACs. *Delaware Journal of Corporate Law Vol. 37*, 849-927.
- Sjostrom, W. K. 2008. The Truth About Reverse Mergers. *Entrepreneurial Business Law* 2: 231-247.
- Yermack, D., 1996. Higher market valuation of companies with a small board of directors. *Journal of Financial Economics* 40, 185-211.