

Institutional changes of SPACs

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Abstract

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In this study we document the changes of corporate design of modern Specified Purpose Acquisition Companies (SPACs) from 2003 to 2012. We assign the impact on changes of SPACs to each of the three groups of stakeholders: founders, investors and underwriters and test whether institutional characteristics of SPACs determine the success of their merger outcomes. While we document that SPACs significantly redesigned its structure in the period under observation, we cannot contribute the impact on merger outcomes to the majority of SPACs' institutional characteristics

1. Introduction

Although Specified Purpose Acquisition Companies (SPACs) have been in the existence in different forms in the U.S capital markets since early 1920s,¹ their corporate structure became intensely debated only recently. A major trigger for the increased interest in SPACs is the innovation in their structure as the response to regulation from the Security and Exchange Commission (SEC) of the speculative blank check market in the late 1990s.² EarlyBirdCapital, a midsize investment bank underwrote a successful initial public offering (IPO) for Millstream Acquisition Corporation in August 2003, complying with all blank check market regulation. The event triggered intense activity in the capital markets with SPACs representing 23% of IPOs in 2007 and 34% in 2008 (Ritter 2008).³

Although few papers in the legal literature explained the characteristics of recent SPACs⁴, Jog and Sun (2007) and Boyer and Baigent (2008) were the first to vouch for the more intense research on SPACs in financial literature. Jog and Sun (2007) examine characteristics of SPACs and refer to the SEC's definition as "a blank check company is a development stage company that has no specific business plan, or purpose, or has indicated its business plan is to engage in a merger or acquisition with an unidentified company, other entity, or person." A SPAC is created to pool funds in order to finance a merger or acquisition opportunity within a set time-frame. The opportunity usually has yet to be identified.⁵

¹ "The American "investment" trusts functioned as blind speculative pools, administered in many cases by men of reputation and ability who were carried away by the universal madness. These new "creations" played a double role in intensifying the speculative orgy, for they were themselves both active speculators and active media of speculation." ,Graham and Dodd (1934).

² In late 1990s the Security and Exchange Commission revoked licenses to more than 10 blank check market promoters at the time which led to complete cease of their market.

³ Renaissance Capital confirms the percentage for 2007 and reports that SPACs were 35% of IPO activity in 2008

⁴ Hale (2007), Heyman (2007), Reimer (2007), Sjoström (2007).

⁵ <http://www.sec.gov/answers/blankcheck.htm> .

A SPAC is a clean shell company⁶ that acquires public status through the unit IPO and is specifically formed to purchase one or more operating businesses over a certain amount of time, usually two years. Proceeds raised through the IPO are placed in escrow accounts with a credible financial institutions, and are kept there until SPAC founders are able to close a deal with potential targets. If an appropriate target is not found within the two-year period after the IPO, the SPAC is liquidated and funds from the escrow accounts are returned to investors. Units issued by SPACs are immediately tradable, while trading with warrants and shares starts after the date by which underwriter exercise overallotment rights.⁷ On average, trading of warrants and common shares start four weeks after the IPO. SPACs used to be traded on AMEX and OTC Bulletin Board. However, since 2008, SPAC shares are listed on NYSE and NASDAQ. Three groups of stakeholders have primary incentive in the success of SPACs and the execution of a merger as the final outcome, namely: SPAC founders, SPAC underwriters, and SPAC investors.

Within a short period of time, many studies on SPACs developed.⁸ Due to the increase in the volume and occurrence of SPACs in capital markets, Lewellen (2009) called for the recognition of SPACs as a new class of financial asset. However, concurrently with Lewellen's suggestion, the market for SPACs almost ceased with only one SPAC conducting the initial public offering in 2009. It took more than a year for SPACs to revive. In May 2010, 57th Street Acquisition Company went public as a blank check SPAC company, this time having vastly redesigned corporate structure.

⁶ A shell company as a company⁺ that is now or at any time previously has been an issuer, that has: (A) No or nominal operations; and (B) Either:

- (1) No or nominal assets;
- (2) Assets consisting solely of cash and cash equivalents; or
- (3) Assets consisting of any amount of cash and cash equivalents and nominal other assets.

<http://www.rule144solution.com/ShellCompany.asp> .

⁷ The sale of shares by the underwriters in excess of those shares initially available.

⁸ Berger (2008), Hale (2007), Lewellen (2009), Floros and Travis (2011).

The current literature on SPACs attempt to analyze various aspects such as; the institutional structure, the incentives of major stakeholders, the performance of issued securities and the factors determining successful mergers executed by SPACs.

Studies on the institutional structure and design of SPAC securities refer to Schultz (1993), Chemmanur and Fulghieri (1997) and Garner and Marshal (2007). Schultz (1993) models why companies use units -- a bundle of common stock and warrants-- during the initial public offering. And why they commit to issue more stocks in a future date at the warrant's exercise price. He finds that the major obstacles are: their small size, low earnings and low value of assets. Additionally, he sees units as the solution for the agency-cost problem resulting from the free cash flow awarded to managers at the time of the IPO.

Chemmanur and Fulghieri (1997) maintain that unit IPO solves the information asymmetry problems and enables companies that are considered risky by outsiders, to signal their true value. Garner and Marshal (2007) empirically test the predictions of Schultz (1993) and Chemmanur and Fulghieri (1997). They find that risky firms assign a higher proportion of firm value to the warrants at the time of the IPO and increase the underpricing.

Boyer and Baigent (2007) and Jog and Sun (2007) confirm the prediction from the baseline papers: SPACs' initial public offerings are relatively small in size, averaging less than \$100 million. They also report that SPACs have a very low value of assets and earnings. Contrary to Garner and Marshal (2007), both Boyer and Baigent (2008) and Jog and Sun (2007) find that SPAC units do not experience any significant underpricing.⁹ Chakraborty et al. (2011) provide a theoretical explanation for the possibility for the lack of the underpricing of unit IPOs. They find the optimal ratio of stocks and warrants in a unit.

⁹ The finding that SPACs do not experience any underpricing is confirmed also in Lewellen (2009), Thompson (2010), Lakicevic and Vulanovic (2011) and Ignatyeva et al. (2012) using larger sample of SPACs both in the U.S and European markets.

Jog and Sun (2007) and Thompson (2011) examine the incentives of the three major stakeholders group of SPACs: founders, underwriters and investors. Jog and Sun report that for their sample of SPACs, covering the period from 2003 to 2006, managers of successful SPACs earned on average 19 times their initial investment. Hale (2007) and later Thompson (2011) report that on average underwriters receive compensation of around 7% of gross proceeds obtained at the offering. Lewellen (2009) and Thompson (2011) report that part of underwriters' compensation is deferred until consummation of the merger.

For its investors SPACs are essentially a risk-free note plus a call option¹⁰ where the maturity of the note is usually two years. The option's expiration date represents the end of the prespecified deal period where the option's strike price is equal to the expected per-share trust amount at the expiration date. Performance of SPAC securities are examined in studies that mostly focus on the performance of common shares and do not perceive SPACs as a risk-free debt plus a call option.¹¹

Jog and Sun (2007) report negative overall performance of around 22% to the investors holding common stock of SPACs. Similarly, Lewellen (2009) report a negative 2% monthly returns. Tran (2010) focuses on post-merger announcement returns and reports a 1.7% monthly return to investors after the announcement date. Lakicevic and Vulanovic (2011), in addition to the analysis of SPACs' common shares, analyze post-announcement returns of SPACs' units warrants. They report negative share performance after the announcement for common stock, but positive returns for holders of units and holders of warrants. Ignatyeva et al. (2012) report performance of 2.5% after the announcement of the merger, and attribute it to returns on the risk-free note rather than a signal of potential quality of the SPAC. Datar et al. (2012), states that

¹⁰ At the early years of SPACs entrance to the market the unit would consist of two warrants and one share.

¹¹ Major obstacle for the analysis of the complete financial structure of SPAC is the lack in the trading data on warrants.

operational performance of SPAC acquired firms are significantly inferior to their industry peers and to contemporaneous IPO firms. They report that after the merger, SPAC acquired companies have higher leverage, are smaller in size, have lower investment levels, and have lower growth opportunities than the firms that conduct a conventional IPO. While comparing SPACs' performances with the sample of similar IPOs, they report negative returns in the long term for both groups and underperformance of SPACs relative to the peer IPO's. In general, they recommend that investors stay away from SPACs. Rodrigues and Stegemoller (2012) report that SPACs do not exhibit IPO underpricing, with initial returns near zero and gross spreads similar to the traditional IPOs. Howe and O'Brien (2012) indicate that neither managerial nor institutional ownership are associated with the performance of SPAC securities.

Jenkinson and Sousa (2009) study the characteristics and performance of SPACs that successfully conducted a merger, and report that half of the deals were value destroyers. Tran (2010) using a sample from 2003 to 2008, reports that SPACs are less likely than other comparable IPOs to execute merger combination, and that SPACs tend to focus on acquisitions of private companies as their primary targets. He also reports that merger success is positively related to the involvement of institutions that want to invest in SPACs both pre-merger and post-merger. Lakicevic and Vulanovic (2011) examine the major merger determinants and find a positive impact on SPACs' mergers by underwriters who specialized in the SPAC market, such as EarlyBirdCapital. They also find that the merger is more likely if a larger proportion of the money raised in the IPO is deposited in a trust fund.

This paper analyzes the forces that contribute to changes in the corporate design of SPACs by examining three issues. First, we explain the evolution of SPACs as a corporate structure. Second, we test for the impact of SPAC stakeholders and their incentives due to changes in

corporate structure of SPACs. And third, we examine the impact of SPAC stakeholders on the success of merger.

SPACs today are vastly different corporate structure than when they entered capital markets in 2003. The changes are partially attributed to market factors, and to the impact of mainly institutional investors (Lewellen (2009), Tran (2010), Vulcanovic (2010), Cumming et al. (2012)). Changes are also attributed to the relative underperformance of SPACs' securities after the merger as reported in Jenkinson and Sousa (2009) and Datar et al. (2012). Rodrigues and Stegemoller (2011) examine the changes in voting mechanisms for mergers and report significant changes in the SPAC structure where recent SPACs require significantly lower number of shareholders to approve a merger. Mitchel and Pulvino (2012) recognize the impact of the financial crisis on SPACs, because hedge funds are affected by the withdrawal of capital from their own investors. They also report that even if some SPACs kept their trust funds in the accounts of Lehman Brothers, the trusts were unaffected by the crisis and the failure of Lehman Brothers. Mitchel and Pulvino (2012) reports that investors buying shares that trade below net-asset value have the incentive to reject the deal. Some investors are possibly interested only in short term profits and not necessarily in the success of the SPAC. Vulcanovic (2010) finds that hedge funds earn a 33% annual return by selling the warrant after the IPO, and waiting for face value payment at liquidation.¹² The returns for leveraged investors are even higher if SPAC managers purchase additional shares before the merger in order to enhance an approval of an acquisition.¹³

¹² The strategy of selling warrant and waiting for redemption at liquidation date is known as "yield game."

¹³ In an attempt to proceed with the merger combination, SPAC promoters in their proxy statements before vote offer this kind of advice "Prior to exercising conversion rights, shareholders should verify the market price of common stock, as they may receive higher proceeds from the sale of their common stock in the public market than from exercising their conversion rights."

The paper proceeds as follows: Section two presents the data and summary statistics; section three explains some institutional characteristics of SPACs in the period 2003 until 2012; section four reports the empirical tests; and section five concludes.

2. Data

The data comes from various sources. The majority of the data on the institutional characteristics of SPACs are SEC website and the EDGAR database. SPACs are legally obliged to report to the SEC all issuance activities and any major corporate changes. Additionally, they are required to update the SEC with financial statements on a regular basis. We hand collect data on important characteristics of SPACs from their initial registration S-1 forms and update the data with information reported before the IPO event in the final prospectuses. The information from the SEC is summarized and represents our initial data. Furthermore, we cross check the data with updated public information about SPACs published by Morgan Joseph.¹⁴ In case of discrepancy, we recheck the original filings with the SEC. For certain data points we use the COMPUSTAT files.

In addition to the institutional data, we collect data about the performance of all three types of SPAC securities. The data on daily performance are obtained mostly from CRSP return files and from various public providers of data. We collect data on merger dates and cross-check merger dates reported to the SEC and Morgan Joseph with the reports from major business news providers, such as Yahoo and Bloomberg. Renaissance Capital was used as the source for annual volumes and pricing of the IPOs from 2003 to 2012.¹⁵

¹⁴ <http://mjta.com/i/SPACMarketUpdate.pdf> .

¹⁵ <http://www.renaissancecapital.com/IPOHome/Press/IPOPrings.aspx> .

The sample covers the period between August 2003, when the Millstream Acquisition SPAC conducted the IPO, until August 2012. It includes all 184 SPACs that went public since 2003. We divide the sample into three subgroups based on the timing of SPAC's IPO. Although it seems that the division is arbitrary we assert that the division is due to the changes in both SPAC environment and the changes in the structure of SPACs. First subsample includes the period between August 2003 and December 2006. This subsample covers the period examined in earlier studies of SPACs by Boyer and Baigent (2008) and Jog and Sun (2007). The second subsample includes SPACs that conducted the IPO between January 2007 and December 2008. It is characterized by an increased interest in SPACs by the large financial houses such as Citibank, Merrill Lynch, Bank of America and similar institutions. The third subsample includes SPACs that executed their IPO after January 2009. In addition we use the data from Morningstar for the number of IPO's conducted each year during the sample period. The data on IPO's volume here used to classify the investment sentiment in the market for SPACs.

Panel A in Table 1, reports the development of the SPAC market from 2003 until 2012 for three major states of SPAC. The second column reports that 184 SPACs successfully executed the IPO. Out of these 184 SPACs, 98 merge within two-year period. In total, 65 SPACs have been liquidated between 2003 and 2012, while 21 SPACs are still in the process of seeking for a merger opportunity. Comparing the activity over the three subsamples, both by volume and by percentage, shows that the first sub-period was the most successful for SPACs with 53 (49%) of them being able to conclude the merger. Panel B of Table 1, reports annual SPACs' activity. Judging by the absolute number of mergers by SPACs, the most successful year was 2007. SPACs that executed the IPO's in years 2004 and 2005 were also very successful. Comparing

SPACs activity relative to the overall activity in the market for security issuance, the most successful year for SPACs was in 2008, when they constituted 35% of the total IPO market.

3. Characteristics of SPACs

This section presents the institutional characteristics and changes of the SPAC from 2003 to 2012. Characteristics of SPACs for the full sample are reported in Table 2, Panel A. We report on a range of institutional variables for poses. First, it is used to describe SPACs and their dynamic corporate design. Second, it describes relevant information on the determinants that potentially affect the success of the merger for SPACs. We have complete data on all 184 companies for the following characteristics: gross proceeds from the unit IPO; amount of proceeds deposited in the trust account after the IPO and kept there until the merger or liquidation; warrant exercise price as determined in the pre-IPO prospectus; the number of warrants issued per unit; the offering price of the unit at the IPO date; the number of underwriters in the syndicate; and the quality of the lead underwriter and finally the classification for the market sentiment. We also report on threshold level of investors needed to disapprove a merger and thus cause liquidation of the SPAC after two years.

On average, each unit of IPO by SPACs raised close to \$128 million, totaling around \$23.5 billion in IPO proceeds from 2003 to 2012. The smallest SPAC in the sample collected \$ 7.88 million and the largest \$1.035 billion. Overall, 96.5% of the money obtained during the IPO process is deposited in the trust accounts with financial institution in good standing. This process of depositing money in the trust account is important since it provides a guarantee that investors in the SPAC would be able to redeem their shares at the pro rata value in case they disagree with a proposed merger combination. Furthermore, it represents commitment of SPAC managers to the deal since managers on average invest only \$25,000 to form the SPAC and retain 20% of

common shares after the IPO. The average price of a unit bundle across the sample is \$8.08 with prices fairly standardized at \$6, \$8 and \$10 respectively. An average unit consists of 1 common share and 1.3 warrants. Owners of SPAC warrants have the option to exercise them at \$6.30 after a successful merger combination. On average, 3.46 underwriters are involved in the IPO of SPAC which is approximately 4 times lower than the number of underwriters in a syndicate for typical IPO (Corvin and Stultz, 2005).

The threshold level represents the maximum percentage of SPAC shareholders that could redeem their shares before the merger is, on average 32.35%. The last institutional characteristics for which we have complete information is the amount of warrants purchased before the IPO by SPAC promoters. On average, they buy as a pre-commitment to the deal 1.43 million warrants.

In addition to the institutional characteristics, some performance measures are reported for SPACs that are currently trading. Recent unit trading price is lower than the average unit price across the sample (7.15 vs. 8.08). Recently traded warrants are also valued lower than the average warrant in the sample. Performance is summarized by the variable BHAR which calculates the absolute return to the investor that bought a portfolio. It consists of one unit of each of the 76 SPACs at the IPO, and is holding that portfolio until June 2012. It is documented that portfolio return is negative 48%. This result is very similar to the reported figure in Datar et al. (2002).

Comparing SPACs institutional characteristics across the sample, we notice changes in their structure over time.¹⁶ SPAC size in the second period is 2.5 times and 2.7 times larger than the size in period one and three, respectively. The data on number of underwriters in IPO syndicate shows a reduction of underwriters in a syndicate over time and possibly points towards greater specialization of underwriters. Panel B of Table 2 reports that the proceeds deposited in

¹⁶ Appendix B has graphs on relevant characteristics and their changes over time.

the trust accounts are increasing over time from 93% in the first, to 101% in the third period. However, the threshold level that determine the percentage of investors that could block a merger increase dramatically from the first to the third period (20.47% vs. 84.24%). This increase in threshold level is the response of SPAC founders to the activism of institutional investors. The characteristics of a unit as a security changed significantly. In 2003 to 2006, the average unit was packaged as 1 share and 1.62 warrants, in the period between 2009 and 2012 it consisted of 1 share and 0.97 warrants. In addition to the decrease in the number of warrants packaged in one unit over time, SPACs also significantly increased the exercise price for warrants from \$5.28 in the first to \$ 10.12 in the third period. Although the absolute size of the SPACs is the lowest in the third period, the underwriters and managers sell the units at the highest nominal price in the third period, (\$7.06 vs. \$8.63 vs. \$9.57). SPAC founders were buying the largest number of warrants from 2007 to 2008.

Panel B of Table 2 reports market performance of SPACs for each subsample. All three types of SPAC securities are trading below their IPO values, with the owners of SPACs that went to the market in 2003-2006 period experiencing the highest losses.

4. Merger Determinants and Characteristics

4.1 Institutional Characteristics of SPACs that Merged

The merger is the ultimate reason of the existence of SPACs. Upon a merger, all vested parties experience positive returns. If SPAC founders are not able to execute the merger before at the IPO determined date, they are required to return all proceeds kept in the trust accounts to its investors, and liquidate.

Table 3 reports the characteristics of SPACs that successfully executed business mergers for the full sample and compare them with the ones liquidated. This comparison is important because in our regression we only use the SPACs that merged and that were liquidated. On average, SPAC size of merged companies is \$130 million, with SPACs from the 2007 to 2008 sub-period having almost 3 times larger size than SPACs from 2003 to 2006. As previously mentioned, successful SPACs entering the markets in 2003 to 2006 had the lowest amount of IPO proceeds deposited in the escrow accounts.

Panel A in Table 3, reports that merged SPACs are smaller in size than liquidated ones, \$130.51 million compared with \$141.55 million. Merged SPACs have lower amount of trust funds deposited in escrow accounts than liquidated SPACs, 0.95% and 0.97% respectively. Both the units and warrants of SPACs that merged are priced at the lower value than for liquidated SPACs. There is no difference among two groups for the number of underwriters, the threshold level and number of warrants purchased by SPAC managers before the IPO.

4.2 Merger Determinants

We evaluate whether important corporate determinants of SPACs impact the probability of merger. Ten explanatory variables are used for evaluation and we discuss each of them as well as their expected impact on merger.

Underwriters have an important role in the success of SPAC. They work with SPAC founders and structure their IPO's. Millstream Acquisition Company, the first SPAC that went public in 2003, is considered an innovation of its underwriter an investment bank EarlyBirdCapital. After the first SPAC successfully went public, EarlyBirdCapital participated in more than forty-five IPO's, either as the lead underwriter or as a member of the underwriting syndicate. Vulcanovic (2010) reports that six underwriters participated in at least 20% of SPAC

deals.¹⁷ SPAC underwriters are market makers in SPAC securities. Lakicevic and Vulcanovic (2011) report that underwriters charge a typical fee of 7% of gross proceeds, but on average defer half of the fee, or 3.4% of gross proceeds, until the merger is completed. This behavior aligns the incentives of underwriters with the SPAC founders with respect to the success of the merger. Corvin and Stultz (2005) find that the single strongest determinant of whether an underwriter is included in a syndicate, is participation in recent syndicates led by the same book manager. They argue that the importance of the relationships between the issuer and underwriters suggests that syndicate members are expected to play an active role in selling IPOs, determining IPO value, or providing aftermarket services. Pichler and Wilhelm (2001) observe similar behavior where syndicate members are required to provide an effort that is difficult to observe. Two underwriter related variables are used in our tests. The first variable is the number of underwriters in the syndicate. The expectation on the expected impact of number of underwriters in syndicate is unclear. The second variable is the quality of the lead underwriter in the SPAC. We construct this underwriter's quality variable as a dummy, a value of 1 is assigned if the underwriter is a lesser known investment bank that participated in the SPAC market since the beginning such as : EarlyBirdCapital, Morgan Joseph , Maxim Group, Gun Allen etc. The value of 0 is assigned to the SPAC if the lead underwriter is well known financial institution as Citigroup, Bank of America, Meryl Lynch, Lazard and similar. We expect that the involvement of less known underwriters who were longer involved in the SPAC underwriting has positive impact on merger.

SPAC mergers until 2010 and new tender offer introduced by 57th Street Acquisition Company were approved by the majority of shareholders in the meeting. In addition to the approval by majority of shareholders, SPAC managers and underwriters, in order to proceed with

¹⁷ Midsize investment banks Maxim Group, Ladenburg Thalmann, Early Bird Capital, Legend Merchant, Gunn Allen Financial and I-bankers were the members of underwriting syndicate for more than 20% of SPACs each. Morgan Joseph and Citibank were lead underwriters in approximately 16 and 18 SPACs respectively.

that merger, had to secure that only certain number of shareholders redeems their shares before the merger. In the first sub period for all SPACs the threshold was 20% of shareholders. This threshold rule was an important incentive for hedge funds and institutional investors to participate in the SPAC by playing a “yield game“ and by focusing on short term returns.¹⁸ Appendix B graphically depicts the changes in threshold level over time and shows relatively large increases. It is expected that higher threshold improves the probability of a merger.

Two important variables describe the commitment of SPAC promoters to the deal. One variable is the amount of proceeds in the trust fund. The second is the number of warrants that SPAC promoters buy and deposit before the IPO into trust account. SPAC promoters with initial investments of \$25,000, purchase approximately 20% equity in a SPAC. As the result of these characteristics, every new SPAC investor experiences significant dilution. Miller (2008) reports of “warrant overhang” and explains how it leads to high dilution. He proposes that in the future, SPACs decrease the number of warrants in a unit. Lakicevic and Vulcanovic (2011) report approximately 30% dilution if no conversion rights are exercised. If the conversion threshold goes up to 20%, the dilution increases to more than 40%. Contributions of managers by purchasing warrants lower this dilution effect and we expect positive impact of the variable. We are uncertain for the effect of the percentage deposited in the trust.

The size of a SPAC is another determinant that potentially explains the success of a merger. Our summary statistics showed that the size varies from period to period and most likely corresponds with the state of the financial market. We do not have clear expectation on the size effect. Although it seems that SPAC as a close to a 100% cash entity should benefit from its size, it is unknown what the demand is. Additional demand factors could play a role. Following the same reasoning, we do not have clear expectation about the impact of unit IPO price on the merger.

¹⁸ It is well known attempt of Goldman Sachs in 2008¹⁸ to create a “Super SPAC” that would focus on long term investors and offer them only ½ of a warrant in unit. Super SPAC did not happen but underwriters and SPAC founder increased the threshold number by the time.

Given the dilution effects and warrant overhang, it is expected that the decrease in the number of warrants per unit would be beneficial for SPAC. We are uncertain what effect warrants exercise price could have. Finally, we create dummy variable for the state of the IPO market, coding it 1 for the years when the IPO activity is above the average and 0 otherwise. By definition SPACs and other companies are competitors in the IPO market and the higher interest in other companies limit the ability of SPACs to raise capital. But it is possible that investor demand increases during “hot “ years, enough to both increase the interest in SPACs and other companies.

We use logistic regression to determine the impact of SPAC characteristics on merger. The sample includes 163 companies with complete data points on all ten possible merger determinants. We exclude from the sample, 21 SPACs with unresolved corporate status at the time of final observation of the sample. We include seven SPACs that executed their IPO by issuing units with dual class shares, contrary to Cumming et al. (2012). The reason for their inclusion is that the gross proceeds raised by a second class of shares are negligible in comparison to the size of the IPO, and that all other characteristics of these 7 SPACs are identical as the rest of the SPACs. Our observed variable is “merged” and is coded as 1 if the SPAC successfully merged and 0 otherwise. The results are reported in Table 4.

The overall predictive power of the pre-IPO determinants of SPACs on merger is not high. The only variables that have statistically significant impact at 5% level on mergers are the percentage of the funds deposited in the trust account and underwriter quality. The preliminary results show that further research is required to better understand the determinants of SPAC’s success to merge.

5. Conclusions

We describe changes in the SPAC structure over time and document that in a relatively short time-frame they significantly redesigned their corporate structure. Additionally we test for the major determinants of SPAC mergers and find that the percentage of proceeds deposited in the trust after the IPO have impact on the probability of merger. Our analysis calls for additional empirical investigation and new information that could explain merger outcomes.

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Table 1

Sample Statistics:

The table presents summary statistics for the sample period from August 2003 to June 2012. All Specified Purpose Acquisition Companies that conducted The Initial Public Offering in that period are classified into four subgroups depending on their corporate status on January 1st 2012. From the left to the right we report the number of SPACs that: completed the Initial Public Offering, the number of companies that completed merger, the number of companies that were liquidated and the number of companies that are seeking merger.

Panel A:

	IPO	Merged	% Merged	Liquidated	% Liquidated	Seeking	% Seeking
2003 - 2006	78	53	67.9%	25	32.1%	0	0.0%
2007 - 2008	83	43	51.8%	40	48.2%	0	0.0%
2009 - 2012	23	2	8.7%	0	0.0%	21	91.3%
Total	184	98	53.3%	65	35.3%	21	11.4%

Panel B:

Year	SPAC IPO's	Merger completed	Liquidated	Seeking merger	IPO market volume	SPACs as % of IPO's
2003	1	1	0	0	68	0.014
2004	12	10	2	0	216	0.053
2005	28	24	4	0	192	0.127
2006	37	18	19	0	196	0.159
2007	66	32	34	0	213	0.237
2008	17	11	6	0	31	0.354
2009	1	1	0	0	63	0.016
2010	7	1	0	6	154	0.043
2011	15	0	0	15	125	0.107
Total	184	98	65	21	1258	0.128

Table 2: Major Characteristics of SPACs for full sample and three subsamples

Variable	All SPACs														
	Obs	Mean	Std. Dev.	Min	Max										
Panel A: Full Sample															
Gross proceeds	184	127.83	150.76	7.88	1035.00										
Proceeds % in trust	184	0.97	0.05	0.85	1.03										
Warrant strike price	184	6.30	1.90	3.00	12.00										
Warrants per unit	184	1.30	0.47	0.50	2.00										
Unit IPO price	184	8.08	1.60	6.00	10.10										
Underwriters #	184	3.47	1.78	1.00	10.00										
Threshold %	184	32.35	20.87	20.00	94.40										
Warrants by managers	184	1.43	2.16	0.00	12.00										
Unit recent price	96	7.15	6.87	0.00	39.00										
Share recent price	95	4.77	4.35	0.00	19.50										
Warrant recent price	45	0.37	0.47	0.00	2.24										
Current share/trust	20	0.96	0.01	0.94	0.98										
Trust per share	21	9.58	1.26	5.96	10.30										
BHAR	76	-0.48	0.60	-1.00	2.00										
Panel B: Subsamples															
	Period 2003-2006					Period 2007-2008					Period 2009-2012				
	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
Gross proceeds	78	76.47	74.89	7.88	528.00	83	191.99	193.19	28.75	1035.00	23	70.44	44.80	18.98	189.93
Proceeds % in trust	78	0.93	0.05	0.85	1.03	83	0.99	0.01	0.95	1.02	23	1.01	0.01	1.00	1.03
Warrant strike price	78	5.29	0.70	3.00	8.00	83	6.20	0.99	4.50	8.00	23	10.13	2.41	5.00	12.00
Warrants per unit	78	1.63	0.49	1.00	2.00	83	1.08	0.29	0.50	2.00	23	0.98	0.10	0.50	1.00
Unit IPO price	78	7.06	1.41	6.00	10.10	83	8.63	1.25	6.00	10.00	23	9.57	1.20	6.00	10.00
Underwriters #	78	3.85	1.99	1.00	10.00	83	3.28	1.63	1.00	9.00	23	2.87	1.29	1.00	5.00
Threshold %	78	20.48	2.64	20.00	40.00	83	29.13	6.07	20.00	40.00	23	84.25	10.39	50.00	94.40
Warrants by managers	78	0.71	1.23	0.00	5.50	83	2.37	2.59	0.00	12.00	23	0.48	1.59	0.00	6.00
Unit recent price	40	6.53	7.82	0.00	29.60	34	6.56	7.62	0.00	39.00	22	9.17	1.78	4.55	10.30
Share recent price	39	2.78	3.73	0.00	16.03	34	4.37	4.47	0.00	19.50	22	8.92	1.59	4.18	9.88
Warrant recent price	4	0.15	0.16	0.00	0.30	19	0.37	0.71	0.00	2.24	22	0.40	0.16	0.18	0.68
Current share/trust	0					0					20	0.96	0.01	0.94	0.98
Trust per share	0					0					21	9.58	1.26	5.96	10.30
BHAR	40	-0.51	0.62	-1.00	1.67	34	-0.44	0.60	-1.00	2.00	2	-0.46	0.12	-0.55	-0.38

Table 3: Major Characteristics of SPACs: Merged vs. Liquidated and Merged for three subsamples

Variable	All Merged SPACs					All Liquidated SPACs									
	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max					
Panel A: Full Sample															
Gross proceeds	98	130.51	159.09	7.88	1035.00	65	141.55	157.39	18.98	920.00					
Proceeds % in trust	98	0.95	0.05	0.85	1.03	65	0.97	0.03	0.85	1.02					
Warrant strike price	98	5.77	1.26	3.00	11.50	65	5.92	0.98	4.50	8.00					
Warrants per unit	98	1.37	0.49	0.50	2.00	65	1.29	0.46	1.00	2.00					
Unit IPO price	98	7.74	1.57	6.00	10.10	65	8.13	1.50	6.00	10.10					
Underwriters #	98	3.56	1.82	1.00	10.00	65	3.55	1.84	1.00	9.00					
Threshold %	98	25.79	10.63	20.00	88.00	65	25.49	6.42	20.00	40.00					
Warrants by managers	98	1.55	2.26	0.00	12.00	65	1.53	2.11	0.00	10.00					
Unit recent price	76	6.51	7.58	0.00	39.00										
Share recent price	75	3.60	4.14	0.00	19.50										
Warrant recent price	25	0.33	0.62	0.00	2.24										
BHAR	76	-0.48	0.60	-1.00	2.00										
Panel B: Subsamples															
	Period 2003-2006					Period 2007-2008					Period 2009-2012				
	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
Gross proceeds	53	76.13	84.43	7.88	528.00	43	201.51	200.97	33.12	1035.00	2	45.28	13.13	36.00	54.56
Proceeds % in trust	53	0.92	0.05	0.85	1.03	43	0.98	0.01	0.95	1.00	2	1.02	0.02	1.00	1.03
Warrant strike price	53	5.26	0.70	3.00	8.00	43	6.12	1.03	5.00	7.50	2	11.50	0.00	11.50	11.50
Warrants per unit	53	1.62	0.49	1.00	2.00	43	1.08	0.31	0.50	2.00	2	1.00	0.00	1.00	1.00
Unit IPO price	53	6.95	1.35	6.00	10.10	43	8.60	1.28	6.00	10.00	2	10.00	0.00	10.00	10.00
Underwriters #	53	3.75	2.04	1.00	10.00	43	3.30	1.54	2.00	9.00	2	4.00	1.41	3.00	5.00
Threshold %	53	20.00	0.00	20.00	20.00	43	30.19	5.84	20.00	40.00	2	84.50	4.95	81.00	88.00
Warrants by managers	53	0.81	1.42	0.00	5.50	43	2.55	2.73	0.00	12.00	2	0.00	0.00	0.00	0.00
Unit recent price	40	6.53	7.82	0.00	29.60	34	6.56	7.62	0.00	39.00	2	5.40	1.20	4.55	6.25
Share recent price	39	2.78	3.73	0.00	16.03	34	4.37	4.47	0.00	19.50	2	6.59	3.41	4.18	9.00
Warrant recent price	4	0.15	0.16	0.00	0.30	19	0.37	0.71	0.00	2.24	2	0.22	0.06	0.18	0.26
BHAR	40	-0.51	0.62	-1.00	1.67	34	-0.44	0.60	-1.00	2.00	2	-0.46	0.12	-0.55	-0.38

Table 4: Regression results:

Dependent variable: Merged Logit

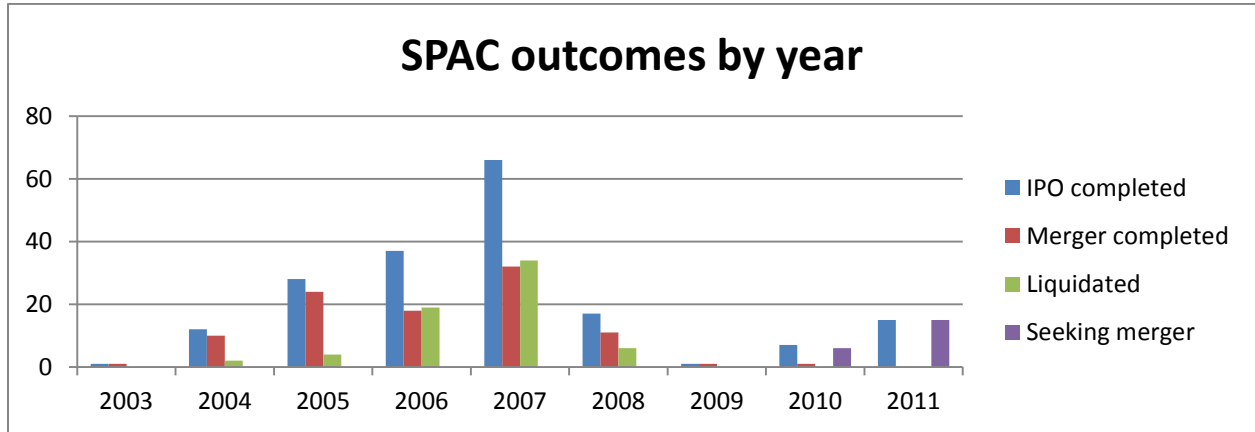
Variables	Coefficient	Std. Err.	z	P>z
Number of underwriters	-0.0548	0.10	-0.56	0.578
Threshold %	0.0288	0.03	1.01	0.313
Warrants by managers	0.1438	0.11	1.28	0.2
Gross proceeds	0.0000	0.00	0.07	0.946
Proceeds % in trust	-17.2999	6.19	-2.79	0.005
Warrant strike price	-0.0643	0.28	-0.23	0.82
Warrants per unit	-0.5630	0.60	-0.94	0.349
Unit IPO price	-0.0658	0.25	-0.26	0.795
Underwriter quality	0.8956	0.46	1.95	0.051
IPO market dummy	-0.7138	0.61	-1.17	0.243
Constant	17.9820	6.16	2.92	0.003
Number of obs =	163			
LR chi2(10) =	21.97			
Prob > chi2 =	0.0153			
Pseudo R2 =	0.1002			

Dependent variable: Merged Probit

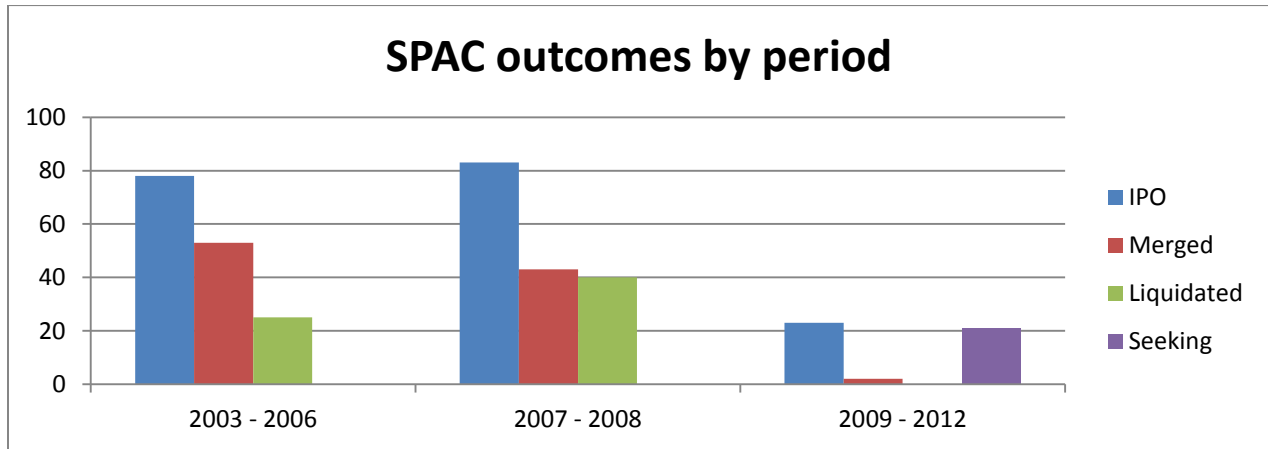
Variables	Coefficient	Std. Err.	z	P>z
Number of underwriters	-0.0370	0.06	-0.63	0.532
Threshold %	0.0174	0.02	1.01	0.31
Warrants by managers	0.0882	0.07	1.29	0.196
Gross proceeds	0.0000	0.00	0.03	0.976
Proceeds % in trust	-10.1655	3.51	-2.89	0.004
Warrant strike price	-0.0342	0.17	-0.2	0.844
Warrants per unit	-0.3476	0.37	-0.94	0.35
Unit IPO price	-0.0516	0.16	-0.33	0.743
Underwriter quality	0.5535	0.28	1.98	0.048
IPO market dummy	-0.4546	0.37	-1.22	0.224
Constant	10.6950	3.56	3	0.003
Number of obs =	163			
LR chi2(10) =	21.97			
Prob > chi2 =	0.0153			
Pseudo R2 =	0.1002			

Appendix A: Graphs on SPAC activity from Table 1

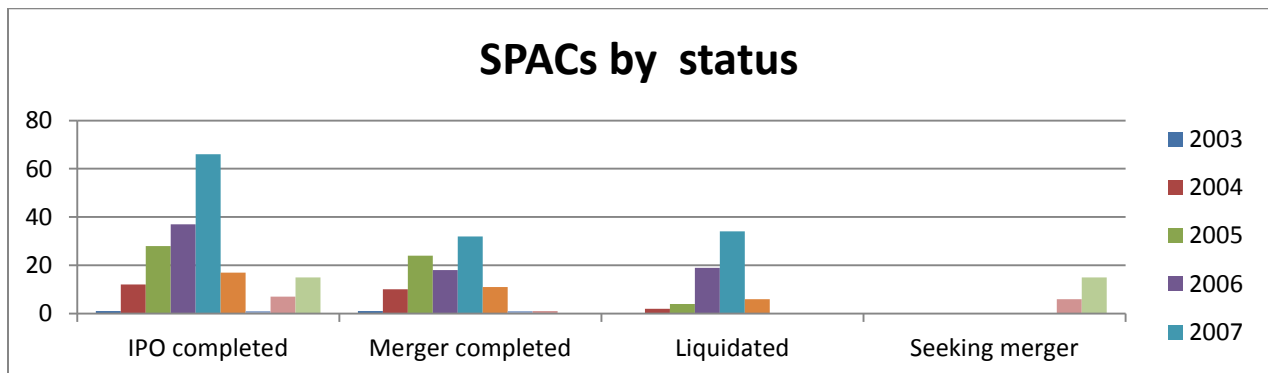
SPAC outcomes by year:



SPAC outcomes by subsample period:

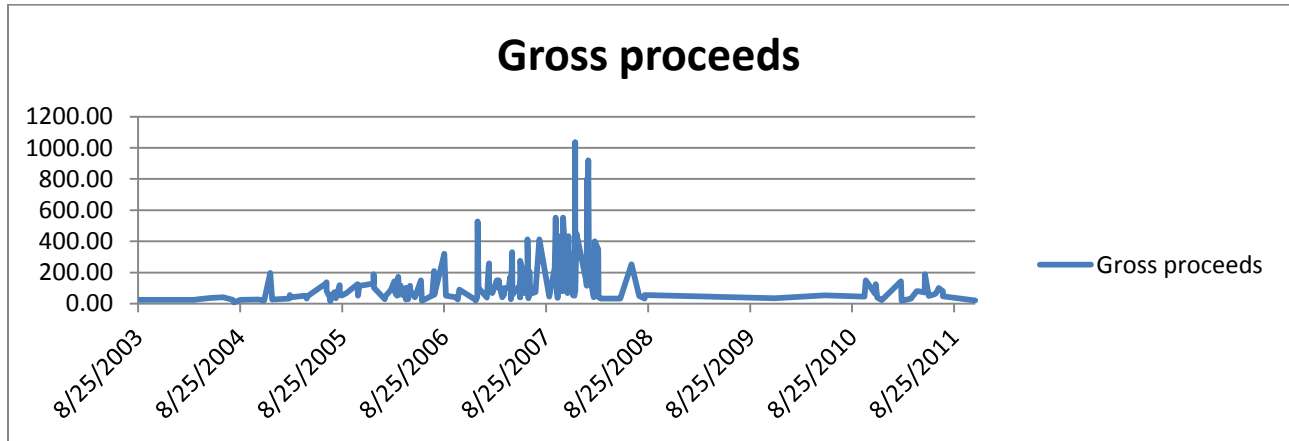


SPAC changes of status year by year

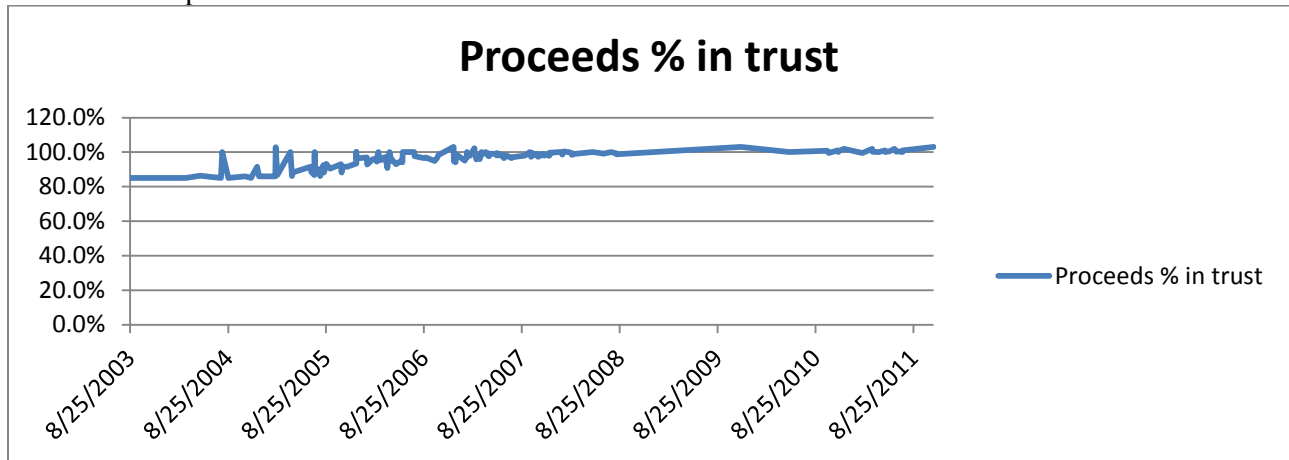


Appendix B: Graphs presenting changes in institutional characteristics of SPACs over time

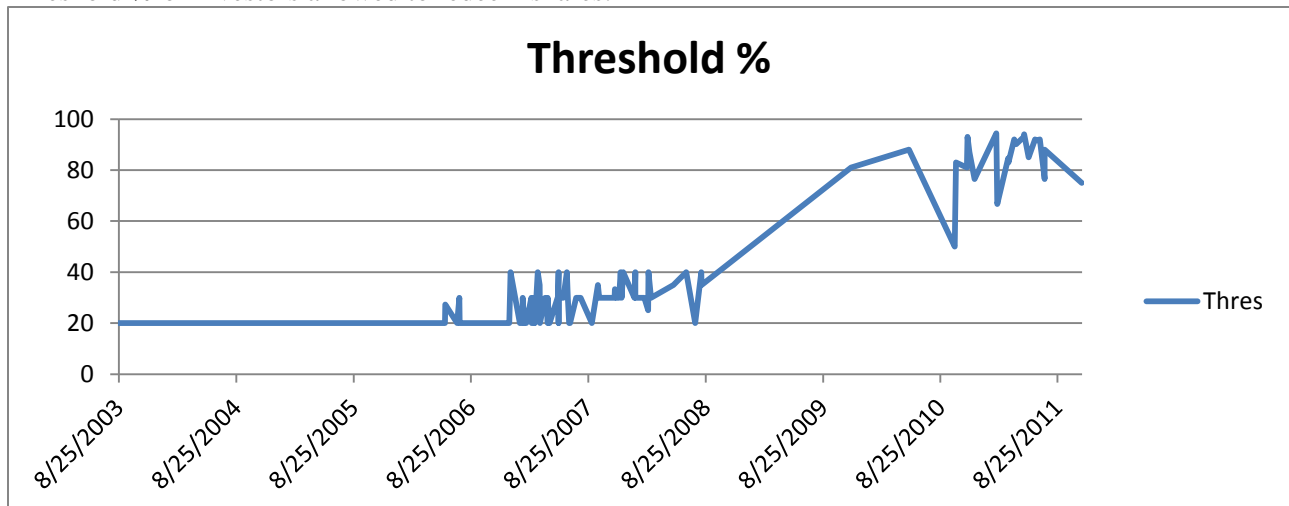
Gross proceeds:



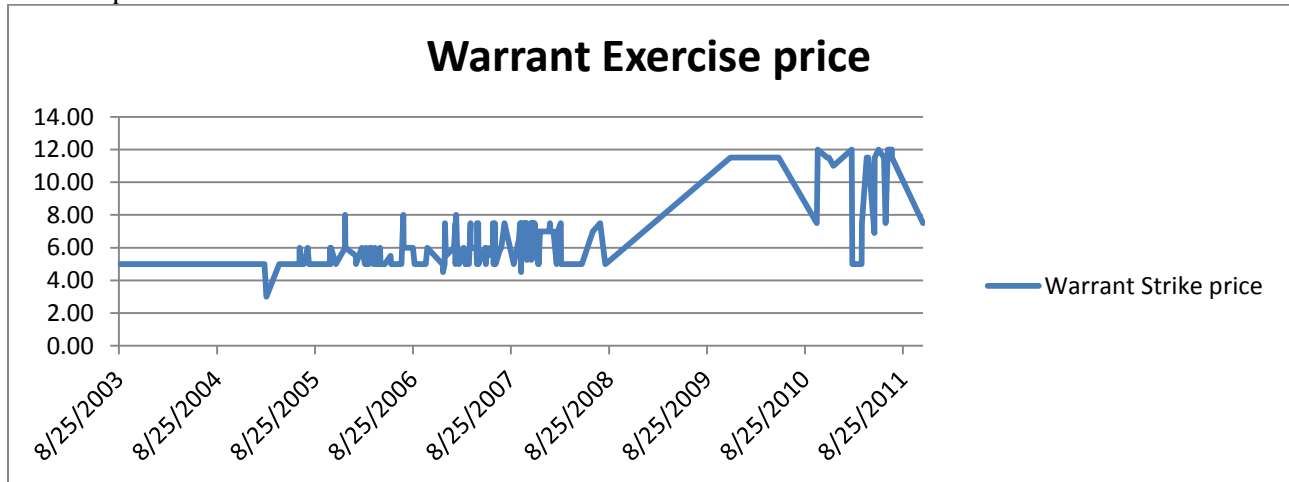
Percent of IPO proceeds in Trust:



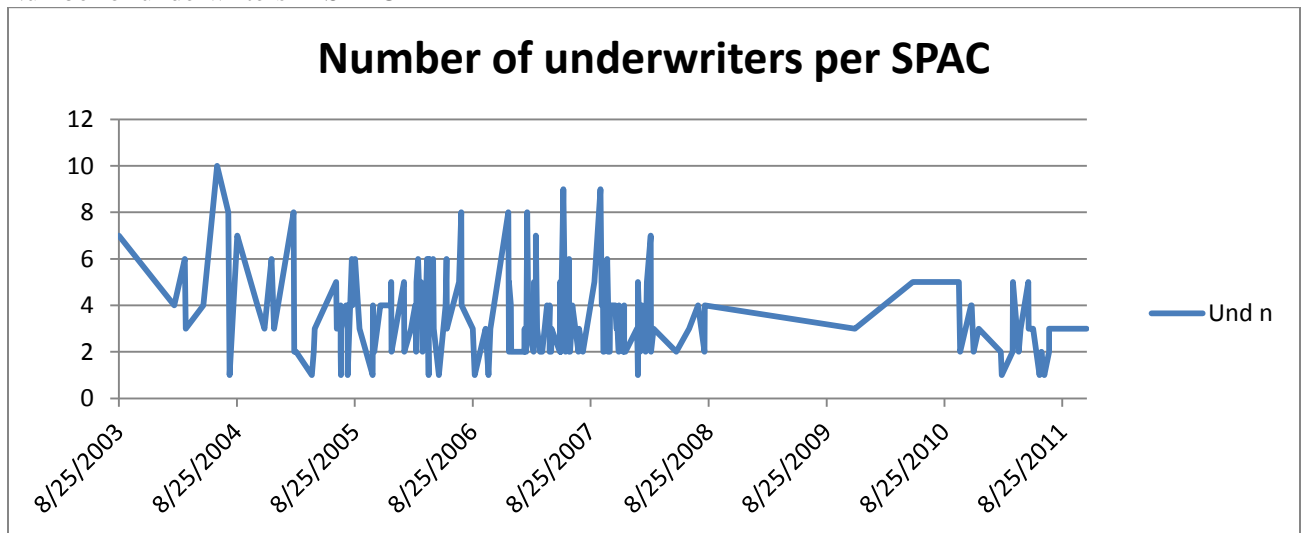
Threshold % of investors allowed to redeem shares:



Exercise price of warrants:



Number of underwriters in SPAC



Changes in the price of unit at the IPO

