

## THE ROLE OF WARRANTS IN SHELF OFFERINGS

### ULOGA VARANATA KOD "SHELF" PONUDA

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**Abstract:** *Warrant is an important form of financial asset that enables entrance to primary capital markets to companies that otherwise would have difficulty to access it. We explain the nature of warrants and examine the reaction of warrants' value during two major events in the life of SPACs, namely the announcement of the merger and the merger itself. On average, warrant holders exhibit significant positive abnormal returns around these important events.*

*Key words:* Warrants, Shelf Offerings, SPACs.

**Apstract:** *Varanti predstavljaju važnu klasu hartija od vrijednosti koje omogućavaju izlazak na primarno tržište kapitala kompanijama, koje bez njih to ne bi uspjele. Mi u ovom radu objašnjavamo karakteristike varanata i promjene u njihovoj vrijednosti, koje nastaju kada se kompanije namijenjene preuzimanju souče sa dva važna događaja u njihovom korporativnom trajanju, objavom akvizicije i samom akvizicijom. U prosjeku, investitori koji posjeduju varante u tim momentima ostvaruju povrat koji je iznad istorijskog povrata.*

*Ključne riječi:* Varanti, Shelf ponude, SPAKs.

*JEL Classification:* G12, G14, G34;

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#### 1. Introduction

Warrants, as a financial instrument, are a fundamental tool that enables successful entrance to the financial markets of Specified Purpose Acquisition Companies (SPACs). Careful structuring of warrants determines not only the ability of SPACs to enter the capital markets but also to successfully exit them as the ultimate goal while merging with another corporate entity, usually private. In this paper we mostly focus on the performance (the abnormal returns) of warrants at two major events, the announcement of a merger and the actual merger itself. We also outline a historical overview of warrant pricing and structure and development of SPACs.

Warrant holders of SPACs belong to three categories, namely: founders as initial investors in SPACs, hedge funds as the most active investors and finally individual investors trading for their own accounts. Interestingly, although SPACs warrants structuring is equal across the board, the incentives among warrant holders differ with hedge funds being most likely to trade warrants actively, or sell them early in the game.

Natural buyers of these hedge fund warrants are SPACs founders, taking more risk and increasing their bet size in the expectation of a possible successful merger combination. The structuring of SPAC deals with warrants has a certain dynamics where at the start of the new generation of SPACs one unit would be consisted usually of two warrants, while in the last few years the number of warrants in the unit is closer or even lower than one. Main candidate to explain this dynamics and the decrease in the number of warrants is the activism of hedge funds in the market that resulted in inability of underwriters and SPACs founders to close merging combinations.

#### 2. Explanation of warrants

A warrant, as a financial security, gives a right to its holder to buy an additional portion of the firm's equity for a given period of time and at the start of the contract established price (Samuelson and Merton 1969, Schwartz 1977, Galai and Schneller 1977). By their structure and pricing techniques warrants share a lot of properties with call options, but they differ primarily in their application because warrants are issued by a company raising funds in primary markets while call options are underwritten either by individuals or institutions in secondary markets. Addi-

tional difference is that warrants are primarily structured to alleviate process of equity issuance on behalf of corporations while call options, besides of being a bet on the magnitude and direction of the movement in the price of underlying asset, are heavily used as a risk management tool. Finally, warrants have much longer life than call options and are issued for a period up to 10 years and possibly longer.

Samuelson (1965) outlines the first theory of warrant pricing in the settings with rational agents drawing its reasoning and intuition from the early works of Bachelier (1900), who attempted to price warrants while mathematically defining Brownian Motion, and Kruiženga (1953) who extended Bacheliers work. The underlying logic driving the formula developed by Bachelier and subsequently Kruiženga is the assumption that the value of a warrant is growing proportionally with the square root of the time before the expiration.

### 3. Explanations of Specified Purpose Acquisition Companies

Modern SPACs in the period between 2003 and 2011 have been an innovative way to reestablish the market for blank check or shelf securities, which have long existed in similar forms and shapes in the last two centuries. By The Security and Exchange Commission definition Specified Purpose Acquisition Company is a clean shell company that acquires public status through the IPO process 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 the escrow accounts and kept there until SPAC founders are able to close the 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. Cowing (1957), reports that blank checks as blind pools were first mentioned in England during the 18th century. Later, Graham and Dodd (1934) explain how blind pools were imported to US capital markets from UK capital markets in the form of so-called "investment trusts" in the early 1920's and were predecessors of first modern collapse of financial system in late 1920's. Until early 1980's there was a very quiet period for blank check investors in the U.S capital markets, when the new class of promoters and investors in blank checks increasingly started to use them as a

vehicle to enter primary markets. In 1990's these were mostly penny stock issues with shares listed on illiquid OTC markets that offered limited guarantees to initial investors.

Porous legislation and the lack of the enforcement of existing rules led to a certain pattern of behavior where blank check promoters frequently took advantage of original investors. Reimer (2007), presents several Security and Exchange Commission hearing reports according to which, by the end of 1980's, fraud and abuse in the penny stock market reached "epidemic proportions." Responding to the increased misdealing in blank check market and in an attempt to protect capital formation and to insure the flow of new investors, Congress passed the Penny Stock Reform Act (1990), which directed the SEC to adopt rules that govern registration statements filed by blank check companies issuing penny stocks. In 1992, the Security and Exchange Commission introduced rule 419-a, which established regulation of the blank check market.

The increased scrutiny of the blank check market by the National Association of Securities Dealers in 1997 led to a revocation of licenses of chief executive officers of GKN Securities Corporation, the main promoter and underwriter of blank checks at that time. After the event, activities in the blank check market ceased until 2003. In August 2003, relatively small investment bank Early Bird Capital underwrote the first SPAC attempting to revive activity in that market. Since the original public offerings resulted in raising more than \$5 million initially and with the securities priced above the minimum price that would classify them as penny stocks, SPAC underwriters and founders avoided the scrutiny of The Security and Exchange Commission rules that regulate penny stock markets, and instead became subject to the rules for general companies. That showed as an important milestone for the SPACs and many would today consider them as a separate class of financial asset. Subsequently, after the first successful entrance to the market in August 2003, as of April 2011 there are 171 SPACs that raised capital, and today their securities are listed on all major US stock exchanges. Moreover the product is successfully taken and applied to capital markets in Europe, primarily United Kingdom where activity in SPACs is taking place since 2005.

The academic finance literature on SPACs is still in the very early stages of development with few published papers. Technically, Jog and Sun (2007) were the pioneers and their paper explains some of the characteristics of SPACs to the broad public ini-

tially and later examine the realized returns to original founders and investors. In their analysis they use the sample of 62 SPACs that entered capital markets conducting IPO over the 2003-2006 time period. Additionally, for a subsample of 24 companies with available data they perform a return analysis on both SPAC founders and annualized returns and document average return of 1900% to founders. In an extended subsample that includes 42 SPACs with complete data on SPAC investors, the authors report a negative annual return of 3%. Boyer and Baigent (2008) on a broader sample examine characteristics of 87 SPACs that went public from June 2003 until December 2006 and report that exhibited underpricing for SPACs initial public offerings is lower than for traditional initial public offerings, explaining that by a unique unit structure of SPACs. In addition, they also report a significant positive relationship between the share price at the issuance and the size of the offering. Lawellen (2008) made a brave argument that SPACs represent an important entity in the capital markets and that they should be considered a separate financial asset class. Jenkinson and Sousa (2010) analyze 58 SPACs that completed mergers and report that at least for a half of the deals mergers were value destroying. Flores (2010) includes SPACs in his analysis while considering the advantages of reverse mergers with penny stock issuances as an alternative way to go public.

Beyond the academic finance literature, the redevelopment of SPACs in capital markets has also received appropriate attention in law related literature. Reimer (2007) recognizes SPACs as a beneficial financial innovation, especially due to their ability to alleviate constraints imposed by the 2002 Sarbanes-Oxley Act on small firms attempting to raise funds in the public markets. He considers SPACs a substitute to private equity firms. Sjostrom (2008) compares different ways for companies to go public, and finds SPACs to be a viable alternative to traditional IPOs from the perspective of an acquired company because they bring in share liquidity, cash infusion and vested-in underwriters.

In summary there is no general agreement on the performance of SPAC securities primarily due to the issues arising from data used or underlying indexes as comparison benchmark. In this paper we provide additional evidence on activity of SPAC warrants in the period from

August 2003 until April 2011. We document that warrants issued by SPACs react strongly around the announcement of important corporate dates when the intention to change their corporate status is announced.

#### 4. Sample and Analysis

After the first modern SPAC completed an IPO in August 2003, 279 SPACs were registered with the SEC to issue securities, and until April 1, 2011, 175 of them successfully conducted an IPO raising close to \$23 billion in total proceeds. The focus of our study is on the 175 SPACs that conducted an IPO and on a subsample of 103 companies for which we have data on warrants. The data for the study is obtained from various sources. The Edgar database is used to collect all relevant statistics on pre-IPO pricing of warrants from the initial filing of the preliminary prospectus S-1 forms and the final prospectus 424-B forms. In addition, we have extracted data on warrant prices from Bloomberg and Reuters, where we have warrant daily data for 103 companies.<sup>1</sup> Table I shows that out of 175 SPACs, 97 completed a merger by April 2011, 13 are still looking for an appropriate target or have announced a potential business combination, and 65 have been liquidated or have announced liquidation. An average SPAC issues around 1.29 warrants for each unit, so with typical issuance of 14 million of units we have around 18 million of warrants trading on the market. There are twelve offerings in the sample that structure the IPO with a unit consisting of one warrant. The structuring of SPACs where units would have less than one warrant continued after the first and most famous such case, Liberty Line Acquisition, failed unable to raise the proposed \$750 million despite the backing of the most powerful investment bank Goldman Sachs. Approximately 22% of the issued warrants are bought by SPAC founders before the IPO while the rest is divided among institutional investors like hedge funds, underwriters and small individual investors. Trading with warrants securities starts, on average, 45 days after the IPO, when units are typically dissolved and is conditional on the approval of the underwriter and the filing of the 8-K form with the SEC, which must include an audited balance sheet reflecting the proceeds from the public

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<sup>1</sup> Daily prices on SPAC securities are becoming more readily available, but the major obstacle is the fact that data vendors do not maintain historical warrant data after SPACs either conduct a merger or liquidate.

offering, as well as an over-allotment exercise of units by underwriters, if necessary.

While warrants are tradable immediately after the approval of the underwriter, they cannot be exercised until the completion of a business combination. The fact that warrants cannot be exercised before SPAC conducts merger combinations determines their value. Ex post we know that the value of any warrant issued on SPAC unable to proceed with a merger would be zero, and therefore the loss would be 100% of the initial warrant investments. But, ex ante the value of a warrant is calculated applying the Black-Scholes valuation method and we report two values for each warrant. The first is an average book value as reported in B-424 final prospectuses of \$1.07 per warrant, and the second is the market value of a warrant determined in open trading which averages at \$0.71 per warrant. Obviously there is the difference between estimated and realized value of warrants which is explained by the optimism of underwriters and founders on the prospect of a successful merger combination.

Warrants today are traded on OTC markets, AMEX/NYSE and NASDAQ. At first, and especially in the 2003–2005 period, warrants were listed and traded on illiquid OTC markets. In 2005, AMEX was the first major exchange that allowed the listing of SPACs and its securities, while imposing on them rules regulating the minimal capital requirements, governance, compliance with Sarbanes Oxley, and the minimum price share. Compliance with listing rules was not sufficient to guarantee the actual listing on the exchange for every SPAC, but AMEX made the decision on an individual basis. In 2008, both NASDAQ and NYSE filed with the SEC to allow SPACs to list their securities and in late 2008 warrant trading on them successfully started.

### 5. Performance of warrants around important announcement days

Earlier literature on performance of securities underwritten in SPAC issuance around the announcement of merger date is scarce, not uniform, and mostly addresses the performance of SPACs' common shares. We add to the literature analyzing the performance of warrants around the merger announcement and around the merger event. To achieve that, we apply the standard market model from Brown and Warner (1985),

$$R_{jt} = \alpha_j + \beta_j R_{mt} + \epsilon_{jt}$$

where  $R_{jt}$  is the rate of return of the  $j$ th security on the merger announcement day  $t$ , and  $R_{mt}$  is the rate of return of an equally weighted daily market index on day  $t$  that serves as the benchmark. Following from this the abnormal return for the warrant securities on merger announcement day  $t$  is

$$AR_{jt} = R_{jt} - (a_{0j} + \beta_{0j}R_{mt})$$

where  $a_{0j}$  and  $\beta_{0j}$  are ordinary least squares estimates of  $a$  and  $\beta$ . The parameter estimation period is 50 days prior to the first day of the 11-day event period, which corresponds to similar time event studies. In addition to the calculation of abnormal returns around the announcement day, we calculate cumulative abnormal returns up to seven days after the event.

Out of 175 SPACs that successfully conducted an IPO since 2003, we have complete warrant price information around the announcement date for 69. As a rule, to be included in the data warrant daily trading price has to be reported continuously around two important dates for the period of at least 101 trading days before the event. In addition, we also record the daily trading volume. The data on warrant prices is relatively hard to obtain primarily because data vendors do not keep historical warrant prices once warrants are exercised, and in some cases do not report them at all. The data is easier to obtain for SPACs that conducted their IPO in the last two years. Although we have collected data for daily warrant prices on 103 SPACs from the sample for the overall period, the data needed to thoroughly estimate returns around the merger announcement date is available for only 69 of them. In the section below we present the main results.

Warrant holders experience a significant abnormal return on the day of the announcement of future merger combination at 11.11 % as reported in Panel A of Table II. This return is higher than the return on typical securities around merger announcement and represents an award for the risk to SPAC warrant holders. Great performance of warrants is observed also on the first day after the announcement where we see an additional 4.20% abnormal return. This strong positive reaction does not continue further and we have insignificant abnormal returns for the remaining five trading day, pointing out to the efficiency of the markets and arbitraging the surprise effect of the announcement. This positive reaction of warrant prices after the merger announcement is expected and is similar to the findings in studies on merger announcement effects, although the magnitude in the case of SPAC warrants is slightly higher.

In Panel B we present the results of applying the market model to analyze the trading behavior of warrant holders around the actual merger date. For any SPAC a merger is the ultimate goal and it is interesting to observe how securities react when managers bring the entity to its final destination. Since the merger is much less of a surprise than the announcement of the merger and involves a lengthily process of

negotiations, we expect lower abnormal returns than in the previous case. We have available data on warrants for 27 companies to estimate the merger effect. We find that on the merger day, warrant holders earn a meager 2.27 % abnormal return, while the cumulative return for seven days after the merger is 5.36%. Besides the lack of surprise for the merger combination, a possible explanation for the lower enthusiasm of investors for warrants at merger date is a correct pricing of the underlying shares on the market.

In addition, we also test for the overall performance of warrants over the lifetime calculating simple return where as a starting value we take an initial investment of warrant holders and as a final value the payoff received after the merger combination. It is worth noting that for majority of the companies in the sample warrants have still not expired so some players in the market are still holding on to them. If the date for the exercise of warrants is half a year after the merger combination, we report 42.15% total return to holders. While this looks like a profitable experience, we have to bear in mind that for almost 40% of SPACs in the sample warrants expired worthless.

To conclude we find that warrants are an important tool to enable issuance of SPACs and that their holders exhibit positive abnormal returns both on the announcement date of the merger and around the date of the merger itself. That being said, these positive abnormal returns do not grant overall positive returns which instead resemble more a flip of a coin with some minimal positive payoff.

Table 1. Sample Statistics The table presents summary statistics for the sample period from 2003. to 2011.

<i>Year</i>	<i>IPO done</i>	<i>Merged</i>	<i>Liq</i>	<i>Seek</i>
2003	1	0	0	0
2004	12	1	0	0
2005	27	3	0	0
2006	38	11	4	0
2007	66	42	21	0
2008	17	21	27	0
2009	1	8	13	0
2010	7	8	0	1
2011	6	2	0	12
<i>Total</i>	<i>175</i>	<i>97</i>	<i>65</i>	<i>13</i>

Table 2: Summary statistics and IPO underpricing In Panel A daily warrant returns data obtained from Bloomberg and Reuters are summarized.

PANEL A: Returns statistics.

<i>Variable</i>	<i>Number</i>	<i>Mean</i>	<i>Std. Deviation</i>	<i>Minimum</i>	<i>Maximum</i>
Warrants per units at IPO	175	1.07	0.39	0.50	2.00
Warrants excer.prc at IPO	175	5.95	1.03	4.50	8.00
Trading price of warrants	51329	0.61	0.77	0.00	6.40

Table 3. Returns for SPAC warrant holders around the merger announcement

Panel A: presents abnormal returns on the announcement day calculated by the market model.  
In Panel B abnormal returns around merger date are reported

	<i>Announcement Date</i>	<i>Merger Date</i>		
	Return (day1)	Std.dev	Return(day2)	Std.dev
Panel A: Announcement	Return (day1)	Std.dev	Return(day2)	Std.dev
Return	0.123	0.20	0.142	0.07
Alpha	0.002	0.01	0.001	0.001
Beta	1.53	4.14	1.159	2.35
Abnormal return	0.111	0.042	0.111	
Panel B : Merger date	Return (day 7)			
Return	0.114	0.31	0.213	0.55
Alpha	0.017	0.25	0.002	0.001
Beta	1.1133	3.17	1.159	2.12
Abnormal return	0.0227	0.31	0.536	0.33

## 6. Conclusion

To conclude, we find that warrants are an important tool to enable issuance of SPACs and that their holders exhibit positive abnormal returns both on the announcement date of the merger and around the date of the merger itself. That being said, positive abnormal returns do not grant overall positive returns which instead resemble more a flip of a coin with some minimal positive payoff.

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**Zaključak:** Sumirano, varanti predstavljaju važan finansijski instrumenat koji omogućava izlazak na primarno tržište kapitala za SPAK-se i investitori koji posjeduju varante ostvaruju pozitivni dodatni povrat na ulaganje i u periodu objave akvizicije i u vremenu same akvizicije. Ipak, pozitivni dodatni povrat ostavljen u ovim važnim momentima ne garantuje ukupni pozitivni povrat na investiciju, već više preslikava strategiju "bacanja novca" sa nekim mogućim minimalnim pozitivnim bilansom.