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SPECIFIED PURPOSE ACQUISITION COMPANIES:

ANALYZING THE VALUE EFFECTS OF M&A TRANSACTIONS

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Abstract

This thesis analyzes the value effects of M&A transactions by specified purpose acquisition companies (SPACs). SPACs are companies which have been formed to raise capital, through an initial public offering, for the sole purpose of acquiring one or more operating businesses. Using a sample of 124 M&A announcements by SPACs which have gone public since 2003, we find that such announcements, on average, create (*ex-ante*) value for the SPAC's shareholders. For our full sample we find an average abnormal one-day return of 1.33 percent. If we extend the event period to the three days surrounding the announcement, we find an average cumulative abnormal return of 2.60 percent. For the sub-sample of completed M&A transactions we find an average medium-term cumulative abnormal return of 14.86 percent, measured from the day after the IPO to the day on which the M&A transaction is completed. For the sub-sample of rejected M&A transactions we find an average medium-term cumulative abnormal return of 0.08 percent, measured from the day after the IPO to the day on which the M&A transaction is rejected. The results of our OLS regressions indicate that M&A agreements which are announced relatively close to the SPAC's acquisition deadline, result, on average, in lower abnormal returns and that M&A transactions with higher ratios of transaction value to IPO proceeds, result, on average, in higher abnormal returns.

Dutch abstract – Nederlandse samenvatting

Deze scriptie bespreekt de rendementsontwikkelingen van fusie- en overnametransacties van 'specified purpose acquisition companies' (SPACs). SPACs zijn ondernemingen welke zijn opgericht voor het verkrijgen van financiële middelen door een beursgang; met als enig doel het aankopen van één of meer bestaande, operationele ondernemingen. De analyse heeft betrekking op 124 fusie- en overnameaankondigingen van SPACs die sinds 2003 naar de beurs zijn gegaan. De onderzoeksresultaten leveren bewijs voor de hypothese dat deze fusie- en overnameaankondigingen, gemiddeld genomen, resulteren in een waardestijging van de SPAC's aandelenkoers. Voor de volledige steekproef is het gemiddelde 'abnormale'[1] rendement voor de eendaagse onderzoeksperiode gelijk aan 1,33 procent. Wanneer de onderzoeksperiode wordt verlengd tot de drie dagen rondom de aankondiging, dan wordt een gemiddeld cumulatief abnormaal rendement van 2,60 procent gevonden. Voor de subgroep van voltooide transacties is het gemiddelde lange termijn cumulatieve abnormale rendement gelijk aan 14,86 procent, gemeten vanaf de dag na de beursgang tot en met de dag van voltooiing. Voor de subgroep van niet-voltooide (afgewezen) transacties is het gemiddelde lange termijn cumulatieve abnormale rendement gelijk aan 0,08 procent, gemeten vanaf de dag na de beursgang tot en met de dag van afwijzing. De regressieanalyses van de cross-sectionele verschillen in de abnormale rendementen leveren bewijs voor de hypotheses dat transacties welke relatief kort voor de overnamedeadline worden aangekondigd, resulteren, gemiddeld genomen, in lagere abnormale rendementen en dat transacties waarbij de ratio van de overnameprijs tot de opbrengsten van de beursgang relatief hoog is, resulteren, gemiddeld genomen, in hogere abnormale rendementen.

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[1] Het abnormale rendement is gelijk aan het verschil tussen het gerealiseerde rendement en het verwachte (normale) rendement.

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1. Introduction

Raising money from public stock markets through initial public offerings (IPOs) has already a long history and has become one of the major fields of research for scholars specializing in, for example, corporate finance or investments. The dynamic character of financial markets has always driven innovation with respect to security structures and going public procedures. In this context, a unique and relatively new form of IPO firms, being specified purpose acquisition companies (SPACs), has gained much popularity as an investment structure over the last years. In this thesis, we focus on this structure for raising money from public stock markets and on the value effects of their merger and acquisition (M&A) transactions.

SPACs are companies which have been formed to raise capital, through an initial public offering, for the sole purpose of acquiring one or more operating businesses. The period in which a SPAC has to complete such a business combination is limited to eighteen months from the date on which the SPAC goes public. If no business combination is completed before the acquisition deadline, the SPAC will be dissolved and the money raised in the IPO (less expenses) will be returned to the SPAC's external shareholders.

For our empirical analysis, we identified 161 SPACs that went public on US stock exchanges since 2003. From these 161 SPACs, 114 companies have announced one or more M&A agreements. Our final sample consists of 124 M&A announcements. Using the event study methodology we analyze the short-term and medium-term value effects of SPAC M&A transactions. In addition, we use the OLS regression method to analyze the relation between the short-term value effects and a few potential determinants.

Our analysis of the short-term share price performance of SPACs provides evidence for the hypothesis that announcements of M&A agreements by SPACs, on average, create (*ex-ante*) value for the SPAC's shareholders. For the full sample of 124 announcements we find a significant average abnormal one-day return of 1.33 percent. If we extend the event period to the three days surrounding the announcement, we find a significant average cumulative abnormal return of 2.60 percent for the full sample.

For the sub-sample of completed M&A transactions we find a highly significant (both statistically and economically) average medium-term cumulative abnormal return of 14.86 percent, measured from the day after the IPO to the day on which the M&A transaction is completed. For the sub-sample of rejected M&A transactions we find a non-significant average medium-term cumulative abnormal return of 0.08 percent,

measured from the day after the IPO to the day on which the M&A transaction is rejected.

The results of our OLS regressions provide evidence for a negative relation between the average abnormal return and the TIME determinant, which measures the time elapsed between the IPO date and the M&A announcement date; they also show a positive relation between the average abnormal return and the DEALVALUE determinant, which measures the ratio of the transaction value to the IPO proceeds. These findings indicate that M&A agreements which are announced relatively close to the SPAC's acquisition deadline result, on average, in lower abnormal returns and that M&A transactions with higher ratios of transaction value to IPO proceeds, result, on average, in higher abnormal returns.

Our research contributes to the SPAC literature in the following ways. First, the field of SPAC IPO- and M&A transactions is relatively new and (consequently) there are only a few studies related to (the empirics of) SPACs. To provide a good overview about important aspects of the SPAC's company structure and its M&A activities, we present various descriptive statistics. Second, we performed several short-term and medium-term event studies to analyze the value effects of SPAC M&A-transactions. By doing this we are able to relate (part of) our research to the existing, but limited, empirical literature and to add new evidence. Third, we used regression analysis to examine the relationship between the short-term value effects and a few potential determinants. To our best knowledge we are the first to do so.

This thesis is organized as follows. The next chapter presents the theoretical framework in which we discuss the motives for going public, the going public process of IPOs and reverse mergers, and the history and characteristics of blank check companies and SPACs. We also discuss the different forms of mergers and acquisitions, motives and hypotheses on (value-creation in) M&A as well as some methods to estimate merger gains and to determine M&A profitability. In Chapter 3, we review empirical literature on several aspects of IPOs, SPACs and mergers and acquisitions. Chapter 4 describes the data collection process and discusses our empirical design. The results from our analyses are presented and discussed in Chapter 5. Chapter 6 concludes this thesis.

2. Theoretical Framework

This chapter provides theoretical perspectives on going public processes and mergers and acquisitions. Subchapter 2.1. discusses the motives for going public, the going public process of IPOs and reverse mergers, the well-known IPO anomalies, and the history and characteristics of blank check companies and SPACs. Subchapter 2.2. focuses on the different forms of mergers and acquisitions, on motives and hypotheses on (value creation in) M&A as well as on some methods to estimate merger gains and to determine M&A profitability.

2.1. Going public – IPOs, reverse mergers and SPACs

During the last decades, the number of firms which have gone public on one of the stock exchanges in the United States has exceeded one per business day. As a consequence of the economical importance, initial public offerings (IPOs) received great attention from both the academic and the business world. In an IPO, a company offers its shares to the public for the first time. After an IPO, the shares of the company are listed on a stock exchange and are then available to the investment community. This subchapter is organized as follows. First, we will discuss the motives, as well as the different options, for going public. Thereafter, we will discuss three well-known IPO anomalies. In section 2.1.3., we will discuss the history and main characteristics of blank check companies and specified purpose acquisition companies (SPACs). The last section (2.1.4.) provides a more detailed discussion about the essentials of SPACs.

2.1.1. The motives and options for going public

There are a few options companies can choose from to go public. The most known options include traditional IPOs, direct public offerings, self-underwritten IPOs and reverse mergers (often also called reverse takeovers). In the following sections we limit our focus to standard IPOs and reverse mergers.

2.1.1.1. Going public through an IPO

The great majority of the companies which go public do so through an initial public offering. This section discusses the IPO process for companies that want to go public in the US, which is to a great extent similar to IPO processes in most other western countries such as the UK or The Netherlands. It also discusses the motives for going public through an IPO and the (potential) drawbacks of IPOs.

Going public through an IPO in the US is a complex, time-consuming process which requires much interaction with external advisors, regulators and potential investors. The first step a company takes after it has decided to go public is to hire one or more underwriters and a legal advisor. Those will manage the IPO process and assist the firm with deal structuring, financial modeling, marketing activities, et cetera. In terms of compensation, most companies and underwriters agree on a fee of around 7 percent of the gross IPO proceeds (see e.g. Chen and Ritter, 2000, for a more detailed discussion). After the company and its advisors discussed the terms of the deal and the transaction structure, the company files the registration statement on form S-1 with the US security and exchange commission (SEC). The registration statement consists of two parts: 1) the prospectus, which must be available to every future investor, and 2) information which is not necessary for the public prospectus but is submitted for SEC purposes. After the initial registration filling, the SEC examines the documents and gives feedback to the company. The company then files an amendment on form S-1/A to its initial registration with the SEC.

Once the final registration statement is approved by the SEC, the company can launch the public offering's marketing program by sending its prospectus to financial intermediaries, institutional investors and by initiating a so-called road show in which the firm's management presents the company to the investment community. During this road show, the company and its underwriter receive indications of interest from the investors, a process also called 'book building' (see e.g. Ritter and Welch, 2002). After a period of road shows and additional disclosures, the company and its underwriter eventually meet to discuss two essential aspects of the public offering which are not determined till then, 1) the offer price and 2) the number of shares to be offered. After those final terms are negotiated, the underwriter and the firm execute the underwriting agreement and the underwriter files a 'price amendment' with the SEC for the selected effective date. On this date, the firm's publicly listed stock opens for trade for the first time. The closing of the transaction takes place a few days later, when the company delivers its stock and the underwriter transfers the proceeds from the IPO into the company's bank account.

The first related question is "why do firms (want to) go public?" The academic literature suggests several motives for going public. Pagano, Panetta and Zingales (1998) list the following seven motives.

First, they offer the 'access to external capital motive.' Firms that want to finance their existing or new projects without having sufficient internal capital need to find external financing. Instead of getting capital from banks or venture capitalists/private

equity investors, companies may also choose to raise equity capital from public stock markets. This choice of gaining access to public stock markets to obtain external financing is probably the most cited motive for going public within the literature.

Second, they offer the 'bargaining power motive.' Private companies using bank loans may face the problem that banks can use their confidential information about the creditworthiness of their customers in such a way that they charge relatively high interest rates, thereby increasing the cost of capital of their customers. By gaining access to the stock market and providing information to the public, a newly-listed company can cause increased competition to its current financier, which might result in a lower cost of capital, a larger supply of external funding, or both.

Third, the authors provide the 'liquidity and diversification motive.' Private companies are often owned by a relatively small number of shareholders, who experience in addition low liquidity of their shares. When a private company goes public, it will observe a major effect on the liquidity of the company's shares as well as on the scope for diversification by the initial owners of the company. Shares of private companies can only be traded at the owner's initiative and such transactions are often subject to much regulation. Share trading on public stock exchanges is less time-consuming and as a consequence much cheaper. A public offering therefore provides good diversification opportunities for the initial owners. After an IPO, the initial owners can then diversify their shareholdings by selling (some of) their publicly listed shares and investing the proceeds in other assets or securities.

Fourth, the 'monitoring motive' is suggested. The stock market also provides an opportunity to discipline management teams, both by exposing them to public monitoring and by creating the danger of hostile takeovers. From a large investment community, one might expect that it will follow the company more intensively than just a few private shareholders will, and these monitoring activities could lead to a higher company value. In addition, shareholders can also use the company's public status to create management remuneration plans which are linked to the changes in the company's share price in order to better align the interests of the managers with those of the shareholders.

Fifth, the authors provide the 'investor recognition motive.' Based on Merton (1987) they state: "It is well known that most investors hold portfolios that contain a small fraction of the existing securities; often because they simply ignore that a certain company exists. Listing on a major exchange can help to overcome this problem, by acting as an advertisement for the company." Going public, thus, increases the familiarity

of the investment community with the company. This increased investor awareness can increase the company's value for a number of reasons, e.g., trough lower expected returns as a result of providing more liquidity and risk-sharing possibilities (see e.g. Merton, 1987, or Amihud, Mendelson and Uno, 1999). The company's reputation might also improve as a result of the public listing. This argument is also addressed by Ritter and Welch (2002), who state that "being the first in an industry to go public sometimes confers a first-mover advantage."

Sixth, they offer the 'change of control motive.' In favor of this rationale, the authors refer to the article by Zingales (1995) in which the decision to go public is the result of the strategy of a value maximizing initial owner who wants to eventually sell his company. The idea here is that an IPO enables the initial owner to change the proportion of cash flow and control rights which he will retain when he negotiates with a potential buyer. In case the market for corporate control is not perfectly competitive, but the market for individual shares is, this proportion will affect the total surplus the initial owner can extract from a potential buyer of the company. In this way, the initial owner uses the IPO to arrive at the ownership structure that maximizes his profits from a future sale of his shares.

The seventh and last motive the authors present is the 'windows of opportunity motive.' This motive is based on the idea that companies are not always valued correctly. In periods in which stocks are thought to be overvalued, private companies recognizing that public firms in their industry are overvalued, have an incentive to go public. If owners of private firms are able to realize a large amount of the 'overvaluation surplus', it can be expected that companies will go public relatively more often when the shares of comparable public firms trade at attractive prices.

All these benefits of going public, however, come with costs. In general, there are ongoing costs related to the obligation to periodically supply information to regulators, stock exchanges and investors. This obligation also affects the level of information privacy and competitive advantage since competitors and other individuals can obtain information of the IPO firm which they would not get if the IPO firm stayed private. In addition, there are various significant one-time costs related to the IPO decision, which can be divided in direct and indirect costs. Direct costs consist of underwriter's compensation and fees to be paid to other advisors such as accountants and legal advisors. Indirect costs include the time and effort the firm's management devotes to the IPO and the 'money left on the table' as a result of offering the shares at a lower price than the market price shortly after the IPO (Ritter, 1998; see also section 2.1.2.2.).

2.1.1.2. Going public through a reverse merger

The technique of the reverse merger is an alternative way of taking a company public, which regained popularity during the last couple of years. In a reverse merger, a private firm merges with a publicly traded firm (the 'RM vehicle') after which the former private firm will be the surviving publicly listed entity. So, instead of hiring an underwriter in a standard IPO, the process of a reverse merger starts for the private company with the identification of a suitable publicly traded firm. Once such a potential 'RM vehicle' is found, negotiations will start between the management teams of both companies. When they have agreed on the terms of the transaction, the shareholders of the public entity can (if possible) vote for approval and the deal can be completed.

A reverse merger transaction is often structured as a 'reverse triangular merger'. That is, the public company first creates a new, wholly-owned subsidiary. This subsidiary then merges with the private company. After the completion of the merger, the former private company is a wholly-owned subsidiary of the 'RM vehicle' and the former private company's shareholders own a majority of the outstanding shares of the public 'RM vehicle' (see e.g. Sjostrom, 2008). Thus, a reverse merger is much more comparable to a corporate combination such as traditional M&As than to an IPO. The process does not involve a public offering of stock for the purpose of raising money and the required SEC disclosure is also less stringent. So, what are the motives why companies choose to go public using a reverse merger instead of doing an IPO?

The most cited motive for choosing a reverse merger to go public is the short completion period of a reverse merger relative to a standard IPO. An IPO process generally takes between six months and one year and a half, whereas a reverse merger process typically takes one to six months (see e.g. Gleason, Jain and Rosenthal, 2006).

Second, there is much less uncertainty in the process of a reverse merger compared to an IPO. There are only a few parties involved in the transactions negotiations and the financial modeling and deal structuring activities can be accomplished more easily.

Third, in a reverse merger there is no need to hire a reputable underwriter and to devote much time to marketing and public relations which is necessary for traditional IPOs. This makes the reverse merger option more favorable for relatively small companies who do not have the financial and organizational resources to go public through an IPO.

Other reasons for reverse mergers also include some of the motives for IPOs as described in the former section. Despite the absence of the opportunity for raising

money, (which is as we know one of the primary motives for most IPOs), the result of the reverse merger process enables the former private company to benefit from their public status. Just as with standard IPOs, it gives initial shareholders the opportunity to diversify their shareholdings and to increase trading liquidity. It also allows the company to link its management compensation to movements in the share price.

2.1.2. IPO anomalies

2.1.2.1. Timing of IPOs

In section 2.1.1.1., we listed the 'windows of opportunity motive' as one of the primary motives why companies choose to go public. The literature offers a few theoretical perspectives on why managers of private firms may time their public offerings. The first reason is discussed by Brau and Fawcett (2006) who argue that managers take advantage from bull markets in a way to capture attractive stock prices. If the market is characterized by undervaluation from the point of view of the managers, they will then delay their public offerings until a bull market offers more favorable pricing. Measures of bull markets include current overall market conditions (Lucas and McDonald, 1990), current industry conditions (Pagano, Panetta and Zingales, 1998), predicted overall market conditions (Lucas and McDonald, 1990) and predicted industry conditions (Lowry, 2003).

A second reason might be the recent investor sentiment. This reason is discussed in Brau, Francis and Kohers (2003) who discuss the investor sentiment hypothesis. This hypothesis argues that there are periods in which investors are overly optimistic and are willing to overpay for IPOs. Therefore, managers and underwriters are more likely to bring IPOs to the market during such periods.

A third reason is provided by Ritter and Welch (2002). They argue that owner's assessments of the value of their private companies are much more influenced by internal, organizational factors than by stock market movements. Thus, it might take a while before owners change their minds about the value of their company. As a consequence, one might expect that owners of private companies are more eager to sell their firms only after valuations of comparable public firms have steadily increased for a period of time.

The fourth and last reason we list here is presented by Choe, Masulis and Nanda (1993). They argue that firms tend to delay public offerings in periods in which there are only a few other good-quality companies that issue shares, whether for the first time or through seasoned offerings. The argument behind this reason is that firms are more

willing to issue shares in periods with more profitable investment opportunities and that this provides a positive signal to other firms thinking of an initial public offering.

2.1.2.2. Initial returns of IPO firms

Probably one of the best-known patterns and most researched aspects of IPOs is the occurrence of (high) positive initial returns (defined as the difference between the first-day closing price and the IPO offer price). Most often these this aspect is referred to as underpricing, also termed 'money left on the table' (see e.g. Loughran and Ritter, 2002). This terminology, however, is technically not fully correct since empirical evidence (see e.g. Manigart and De Maeseneire, 2003) indicates that the positive initial returns are a result of both underpricing ('in the pure form' defined as the difference between the share's offer price and its intrinsic value) and overvaluation by the market.

The literature offers several explanations for the existence of both phenomena. Concerning underpricing, most of these explanations are based on situations of asymmetric information, on aspects of legal liability, and on agency problems such as conflicts of interest, e.g., between the issuing company and its underwriter or between the issuing company and its potential investors. Concerning the overvaluation by the market phenomenon, most explanations are based on investor sentiment, analyst overoptimism and other (behavioral finance) biases. Please refer to Brau and Fawcett (2006), Ritter and Welch (2002), Ritter (1998) and Aggarwal and Rivoli (1990) for more detailed discussions on these theories.

2.1.2.3. Long-term underperformance of IPOs

Another well-documented aspect of IPOs is the long-term underperformance of IPO firms. As discussed in Ritter and Welch (2002), proponents of the efficient market hypothesis would argue that IPO firms, once they are publicly traded, are just like any other publicly traded stock and therefore its share price should reflect the intrinsic value of the company. As a consequence, post-IPO stock market performance should not be predictable. Empirical evidence, however, (see section 3.1.4.) indicates that IPO firms underperform in the long run.

Ritter (1998) discusses three theories which might explain the long-term underperformance of IPO firms. First, there is the argument that IPO shares are bought by the investors who are most optimistic about the IPO firm. In the (normal) event of uncertainty about the 'true' value of the IPO firm, the willingness to pay for the IPO shares would be (much) higher for optimistic investors than for pessimistic investors. When a period of time goes by and the uncertainty about the intrinsic value of the firm

decreases, the divergence between optimistic and pessimistic valuations will narrow with the result that the market price will drop. Second, the 'impressario hypothesis' argues that the IPO market is subject to fads and that IPO underwriters will underprice the IPO shares in order to create excess demand for it. This excess demand gives a strong pressure on the market price of the IPO firm with the consequence of a (highly) overpriced stock. The convergence to the stock's intrinsic value will then reduce the share's value. The third explanation offered relates to the earlier discussed 'windows of opportunity motive'. Companies have a great incentive to go public in periods of investor overoptimism, i.e., when share prices are high in general. In such periods, IPO firms can easily obtain surpluses over the share's intrinsic value. In the aftermarket, however, investors will realize that the share is overvalued and, consequently, the price will fall.

2.1.3. The history of blank check companies and SPACs

During the 1980s, the US securities market experienced a dramatic growth in size. This environment offered ample opportunities for innovation in the securities markets, of which blank check offerings (or blank check companies) were an important one. Blank check offerings in the 1908s were IPOs (most often involving penny stock) by companies who where formed shortly before the IPO with the intention of raising money for the acquisition of existing operating companies. Along with the increasing size and complexity of the securities markets, the number of securities fraud claims during the 1980s increased by more than 260 percent, especially "the fraud and abuse in the penny stock market reached epidemic proportions" (Riemer, 2007). The market for blank check offerings was characterized as highly nontransparent in which prices were easily manipulated. Small private investors who were aggressively targeted for the purchase of the blank check offering's penny stock, often ended up in situations of loosing their entire investments.

In an attempt to control the fraudulent behavior, the SEC formally classified blank check offerings as mechanisms for conducting fraud in 1988. To further prevent manipulation and fraudulent activities in the blank check offerings segment, US congress responded by passing the penny stock reform act of 1990, after which the SEC implemented its rule 419. From then on, blank check companies had to comply with the provisions listed in SEC rule 419. In short, the following conditions needed to be met before a blank check IPO was allowed (see e.g. Heyman, 2007, for a more detailed discussion):

1. the IPO proceeds less expenses, as well as the securities issued to the company need to be deposited into a trust account

2. at least ninety percent of the IPO proceeds must be deposited into the trust account
3. trading in securities held in the trust is prohibited
4. the period in which an acquisition should be completed is limited to eighteen months, after which the funds held in the trust account need to be returned to the shareholders if no acquisition is completed
5. the proposed acquisition must account for at least eighty percent of the value of the trust account
6. the obligation to file a post-effective amendment, including all deal-related financial details, to the registration statement after the blank check company effects its acquisition agreement

This strict regulatory environment made it hardly impossible for blank check companies to continue their business and as a consequence the number of new blank check IPOs fell dramatically. A few innovative lawyers and investment bankers, however, felt that a somewhat less-regulated blank check-like company structure could be an effective mechanism for raising money. This initiative soon led to the development of a company structure that benefits from a blank check-like structure in the money-raising process on the one hand, but which is not too much limited by SEC rule 419 or the dubious reputation of former blank check companies on the other hand. This process can be regarded as the 'birth' of the SPAC.

2.1.4. The essentials of SPACs

2.1.4.1. Company structure and management participation

A SPAC is (by definition) a company which has been formed to raise capital, through an initial public offering, for the sole purpose of acquiring one or more operating businesses through a merger, capital stock exchange, stock purchase, asset acquisition or another similar business combination. Furthermore, the (first) acquisition needs to be completed within a period of eighteen months or within twenty-four months if a letter of intent to form a business combination is announced within eighteen months (see e.g. Hale, 2007). If the SPAC fails to comply with these requirements, the company will be dissolved. In this sense, SPACs do not differ much from blank check companies regulated by SEC rule 419. Although SPACs voluntarily incorporate some of the provisions of SEC rule 419, there are however fundamental differences between SPACs and 'SEC rule 419 companies.' Please refer to appendix A for a comparison of both structures.

SPACs are usually founded by a small team of experienced and successful industry experts and/or investment bankers who want to create value from the acquisition of (undervalued, mostly private) companies. Thus, the primary responsibility of the SPAC's management team is to find an attractive target firm with which it can complete a successful corporate combination. In general, SPAC management teams will (have to) look for companies that are large and stable enough to survive as publicly listed firms, but which may face (temporary) difficulties in doing an IPO themselves or in obtaining private equity funding. In addition, many SPACs formally specify the industry they will focus on in the process of identifying potential target firms, which is typically the industry in which most of the SPAC's managers have proved to be successful.

The management team will own 100 percent of the SPAC's shares at the SPAC's founding and approximately 20 percent after the completion of the IPO. An important aspect of the SPAC's ownership structure is that the initial shareholders purchase this 20 percent in a private placement prior to the IPO and for the share's nominal value, which represents a large discount, often close to 100 percent compared to the normal offer price in the IPO. The SPAC structure allows the managers to do so, because they will not receive any salaries or management fees. The securities purchased by the SPAC's management and other initial shareholders must be deposited into the SPAC's trust account and may not be transferred from this account during a previously determined lock-up period. This period usually ends between six months to one year after the successful completion of a business combination.

The SPAC's management and other initial shareholders cannot participate in the liquidation of the SPAC's trust account and will therefore lose (most of) their upfront investment if the SPAC fails to complete a business combination before the acquisition deadline. Given the above described compensation structure and taking into account that the SPAC managers will lose (most of) their investments if no acquisition is completed, it should be evident that they have a very strong incentive to complete a corporate combination before the acquisition deadline.

2.1.4.2. Security structure and the IPO process

The IPO process of a SPAC is in many instances similar to a traditional IPO. The SPAC is required to file a registration statement with the SEC on form S-1 just as traditional IPO firms have to. The SPAC will also hire one or more underwriters and will initiate a marketing program for its securities. The registration process of SPAC is on the one hand often less complicated because the SPAC has a clean structure, i.e., it does not have an operating history. On the other hand, however, the SEC will examine SPAC

filings more carefully in order to discover potentially fraudulent activities. The registration statement includes, amongst others, the biographies of the SPAC's management team, details of the offering and the securities involved, and a (usually) lengthy discussion of the risks which are relevant to blank check offerings in general and to the SPAC to be registered in particular (see e.g. Rader and De Búrca, 2006).

The units offered in a typical SPAC IPO are usually priced at six, eight or ten US dollars, and consist of one or more shares of common stock and one or more warrants, which can be used for the future purchase of common stock. IPO units will trade as a single unit for ninety days after the IPO date, after which the common stock and the warrants will start to trade separately. Although the warrants may be traded without restrictions from that point, they cannot be converted into common shares until the latter of 1) the successful completion of a business combination, or 2) twelve months after the IPO date.

After the IPO is completed, the funds raised in the offering less underwriter fees and other administrative expenses will be deposited into the SPAC's trust account. This amount of money is generally invested in short-term government securities and may not be used by the SPAC's management for purposes other than to finance future acquisitions.

2.1.4.3. The acquisition process and shareholder rights

Once the SPAC's management has identified a potential acquisition target and has agreed on the terms of the deal structure, it will present the business combination plan to the SPAC's shareholders. This request for shareholder approval is done through a proxy statement process. This is a lengthy process in which the SEC will review the proxy statement before it is mailed to the SPAC's shareholders. SPAC shareholders are allowed to vote on all acquisition plans. In order to approve the business combination, the following requirements need to be met. First, a (simple) majority of the SPAC's shareholders must vote in favor of the acquisition. Second, a large majority (typically >70%) must agree not to convert its shares into a pro-rata percentage of the SPAC's trust account. If these conditions are not satisfied, the acquisition plan needs to be terminated, the SPAC's trust will be liquidated and the company will be dissolved. All external shareholders will then receive a pro-rata amount of the SPAC's trust value.

2.1.4.4. Opportunities and advantages of SPACs

SPACs offer investors a number of advantages over traditional IPOs. The main benefit for SPAC investors is the limited downside risk. This investor protection can be primarily

attributed to the following aspect. As we have discussed before, SPAC shareholders have the right to vote on all proposed business combination plans. If they believe that the proposed acquisition will destroy value, they can simply vote against the plan and can get most of their investment back, either by selling the shares on the open stock market or by requesting a pro-rata percentage of the SPAC's trust value in exchange for their shares.

A second advantage of SPACs is that the SPAC structure offers potential investors 'access to a private equity style' of investment with the benefits of the extra investor protection offered by the SPAC. Although there are a few similarities, e.g. in the process of finding an acquisition target or in the deal structure, these type of investments is normally only available to sophisticated buyout companies. Because the SPAC's securities are, however, offered at relatively low prices (six to ten US dollar) and because the investors can divest at any time, SPACs are also able to attract (less experienced and/or less wealthy) individual investors.

The SPAC structure has also advantages for SPAC's target firms. First, since these target companies are almost always private, the business combination with a SPAC enables such companies to become a publicly listed firm without the need to go through the risky and costly traditional IPO process. Second, the capital base of the SPAC provides the target firm with a 'war chest' for future acquisitions or for investment opportunities in general. Third, the business combination with a SPAC enables target firms to continue as an independent entity, in contrast to a sell-out to a public operating company. In addition, target firm managers may have better chances to keep their leading roles since they do not have to compete with the incumbent management of the acquiring company.

2.1.4.5. Risks and disadvantages of SPACs

While SPACs offer investors a unique equity investment opportunity with limited downside risk, their structure also involves some important (potential) risks. First, SPACs do not have an operating history upon which potential investors can base their expectations of future performance. In the decision whether to invest, potential SPAC shareholders are mainly dependent on the reputation and past success of the SPAC's management, which are indeed not necessarily strong indicators for future value creation. Second, SPAC managers are not required to be fully committed and to devote a specific amount of time to the SPAC, next to their other businesses. Consequently, such managers may have conflicts of interest among these activities.

The third possible disadvantage of SPAC is also related to potential conflicts of interest. As we have discussed before, SPAC managers cannot participate in the liquidation of SPAC's trust account and will therefore lose (most of) their money in the event no business combination will be completed. As a consequence, SPAC managers have a major incentive to complete a business combination, even if this is not in the interest of the (external) shareholders.

The fourth and last weakness of SPACs we discuss here is the potential competitive disadvantage of the SPAC's structure in the process of finding an acquisition target. The eighteen month period in which a SPAC has to complete a business combination (or at least need to announce a letter of intent), puts SPACs under significant time pressure. Target companies which are aware of this aspect, have good opportunities to benefit from this. In return for a more cooperative position and a shorter negotiation process, they can easily ask for a selling price higher than the fair value if they believe they are the only realistic acquisition opportunity left for the SPAC. Such overpaying is obviously not in the interest of the SPAC's shareholders.

2.2. Mergers & Acquisitions and theories on value-creation

The expression 'Mergers and Acquisitions' is used as an umbrella term for transactions in which in most instances a firm or a business unit is sold. A merger often relates to a friendly transaction which is proposed by the management of the merging firms, whereas an acquisition (or a takeover) is often referred to as a transaction which is regarded to be unfriendly and in which the target firm shareholders are offered to sell their shares to the buying company (Bruner, 2003). In this thesis, however, we use the terms 'mergers', 'acquisitions', 'takeovers' and 'business combinations' interchangeably. This subchapter is organized as follows. First, we will discuss the different types of M&A and their characteristics. In section 2.2.2., the motives for mergers and acquisitions as well as some theories on value-creation in M&A transactions are discussed. Section 2.2.3. will then specifically focus on value-creation through synergies. Thereafter, we discuss aspects of M&A transactions by SPACs and the potential for value creation in such deals. In the last section (2.2.5), we review a few methods which can be used to estimate the profitability of mergers and acquisitions and/or to obtain valuable insights into acquisition processes.

2.2.1. Types of mergers & acquisitions

There are several ways in which M&A transactions are classified based on their primary characteristics. In general, three major types of M&A transactions are distinguished: strategic, financial and conglomerate acquisitions (see e.g. Grinblatt and Titman, 2002).

2.2.1.1. Strategic acquisitions

Most acquisitions are classified as strategic acquisitions. Strategic acquisitions are transactions in which the buying firm as well as the target firm operate in the same industry sector and/or value chain. In this case the buying firm believes that the combination of the two firms will result in a more efficiently operating company and/or an improved market position.

Horizontal acquisitions

Horizontal acquisitions are deals in which both firms operate in the same industry sector, i.e., they produce similar products and/or they target the same customers. An example of such a transaction is the acquisition of a telecom company by another telecom company, e.g., the takeover of Orange Netherlands by T-Mobile.

Vertical acquisitions

Transactions in which a certain firm acquires another firm in the same value chain are referred to as vertical acquisitions. The objective behind such acquisitions is to integrate companies at different stages within a product value chain. An example could be the takeover of a producer of digital map content by a car navigation company, e.g., the acquisition of Tele Atlas by TomTom.

2.2.1.2. Financial acquisitions

Financial acquisitions are transactions where incentive and efficiency improvements are the primary motives. These acquisitions are often called (leveraged) buyouts (LBOs) and are financed with high levels of debt. Nowadays an increasing number of financial acquisitions have also some strategic aspects (see e.g. Smit, 2004). They could be used in a so-called buy-and-build-strategy where the first transaction is named the platform acquisition which is followed by a number of follow-up acquisitions of complementary companies.

2.2.1.3. Conglomerate acquisitions

Conglomerate acquisitions are M&A deals not classified as strategic or financial acquisitions. These transactions involve the combination of unrelated types of business

and are often motivated by diversification benefits and risk reduction. In the sixties and seventies of the past century, this type of acquisitions counted for the majority of all M&A transactions (see e.g. Grinblatt and Titman, 2002).

2.2.2. Value creation in mergers & acquisitions

Mergers and acquisitions take place for many reasons, e.g., "to displace inefficient managers; to achieve economies of scale and scope in production, distribution, and financing; to enhance monopoly or monopsony power; to exploit tax reduction opportunities; to take advantage of 'bargains' on the stock market or in the private 'company for sale' market; and/or to build managerial empires" (Ravenscraft and Scherer, 1989). All these and other motives for M&A could be ranked under three major categories: synergy, agency and hubris (Berkovitch and Narayanan, 1993). Whereas the first category is most cited as a 'correct' motive for M&A, the latter two are often called 'wrong' motives since they are not based on the idea that mergers and acquisitions should be value-enhancing transactions.

The synergy motive will be discussed in the next section. The agency motive suggests that M&A take place because of a conflict of interest between the management and the shareholders of the acquiring firm. Managers may engage in takeovers at the cost of the shareholders when such acquisitions are beneficial to them personally. Management remuneration, for example, is often related to the size of the firm (see e.g. Jensen, 1988) and company size could be increased relatively easy by takeovers. The hubris motive says that acquisitions occur because managers of acquiring firms are blinded by hubris. They overestimate the gains from the acquisition and/or are too optimistic in their belief that they are capable enough to realize economic gains from the combination of the firms.

Beside synergies there is another reason why (proposed) mergers and acquisitions can enhance the value of firms. Dodd and Ruback (1977) found that the share price of target firms in acquisitions often went up, even when the bid ended up being unsuccessful. This finding leads to the information hypothesis which states that an offer conveys new information about the (true) value of the target firm. A distinction between two types of this hypothesis can be made.

The first version states that the bid suggests that the shares of the target firm are undervalued and that the market will revalue those shares. In this case no other actions need to be undertaken to cause the upward revaluation of the shares. The offer might even fail to be successful. Bradley, Dessai and Kim (1983) refer to this phenomenon as the "sitting on a gold mine hypothesis." The firm might for example suffer from the fact

that its business is currently not well understood or that it owns assets with great future potential which is not recognized by the market yet.

The other form relates to the assumption that an offer will encourage the target managers to reorganize their business towards a more efficient operating company. In this case the takeover market can be viewed as a disciplinary mechanism to management teams who are afraid of losing their jobs. This hypothesis is referred to by Bradley, Dessai and Kim (1983) as the "kick in the pants explanation." The upward revaluation of target firms can be temporarily or permanent. When the revaluation is permanent it could be argued that the firm was indeed undervalued. Another explanation might be that a future bid is expected to come up and that the firm will be acquired later on.

2.2.3. Value creation through synergies

The synergy motive is, as already discussed earlier, the most cited and regarded to be the only 'correct' motive for mergers and acquisitions. In essence there is synergy when the combination of two or more elements is (worth) more than the sum of the components. Related to mergers and acquisitions there exists synergy when the value of the combination of the (two) firms is higher than the sum of the (two) companies separately. Synergy can take the forms of operational, financial and managerial synergies which are discussed in more detail now.

Operational synergies

Operational synergies are those synergies that relate to the business activities of the company. By definition this form of synergy requires a high level of overlap in the operational activities, products and markets of the combining companies. Expected operational synergies are considered to be a primary reason for a merger of firms with similar activities. Or as Sudarsanam, Holl and Salami (1996) put it: "…if the merging firms are drawn from the same industry the presumption is that such operational synergies are available and that shareholders of both firms will gain."

Economies of scale

Economies of scale arise when the average cost of producing one unit decreases as total production increases. There are two types of economies of scale: internal and external economies. Internal scale economies relate to the lower average unit costs a particular firm could achieve by increasing its size and can be divided in two major categories: production-linked and general internal scale economies.

Production-linked economies may be realized in the fields of purchasing, production and distribution. Purchasing economies are assumed to be available when businesses grow and need larger quantities of input materials. Because of the increasing order sizes and frequencies, bigger firms have more bargaining power and could achieve better order conditions. Production economies could be realized when the increased firm size will lower the fixed production cost per unit because of the increased production volume. Another reason could be that large companies can use more advanced technology (which is not affordable for smaller firms) to optimize their production process. Distribution economies may be achieved because large firms have better opportunities to organize their transportation activities more efficiently, e.g., through a better utilization of truck capacity or the combination of distribution channels.

General internal economies of scale could be accomplished in the areas of financing, marketing and administration/management. Financing economies might be the result of better conditions for external financing for larger firms since they tend to be less risky than small business firms (see e.g. Chan, Chen and Hsieh, 1985). It is therefore easier for large firms to obtain loans and lower interest rates. Marketing economies of scale could be realized by spreading the total marketing costs over the increased production. Since many marketing costs are fixed by their nature, the costs of advertising, for example, decrease with an increasing level of production. Economies of scale in the fields of administration and management are assumed to be (increasingly) available when companies grow. Within larger firms there exist greater potential for task specialization and division of labor. Managers and other staff of large businesses are often specializing in single tasks such as accounting, operations or human resource management. Because of their expertise and experience they are expected to be more efficient workers compared to staff in smaller-sized firms who are often required to be multitaskers, i.e., they have several duties.

External economies of scale arise when the industry in which a firm is operating increases in size as a whole. These economies could be divided into three major categories: knowledge, reputation and infrastructure. As industries grow, there will be more (shared) research and development activities related to that sector. Also, there will be more specialized education and training facilities. These benefits relate to the knowledge economies in growing industries. A similar type of reasoning applies to reputation economies. When industries expand, more and more people will get to know that kind of business. Business networks and other forms of cooperation can increase the industry reputation in consumer markets as well as in the eyes of business

customers and suppliers. External economies of scale in infrastructure could be achieved when (public) investments in infrastructure projects such as roads, telecom facilities, and other utilities are becoming more justifiable.

Economies of scope

Economies of scope are said to exist if the unit cost of producing two or more products in a multi-product setting is lower than the unit cost of producing these goods separately (see e.g. Panzar and Willig, 1981). Economies of scope can arise from various sources. For example the sales, general and administrative (SG&A) departments of a multi-product firm could perform their tasks for more than just one product without becoming less efficient. Also, storage facilities can be used more economically by using them for the whole range of in- and output products of the firm. Shareable inputs such as electricity and oil (cost-driven) or cross-selling of products by a single salesman (revenue-driven) are other examples that can lead to economies of scope.

Increased market power

Market power is the power of a single firm or a group of firms together to control the market, thereby influencing the prices, quantities or generally spoken the market structure/competition level. When firms or cooperative groups (referred to as 'cartels' when such firms make explicitly agreements) are able to do so, they can achieve extra-normal profits. Strategic acquisitions can help firms to become large enough to realize these benefits and to create value from them. It is, however, often argued that this value creation is mainly a redistribution of wealth to the firm from other stakeholders, e.g., from its customers who face the higher prices (see e.g. Kim and Singal, 1993).

Financial synergies

Financial synergies are those synergies that could be achieved through a change in the firm's capital structure or through a reduction in the volatility of its cash flows. As opposed to (most) operational synergies, financial synergies do not require a high level of overlap in the core activities of the merging firms. Most financial synergies can only even be achieved in the combination of unrelated businesses or when there are significant differences in capital structures. Therefore they are mainly available to non-strategic acquisitions. Three important types of financial synergies are discussed now.

Coinsurance of debt

An often cited form of financial synergy is coinsurance of debt. This synergy takes place when the creditors of the combined firm get better protection for their liabilities than they would have received from the single firm before the merger. This pure financial rationale for unrelated/conglomerate mergers was first addressed by Lewellen (1971). He argued that a merger between two firms which income streams are less than perfectly correlated would lead to a smaller probability of default for the combined firm. Because of the increased asset base and the reduction in the volatility of the merged firm's cash flows as a result of the imperfect earnings correlation, the expected cash flows to the creditors will be less risky. This reduction in risk could also lead to a decrease in the cost of capital and a larger debt capacity.

Internal financing

Another financial rationale for mergers is the lower costs of internal financing compared to external sources of financing. When there are two firms where one has large amounts of excess cash but only few investment opportunities and the other firm has great growth potential but lacks funds, the combination of such firms could be value-creating transactions. The excess funds of the former cash rich firm will then earn a better rate of return, whereas the projects of the former slack-poor firm can be undertaken now. The opposite, however, (financial anergy) is also possible. This exists for example, when there are cash flows from well-performing business units to underperforming departments in order to keep those alive.

Tax advantages of unused debt capacity

In the case of a merger of two firms where one of the two firms has not fully utilized its debt capacity while the other firm is financed at or around its optimal leverage ratio, tax benefits of the unused debt capacity may be enjoyed. As interest payments on debt obligations are tax-deductible costs, an increase in total debt provides so-called tax shields of debt which increase the value for the shareholders of the firm. The larger the difference between the debt levels of the merging firms, the larger the value creation. The already discussed coinsurance of debt effect could also lead to an increase in the total, combined debt level and provide even larger tax gains.

Managerial synergies

Managerial synergies are those synergies related to the skills and expertise of corporate managers. These could be achieved if competent managers will take over the duties of less competent managers. If a well managed firm acquires a firm with weak management, managerial synergies are assumed to be available. The more competent managers will reorganize the activities of the badly managed firm and make them more profitable. In this sense, Jensen and Ruback (1983) view the takeover market (or market for corporate control) as an arena in which alternative management teams compete for the right to manage corporate assets.

2.2.4. Aspects of (value creation in) M&A transactions by SPACs

Based on the categorization we made before, we believe that acquisitions made by SPACs should be classified as 'financial acquisitions'. Since a SPAC has no operating history, very limited organizational facilities and only a few employees (i.e. its founders), there are hardly any opportunities to create value through (operational) synergies. Considering these characteristics, it should be evident that acquisitions made by SPACs cannot be referred to as 'strategic acquisitions', since such acquisitions are most often motivated by (operational) synergies. The absence of operational activities also rules out the option to classify SPAC acquisitions as 'conglomerate acquisitions.'

In contrast, the company structure of SPACs is well suited to complete 'financial acquisitions'. As we have discussed earlier, SPACs are often managed by experienced industry executives who are backed by successful investment bankers. Therefore, the assumption is that such 'SPAC teams' are very well-informed regarding industry developments and are able to find good-quality target companies and to structure their proposed deals very carefully. In this sense, the underlying principles of SPAC acquisitions are to a certain extent similar to those of acquisitions made by private equity firms. Just as in private equity deals, we believe that most of the anticipated value creation should come from operational improvements and financial engineering. Indeed, Lewellen (2008) reports that acquisitions made by SPACs involve significant financial leverage with deals financed on average at leverage multiples of 2.5. There are, however, some major differences between SPAC acquisitions and private equity transactions, of which we will now discuss three.

First, whereas a private equity deal involves often a public firm which is taken private after the acquisition, a SPAC most often acquires a private firm which is taken public. Second, the company acquired in a private equity transaction will have only one (or a just a few) shareholders, i.e. the private equity firm(s) by which it is acquired. In

contrast, the target firm of the SPAC will have many public shareholders after the acquisition is completed and the company is publicly listed. Third, a company which is taken over by a private equity firm will experience a high level of monitoring and involvement of its private equity firm and could also benefit from cooperation with the private equity firm's other portfolio companies. Companies acquired by SPACs, in contrast, usually continue to operate as independent entities where the SPAC's founders often will reduce their involvement after the successful acquisition. One might therefore conclude that there is in general more scope for value creation in private equity deals than in SPAC transactions.

2.2.5. Measurement and analysis of M&A gains

In the former sections we discussed why firms could gain from mergers and acquisitions, and what the underlying principles and assumptions of value(creation) are. There are several methods to measure and analyze M&A profitability and value creation. In this section we introduce four widely used approaches. First, there are statistical-based models which test for value creation using market or financial statement data. The standard, null hypothesis in such models is that acquisitions are no value-enhancing or value-decreasing transactions. Another form of research is to study qualitative aspects of mergers and acquisitions. Such methods are more descriptive and provide better insights in the way people think about the value creation rather than testing it in models. Naturally, all these methods have their limitations and as a consequence there is no method that is completely 'right.' The use of complementary methods can increase the insight into the whole M&A picture. Following Bruner (2003) we distinguish four approaches that could be used to measure and analyze the profitability of mergers and acquisitions.

2.2.5.1. Event studies

Event studies measure the effect of an economic, firm-specific event on the share price of a particular firm. Types of events include (announcements of) mergers and acquisitions, the issue of new shares or the release of financial statements. By investigating the changes in the share price around the event date, conclusions can be drawn about the impact of the event. As MacKinlay (1997) stated: "the usefulness of such a study comes from the fact that, given rationality in the marketplace, the effects of an event will be reflected immediately in security prices. Thus a measure of the event's economic impact can be constructed using security prices observed over a relatively short time period." An underlying assumption in event studies is that financial markets

will incorporate all the new information quickly and accurately into the security prices. This is referred to as market efficiency. Event studies provide a direct test of market efficiency (Brown and Warner, 1980). Financial markets are said to be efficient if security prices contain all relevant information and therefore are priced accurately, relative to their underlying economic value.

In an event study, the main issue is to estimate abnormal returns. The abnormal return is the actual ex post return of the security over the event window minus the normal return of the firm over the event window (MacKinlay, 1997). In fact, this is the gain or loss for the shareholders. A negative abnormal return indicates that the financial market does not appreciate the event; a positive abnormal return indicates that the market views the information as positive. Essential in the event study approach is the estimation of the normal return, i.e., the return the shareholders could have expected in case the event had not occurred. Those normal returns are often estimated using pricing models such as the capital asset pricing model or the market model approach as proposed by Brown and Warner (1985). In the latter approach, a large data set of historical returns (depending on the event, usually 100 to 250 daily returns) is used to arrive at the average, normal returns for that stock.

Major drawbacks of event studies include the possible problems in estimating the normal return since the selected estimation period can have a great influence on the outcomes for the estimates. Another problem could be the effects of other events surrounding the event under research.

2.2.5.2. Accounting studies

Accounting studies examine reported financial results (i.e., accounting statements) of acquiring firms before, and after, acquisitions to see how financial performance changed (Bruner, 2003). Indicators of financial performance under research in these studies include operating- and net income, earnings per share, operating cash flow and return on assets. The changes in those figures are then compared to one or more control firms. In essence this approach will lead to most valid conclusions when those control firms are matched carefully with the acquiring firm, e.g., on industry, size, financial structure and operating performance.

One of the strengths of accounting studies is that they use certified, audited financial statement data. On the other hand, these accounting data is by nature backward looking and does not incorporate relevant value information, e.g., on the value of intangible assets such as brand names or patents.

2.2.5.3. Surveys of executives

Surveying executives is a qualitative form of research to determine M&A profitability. By aggregating results from standardized surveys held under managers, researchers try to make generalizations about the value changes in M&A transactions. Despite the standardized form of the surveys, they can provide relevant insights into acquisition processes which were not available to the public before. Or as Bruner (2003) states: "it benefits from the intimate familiarity with the actual success of the acquisition".

The major weakness of this type of research is that its conclusions are drawn from the perspective of the managers, which definitely does not need to match the view of shareholders. This view may be supported by the fact that the average response rate in executive research programs is usually low.

2.2.5.4. Clinical studies

Clinical studies, also termed 'case studies', are carefully constructed investigations which focus on only one or on a small number of transactions. By holding interviews with executives and other parties of interest, researchers can go into the detailed aspects of M&A transactions, thereby deriving valuable insights into acquisition processes.

By their nature, clinical studies are not appropriate for testing hypotheses. As the size of clinical studies is limited, generalizations cannot be drawn. They are, however, an excellent method for identifying the ways of thinking and the principles of corporate managers.

3. Empirical Literature Overview

In chapter 2 we discussed IPOs, reverse mergers, SPACs and mergers and acquisitions from a theoretical perspective. This chapter reviews empirical literature on IPOs, reverse mergers, SPACs and M&As. Subchapter 3.1. discusses studies on IPOs, reverse mergers and SPACs. Subchapter 3.2. focuses on empirical literature on mergers and acquisitions.

3.1. IPOs, reverse mergers and SPACs

This subchapter reviews empirical literature on IPOs, reverse mergers and SPACs. First, we discuss empirical literature on the motives for going public. Thereafter, we present evidence on the timing of IPOs. Section 3.1.3. discusses the empirically observed characteristics of companies that go public. In section 3.1.4. we review studies on the short- and long-term performance of IPOs. The final section (3.1.5.) provides a discussion of empirical literature on SPACs.

3.1.1. Evidence on motives for going public

Using a large sample of Italian companies, Pagano, Panetta and Zingales (1998) provide empirical evidence on some of the motives for going public through an IPO which we have discussed in section 2.1.1.1. In favor of the 'access to external capital motive' they find a significant positive relation between the probability of an IPO and the firm's investment and growth opportunities. They also find evidence for the 'bargaining power motive' as their data shows that IPO firms experience reduction in the cost of credit. This effect is statistically and economically significant for the year of the IPO and remains significant for the three post-IPO years.

Contrary to their expectations, the authors do not find direct empirical evidence in favor of the 'liquidity and diversification motive.' Pre-IPO shareholders do not seem to use the IPO in order to diversify their shareholdings as they do not divest much of their shareholdings in the first years after the IPO. The authors argue, however, that the reduction of the riskiness of the controlling group's holdings may still be an important determinant of IPOs, because the funds raised with the IPO help newly listed companies to decrease their leverage significantly. In contrast to Pagano, Panetta and Zingales (1998), Bodnaruk, Kandel, Massa and Simonov (2008) do find evidence for the 'liquidity and diversification motive.' They show that the initial shareholders (of the private company) sell more of their shares at the IPO, if they are less diversified. They also present evidence that the probability of an IPO is negatively related to the level of

diversification of its initial owner(s), i.e., firms which are owned by relatively well diversified shareholders are less likely to do an IPO. These findings provide evidence that the opportunity for diversification is an important motive in going public decisions.

Concerning the 'monitoring motive', Pagano, Panetta and Zingales (1998) do not test this hypothesis due to data limitations. Instead, they refer to Holmström and Tirole (1993) who show that the stock market performs an essential role as a mechanism to monitor managers because stock prices are uniquely suited for compensation purposes because they are objective third-party assessments. They also refer to Pagano and Röell (1998) who argue that private companies with just a few shareholders might even suffer from overmonitoring, because of conflicts of interest between its shareholders. The more dispersed ownership structure after an IPO could then be the solution to reduce these conflicts of interest.

Consistent with the 'investor recognition motive', Lehavy and Sloan (2008) find a positive relation between increasing investor recognition and company value. They also argue that innovations in increasing recognition appear to be more important in explaining stock returns than earnings news. Indirect evidence for the 'investor recognition motive' is provided by Foerster and Karolyi (1999) who show that cross-listing of non-US firms on a US stock exchange has a positive effect on the company's share price. Another study that provides evidence in favor of this motive is Bradley, Jordan and Ritter (2003). They show that analysts adjust their recommendations positively after an IPO. Increased analyst coverage might thus also be a motive for a company to complete an IPO.

Evidence in favor of the 'change of control motive' is provided by Pagano, Panetta and Zingales (1998). They show that in the three years after the IPO, the initial shareholders sell their controlling stakes in about 14 percent of the IPO cases and that this percentage is more than twice as high compared to a sample of private firms where controlling shareholders sell off their shares. This result indicates that the transfer of controlling stakes could be achieved more easily through the public stock market and that shareholders of private companies view going public as an excellent step in the process of the eventual sale of their shares.

In their article, Brau and Fawcett (2006) present the results and analysis of a survey on several IPO issues, answered by 336 CFOs of US companies. Concerning the motives for going public, the authors find that the creation of public shares which can be used in future acquisitions is the rationale most supported by CFOs. In line with this finding, they find that the second most important motive is the desire to create a market

value for the company as a first step in potential acquisition strategies. In general, these findings support the view that most CFOs consider their future acquisition programs as the most important aspect of their going public decisions.

To investigate whether the empirical evidence is consistent with this motive, they compare the M&A activities of IPO firms to a benchmark sample of private firms. Their first observation is that IPO firms were acquirers more often than they were targets (difference is significant at the 1% level). They also find that IPO firms make significantly more acquisitions than their private counterparts. Thus, their results indicate that CFOs indeed realize their primary motive for going public.

The authors do not find unambiguous empirical support for 'bargaining power motive' and the 'liquidity and diversification motive'. Less than half of the CFOs state that these motives are (somewhat) important. The first finding is remarkable since the empirical literature (see e.g. Pagano, Panetta and Zingales, 1998) shows that the cost of credit is likely to decrease after IPOs. Thus, one could plausibly expect that CFOs may anticipate on this reduction in their cost of capital. The second finding, however, is consistent with the evidence by Pagano, Panetta and Zingales (1998), who show that initial shareholders do not sell much of their shares in the first post-IPO years. For CFOs who are aware of this pattern, it makes no sense to view the 'liquidity and diversification motive' as important, unless they are well-informed that the initial shareholders are indeed planning to sell their shareholdings (shortly) after the IPO.

Concerning the 'investor recognition motive', the authors find mixed evidence. Their data shows that CFOs from smaller, younger and high-tech companies provide much more support for this motive than the CFOs of larger, more established firms. This finding sounds plausible since smaller, younger and high-tech companies are less likely to be known by the investment community and analysts. Going public enables such companies to create more publicity and to increase their reputation.

3.1.2. Evidence on timing of IPOs

As we have discussed in section 2.1.2., there are a number of reasons why (initial owners of) private companies may time their initial public offerings. Consistent with the expectation that companies try to benefit from attractive stock markets, several empirical studies, (including Ritter (1984), Loughran, Ritter and Rydqvist (1994) and Brau, Francis and Kohers (2003)) find a strong positive relationship between the probability of an IPO and the market valuation of comparable public firms. In addition, Lowry (2003) finds evidence that investor sentiment is also an important factor with respect to IPO activity, as the number of companies going public is greater in periods in which investors are

generally (too) optimistic and therefore 'wiling' to overpay for IPOs. The CFO survey of Brau and Fawcett (2006) also provides evidence for the hypothesis that firms time their IPOs. Their results show that a large majority of the CFOs who answered their survey view positive overall stock market- as well as industry conditions as important aspects of their decisions to go public. The number of other good-quality firms going public, however, is considered relatively unimportant by the CFOs.

3.1.3. Characteristics of IPO and reverse merger companies

Now we have discussed the motives for going public and the factors underlying the timing of IPOs from a theoretical as well as an empirical perspective, this section will focus on the empirically observed characteristics of IPO and reverse merger companies. In other words, can we make generalizations or predictions (independent from external factors such as stock market conditions) about the type of companies that go public and the going public mechanism (IPO or reverse merger) they use?

Poulsen and Stegemoller (2008) studied two alternative ways private companies can use to move from private to public ownership, 1) through an IPO or 2) through a sell-out to an already listed company. Using a set of 1074 IPO firms and 734 sell-out transactions, they find evidence that firm-specific characteristics play a major role in the decision which going public mechanism is used. They find that firms going public through an IPO are likely to be growth firms with higher valuations and firms who need access to non-debt sources of capital because they face capital constraints. In addition they find that IPO firms have fewer intangible assets and are more likely to have venture capital investors. In a closely related study, Brau, Francis and Kohers (2003) also find that IPO firms are significantly larger than sell-out firms, a characteristic also reported by Pagano, Panetta and Zingales (1998).

Gleason, Jain and Rosenthal (2006) analyzed the characteristics of companies going public through reverse mergers. They find that firms choosing reverse mergers are less profitable, experience significantly lower balance sheet liquidity as well as higher levels of financial leverage, and are more likely to be financially distressed than comparable IPO firms. The notion that reverse mergers involve low-quality firms also receives empirical support from Adjei, Cyree and Walker (2008) who show that smaller, poorer performing, and younger private firms prefer reverse mergers to IPOs. In an explanation for these observations, Sjostrom (2008), argues that "going public through a reverse merger signals to the market that the company has likely been passed over by underwriters and is therefore of low quality. Further, an IPO company implicitly receives

underwriter certification, a certification backed by the underwriter's reputational capital and liability exposure under federal securities laws."

3.1.4. Short- and long-term performance of IPOs

The short- and long-term performance of IPOs has been an active field of research within the empirical finance literature for decades. Concerning the short-term performance it is widely accepted that IPOs show significant positive initial returns. Although technically not fully correct, many scholars choose to use the term underpricing for these returns (see section 2.1.2.2.). Loughran, Ritter and Rydqvist (1994) summarize several studies and find that underpricing exists in every country and in every stock market, although the observed level of underpricing varies strongly from market to market. They also observe that underpricing is likely to be higher, 1) the greater the degree of government interference, 2) the earlier in the going public process a fixed offering price is set, and 3) the riskier the firm going public. Using a sample of 3025 IPOs from 1990 to 1998, Loughran and Ritter (2002) show that the average underpricing for their IPOs equals 14 percent (or $ 9.1 million in dollar terms). The median value, however, is $ 2.3 million which means that most of the 'money left on the table' comes from the minority of the IPOs. The result of their further investigations of this cross-sectional difference is that firms which adjust their offer price upwards during the going public process, experience the highest levels of underpricing.

In contrast to the significant positive returns IPO investors earn in the short run, most empirical studies report that IPOs are underperformers in the long run. Ritter (1991) examines the stock market performance of IPO firms in the first three post-IPO years and finds that his sample of IPO firms significantly underperformed a sample of comparable firms. He points out that "a strategy of investing in IPOs at the end of the first day of public trading and holding them for three years would have left the investor with only 83 cents relative to each dollar from investing in a group of matching firms listed on the American and New York stock exchanges. Younger companies and companies going public in heavy volume years did even worse than average." His results provide thus evidence for the hypothesis that many firms go public when stock market valuations are at, or close to, their peak levels. Ritter (1991) concludes that IPO investors are overly optimistic about the value-potential of (young growth) companies they invest in. During the last decade, however, there is an increasing debate amongst empirical finance scholars about the methods to measure long-term performance as some researchers suggest that properly measured returns indicate that there is no unambiguous evidence of long-term underperformance by IPO firms (see e.g. Brav, Geczy and Gompers, 2000).

In a response, Ritter and Welch (2002) argue that although "…it still remains unclear how abnormally poor post-IPO performance is,...because the asset-pricing literature itself has failed to provide an accepted model of risk-adjusted performance against which one can measure post-IPO performance", they still tend to favor the notion of long-term underperformance from a behavioral finance perspective.

3.1.5. Short- and medium-term performance of SPACs

Most of the literature within the field of SPACs discusses SPACs from a non-empirical finance perspective. To the best of our knowledge, there are only two empirical studies that discuss the financial and stock performance of SPACs, which we will summarize now.

The first paper discussing SPACs from an empirical perspective is the one by Jog and Sun (2007). They use a sample of sixty-two SPACs that went public in the period 2003-2006. They first document the short-term performance of their sample using the first-day return. Their results show that there is no significant underpricing in SPAC IPOs; the mean and median first-day returns are respectively 1.9 percent and 0.9 percent. This finding is, as the authors also state, not very surprising because a SPAC IPO is in essence a cash instrument, the company has no operating history, investors have a veto power on the M&A decision(s) and there is no real issue of misvaluation by the SPAC issuers or by its underwriters. In addition the authors argue that one should actually expect overpricing (i.e. a negative first-day return) since 1) the value of the SPACs trust account will be less than 100 percent of the IPO proceeds and 2) the SPAC's founders receive their shares at a huge discount, meaning that investors directly lose part of their investment and experience a significant dilution of their shareholdings.

Concerning the medium-term returns, the authors focus on three periods, being: 1) from the second day after the IPO to the M&A announcement, 2) from the M&A announcement to the M&A outcome, and 3) from the second day to the M&A outcome day. For the 42 SPACs in their sample which made an M&A announcement, the authors report a median annualized return of minus 2 percent for the first period. For the 26 SPACs which completed an M&A transaction, the authors report a median annualized return of minus 3.35 percent and 2.97 percent for respectively the second period and the third (entire) period.

Finally, the authors discuss the returns earned by the SPAC's founders. They point out that these founders receive their shares at a median price of $ 0.014, compared with a median offer price of $ 5.25. Thus, if these founders were not prohibited from selling their shares before the M&A transaction is completed, and if they were able to sell

their entire shareholdings on the IPO date, their (fictitious) one day return would be 37,400 percent! For the sample of completed transactions, the authors report that the founders earned a median annualized return of 1879 percent. Thus, whereas the shareholders of SPAC IPOs earned annualized returns of almost minus 3 percent, the founders earned positive returns of almost 1,900 percent. The authors conclude that "It looks like the investors wrote a blank check to the management."

The second study we discuss here is the one by Lewellen (2008) who uses a sample of 158 SPACs that went public in the period 2003-2008. One of the first things the author investigates is the relation between the SPAC's share price and the SPAC's trust value per share. He argues that the stock price of a SPAC prior to the completion of an acquisition should not be lower than the present value of a risk-less zero-coupon bond paying T on the SPAC's expiration date. His results, however, show that SPAC shares trade on average at a discount of 0.20 percent compared with the trust value per share, with the shares trading at a discount about two-thirds of all trading days. A possible explanation Lewellen offers for this finding is that market imperfections such as transaction costs may eliminate the profits arbitrageurs could make in their attempts to push the SPAC's share price to its theoretical lower bound.

Next, the author examines the medium-term share price performance of SPACs. Overall, he finds that SPAC shareholders earn on average a non-significant return of about 0.2 percent per month (or around 2.5 percent per year). For the SPACs which announced, but have not completed an M&A transaction (which he calls the 'TF category'), he finds an average monthly return of approximately 2.5 percent (or around 34.5 percent per year), which is significant at the 5% level. In contrast, shareholders of SPACs which have completed M&A transaction (which he calls the 'AC category') earn on average a significant (at the 5% level) return of about minus 2 percent per month (or around minus 27 percent per year). Investors who are aware of this pattern could set up a very profitable strategy, or as the author states: "An investor taking a long position in all SPACs in the TF category and a short position in all SPACs in the AC category during the sample period would have earned a statistically significant average monthly return of nearly 3.8 percent (or more than 56 percent on an annualized basis), a substantial return by any measure."

The author also reports average cumulative abnormal returns (CAR) for the three day periods surrounding two important events, being 1) the M&A announcement date and 2) M&A completion date. For the first period he finds an average CAR of approximately 2.4 percent, whereas he finds an average CAR of minus 0.2 percent for

the second period. When the estimation periods are extended to seven days (event date minus three days to event date plus three days), these CARs change to respectively 2.8 percent and minus 0.8 percent. Since most SPACs engage in M&A transactions with private targets, the positive CAR for the first period is consistent with the empirical evidence by Fuller, Netter and Stegemoller (2002), who report a CAR of approximately 2 percent for public firms acquiring private targets for the five-day period surrounding the M&A announcement. The observation that SPAC shareholders earn negative CARs during the second period (even if they earned positive returns during the first period), however, remains at least remarkable if one takes into account that these shareholders have the right to terminate a proposed M&A transaction if they believe that the transaction will destroy value.

3.2. Mergers & Acquisitions

This subchapter reviews empirical literature on mergers and acquisitions. First, we provide evidence on the M&A motives of chief financial officers (CFOs). Thereafter, the sections 3.2.2., 3.2.3. and 3.2.4. discuss empirical evidence on the returns to respectively target firm shareholders, bidder firm shareholders and both groups combined, as measured in event studies.

3.2.1. Evidence on M&A motives from CFOs

In their article, Mukherjee, Kiymaz and Baker (MKB, 2004), presented their results and analysis of a survey on M&A motives and target valuation methods held under CFOs of US companies. A final number of 75 CFOs responded to the survey. Asked for the primary motive to engage in M&A transactions most managers responded by choosing synergies. As MBK (2004) stated: "consistent with our expectations, the most important motive is synergy, which received 37.3 percent of the top ranked responses." The second highest-ranked motive is diversification, chosen by 29.3 percent of the respondents. Within this group, the large majority (89.9 percent) of the respondents chose operational synergies as the primary source of the expected synergies.

The CFOs were also asked about their primary reasons for divestures. According to the respondents the major reasons for divestures are to increase focus (35.9 percent) and divest a low-performing division (35.9 percent). The first motive may be viewed somewhat surprisingly, knowing the second most important motive to engage in M&A, being diversification. A possible explanation for this finding according to MKB (2004) is that managers might engage in mergers and acquisitions motivated by diversification as means of reducing losses in economic downturns.

3.2.2. Returns to target firm shareholders

From the empirical literature on the profitability of mergers and acquisitions, one can hardly draw another conclusion than that M&A transactions provide significant positive returns to the shareholders of target firms. Bruner (2003) provides an overview of 25 studies which all report statistically and economically significant (at the 5% level or better) positive returns to target shareholders. Depending on the period under study, the sample size and other deal characteristics these target shareholders earn average abnormal returns in the range of 7.45 percent to 45.6 percent, with most studies reporting average abnormal returns around 25 percent (Bruner, 2003).

3.2.3. Returns to bidding firm shareholders

In contrast to the unambiguous pattern in the returns to the target firm shareholders, there is no consensus in the literature about the returns to bidding firm shareholders. Jensen and Ruback (1983) summarize thirteen studies in this field. On the returns to bidding firm shareholders they conclude that these shareholders, on average, do not lose in M&A transactions. Up to now, this view remains to be the common observation. In his extensive review of studies investigating bidder returns, Bruner (2003) states it as follows: "One must conclude that in the aggregate, abnormal (or market-adjusted) returns to buyer shareholders from M&A activity are essentially zero. A reasonable conclusion from these studies is that buyers essentially break even (i.e. that acquisitions tend to offer zero net present values, or equivalently, that investors earn their required return.)"

3.2.4. Returns to target and bidding firm shareholders combined

Since bidder firms are typically much larger than target firms (see e.g. Bruner, 2003), the simple aggregation of the target firm shareholders percentage return and the percentage return to bidder shareholders will lead to seriously biased conclusions about the combined M&A profitability. A better method is to form a value weighted portfolio of both the target firm and the bidder firm. The total return of that portfolio will then provide a better measure of the gains resulting from the M&A transaction. Bruner (2003) summarizes 24 studies examining combined returns. He finds that almost all of the studies report positive combined returns (in the range from 0 percent to 11.3 percent), with 14 of the 24 being significantly positive. On the whole, Bruner (2003) concludes that mergers and acquisitions are value-enhancing transactions.

4. Data & Methodology

This chapter describes our data selection process and empirical design. Section 4.1. discusses the data selection and presents several sample statistics; section 4.2. discusses the empirical design and the methods used.

4.1. Data selection

To identify SPACs, we used three approaches. First, we searched the 'Deals Analysis – Equity'-section of Thomson One Banker (TOB) for firms classified as 'Blank Check Company.' Second, we searched the public EDGAR database of the US Security and Exchange Commission (SEC) for firms with SIC code 6770 (Blank Check Company). Third, we performed several internet searches and found, among others, a research report of the investment bank Morgan Joseph and the 'SPAC search and information' website http://www.spacinfo.com. From these sources we identified a total number 254 SPACs, of which 242 are 'US-based' SPACs (on which we will focus in our analysis) and 12 are 'Europe-based' SPACs.

Of the 242 SPACs which have filed with the SEC since 2003, 161 SPACs have already gone public. The 81 SPACs which have not gone public yet, are either still in the filing process or have terminated their IPO plans. Figure 1 shows the distribution of SPAC public offerings since 2003. As can be noticed from the figure, most of the SPACs which did an IPO during the years 2003-2005 went public on the OTC-Bulletin Board. From 2006 onwards, the American Stock Exchange became the dominant stock exchange for SPAC listings. Since May 6, 2008 (NYSE) and July 25, 2008 (NASDAQ), SPACs may also choose to list on these exchanges; however, primarily due to the worldwide financial crisis there has not been any SPAC IPO after August 12, 2008.

Figure 2 shows the distribution of US initial public offerings (excluding SPACs) in the period 2003-2008. With correlation coefficients of respectively 0.56 between the absolute numbers of US SPAC IPOs and 'non-SPAC' IPOs and 0.97 between the growth rates for US SPAC IPOs and 'non-SPAC' IPOs, we find evidence for a (strong) positive correlation between the two IPO categories. Therefore, we can conclude that there is evidence that SPACs also (just as 'non-SPAC' IPOs as we have discussed in section 3.1.2.) time their IPOs in the sense that they go public in periods when general IPO market conditions are favorable.
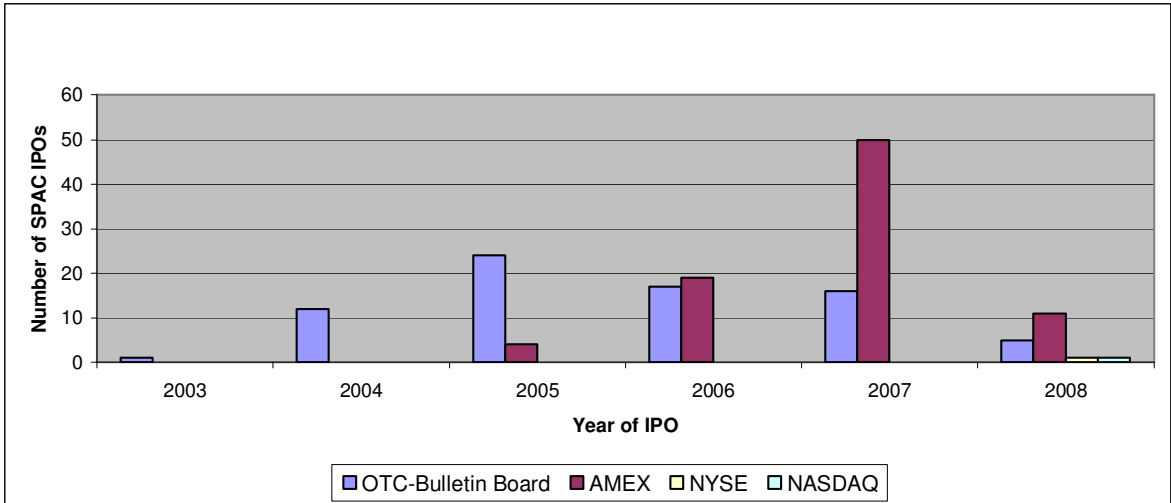
Figure 1: US SPAC initial public offerings 2003-2008

The figure shows the distribution of 'US-based' SPAC IPOs since 2003

Source: http://www.spacinfo.com and companies' SEC filings
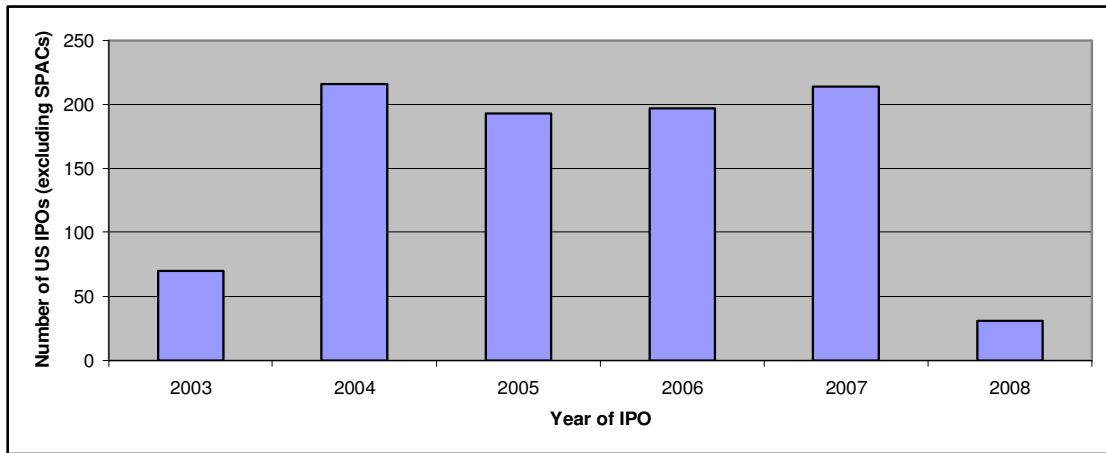
Figure 2: US initial public offerings (excluding SPACs) 2003-2008

The figure shows the distribution of US IPOs since 2003

Source: http://www.ipohome.com/ipohome/Review/2008AnnualIPOReview.pdf

Table 1 presents IPO statistics for the 161 SPACs that have gone public. Data for the IPO proceeds comes from Thomson One Banker and the website http://www.spacinfo.com; data on the trust values comes from a research report of the investment bank Morgan Joseph. Since 2003, almost $22 billion has been raised through public offerings. The average IPO size increased from approximately $24 million in 2003 to approximately $223 million in 2008. The smallest SPAC IPO was seen in 2004 and raised about $9 million; the largest offering was in 2008 and had gross proceeds of more

than $1 billion. Panel B shows descriptive statistics on the amount which is deposited into the SPAC's trust account as a percentage of the IPO proceeds. As with the IPO data, we also observe an upward trend here. Of the 2003 IPO, only 85 percent of the gross proceeds was placed in the trust. In 2008 the average percentage increased to almost 100 percent, with 11 of the 18 (61 percent) SPACs putting the full amount of the IPO proceeds into the trust account.

Table 1: IPO proceeds and trust values

Gross IPO proceeds are the amounts of money raised from investors in the IPO, without subtracting IPO-related fees such as underwriter's compensation and exchange listing costs. Trust values as a percentage of IPO proceeds are the percentages of the IPO proceeds which are deposited into the SPAC's trust account after the IPO.

Panel A: Gross IPO proceeds (in $ million)

Year of IPO	N	Mean	Median	Maximum	Minimum	Standard deviation
2003	1	24.15	24.15	24.15	24.15	-
2004	12	40.03	24.17	196.65	9.06	49.96
2005	28	75.22	55.20	188.68	17.31	42.80
2006	36	93.13	59.16	528.00	18.98	95.94
2007	66	181.88	111.39	1035.00	28.75	171.65
2008	18	223.09	150.00	920.00	28.80	257.35
Total	161	136.54	80.00	1035.00	9.06	158.27

Panel B: Trust values as % of IPO proceeds

Year of IPO	N	Mean	Median	Maximum	Minimum	Standard deviation
2003	1	85%	85%	85%	85%	-
2004	12	87%	85%	100%	85%	4%
2005	28	91%	91%	100%	86%	4%
2006	36	96%	96%	100%	91%	2%
2007	66	98%	99%	100%	95%	1%
2008	18	100%	100%	100%	99%	1%
Total	161	96%	98%	100%	85%	5%

Table 2 provides data on the levels of founder's investment and (post-IPO) ownership. The data for this table comes from the SPACs' SEC filings and the website http://www.spacinfo.com. The average founder's investment in the SPAC as percentage of the IPO proceeds increased from 0% in 2003 to about 3% in 2008 with observed maximum percentages around 10% in 2006 and 2007. With respect to founder's post-IPO ownership levels, the data shows that the average ownership levels are around 20%, which is consistent with the theoretical framework as discussed in section 2.1.4.1.

Table 2: Founder investments and ownership

Founder's investment as a percentage of IPO proceeds is the amount of money that the SPAC's founders paid for their shares. Founder's ownership after the IPO is the post-IPO percentage of the SPAC's shares controlled by the founders.

Panel A: Founder's investment as % of IPO proceeds

Year of IPO	N	Mean	Median	Maximum	Minimum	Standard deviation
2003	1	0%	0%	0%	0%	-
2004	12	0%	0%	0%	0%	0%
2005	28	0%	0%	6%	0%	1%
2006	36	2%	2%	10%	0%	2%
2007	66	3%	3%	10%	1%	2%
2008	18	3%	3%	6%	0%	2%
Total	161	3%	3%	10%	0%	2%

Panel B: Founder's ownership after IPO

Year of IPO	N	Mean	Median	Maximum	Minimum	Standard deviation
2003	1	18%	18%	18%	18%	-
2004	12	20%	20%	22%	20%	0%
2005	28	20%	20%	35%	17%	3%
2006	36	21%	20%	28%	16%	2%
2007	66	20%	20%	24%	18%	1%
2008	18	20%	20%	25%	15%	2%
Total	161	20%	20%	35%	15%	2%

Table 3 presents data on investment bank underwriter compensation. The data for this table is taken from the SPACs' SEC filings and/or the website http://www.spacinfo.com. As shown in panel A, a downward trend can be observed in the total underwriter fees toward the 'optimal' (see section 2.1.1.1.) percentage of 7%. From the panels B and C, we also notice that the underwriter's total compensation structure changes over time. In 2003 and 2004, the total fee was only related to execution of the IPO. From 2005 onwards however, deferred fees (primarily related to the successful completion of a business combination), became an increasing part of the underwriter's compensation.

Table 3: Underwriter fees (as % of IPO proceeds)

Total fees is the total amount of underwriters compensation, expressed as a percentage of the IPO-proceeds. Upfront fees is the underwriters compensation to be payable at the completion of the IPO. Deferred fees is the underwriters compensation to be payable at the completion of a business combination.

Panel A: Total fees

Year of IPO	N	Mean	Median	Maximum	Minimum	Standard deviation
2003	1	10%	10%	10%	10%	-
2004	12	9%	10%	10%	7%	1%
2005	28	8%	7%	10%	5%	1%
2006	36	7%	7%	10%	5%	1%
2007	66	7%	7%	8%	6%	0%
2008	18	7%	7%	8%	4%	1%
Total	161	7%	7%	10%	5%	1%

Panel B: Upfront fees (at the completion of the IPO)

Year of IPO	N	Mean	Median	Maximum	Minimum	Standard deviation
2003	1	10%	10%	10%	10%	-
2004	12	9%	10%	10%	7%	1%
2005	28	7%	7%	10%	4%	2%
2006	36	5%	5%	8%	2%	1%
2007	66	4%	4%	6%	2%	1%
2008	18	3%	3%	4%	0%	1%
Total	161	5%	4%	10%	0%	2%

Panel C: Deferred fees (at the completion of a business combination)

Year of IPO	N	Mean	Median	Maximum	Minimum	Standard deviation
2003	1	0%	0%	0%	0%	-
2004	12	0%	0%	0%	0%	0%
2005	28	1%	0%	4%	0%	1%
2006	36	3%	2%	5%	0%	1%
2007	66	3%	3%	5%	1%	1%
2008	18	4%	4%	5%	3%	1%
Total	161	2%	3%	5%	0%	2%

Table 4 provides descriptive statistics about the transaction value of the acquisitions made by SPACs. The data for this table is obtained from Thomson One Banker. We were able to obtain transaction data for 125 M&A agreements which were announced since 2004. In US dollar terms, the average transaction value increased from about $91 million in 2004 to about $337 million in 2007 after which we saw a slight decrease in 2008 and strong further decrease to $61 million in 2009. The largest SPAC deal to date was completed in 2007 when GLG Partners went public through its $3.4 billion reverse merger with Freedom Acquisition Holdings. In terms of transaction value as a percentage

of IPO proceeds we see a downward trend from 2004 to 2006, primarily as a result of the strong growth in (the corresponding) IPO size. In 2007 and 2008 the figures are then rising again, mainly because of a few very large deals. The largest deal in terms of transaction value as a percentage of IPO proceeds was estimated at almost 13 times the amount raised in the corresponding public offering.

Table 4: M&A transaction values

Transaction values are the amounts of money that the SPAC agreed to pay for the target company. Transaction values as a percentage of IPO proceeds is calculated as the transaction value divided by the gross IPO proceeds.

Panel A: Transaction values ($ million)

Year of M&A-announcement	N	Mean	Median	Maximum	Minimum	Standard deviation
2004	2	91.29	91.29	98.50	84.09	10.19
2005	9	118.65	57.34	607.50	30.00	184.96
2006	30	131.37	104.80	465.00	14.14	113.66
2007	33	337.65	124.88	3403.42	12.13	636.90
2008	48	333.48	163.10	3200.00	11.25	543.18
2009	3	61.09	60.20	80.00	43.08	18.48
Total	125	259.00	112.00	3403.42	11.25	480.83

Panel B: Transaction values as % of IPO proceeds

Year of M&A-announcement	N	Mean	Median	Maximum	Minimum	Standard deviation
2004	2	378%	378%	408%	348%	42%
2005	9	272%	189%	700%	79%	186%
2006	30	204%	122%	743%	33%	168%
2007	33	217%	152%	1076%	18%	215%
2008	48	244%	172%	1296%	15%	246%
2009	3	90%	80%	145%	43%	52%
Total	125	228%	154%	1296%	15%	212%

Table 5 shows statistics about the elapsed time between three key events, being 1) the first IPO registration filling with the SEC, 2) the initial public offering and 3) the (first) M&A announcement. The data for this table comes from the SPACs SEC filings and Thomson One Banker. On average, it takes about 6 months from the first SEC filing to the public offering with an observed minimum of 9 days and a maximum of 820 days. After a SPAC has gone public (and is allowed to seek a potential acquisition target), it takes on average slightly more than a year to announce a (first) M&A agreement with a third party, although some announcements are made within three months and others almost taking as much as two years. The total process from registration with the SEC to the (first) M&A

announcement takes on average nineteen months, with an observed minimum of 120 days and a maximum of 1218 days.

Table 5: Time between major events

Days between the first filing and the IPO is the time elapsed between the first filing with the SEC and the IPO date. Days between the IPO and the first M&A announcement is the time elapsed between the IPO and the day on which the SPAC announces its first M&A-agreement.

Panel A: Days between first filing and Initial Public Offering

Year of filing	N	Mean	Median	Maximum	Minimum	Standard deviation
2003	3	99	98	104	94	5
2004	13	78	62	182	15	40
2005	55	215	164	820	55	161
2006	39	208	216	415	84	77
2007	48	125	114	276	16	44
2008	3	13	13	16	9	4
Total	161	169	136	820	9	118

Panel B: Days between Initial Public Offering and first M&A-announcement

Year of filing	N	Mean	Median	Maximum	Minimum	Standard deviation
2003	3	433	545	557	197	204
2004	13	413	455	605	59	166
2005	51	387	397	650	86	159
2006	33	448	505	706	83	179
2007	13	209	222	344	80	74
2008	0	-	-	-	-	-
Total	113	389	397	706	59	389

Panel C: Days between first filing and first M&A-announcement

Year of filing	N	Mean	Median	Maximum	Minimum	Standard deviation
2003	3	532	649	651	295	205
2004	13	491	549	665	120	173
2005	51	592	555	1218	230	219
2006	33	649	657	946	256	188
2007	13	320	328	513	172	87
2008	0	-	-	-	-	-
Total	113	564	555	1218	120	216

4.2. Empirical design

4.2.1. Measurement of value effects of M&A announcements

To examine the short-term value effects of M&A announcements by SPACs, we use the event study methodology (discussed in more detail in section 2.2.4.1.) in which we estimate abnormal returns for the one day event period (t_{-1} to t) and cumulative abnormal returns for the three day event period (t_{-1} to t_{+1}) surrounding the M&A announcement. In this approach we define the abnormal return as follows:

$$(1)\ ar_{it} = rr_{it} - er_{it}$$

Here, ar_{it} is the estimated abnormal return for stock i during the event period t, rr_{it} is the realized (raw) return for stock i during the event period t and er_t is the expected (normal) return for stock i during the event period t.

The benchmark we use to estimate the expected return is the three-month US T-bill rate. We chose this benchmark because SPACs do not have any operational history until they complete an M&A transaction and the IPO proceeds which are deposited into the SPAC's trust account are required to be invested in (short-term) government securities. Data for the three-month US T-bill rate is obtained from the Federal Reserve Statistical Release.

The sample period starts on March 8, 2004, which is the day before the first SPAC M&A announcement and ends on February 5, 2009. We assign each of the 161 SPACs that went public since 2003 to one of the five categories listed below.

- 'Seeking': the SPAC is looking for a target firm and did not announce an M&A agreement yet
- 'Announced': the SPAC announced that it entered into a (first) M&A agreement and is in the process of completing the transaction
- 'Completed': the SPAC completed one or more M&A transactions
- 'Rejected': the SPAC announced that it entered into an M&A agreement, but the SPAC's shareholders rejected the proposal after which the SPAC was liquidated
- 'Liquidated': the SPAC was liquidated without having announced an M&A agreement

Table 6 shows the distribution of the 161 SPACs into the five categories (company status as of February 16, 2009). Forty-four SPACs are in the process of identifying a potential target firm. Three SPACs have been liquidated without having announced an M&A agreement and a total of 114 SPACs have announced one or more M&A agreements and:

1. are in the process of completing their first transaction (21 SPACs), or,
2. have completed one or more transactions and are now an operating company (62 SPACs), or,
3. failed to complete the announced transaction and were liquidated (31 SPACs)

Table 6: Company status (as of February 16, 2009)

Seeking means: the SPAC is looking for a target firm and did not announce an M&A agreement yet.
Announced means: the SPAC announced that it entered into a (first) M&A agreement and is in the process of completing the transaction.
Completed means: the SPAC completed one or more M&A transactions.
Rejected means: the SPAC announced that it entered into an M&A agreement, but the SPAC's shareholders rejected the proposal after which the SPAC was liquidated.
Liquidated means: the SPAC was liquidated without having announced an M&A agreement.

Year of IPO	N	Seeking	Announced	Completed	Rejected	Liquidated
2003	1	0	0	1	0	0
2004	12	0	0	10	2	0
2005	28	0	0	24	4	0
2006	36	0	2	16	16	2
2007	66	30	15	11	9	1
2008	18	14	4	0	0	0
Total	161	44	21	62	31	3

The 114 SPACs, which made at least one M&A announcement, together announced 125 M&A agreements. After excluding one announced agreement because of missing data, the final sample for our empirical research consists of 124 M&A announcements. Table 7 presents the transaction status for this sample. By definition, the 21 companies which are assigned to the 'announced' category in table 6 are also in the 'announced' category in table 7. The total of 93 companies in the 'completed' and the 'rejected' categories in table 6, together announced 103 M&A agreements of which 70 are completed and 33 have been terminated.

Table 7: Transaction status (as of February 16, 2009)

Announced means: the transaction was announced but is not completed yet
Completed means: the transaction was announced and is also completed
Rejected means: the transaction was announced but was rejected by the
SPAC's shareholders

Year of M&A-announcement	N	Announced	Completed	Rejected
2004	2	0	2	0
2005	8	0	8	0
2006	30	0	24	6
2007	33	1	20	12
2008	48	18	16	14
2009	3	2	0	1
Total	124	21	70	33

M&A announcement dates were taken from Thomson One Banker and have been cross-checked with the SPAC's SEC filings. When there was a difference between the two sources, further investigations were performed (e.g. by searching press-releases) to confirm one of the dates. Share price data for each SPAC is obtained from Datastream using Thomson Analytics.

4.2.2. Regression analysis

The empirical finance literature on mergers and acquisitions has documented several determinants of acquirer returns in M&A transactions of which we will discuss a few now.

First, there is extensive evidence (see e.g. Travlos, 1987) that the method of payment affects the gains for the shareholders of acquiring companies in the sense that cash acquisitions result in higher (abnormal) returns than stock offers. This finding is consistent with the theoretical model of Myers and Majluf (1984) who argue that managers who think that their firm's shares are undervalued will prefer a cash offer, while a stock acquisition will be the first choice in the opposite situation.

Second, there is the evidence that acquisitions of private companies result in higher abnormal bidder returns; a finding which could be explained by the fact that shares of private companies are (very) illiquid and therefore priced at discount, or by the argument that private companies have less bargaining power in M&A transactions than their public counterparts (see e.g. Fuller, Netter and Stegemoller, 2002).

Third, empirical evidence (see e.g. Schwert, 2000) shows that hostile takeover, i.e., transactions opposed by the target firm's management, lead to lower bidder gains since the hostile character of the deal negotiations will have a price-increasing effect on the transaction value.

Fourth, the existence of multiple bidders for the target company will increase the acquisition value, and consequently, lead to lower abnormal returns for the acquiring firm's shareholders (see e.g. Morck, Shleifer and Vishny, 1990).

Fifth, Morck, Shleifer and Vishny (1990) also provide evidence that related, non-diversifying acquisitions result in higher value gains for the shareholders of the acquiring companies because such acquisitions provide more scope for synergies.

The sixth and last determinant we list here is the relative size of the target company to the bidder. Fuller, Netter and Stegemoller (2002) show that the greater the relative size of the target to the bidder, the higher the abnormal returns for the acquiring company's shareholders, because relatively larger target companies will have a greater economic impact on the bidding firm, thereby providing more opportunities for synergistic gains (Seth, 1990).

Due to data limitations and/or the specific company characteristics of SPACs we are not able to test one or more of the determinants discussed before. Based on the SPAC literature, however, we identified two variables which could potentially help to explain the return for the SPAC's shareholders. Using the ordinary least squares (OLS) regression methodology we analyze the relation between the abnormal return of the one day event period and the following two determinants:

- The ratio of the transaction value to the IPO proceeds
- The elapsed time (measured in weeks) between the IPO date and the M&A announcement date

The ratio of the transaction value to the IPO proceeds

From our own sample statistics as well as other empirical SPAC literature (e.g. Lewellen, 2008) we know that many SPACs use large portions of debt to finance their acquisitions, i.e., many SPAC M&A transactions are highly leveraged. Within the corporate finance literature, especially the private equity literature (see e.g. Opler and Titman, 1993), it is widely recognized that value-creation in M&A transactions is positively related to financial leverage. Therefore we expect a higher abnormal return for transactions that are financed with large portions of debt. This leads us to our first hypothesis:

H1: "The higher the ratio of the transaction value to the IPO proceeds, the higher the one day abnormal return".

The elapsed time between the IPO date and the M&A announcement date

As we have discussed earlier in section 2.1.4.1., SPAC managers need to complete a business combination within 18 months in order to be compensated for their initial investments. For this reason, it is widely acknowledged in the SPAC literature (see e.g. Lewellen, 2008, or Hale, 2007) that managers of SPACs who are running out of time in the process of finding an attractive target company, have a strong incentive to propose a business combination, even this is not in the interest of the SPAC's external shareholders. A market anticipating on this behavior may view an M&A agreement which is announced relatively close to its acquisition deadline as negative news, with the (potential) consequence of a lower share price. This leads us to the following hypothesis:

H2: "The longer the elapsed time between the IPO date and the M&A announcement date, the lower the one day abnormal return".

5. Results & Discussion

Table 8 presents sample statistics for the raw (realized) returns for the one-day announcement period (which is measured as the difference between the closing price on the day before the M&A announcement and the closing price on the M&A announcement date). As the table shows, the average one-day return for all announcements equals 1.34 percent (significantly different from 0 percent at all conventional significance levels), with a minimum of minus 4.93 percent and a maximum of 17.99 percent, both observed in the 'completed' category. Another finding presented in the table, is the fact that exactly 50 percent of all announcements result in a positive raw return. Tests of equal means for the three deal status categories do not show a significant difference (at all conventional significance levels) between the mean of the 'announced' category and the 'completed' category. The difference between the 'rejected' category and the 'completed' category is also only significant at the 10% level.

Table 8: Raw returns for the one day announcement period

The returns are measured as the difference between the closing price on the day before the M&A announcement and the closing price on the M&A announcement date. Stock price data is obtained from Datastream using Thomson Analytics. The three 'deal status' categories correspond to the classification made earlier. Announced means: the transaction was announced but is not completed yet. Completed means: the transaction was announced and is also completed. Rejected means: the transaction was announced but was rejected by the SPAC's shareholders.

Deal status	N	Mean	Median	Minimum	Maximum	Standard deviation	Percentage of returns > 0.00%
Announced	21	0.64%	0.00%	-1.02%	6.08%	1.61%	28.57%
Completed	70	1.90%	0.28%	-4.93%	17.99%	4.22%	51.43%
Rejected	33	0.61%	0.17%	-0.38%	3.78%	0.97%	60.61%
All deals	124	1.34%	0.06%	-4.93%	17.99%	3.32%	50.00%

Table 9 shows the abnormal returns for the announcement day and provides the results of tests for significance of these abnormal returns. Since the abnormal returns are estimated as the difference between the raw return and the (theoretical) one-day return on a 'three-month T-bill' (which is often close to 0.00 percent), the values for the abnormal returns are only slightly lower than the values of the raw returns. To determine whether the average abnormal return (AAR) for each of the four categories is significantly different from zero (percent), we use the standard student t-test method. As the table shows, the AARs for the full sample (all deals) as well as the AARs for the 'completed' category and the 'rejected' category are significantly positive (at the 1% level

or better). These results provide evidence for the hypothesis that M&A announcements by SPACs, on average, create (*ex-ante*) value for the SPAC's shareholders.

Table 9: Abnormal returns for the one day announcement period

The returns are measured as the difference between the closing price on the day before the M&A announcement and the closing price on the M&A announcement date. Stock price data is obtained from Datastream using Thomson Analytics. The three 'deal status' categories correspond to the classification made earlier. Announced means: the transaction was announced but is not completed yet. Completed means: the transaction was announced and is also completed. Rejected means: the transaction was announced but was rejected by the SPAC's shareholders.

Deal status	N	Mean	Median	Minimum	Maximum	Standard deviation	Percentage of returns > 0.00%
Announced	21	0.64%[b]	0.00%	-1.02%	6.07%	1.61%	28.57%
Completed	70	1.89%[a]	0.27%	-4.95%	17.98%	4.22%	51.43%
Rejected	33	0.60%[a]	0.17%	-0.39%	3.78%	0.97%	60.61%
All deals	124	1.33%[a]	0.06%	-4.95%	17.98%	3.32%	50.00%

[a] Statistically significant at the 1% level

[b] Statistically significant at the 10% level

Table 10 presents cumulative abnormal returns (CAR) for two short-term periods. CAR period 1 corresponds to the cumulative abnormal return for the three day period from the day before the M&A announcement date to the day after the M&A announcement date. For the full sample we find an average CAR of 2.60 percent for period 1. This finding is consistent with Lewellen (2008), who reports an average CAR of 2.40 percent for the same time span. The CARs for all four 'deal status' categories are significantly positive at the 1% level or better, with a maximum average CAR of 3.54 percent observed in the 'completed' category and a minimum average CAR of 1.16 percent found in the 'rejected' category.

CAR period 2 corresponds to the cumulative abnormal return for the three day period from the day before the M&A completion date to the day after the M&A completion date (for the 'completed' sample) or from the day before the M&A rejection date to the day after the M&A rejection date (for the 'rejected' sample). For the 'completed' category we find a non-significant average CAR of 0.01 percent, which is close to the minus 0.20 percent reported by Lewellen (2008). For the 'rejected' category we find an average CAR of 0.87 percent, which is significantly positive at the 5% level.

Table 10: Cumulative abnormal returns for two short-term periods

CAR period 1 corresponds to the cumulative abnormal return for the three day period from the day before the M&A announcement date to the day after the M&A announcement date. CAR period 2 corresponds to the cumulative abnormal return for the three day period from the day before the M&A completion date to the day after the M&A completion date (for the 'completed' sample) or from the day before the M&A rejection date to the day after the M&A rejection date (for the 'rejected' sample). Stock price data was obtained from Datastream using Thomson Analytics. The three 'deal status' categories correspond to the classification made earlier. Announced means: the transaction was announced but is not completed yet. Completed means: the transaction was announced and is also completed. Rejected means: the transaction was announced but was rejected by the SPAC's shareholders.

		CAR period 1		CAR period 2	
Deal status	**N**	**Mean**	**Standard deviation**	**Mean**	**Standard deviation**
Announced	18	1.43%[a]	1.72%	N.A.	N.A.
Completed	58	3.54%[a]	7.46%	0.01%	14.10%
Rejected	23	1.16%[a]	1.96%	0.87%[b]	1.93%
All deals	99	2.60%[a]	5.92%	N.A.	N.A.

[a] Statistically significant at the 1% level
[b] Statistically significant at the 5% level

Table 11 shows cumulative abnormal returns for three medium-term periods. CAR period 1 corresponds to the cumulative abnormal return from the first day after the IPO date to the M&A announcement date. For the full sample we find an average CAR of 3.77 percent for period 1, which is significantly positive at the 1% level. This finding is consistent with Jog and Sun (2007), who report an average CAR of 4.00 percent for the same time span. For the 'completed' and 'rejected' we find average CARs of respectively 6.19 percent and 1.69 percent, both significantly positive at the 5% level or better. The average CAR for the 'announced' category is negative at minus 1.39 percent, which is however not significantly different from 0 percent at all conventional significance levels.

CAR period 2 corresponds to the cumulative abnormal return from the first day after the M&A announcement date to the M&A completion date (for the 'completed' category) or the M&A rejection date (for the 'rejected' category). For the 'completed' category we find an average CAR of 8.67 percent, which is significantly positive at the 5% level. For the 'rejected' category we find an average CAR of minus 1.61 percent, which is however only significant at the 10% level.

CAR period 3 is the sum of CAR period 1 and 2, i.e., the cumulative abnormal return from the first day after the IPO date to the M&A completion date or the M&A rejection date. For the 'completed' category we find a highly, both statistically and economically, significant average CAR of 14.86 percent. For the 'rejected' category we find a non-significant average CAR of 0.08 percent.

Table 11: Cumulative abnormal returns for three medium-term periods

CAR period 1 corresponds to the cumulative abnormal return from the first day after the IPO date to the M&A announcement date. CAR period 2 corresponds to the cumulative abnormal return from the first day after the M&A announcement date to the M&A completion date (for the 'completed' sample) or the M&A rejection date (for the 'rejected' sample). CAR period 3 is the sum of CAR period 1 and 2, i.e., the cumulative abnormal return from the first day after the IPO date to the M&A completion or the M&A rejection date. Stock price data was obtained from Datastream using Thomson Analytics. The three 'deal status' categories correspond to the classification made earlier. Announced means: the transaction was announced but is not completed yet. Completed means: the transaction was announced and is also completed. Rejected means: the transaction was announced but was rejected by the SPAC's shareholders.

Deal status	N	CAR period 1		CAR period 2		CAR period 3	
		Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Announced	18	-1.39%	6.60%	N.A.	N.A.	N.A.	N.A.
Completed	58	6.19%[a]	14.39%	8.67%[b]	29.20%	14.86%[a]	33.55%
Rejected	23	1.69%[b]	4.04%	-1.61%[c]	4.67%	0.08%	6.05%
All deals	99	3.77%[a]	11.88%	N.A.	N.A.	N.A.	N.A.

[a] Statistically significant at the 1% level
[b] Statistically significant at the 5% level
[c] Statistically significant at the 10% level

Table 12 presents the results of OLS regressions in which we have regressed two determinants on the average abnormal return of the full sample. The coefficient for the DEALVALUE variable is positive and highly significant. Therefore we can support our Hypothesis 1, i.e., the regression result is consistent with our expectation of a positive relation between the ratio of deal value to IPO proceeds on the one hand, and the abnormal return on the other hand.

The negative sign of the coefficient for the TIME variable implies a negative relation between the time elapsed between the IPO date and the M&A announcement date on the one hand, and the abnormal return on the other hand. This finding is consistent with our Hypothesis 2.

Although we do not report the results here, we also ran all univariate regressions in the three sub-samples: respectively the 'announced', the 'completed' and the 'rejected' categories. In general the results of these regressions are consistent with the results presented in table 12.

To check whether our results are robust to the exclusion of extreme values, we excluded values further than three standard deviations from the mean and ran the regressions again. The results of these new regressions are consistent with the results shown in table 12, i.e., we found the extreme values to have no major impact on the regression results.

Table 12: Univariate OLS regression results (full sample)

AR is the abnormal return for the one day announcement period. TIME is
a variable that measures the elapsed time between the IPO date and the
M&A announcement date. DEALVALUE is a variable that measures the
ratio of the transaction value to the IPO proceeds.

Estimated relationship	Coefficients		t-statistic (β)	R^2
	α	β		
	(s.e.)	(s.e.)		
AR = α + β*TIME	0.0266	-0.0002[b]	-1.9803	0.0311
	(0.0073)	(0.0001)		
AR = α + β*DEALVALUE	0.0017	0.0061[a]	2.7842	0.0631
	(0.0044)	(0.0015)		

[a] Statistically significant at the 1% level

[b] Statistically significant at the 5% level

Table 13 shows the results of the multivariate regression. Before running this regression
we constructed a correlation matrix in order to determine whether the variables to be
included do not show a too high correlation. Please refer to appendix B for the correlation
matrix. The coefficient for the DEALVALUE variable keeps its positive sign and remains
also significant. The coefficient for the TIME variable also keeps its original (negative)
sign; it is now, however, not significant at all conventional significance levels.

Table 13: Multivariate OLS regression results (full sample)

AR is the abnormal return for the one day announcement period. TIME is
a variable that measures the elapsed time between the IPO date and the
M&A announcement date. DEALVALUE is a variable that measures the
ratio of the transaction value to the IPO proceeds.

Estimated relationship:

AR = α + β1*TIME + β2*DEALVALUE

Variable	Coefficient	Standard error	t-statistic
INTERCEPT (α)	0.0110	0.0098	1.1197
TIME	-0.0001	0.0001	-1.1200
DEALVALUE	0.0055[a]	0.0023	2.3730
R^2	0.0733		

[a] Statistically significant at the 5% level

6. Summary and Conclusions

This thesis discussed a number of theories and empirical evidence on two important topics within the field of financial economics, being: 1) 'going public' (through initial public offerings (IPOs) or reverse mergers) and 2) mergers and acquisitions. In particular we have focused on the value effects of merger and acquisition (M&A) transactions of a unique type of IPO firms: specified purpose acquisition companies (SPACs).

SPACs are companies which have been formed to raise capital, through an initial public offering, for the sole purpose of acquiring one or more operating businesses. The period in which a SPAC has to complete such a business combination is limited to eighteen months from the date on which the SPAC goes public. If no business combination is completed before the acquisition deadline, the SPAC will be dissolved and the money raised in the IPO (less expenses) will be returned to the SPAC's external shareholders.

For our empirical analysis, we identified 161 SPACs that went public on US stock exchanges since 2003. From these 161 SPACs, 114 companies have announced one or more M&A agreements. Our final sample consists of 124 M&A announcements. Using the event study methodology we analyzed the value effects of M&A transactions. In addition, we used the OLS regression method to analyze the relation between the short-term value effects and a few potential determinants.

Our analysis of the short-term share price performance of SPACs provides evidence for the hypothesis that announcements of M&A agreements by SPACs, on average, create (*ex-ante*) value for the SPAC's shareholders. For the full sample of 124 announcements we find a significant average abnormal one-day return of 1.33 percent. If we extend the event period to the three days surrounding the announcement, we find a significant average cumulative abnormal return of 2.60 percent for the full sample.

For the sub-sample of completed M&A transactions we find a highly significant (both statistically and economically) average medium-term cumulative abnormal return of 14.86 percent, measured from the day after the IPO to the day on which the M&A transaction is completed. For the sub-sample of rejected M&A transactions we find a non-significant average medium-term cumulative abnormal return of 0.08 percent, measured from the day after the IPO to the day on which the M&A transaction is rejected.

The results of our OLS regressions provide evidence for a negative relation between the average abnormal return and the TIME determinant, which measures the

time elapsed between the IPO date and the M&A announcement date; they also show a positive relation between the average abnormal return and the DEALVALUE determinant, which measures the ratio of the transaction value to the IPO proceeds. These findings indicate that M&A agreements which are announced relatively close to the SPAC's acquisition deadline, result, on average, in lower abnormal returns and that M&A transactions with higher ratios of transaction value to IPO proceeds, result, on average, in higher abnormal returns.

Since the focus of this thesis is primarily on the short-term value effects of M&A announcements by SPACs, we have not analyzed whether the (*ex ante*) value creation is sustainable in the long run. In addition, our results provide only limited evidence on the cross-sectional differences in the size of the value effects. Therefore, we suggest the following directions for further research.

In the first place, the medium-term and long-term (financial as well as operational) performance of SPACs requires further investigation. If we cannot invalidate the existing, but limited, results that M&A transactions by SPACs destroy value in the medium run, why do SPAC shareholders then approve such transactions; and/or should we conclude that the unique investor protection of the SPAC structure is not functioning very well?

Another potentially interesting area for further research could be the transaction process and the deal structure. Since we know that SPACs have only limited time to complete a transaction, it might be useful to analyze whether SPACs are indeed at a real disadvantage in general and whether SPAC M&A transactions are fairly priced, relative to comparable deals, in particular. In addition, future research could also focus on the characteristics of the target companies. What type of companies are taken over and how do they perform (in the years) prior to the takeover?

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Appendix A: A comparison of SPACs and rule 419 firms

	SPACs	Rule 419 firms
Escrow of offering proceeds	Early SPACs held between eighty-five and ninety-five percent of offering proceeds in escrow. Later SPACs have tended to hold between ninety-seven and ninety-eight percent of offering proceeds in escrow.	At least ninety percent of offering proceeds must be deposited in an escrow account or "[a] separate bank account established by a broker or dealer . . . in which the broker or dealer acts as trustee for persons having the beneficial interests in the account.
Investment of offering proceeds	Proceeds are invested in money market funds meeting the requirements of the Investment Company Act of 1940 or short-term U.S. government securities, such as treasury bills.	Proceeds may be invested in: 1. an account constituting a "deposit" under the Federal Deposit Insurance Act; 2. a money market fund registered under the Investment Company Act of 1940; and/or 3. "[s]ecurities that are direct obligations of, or obligations guaranteed as to principal or interest by, the United States."
Limitation on value of target business	Must be equal to or greater than eighty percent of net assets at the time of a proposed business combination, excluding such funds used for "working capital, investment income and other fluctuations in value."	Must be equal to or greater than eighty percent of all proceeds.
Trading of issued securities	IPO units may be traded following the filing of the Prospectus, and common shares and warrants may be traded separately after a period of time specified in the Prospectus.	No trading of IPO units is permitted until a business combination is completed.
Exercise of the warrants	Warrants may not be exercised until either a business combination is completed (or, if the combination is completed within one year of the filing of the prospectus, one year after the filing of the Prospectus), or when the SPAC is liquidated.	Warrants may be exercised at any time, but all securities must remain in the Rule 419 Account.
Right of rescission	Investors are sent a proxy statement disclosing the details of the proposed combination. Election to rescind investment entitles investors to a pro rata share of the escrow account. Unless a majority of investors affirmatively approve a combination, and less than twenty percent of investors vote against the combination, the fund is dissolved and investors are entitled to a pro rata share of the escrow account.	approval or disapproval of a proposed combination in writing between twenty and forty-five days after the filing of a post-effective amendment. Unless "a sufficient number of purchasers confirm their investment," the fund is dissolved and investors are entitled to a pro rata share of the Rule 419 Account
Business combination deadline	Eighteen months to announce a pending business combination; twenty-four months to complete the combination if a Letter of Intent is filed within eighteen months.	Eighteen months.
Release of funds	The earlier of a successful combination or fund liquidation upon failure to complete a combination within the allowed time limit.	The earlier of a successful combination or fund liquidation upon failure to complete a combination within the allowed time limit.

The content of this table is taken from Riemer (2007).

Appendix B: Correlation matrix

	AR	TIME	DEALVALUE
AR	1.000000	-0.172028	0.147059
TIME	-0.172028	1.000000	-0.052947
DEALVALUE	0.147059	-0.052947	1.000000