"Do Chinese-focused U.S. listed SPACs perform better than others do?"

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DO CHINESE-FOCUSED U.S. LISTED SPACs PERFORM BETTER THAN OTHERS DO?

Abstract

The extraordinary growth of China from the early 2000s until now made it one of the biggest economies in the world. Over the years, more and more Chinese companies merged with the U.S. listed special purpose acquisition companies ("SPACs") to become public and attract foreign capital. This paper examines the differences between this specific subsample of SPACs focused on completing a merger with a business located in China among those listed on the U.S. Stock Exchanges and the other U.S. listed SPACs. The intent is to verify whether the sample differs from the rest of the market in their main characteristics, have better, equal, or worse prospects of completing a merger, and offer better, equal, or worse returns to investors. 329 SPACs were identified, of which 41 targeting Chinese businesses. Logistic regression is performed to understand whether the China market focus influences the chances of consuming a business combination. Moreover, two different models (event study approach and buy-and-hold approach) are implemented to assess the share performances of the two subsamples.

The conclusions that stem from the obtained results are that China-focused SPACs differ consistently from the rest of the market in certain features but need similar time to identify a target and close the deal. Focusing on China seems to be beneficial for the SPAC's prospects of closing a deal, being statistically significant at a 10% level. Last, a portfolio composed of the sample SPACs' shares overperforms the non-China one in both the short and long terms.

Keywords	specified purpose acquisition companies, cross-border
JEL Classification	G12, G14, G32, G34

INTRODUCTION

Special purpose acquisition companies (SPACs) are increasingly becoming a popular investment vehicle in the U.S., and a consistent number of private companies consider SPAC mergers a valuable way of going public. Indeed, since 2003, U.S. SPACs have raised more than $55 billion in 329 initial public offerings (IPOs). Concurrently, China has become a key pillar of the global economy: between 2003 and 2018, China's GDP recorded an average growth of 9.23% versus 2.03% in the United States. This may signal that China-focused SPACs could rely, on average, on better growth prospects in their home economy than SPACs that focused elsewhere. Additionally, most SPACs focus their search on targets in the small and mid-cap spaces. This yields further complexity for companies located outside of the United States, as they must cope with the legal, accounting, and market rules of the U.S. in addition to those of their home markets, but without the scale needed to sustain the process.

The purpose of this paper is to analyze the market of SPACs that are listed in the United States, with the final objective of assessing differences between a specific subsample of these SPACs, those which focused their acquisition efforts in the Greater China Area, and those which did not. The topic is of interest due to the relevance of the Greater China area in the global scenario.

More in detail, three research questions about China-focused SPACs are answered through this paper: 1) find out if they differ from others in their main characteristics; 2) determine if they have better, equal, or worse prospects of completing a business combination than non-China focused ones; 3) identify if they offer better, equal, or worse returns to investors than non-China focused ones.

The analysis is carried out on SPACs listed in U.S. Stock Exchanges since the U.S. is the main market for these companies, as well as their birthplace, and provides a solid database useful for the implementation of the analysis.

1. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Special purpose acquisition companies, also called SPACs, are a specific kind of companies that collect proceeds through an initial public offering (IPO) on a regulated market. These companies have a single purpose: to complete a business combination[1] with an existing operating business that will then obtain the status of a listed company (Gigante & Conso, 2019). The securities issued at IPO are usually units, financial instruments comprising one common share and warrants, generally ranging from 1/3 to 2 per share. After the SEC approval, the units are unbound, therefore shares and warrants begin to trade separately (Pittenger & Grisin, 2007).

SPACs were born in the U.S. as an outcome of the 'Penny Stock Reform Act' and fall in the broader class of "blank check companies" that are neither performing any operating activities or owning any physical asset before the business combination (Gigante et al., 2020). It is worth clarifying that SPACs are not common "blank check companies" (Castelli, 2009); hence, the pertaining literature is not considered relevant. Various authors have published papers on the main differences between blank check companies and SPACs: Hale (2007), Heyman (2007), Riemer (2007), Davidoff (2008), and Sjostrom (2008). Heyman (2007) argues that the SEC placed numerous constraints on these cash shells: SPACs are therefore the market's response to the new regulation, offering a structure that protects investors and satisfies the SEC. Indeed, SPACs replicate the functioning of blank check companies while offering superior protection to investors, due to the need for business combination approval and the right of the latter to exit their investments in case of disagreement on the deal (Rader & de Búrca, 2006).

As a relatively new phenomenon, the first branch of research revolved mostly around legal and accounting topics. The first analysis was carried out by Hale (2007), who focused on the new features introduced by these companies: providing benefits to all the stakeholders involved.

SPACs are assessed as an important player in the U.S. capital markets, as they provide an enhanced environment for SMEs, as discussed by Riemer (2007). This point is further supported by Davidoff (2008), and Riva and Provasi (2019), who claim that SPACs can be seen as a substitute to private equity investments (Cesario & Gigante, 2021) since they mimic PE returns by employing comparable structures and practices.

Additionally, SPACs can be an attractive alternative to IPOs due to the level of liquidity and trading base they provide, as highlighted by Sjostrom (2008), especially in the case of poor market conditions, as stated by Berger (2008), and Kolb and Tykvová (2016). Moreover, Floros (2008) points out how SPACs can be a good solution for target companies located in countries (among which China) with inefficient legal systems, low protection, and high level of debt. Kim et al. (2020) conducted another study carried in the Asian region and interestingly documented that the stock performance of firms that merged with SPACs in South Korea do not differ significantly from conventional IPO firms over the long run.

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[1] In the Anglo-Saxon discipline, business combination broadly means the union of two separated entities in a new, single one. IFRS definition is "A Business Combination is the bringing together of separate entities or businesses into one reporting entity. The result of nearly all Business Combinations is that one entity, the acquirer, obtains control of one or more business, the acquired".

The qualities of SPACs' management team, which will be some of the variables in the logistic regression performed to probe the likelihood of completing a merger for the SPACs in the sample of this paper, are also analyzed by Kim (2009), Collins (2012), and Blomkvist et al. (2021). Indeed, in most cases (Broude, 2007) SPAC promoters are renowned professionals with financial, entrepreneurial, and managerial backgrounds with an extended network of relationships. Jenkinson and Sousa (2011) and Cumming et al. (2014) also investigate the probability of a SPAC to complete a business combination. It was found that there is a positive correlation between the market performance of a SPAC's securities and its likelihood of securing approval by shareholders, as well as correlation with the post-deal market performances. In addition, a younger and larger management team has better chances of closing a deal (Lakicevic et al., 2013). Dimic et al. (2020) also employed logistic regression to examine the determinants of SPAC's IPOs withdrawals.

The second part of this paper analyzes the market performance of the sample's SPACs. The first empirical analysis on SPACs' returns was carried out in 2003–2006 by Jog and Sun (2007), and Boyer and Baigent (2008). It was shown how the average SPAC yields large returns for promoters but destroys value for investors[2]. The outcome of SPACs has been widely explored by Lewellen (2009), Floros and Sapp (2011), Datar et al. (2012), Rodrigues and Stegemoller (2012), Lakicevic and Vulanovic (2013), and Dimitrova (2017), highlighting how SPACs report a statistically significant negative average return and perform worse than both peers that listed through a reverse merger or a standard IPO. Observations of cumulative average abnormal returns further support this, with an average of –9.59% in the ten days post-business combination. Similar conclusions come from Klausner et al. (2020) who found SPACs to be more expensive than traditional IPOs and average SPAC returns to be lower than the ones of companies listed through conventional IPOs. SPACs report negative average returns also when considering a cash-weighted portfolio and taking into account warrants (Gahng et al., 2021). Furthermore, Bai et al. (2021) empirically showed that firm listing through SPAC mergers are ex-ante smaller, riskier than traditional IPO firms, but grow at higher or similar rates after going public.

Leveraging the presented existing literature, the goal of the paper is to appraise whether the U.S. listed SPACs that focus on Greater China Area have better opportunities to complete a merger and offer higher returns to the investors compared to the rest of the U.S. listed SPACs. Hence, this paper explores two tests of hypothesis.

The first test of hypotheses concerns the SPACs' chances of closing a business combination. For this question, $H1_0$ and $H1_1$ are stated as follows:

$H1_0$:   *Chinese-focused SPACs have worse prospects of completing a business combination than other SPACs.*

$H1_1$:   *Chinese-focused SPACs have similar or better prospects of completing a business combination than other SPACs.*

Academic literature supports $H1_0$, Vulanovic (2017) shows how SPACs focused on foreign companies exhibit increased failure likelihood, through the usage of a logistic regression model, the same that is used in this paper.

This is fairly predictable: indeed, a cross-border deal brings additional burdens in terms of financial regulation, due diligence, and legal agreements. Hence, it is not surprising that, on average, deals with foreign companies have fewer chances of being completed.

The second test of hypotheses is about the SPAC's performance post-business combination. For this question, $H2_0$ and $H2_1$ are stated as follows:

$H2_0$:   *The two subsamples register a return differential, with the Chinese one over-performing the others.*

$H2_1$:   *The two subsamples do not register any difference across them, in terms of returns to investors.*

Academic literature supports $H2_0$: indeed, there is a relative shortage of small and medium (SMEs) Chinese enterprises listed in the U.S., as a result of their reduced scale and the costly listing procedures.

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2   Jog and Sun (2007) quantify the gap in a 1900% return for promoters vs a –3% for investors.

This shortage of Chinese SMEs listed abroad should therefore translate into a premium on the stock markets for the few that are already listed, due to the so-called "scarcity value". Lynn (1991) was the first to discuss this topic, stating how scarcity enhances the value of anything that can be possessed, is useful to its possessor, and is transferable from one person to another: a company stock falls in this description. D'Amico et al. (2018) further build on this, highlighting how there is a positive and significant scarcity premium for U.S. Treasuries, the U.S. listed securities, like the stocks analyzed in this paper. Given the prominent role played by China in the international financial markets, as well as the aforementioned relative lack of China SMEs listed internationally, it should thus be unsurprising to find out that these companies are trading at a premium to peers.

2. METHODOLOGY

2.1. Data collection

It is essential to note that, at the time of the drafting of this work, there is no publicly available SPAC database. Therefore, the first step towards the creation of a comprehensive SPACs database was to identify each SPAC listed in the United States from 2003 onwards. To achieve this, several sources were cross-checked, namely: market updates and various reports from SPAC specialists[3] and postings from press releases aggregator BusinessWire (2021).

Yet, the most complete source proved to be the summary of all IPO activity in the United States provided by Nasdaq since January 1997. Therefore, every month since August 2003 it was checked manually, filtering for IPOs with an offering price of either $6, $8, or $10, as is the case for every American SPAC's IPO. At this stage, the following step was the collection of the main characteristics of each SPAC. This activity proved to be extremely time taxing, as data had to be handpicked for each company due to the lack of a SPAC data aggregator.

The list of main information collected for each SPAC is as follows: company name and ticker, date of IPO pricing, gross proceeds, price and number of shares/warrant per unit, percentage of gross proceeds held in trust, number of promoters, age of directors, number and name of underwriters, conversion threshold, acquired target, deal value, date of announcement and completion of a business combination.

2.2. Building the regression model

This sub-section explains the method used to assesses if having a Chinese focus can influence the probability of a SPAC to complete a business combination. Completing a merger is effectively the final purpose for which the SPAC lists, and that it has a fixed timeframe (usually 24 months) to complete. This part, therefore, tackles the first research question of the paper, namely $H1_0$ and $H1_1$:

$H1_0$: Chinese-focused SPACs have worse prospects of completing a business combination than other SPACs.

$H1_1$: Chinese-focused SPACs have similar or better prospects of completing a business combination than other SPACs.

The SPACs that will form the sample are the 255 SPACs listed between 2003 and 2018 that have already settled their corporate status (that is, they either completed a business combination or liquidated), and for which every variable used in the regression could be sourced. Of these, 34 were Chinese-focused SPACs.

A regression model is built by taking into account the main characteristics of every SPAC: the dependent variable is whether the SPAC has consummated a merger or not. The variable takes value 1 if the observed SPAC has completed a business combination and value 0 if otherwise. Given the nature of the dependent variable, which is in fact a binary one, the implemented regression method is the logistic one. More in detail, the function used for this study is the logit function of the software Stata.

The logistic regression (Equation 1) can be described as follows:

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3   Press articles from The New York Times, GlobalCapital, ChinaDaily, Bloomberg Intelligence, The Street, Buyouts, Nasdaq Globe Newswire, The New York Law Journal, Mergers&Acquisitions, GlobalFinance, and TearSheet.

$$logit(p) = \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \ldots \quad (1)$$
$$+\beta_n x_n = X\beta,$$

whereas: $logit(p) = \ln\left(\dfrac{p}{1-p}\right)$.

The following are the variables for the aim of the model.

The first one is the gross proceeds collected by the SPAC at IPO. This variable will play the role of a control variable in the regression.

The second is the amount of the IPO gross proceeds that are kept in a trust (*Proc. Held in Trust*) following the listing of the SPAC and that are made available only for the objective of completing the merger. This variable will play the role of a control variable in the regression.

The third variable is the proceeds collected from the private placement to promoters (*PP_gross*), expressed as a function of the IPO gross proceeds according to the following formula (Equation 2):

$$PP\_gross =$$
$$= \frac{Proceeds\ from\ private\ placement}{IPO\ gross\ proceeds}. \quad (2)$$

The reason for recomputing these proceeds is the necessity to 'adjust' the total value of the private placement for the value of the IPO: by expressing it as a percentage of the total IPO proceeds it is possible to assess the scale of the promoters' involvement compared to the other investors.

The fourth, fifth, and sixth variables are respectively the number of officers involved with the SPAC, their average age, and their previous experience in SPACs. As SPACs rely heavily on the connections and industry knowledge of their officers to complete a business combination, these variables should have a positive impact.

The seventh variable is still related to previous experience: it refers to whether the SPAC, before completing a merger or liquidating, had announced to the market a previous combination that was canceled before reaching the voting phase.

The eighth variable assesses the maximum conversion threshold for the SPAC that is the maximum share of capital that can be redeemed to investors that vote against a business combination. A positive impact is expected for this variable: as a matter of fact, a higher threshold should translate into higher flexibility for the SPAC.

The ninth and tenth variables revolve around the "identity" of the SPAC: these are true whether the SPAC will focus on a specific industrial sector(s) and/or on companies located in China. As already mentioned, the latter is a crucial variable for the goal of this paper, as its significance will translate into the answer to the paper's second research question. For both variables, it is to be expected a positive impact, as usually restricting the 'investment landscape' goes together with higher expertise in the chosen field(s) and/or in the Chinese market.

The remaining variables – from the eleventh to the eighteenth – give color to the characteristics of the syndicate.

2.3. Portfolio analysis

The third and last analysis aims to compare the stock market performances of the merged SPACs. The final objective is to assess whether the two analyzed subsamples (Chinese focused and non-Chinese focused SPACs) display similar patterns in terms of value post-business combination or not.

Two different models are selected: the "event study" one through the observation of the "cumulative average abnormal returns" (CAARs) for short-term analysis, and the "buy-and-hold" one for the medium-long term.

The first step was to source the data on the prices of the SPACs' shares. These were obtained using two platforms: Datastream – Thomson Reuters cross-checked with Bloomberg. Through this method, data for 142 SPACs were obtained.

Before moving further, it is important to premise that the following analysis is based on the value of the SPACs' shares. The main reason is that warrants data in the platforms are quite incomplete: thus, including them would have significantly

restricted the sample of the analysis (from 142 Companies to 107 – equal to a cut of 25% of total observations). Furthermore, to avoid 'yield games' and minimize 'warrant overhang', SPACs have progressively lowered the number of warrants included in their units. Hence, a focus only on shares enables to 'level' the analysis field across all SPACs.

Following the retrieval of all SPACs' prices, day-to-day returns were then computed through the following formula (Equation 3):

$$Return_{Day\ N+1} =$$
$$= \frac{Closing\ price_{Day\ N+1} - Closing\ price_{Day\ N}}{Closing\ price_{Day\ N}}. \quad (3)$$

The 142 SPACs were then discerned between SPACs that focused their acquisition focus on China and SPACs that did not, and placed in two different portfolios:

- $Portfolio_{Chinese\ focused\ SPACs}$, containing 25 stocks;

- $Portfolio_{Non\ chinese\ focused\ SPACs}$, containing 117 stocks.

These portfolios are considered in both equally-weighted and value-weighted options.

2.3.1. Event study approach

An event study is the study of a specific timeframe (the event window) of a previously identified variable, to analyze how it develops itself on the back of a particular event (the trigger). The main goal is therefore to assess the potential reaction of the variable to the event, and possibly to forecast it.

In financial literature, this analysis is usually carried out through the observation over time of the abnormal returns, defined as the component of the return of a financial instrument that exceeds the return of an index representative of the broader market. Hence, this definition is correlated to the market model, which states that the historical return of a security is linked to a market index through the following function (Equation 4):

$$r_{it} - r_f = \alpha_{it} + \beta_{it}\left(r_{mkt} - r_f\right) + \varepsilon_{it}, \quad (4)$$

whereas r_i is the return at time i of the considered security t, r_{mkt} is the return of the market index, r_f is the risk-free rate, α_{it} and β_{it} are the coefficients of the model to be estimated and ε_i is the error component of the model.

This model can thus be seen as a derivation of the capital asset pricing model defined by Sharpe (1964), with the main differences of focusing on historical returns rather than expected ones and approximating the return of the "market portfolio" with an index that is representative of said market.

In this context, this model is accordingly used for the calculation of the abnormal returns (from now on, ARs) of each considered SPAC's stock (Equation 5), where:

$$AR_{it} = r_{it} - \alpha_{it} - \beta_{it}\left(r_{mkt} - r_f\right) - r_f. \quad (5)$$

The goal is therefore to calculate the return component that is not captured – and explained – by the market model.

Once the ARs are calculated, the next step is to compute the average abnormal return (AAR), both arithmetic and value-weighted, that is Equation 6 and Equation 7:

- $$AAR_i = \sum_{t=1}^{142} \frac{1}{n} AR_t \quad (6)$$

  for the arithmetic average;

- $$AAR_i = \sum_{t=1}^{142} \frac{1}{n} AR_t \frac{W_i}{W_t} \quad (7)$$

  for the weighted one.

Where AR_i is the abnormal return of title t in that i day and AAR_i is the average of each title for said return.

With the AARs calculated, it is possible to compute their daily variations with the following Equation 8:

$$AAR_{i,i-1} = \frac{AAR_i}{AAR_{i-1}} - 1. \quad (8)$$

At this point, the cumulative average abnormal return (CAAR) is calculated as Equation 9:

$$CAAR = \sum_{i=-20}^{+20} AAR_{i,i-1}. \qquad (9)$$

For the aim of the analysis, the selected window is a 40 day one in a [–20; +20] format.

The α_{it} and β_{it} parameters were sourced from Bloomberg, using the previous year (261 daily observations) as the timeframe for the estimate, while the r_f was calculated as the daily return of the U.S. 13 Weeks Treasury Bill according to the following Equation 10:

$$\left(1 + r_f\right)^{(1/90)} - 1. \qquad (10)$$

The r_{mkt} was instead approximated as the daily return of the Russell 2000 Index[4]; being the most widely quoted benchmark for performances of small-cap and mid-cap companies, it is the most appropriate for assessing the performances of SPACs as they fall in the same bucket.

In order to assess the statistical significance of the overperformance of the portfolio, a t-test for paired samples has been carried out. The hypotheses are the following:

- $H2_0$: The Chinese-focused SPACs portfolio did not overperform the other on a statistically significant basis.

- $H2_1$: The Chinese-focused SPACs portfolio did overperform the other on a statistically significant basis.

The t-test has been applied as per Equation 11:

$$t = \frac{\overline{r_{Diff}}}{\sigma_{Diff} \big/ \sqrt[2]{n}}. \qquad (11)$$

Given (Equation 12):

$$AR_{Diff} = AR_{China-focused\ SPACs} - \\ -AR_{Non\ china-focused\ SPACs}. \qquad (12)$$

2.3.2. Buy-and-hold approach

Buy-and-hold is a passive investment strategy for which the investor buys stocks and holds them for a specified term, regarding market fluctuations: investor does actively select stocks but has no concern for neither short-term movements nor technical indicators.

There is debate amongst practitioners on whether a buy-and-hold strategy can deliver superior value compared to an active one; nevertheless, the former offers important tax benefits as capital gains taxes can be deferred on a long-term investment.

Moreover, this strategy is easy to implement, efficient on the fees side, and can bypass threats posed by the current market state, reducing the need of carrying on detailed market analysis.

The buy-and-hold approach is a suitable one for the goal of this study.

To take account of the market state in the analysis, SPACs' returns were plotted against those of the Russell 2000 Index. The date of the closing was picked as the Day 0 of the portfolios. To provide further color on the portfolios' trends and possible differences, the analysis was carried on for three different timeframes: 3 months, 6 months, 1 year.

3. RESULTS

To contextualize the results of this research, it is worth giving an overview of the U.S. market in its completeness, as displayed in Table 1.

Of a total of 329 SPAC that have been listed, 262 have already settled their corporate status: 66% of them by either merging with an operating business and 34% by liquidating.

Of these SPACs, 41 have a focus on the Chinese market – that is, they aim at merging with a business located in the Greater China area. Excluding

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4   The term Russell 2000 Index refers to a stock market index that measures the performance of the 2,000 smaller companies included in the Russell 3000 Index. The Russell 2000 is managed by FTSE Russell and is widely regarded as a bellwether of the U.S. economy because of its focus on smaller companies that focus on the U.S. market.

Table 1. Market overview

Year	SPAC IPO Count	Average Size ($mm)	Total Proceeds ($mm)	Merged	As % of total	Liquidated	As % of total	Chinese SPAC IPO Count	As % of total	Average Size ($mm)	As % of total	Total Proceeds ($mm)	As % of total	Merged	As % of Chinese SPACs	Liquidated	As % of Chinese SPACs	US IPO Count	SPAC IPO as % of total
Total	329		55380	172	–	90	–	41	–	–	–	17147		26	–	8	–	2507	–
2018	46	232	10681	–	–	–	–	6	13%	815	8%	4890		–	–	–	–	190	24%
2017	34	295	10020	13	38%	–	–	1	3%	56	1%	57		–	–	–	–	160	21%
2016	13	269	3500	8	62%	5	38%	0	0%	0	0%	0		–	–	–	–	105	12%
2015	20	195	3902	17	85%	3	15%	2	10%	106	3%	213		2	100%	0	0%	170	12%
2014	12	146	1750	8	67%	4	33%	2	17%	116	7%	233		2	100%	0	0%	275	4%
2013	10	145	1447	8	80%	2	20%	0	0%	0	0%	0		–	–	–	–	222	5%
2012	9	55	491	6	67%	3	33%	0	0%	0	0%	0		–	–	–	–	128	7%
2011	16	69	1110	12	75%	4	25%	3	19%	106	10%	318	20%	2	67%	1	33%	124	13%
2010	7	72	503	3	43%	4	57%	0	0%	0	0%	0	0%	–	–	–	–	154	5%
2009	1	36	36	1	100%	0	0%	1	100%	360	100%	36	100%	1	100%	0	0%	63	2%
2008	17	226	3842	11	65%	6	35%	7	41%	362	9%	2538	66%	6	86%	1	14%	31	55%
2007	66	183	12091	33	50%	33	50%	10	15%	778	6%	7782	64%	7	70%	3	30%	213	31%
2006	37	92	3386	19	51%	18	49%	3	8%	186	6%	559	17%	1	33%	2	67%	196	19%
2005	28	76	2114	22	79%	6	21%	2	7%	69	3%	138	7%	2	100%	0	0%	192	15%
2004	12	40	484	10	83%	2	17%	4	33%	96	20%	384	79%	3	75%	1	25%	216	6%
2003	1	24	24	1	100%	0	0%	0	0%	0	0%	0	0%	–	–	–	–	68	1%

Table 2. SPACs' variables

Variable	Mean	Std. Dev.	Min	Max
Unit Price (in $)	**8.80**	**1.56**	**6**	**10**
Number of Shares per Unit	1	0	1	1
Number of Warrants per Unit	1.07	0.50	0	2
Number of Officers	6.30	1.75	2	13
Average Age of Officers	51.80	5.97	31.30	64.60
Value of Warrants Private Placement (as % of Gross)	3.40%	2.20%	0%	10.80%
Maximum Conversion Threshold	60.20%	35%	20%	99.38%
Gross Proceeds (in $mm)	152.93	149.03	7.88	900
Quota of Gross Proceeds Held in Trust	98.70%	4.70%	85%	105.50%
Number of Underwriters in a Syndicate	3.12	1.58	1	10
Underwriters Fees (as underwriting discount)	6.10%	1.50%	0.66%	12%
Deferred Und. Fees (as % of total fees)	46.30%	21.60%	0%	81.75%
Time to Completion of Business Combination (in days)	651.27	229.79	230	2119
Time from Announcement to Completion of BC (in days)	180.84	112.28	3	675
Deal Value (in $mm)	454.65	693.75	14	3800

those who are still looking for a target, there are 34 SPACs left: of these, 26 completed a business combination and 8 had to liquidate.

Looking at absolute values, it can be seen how 2007 is the year that experimented with the largest number of SPAC IPOs and SPAC mergers, both for the total and Chinese SPACs. Concerning Chinese SPACs, it is worth noticing that their market now seems to have been picking up its pace again, as in 2018 six of them listed (the highest number in this decade) collecting proceeds for $815mm (all time high).

It should also be reported that the figure for liquidated SPACs for years 2017 and 2018 were not considered, as these companies still have time to complete a business combination.

Since the floating of the first SPAC of this century, Millstream Acquisition Corp., in 2003, the market for these companies grew steadily in the following years, touching a peak in 2007 with 66 SPACs listing for a total size of $12,091mm. After this, SPAC activity was severely hindered by the financial crisis, as can be seen by the figures for years 2009 and 2010 (which have seen respectively 1 and 7 SPACs listing). Nevertheless, starting from 2011 the number of IPOs has risen again, with consistent numbers over the following years; in 2018 forty-six SPACs floated, overtaking 2006 as the second-highest number of SPAC IPOs in a year. Correspondingly, further insights can be gained by analyzing the aver-

age size of SPACs. Indeed, in the last years this figure has been firmly growing, and since 2015 numbers have been consistently higher than those of the previous peak in 2007. Data on the cumulative of IPOs carried out in the United States provides further insights: it is important to notice how SPACs made up 21% and 24% of IPOs in 2017 and 2018.

Moving on, a summary of the main characteristics of a SPAC is provided with Table 2; subsequently, these variables are assessed one by one across the two subsamples of the analysis, to answer the first research question of this paper.

For what concerns Unit Prices, there is no substantial difference across the samples: indeed, both show the trend of the broader U.S. SPAC market (Figure 1). On average, each unit is made of 1 share and 1.1 warrants – with the average strike price of the latter being $7.10 – and ranging from 0 to 2 per unit. There has been an evolution in the awarding of warrants over time: SPACs of the first years usually presented a combination of 1 share and 2 warrants, which were usually 'out of the money'. This gradually changed at the market peak in 2007, when most of SPAC IPO units were composed of 1 share and 1 warrant. It can be noticed how Chinese SPACs have a higher number of warrants per unit on average – 1.26 versus 1.04 of non-Chinese.

The number and age of officers were used as an explanatory variable in the regression model.
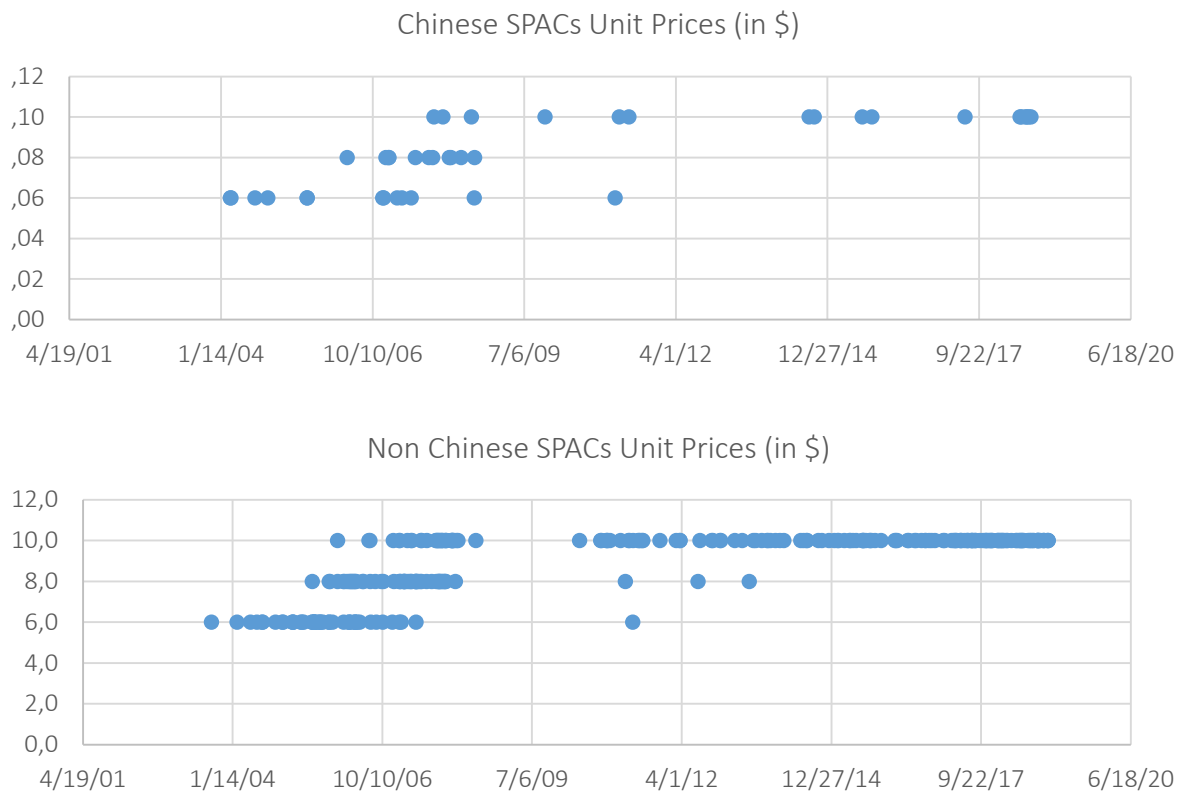
Figure 1. Unit offer prices

Significantly, the average Chinese SPAC has a lower number of Officers than the others – 5.61 versus 6.41 (Figure 2). In addition, they are consistently younger than the remaining SPAC founders: the average age of 46.9 years, is 5.6 years less than the average of 52.5 years for officers of non-Chinese SPACs.

Another relevant variable is the value of the warrant's Private Placement. Before or simultaneously to the IPO, SPAC founders can carry out a Private Placement: while most placements involve the selling of warrants, there are cases involving only shares, or both shares and warrants. Mean values are fairly similar across the samples: the average Chinese SPACs reports Private Placement proceeds equal to 3.6%, slightly higher than the remaining observations at 3.3%; average proceeds for a Chinese SPAC rise to 4.3%, while non- Chinese to 3.7% (Figure 3).

The Conversion Threshold does not show any relevant difference across the subsamples: as a matter of fact, both groups track the same changes the market experimented with over the years (Figure 4).

By observing the gross proceeds of the subsamples interesting information can be drawn (Figure 5). Notably, proceeds for Chinese SPACs are consistently lower than others, presenting a mean value of $61.9mm, equal to 37.3% of the remaining SPACs, which show a mean of $166.0mm. Similar results are also yielded by an analysis of the median values, which stand at $40mm for Chinese SPACs and $120mm for non-Chinese ones.

With Underwriting Agreement, data are identified pertaining to: number of banks involved; total fees paid; the share of deferred fees that banks will obtain only in case of a successful closing.

Focusing on the number of banks in the IPO syndicate, there is no substantial difference across the subsamples: the average Chinese SPAC has 3.22 underwriters, while the average is 3.10 for non-Chinese ones.

Moving on to the total commissions paid to the syndicate, data suggest again that both Chinese

Chinese SPACs' No. of promoters
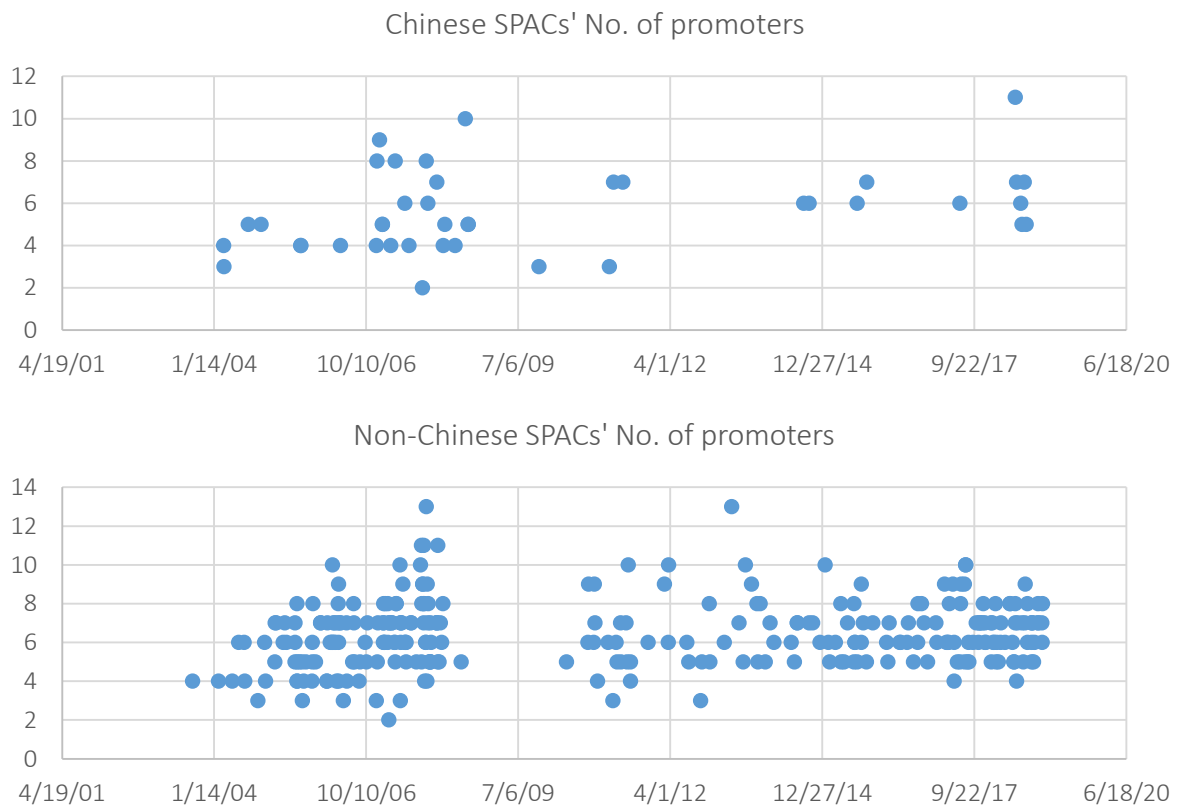
Non-Chinese SPACs' No. of promoters

Figure 2. Number of promoters

Chinese SPACs' Private Placement (% of Gross)

Non-Chinese SPACs' Private Placement (% of Gross)
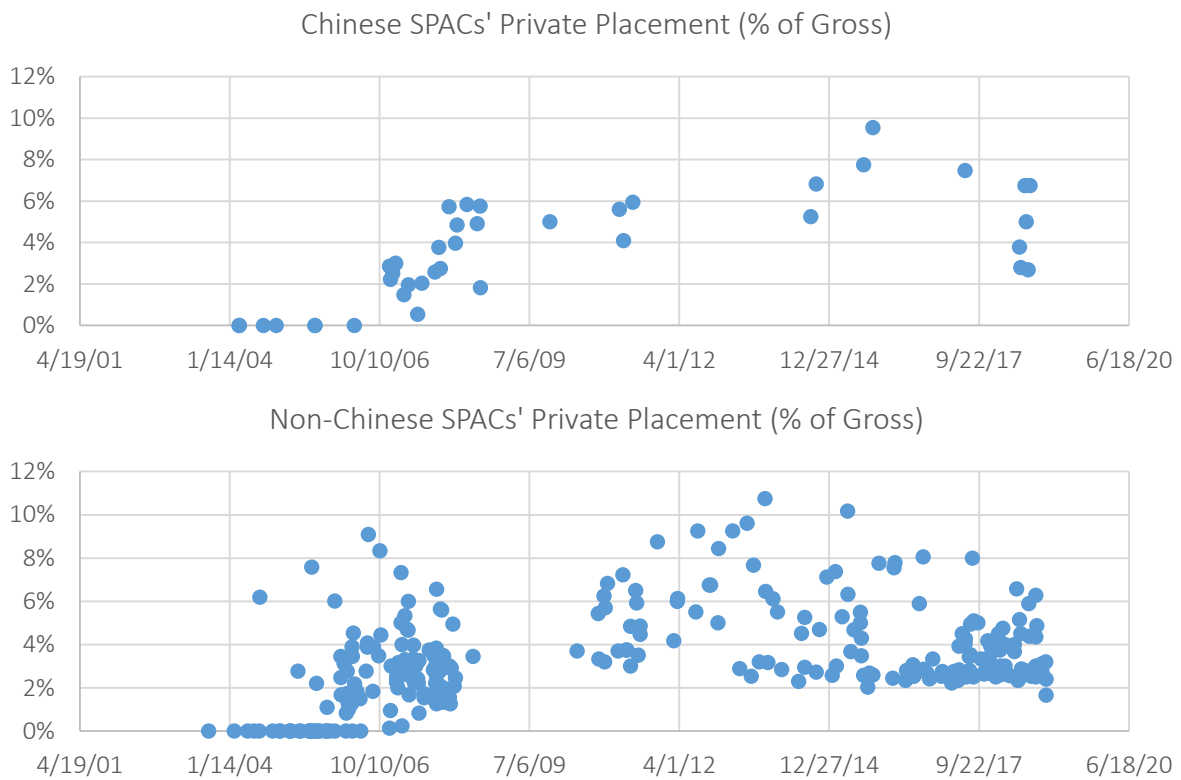
Figure 3. Private placement proceeds

Conversion Threshold for Chinese SPACs

Conversion Threshold for Non-Chinese SPACs
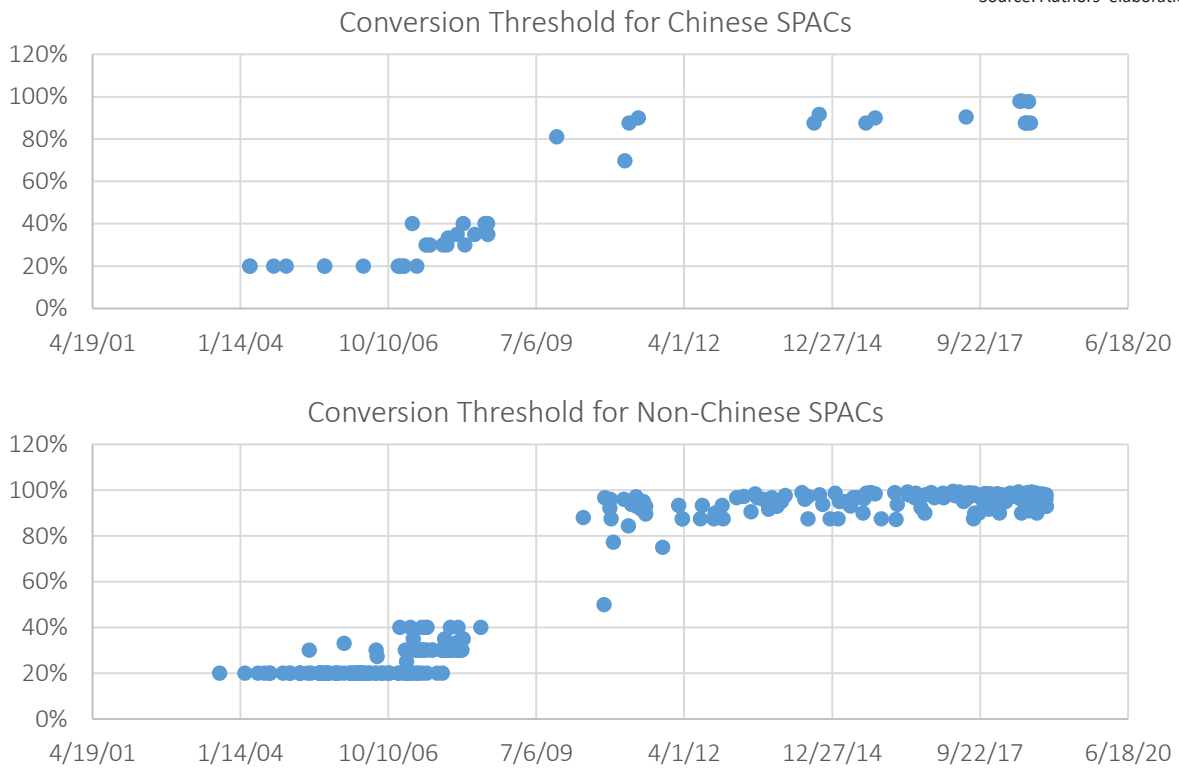
Figure 4. Conversion threshold

China SPAC Gross Proceeds Pre-Allott ($mm)

Non China SPAC Gross Proceeds Pre-Allott ($mm)

Figure 5. Gross proceeds

240

Figure 6. SPACs' deal values

and non-Chinese SPACs have experimented with the same trends. Precisely, there has been a progressive decrease of total fees: average fees i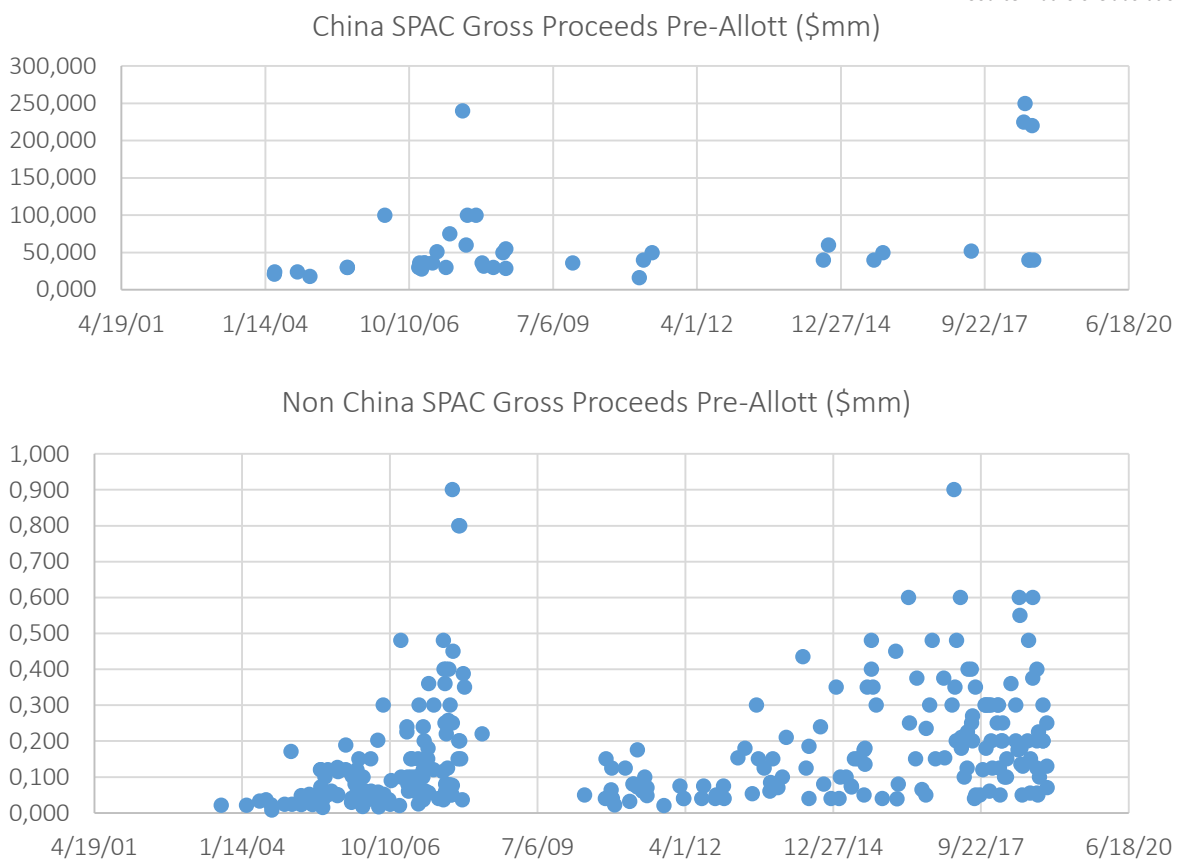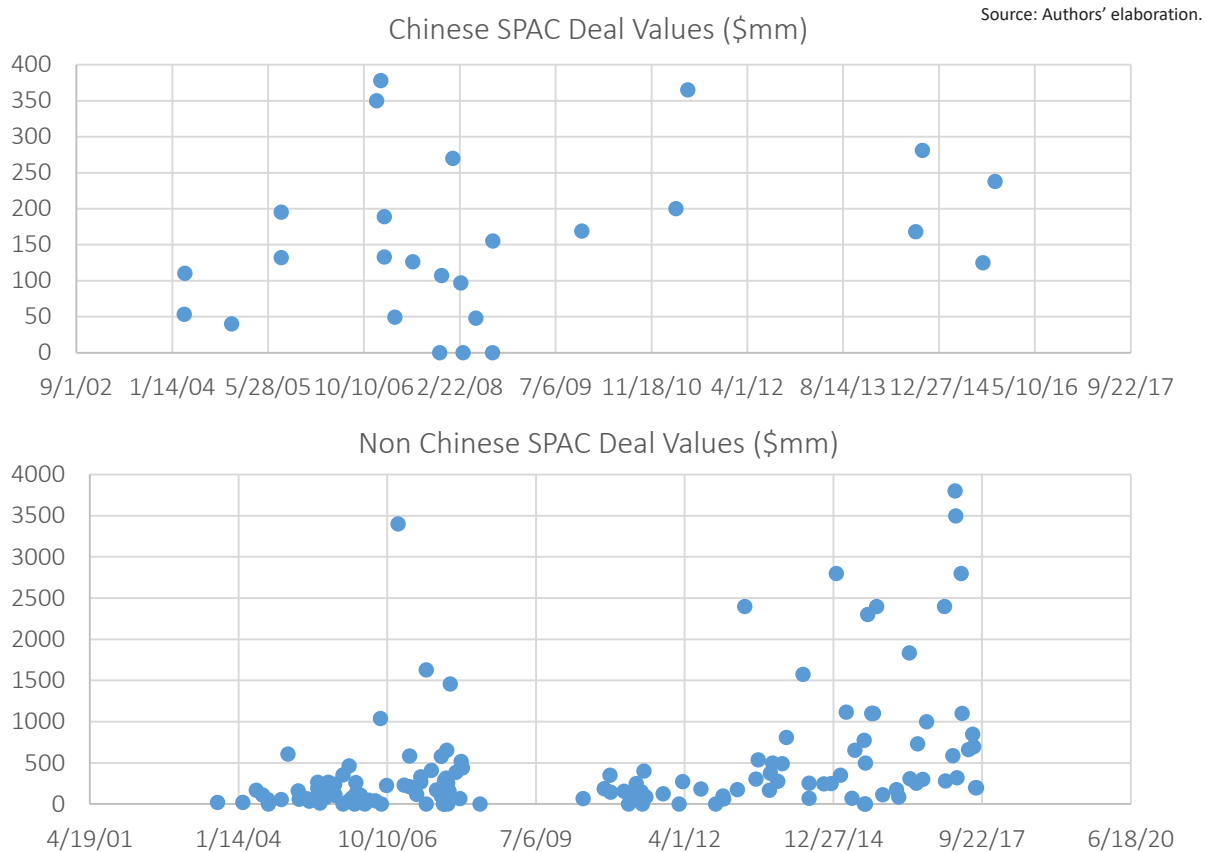n the 2003–2009 period amount to 7.22% for Chinese ones and 6.98% for non-Chinese ones, while they were respectively 5.65% and 5.48% in 2010-2018. Average deferred underwriting fees have been 45.8% for Chinese SPACs and 52.3% for non-Chinese.

One more feature of interest is the timing of the business combination. Three main observations can be drawn from the collected data. Firstly, for both Chinese and non-Chinese SPACs, some outliers exceeded the standard time threshold (24 months) a SPAC has to consummate a business combination. On the other side of the spectrum, there have been SPACs that managed to quickly close a deal. Secondly, despite the cross-border nature of the deals, Chinese SPACs do not show timings particularly more extended than others: on average, they took 679 days to merge, opposite to the 666 of non-Chinese ones. Last, the data clear-

ly point out how timings did not experiment with significant decreases over time.

In consequence of the consistent difference in average size between the subsamples, it is noticeable that deal Enterprise Values registered for Chinese SPACs are lower than the others – registering mean values of $172.96mm versus $508.22mm and median values of $155mm versus $250mm (Figure 6). Additionally, it is discernible that, while Chinese deal values have a fair even distribution, for the non-Chinese ones there is a decrease in the number of deals as the value rises, with three deals approaching or exceeding the $3.5bn thresholds. Regardless of the different range in deal values, both types of SPAC present a similar ratio of deal value to IPO proceeds: 4.55x for Chinese SPACs and 4.39x for non-Chinese SPACs.

Concerning the first test of hypothesis, the regression analysis has been performed on the 255

Table 3. SPACs' outcome overview

Source: Authors' elaboration.

Subsample	Completed	Liquidated	Total
Chinese SPACs	26	8	34
Non-Chinese SPACs	144	77	221
Total	170	85	255

Table 4. Logistic regression

Source: Authors' elaboration.

Completed	Coeffic.	Std Error	Z	P > |Z|	[95% Conf.Interval]		Significance
Gross Proceeds	0.39	0.31	1.27	0.20	−0.21	0.99	0.39
Proc. Held in Trust	−0.08	0.07	−1.17	0.24	−0.20	0.05	−0.07
PP Gross Proceeds	0.42	0.11	0.36	0.72	−0.18	0.27	0.04
N of Officers	−0.11	0.09	−1.23	0.22	−0.29	0.07	−0.11
Average Age of Officers	0.45	0.03	1.33	0.18	−0.02	0.11	0.04
Previous Exp. In SPACs	0.69	0.41	1.67	0.01	−0.12	1.50	0.69*
Previous Tentative to close a Deal	−3.33	0.43	−7.80	0.00	−4.17	−2.49	−3.33***
Conversion threshold	0.02	0.00	1.94	0.05	−0.00	0.03	0.02*
Sector Focus	0.89	0.42	0.21	0.83	−0.73	0.91	0.09
China Focus	1.09	0.66	1.65	0.10	−0.20	2.38	1.09*
Number of Officers	−0.24	0.13	−1.89	0.06	−0.50	0.00	−0.24*
Deferred Fees	−0.00	0.01	−0.37	0.71	−0.02	0.01	−0.01
EBC as Underw	0.41	0.50	0.81	0.42	−0.58	1.34	0.40
GunnAllen as Underw	−0.54	0.55	−1.00	0.32	−1.61	0.53	−0.54
Chardan as Underw	2.10	1.00	2.09	0.04	0.13	4.06	2.10**
Maxim as Underw	0.35	0.47	0.74	0.46	−0.57	1.23	0.35
Morgan Joseph as Underw	−0.55	0.62	−0.09	0.93	−1.28	1.17	−0.05
_cons	5.29	5.86	0.90	0.37	−6.19	16.78	
Number of Observations	=	255					
LR chi2 (18)	=	124.74					
Probability > chi2	=	0.00					
Pseudo *R*2	=	0.38					
Log likelihood	=	−99.94					
Significance Legend		* p < .1; ** p < .05; *** p < .01					

Table 5. Regression accuracy

Source: Authors' elaboration.

	Observations		
Predict.	**1**	**0**	**Total**
1	156	24	180
0	14	61	75
Total	170	85	255

SPACs that have settled their corporate status by December 31, 2018, as specified in Table 3.

Table 4 reports the outputs of the logistic regression[5], as well as the significance of each variable[6]. The low p-value supports the statistical significance of the model. By analyzing Table 4, it is possible to ascertain which factors are significant (with significance levels of 1%, 5%, and 10%).

Moreover, the regression accuracy model (Table 5) indicates that the model predicts 85.10% of the sample's observation – a satisfactory result.

With regards to the Portfolio Analysis, the abnormal returns of the two portfolios (China vs. Non-China portfolios) behave in different ways and are consistent across both methods of calculation.

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5   Logit command on Stata.
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Table 6. *T*-test results (equally-weighted portfolio)

Statistic	Variable 1	Variable 2
Mean	0.01	−0.01
Variance	0.01	0.00
Observations	41.00	41.00
Pearson Correlation	−0.09	
Hypothesized Mean Difference	0.00	
Df	40.00	
t Stat	4.10	
P(T<=t) one-tail	0.00	
t Critical one-tail	1.68	
P(T<=t) two-tail	0.00	
t Critical two-tail	2.02	

Table 7. *T*-test results (value-weighted portfolio)

Statistic	Variable 1	Variable 2
Mean	0.02	−0.01
Variance	0.00	0.00
Observations	41.00	41.00
Pearson Correlation	0.03	
Hypothesized Mean Difference	0.00	
Df	40.00	
t Stat	8.57	
P(T<=t) one-tail	0.00	
t Critical one-tail	1.68	
P(T<=t) two-tail	0.00	
t Critical two-tail	2.02	

The Chinese portfolio experiments positive abnormal returns as high as 5% in the 20 days post-closing, while the non-Chinese one does not seem to be impacted in any way by the closing. The results of the t-test are reported in Table 6 and Table 7, both for the equally weighted and the weighted portfolio.

Moving on to the buy-and-hold approach, Table 8 reports the portfolio performance. It can be observed that results do not present substantial differences on the 3- and 6-month timeframes. Over the first timeframe, the China portfolio slightly outperforms on both an equal-weighted and value-weighted basis (respectively +2.22% and +2.29%). Over the 6-month horizon, the non-Chinese one is the best performing in the equal-weighted portfolio (registering +4.24%) but the trend changes when value-weighting the stocks, with the Chinese one being again the outperformer (+3.90%).

The 1-year timeframe yields the most interesting results: on an equal-weighted basis, the Chinese portfolio shows a +5.87% performance against the other, and this gap is further magnified when accounting for their values, with the over performance being at +10.03%. Further, the non-Chinese portfolio drops from 117 to 109 stocks when assessing 1-year performances.

Table 8. Buy-and-hold results

Portfolios	3 months			6 months			1 year		
	EQ	VW	n. of stocks	EQ	VW	n. of stocks	EQ	VW	n. of stocks
Chinese Ptf	−10.17%	−9.77%	25	−27.89%	−25.10%	25	−36.12%	−35.31%	25
Non-Chinese Ptf	−12.39%	−12.06%	117	−23.65%	−28.99%	117	−41.98%	−45.34%	109
Over/Underperf.	2.22%	2.29%		−4.24%	3.90%		5.87%	10.03%	

4. DISCUSSION

The first and most relevant result yielded by the logistic regression (Table 4) is the impact of the focus on Chinese companies (Chinese Focus). Results are interesting, as the variable is significant at a 10% level (p-value 0.098) with a positive impact on the outcome of the SPAC. This is the first achievement of this paper from an empirical perspective, as it suggests that SPACs focused on China have higher probabilities of completing a business combination. The causes mentioned in the introduction could potentially explain this. First, the economic growth China has experienced created a wide ecosystem of high-quality businesses, across the whole size spectrum. Therefore, this trend may result in more suitable candidates for a merger with a SPAC, given the better economic prospects of their native market. Additionally, the mentioned "scarcity" of Chinese SMEs listed in the U.S. may boost the prospects of these candidates to complete the listing, as investors could be keen to bring such companies to listed markets.

Results also indicate that having previous experience in SPACs (Previous Exp. in SPACS) has a positive impact on the likelihood of consummating a business combination, being significant at a 10% significance level (p-value 0.095). This confirms the expectations that were revolving around this variable – that is, there is a positive learning effect that improves probabilities of the business combination.

A lower conversion threshold (Conversion Threshold) seems to have a positive impact, being significant at a 10% level (p-value 0.053). Again, this confirms expectations on its effect.

An interesting result is an impact of having Chardan Capital Markets (Chardan as Underw)

as an advisor: precisely, it has a positive impact at a 5% level (p-value 0.036). It would hence seem desirable to engage them as financial advisors while preparing for IPO. In addition, also the number of underwriters involved (No. of Underwriters) seems to have a negative effect, being significant at a 10% level. This may hint that SPACs that need a larger syndicate are indeed of lower quality, ceteris paribus.

As regards the event-study approach for the portfolio analysis, possible reasons for the difference in the abnormal returns of the two subsamples are: a) the Chinese portfolio was partially undervalued before the announcement; b) the market is overconfident in the chances of value creation of Chinese companies; c) the market had already priced the closing of non-Chinese SPACs, possibly on the back of their processes facing fewer complications than an ordinary cross-border.

The results of the event study are encouraging, as they demonstrate that the difference in performance is significant. Indeed, the t-test (Table 6 and Table 7) demonstrates how $H2_0$ can be rejected at every level of statistical significance. This further shows how the portfolio overperforms the other in terms of CAARs.

Finally, concerning the buy-and-hold approach (Table 8), while the two portfolios seem to behave similarly in the short-medium term, the Chinese one performs better on a longer horizon, with a widening spread between the two groups, similarly to the findings of Shachmurove and Vulanovic (2017). This provides useful information, as it suggests that the Chinese portfolio shows a higher degree of value preservation than the other does.

CONCLUSION

The objective of this paper was to analyze the dynamics of the U.S. SPAC market and assess the differences between Chinese-focused SPACs and the others, in particular, addressing whether Chinese-focused and non-Chinese focused SPACs present discrepancies in their main features and investigating what affects the probability of completing a business combination and which of the two subsamples offers better returns to the investors.

Overall, it has been proved that some characteristics are consistently different for Chinese-focused SPACs from the rest of the market, such as lower proceeds (average non-Chinese collecting 2.64x the Chinese). This has a linear consequence in the values of their deals: while the "Enterprise Value to IPO proceeds" ratio is similar (4.55x for Chinese and 4.39x for non-Chinese), absolute values differ significantly (average non-Chinese deal being 2.94x the Chinese one). It has also been observed that the sample has a slightly leaner and younger promoting team (average 5.6 years younger than those of non-Chinese). Last, despite the additional complications arising from a cross-border M&A deal, SPACs do not actually need more time to identify a target (473 days vs. 485) and close the merger (211 days vs. 181).

Valuable results were also yielded from the regression analysis performed to answer the second research question. Having an acquisition focus on China has a statistically significant beneficial effect on the chances of the SPAC to close a deal. In addition, there have been identified other significant beneficial variables, and these are: having promoters with previous experience in SPACs, keeping a higher conversion threshold, and hiring Chardan Capital Markets as an advisor. Two variables have a negative effect instead: a larger size of the underwriting syndicate and having withdrawn an announced deal. The results of the regression analysis support $H1_1$, which, in this case, is opposite to the stance of existing literature.

Besides the likelihood of completing a business combination, what is relevant to investors are the returns generated by the vehicles. The portfolio analysis executed reveals that the Chinese portfolio experiments positive returns after the announcement of the closing, while the non-Chinese one is not affected in any way by the said trigger, and the 'buy and hold' analysis proved that the Chinese portfolio outperforms the other in the medium- and long-term, hence the analysis support $H2_0$, confirming what previous literature suggests.

In light of the performed analysis, this study expands the current knowledge on SPACs, by offering a better outlook in terms of probability of completion and value for investors. Hence, the study can be deemed as satisfactory, given the results attained by both descriptive and empirical analysis.

A potential limitation for the performed study may be that the selected explanatory variables for the regression cannot capture the impact of regulatory measures by the SEC or new statutory conventions in the SPAC charters that might significantly affect the likelihood of completing a business combination. Another unexplored variable is the correlation between the probability of completing a deal and the financial market conditions. Furthermore, the portfolio analysis focuses only on share prices without considering the value of warrants or rights potentially issued by the SPACs.

An additional possible criticism that might be brought forward concerns the relatively small size of the Chinese-focused SPACs subsample, which may limit the generalizations of the obtained results. The limited dimension of the sample does not depend on a choice but rather on the fact that SPACs are a recent financial innovation and a niche market with still relatively few available data points.

However, considering the pipeline of Chinese-focused SPACs currently in the market or that will join in the future, the base of data for future analysis will experiment a significant growth. Therefore, leverag-

ing the useful methodology outlined in this paper and the valuable outcomes achieved, possible further analysis steps could be taken to implement a view on both SPACs' shares and warrants in order to clarify the total return and to compute separated regression models to assess whether different variables have different impacts on samples, while, at the same time, it will be possible to enlarge the sample size.

AUTHOR CONTRIBUTIONS

Conceptualization: Gimede Gigante, Giovanni Maria Guidotti.
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Writing – review & editing: Gimede Gigante, Giovanni Maria Guidotti.

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