Does Financial Constraints of Corporate Activist Investors Matter?

Leopold Ingenohl

5th May 2018

1 Introduction

Introduce the background and nature of the problem being investigated!

If any person acquires beneficial ownership of more than 5% of an issuer's securities he must file with the Stock Exchange Control (SEC) a Schedule 13(D) within 10 days after the acquisition of that stock. The crux is that beneficial ownership is not defined as whether the person owns the shares but as whether the particular person can vote the shares and thereby change or influence the control of the company (Morrison and Foerster LLP, 2015, p.24). Precisely this mindset is what constitutes shareholder activism, independent of the acquirers identity. In fact, a Schedule 13(D) has to be disclosed by most investor types such as individuals, hedge funds or corporations. In the words of Klein and Zur (2009, p.187), an "entrepreneurial activist is an investor who buys a large stake in a publicly held corporation with the intention to bring about change and thereby realize a profit on the investment".

Hedge fund activists seek to gain seats on the company's board, oppose an existing merger or liquidation of the firm, pursue strategic alternatives or replace the CEO (Klein and Zur, 2009, p.188). Motivation for corporate activist investors to acquire beneficial ownership is to overcome informational and integration barriers and thereby engage in a takeover or strategic cooperation (Huang et al., 2017, p.1). This action for change is mirrored by a positive market reaction at the announcement of the filing. Hence, when an investor's Schedule 13(D) filing becomes public, the firm that has been partially acquired experiences significant gains on its stock. In recent studies of what happens to the target's stock, Collin-Dufresne and Fos (2015, p.1564) find significant positive abnormal returns around the filing day for filings of all investor types. The evidence is consistent with Brav et al. (2008, p.1756) and Klein and Zur (2009, p.209) who report 8.4% and 7.2% abnormal returns respectively but in response to hedge fund activism. The only study inexplicitly noting a positive market reaction to corporate activist investors is by Brigida and Madura (2012, p.29). This study finds evidence on this matter, as targets of corporate activist investors experience 14% average abnormal returns around the filing date of a Schedule 13(D). The positive market reaction is consistent with the evidence of the market's anticipation that activism, likewise action for change, results in actual value improvement for the target.

The possible increase in value however, is dependent on the initiator of activism, as it is their own effort that brings the change (Collin-Dufresne and Fos, 2015, p.1563). So if the initiator of activism stands for the actual value improvement, its financial condition, especially in the case of corporate activists, should be related to the market's evaluation of the target's potential gains.

A recent example on this matter is the public's perception of China's largest private conglomerate, the HNA Group. Over the past few years they invested around $US40 billion in businesses around the world and have currently been of great interest to financial news. Not least because they built up a 9.9% stake of of around $US4 billion in Deutsche Bank in 2017, but also because of their complex and nontransparent financing methods. The financing of the group has come under strain as a result of an official crackdown on risky financing at acquisitive private enterprises in China. The highly leveraged group is now facing a potential cash-shortfall and liquidity issues resulting in a S&P global rating downgrade referring to a a „deteriorating liquidity profile" of HNA. Although the HNA Group is a private conglomerate, the financial appearance of the investor seems to be of great interest to other market participants. The Schedule 13(D) on 28 April, 2018 in which they announced their 9.9% stake in Deutsche Bank was followed by an increase in Deutsche Bank's value. This said, had the increase in value of Deutsche Bank been larger with an HNA Group financially less constrained and thereby more assertive?

Hence do financial constraints of corporate activist investors matter when the market anticipates a possible value improvement for the target? This thesis finds evidence that it does. The univariate tests show that targets of financially constrained corporations gain less when compared to targets of unconstrained investors. For instance, when financially constrained investors are identified by using the Whited-Wu index, the target's abnormal return is on average 10% higher had they been unconstrained. They have average abnormal returns of around 8% whereas targets of financially unconstrained firms experience average abnormal returns of around 18%. The significant difference of 10% in abnormal returns indicates that financial constraints of corporate activists investors matter. The multivariate analysis confirms that, other things being equal, the financial constraints of the investor are an important determinant of the abnormal returns of the target. Targets of constrained investors

The paper proceeds as follows. Section 2 reviews relevant literature on Schedule 13(D) filings, their effect on the market and the motivation of corporate equity ownership. Section 3 outlines the composition of the sample of filings and identifies the sample's corporate activist investors. Section 4 investigates the market's reaction to Schedule 13(D) filings. Section 5 analyses the univariate relation between target's abnormal returns and investor's financial constraints and Section 6 evaluates the cross-sectional effect of financial constraints on the target's gains.

2 Literature Review

2.1 Schedule 13(D) and Market Reactions – Institutional Investors and Corporations

Section 13(d) of the Exchange Act of 1934 was passed in order to increase regulation of tender offers and accumulations of stock. It acts as an early warning, signaling "every large, rapid aggregation or accumulation of securities, regardless of technique employed, which might represent a potential shift in corporate control" (Morrison and Foerster LLP, 2015, p.2). This means that under Section 13(d), anyone who becomes the beneficial owner of 5% of an issuer's equity securities registered under Section 12 of the Exchange Act must file with the SEC a Schedule 13(D) within 10 days after the acquisition. The filing informs shareholder about investors who could influence or change control of the issuing company (Giglia, 2016, p.110). The investors filing such a Schedule 13(D) can be broadly classified into institutional investors (e.g. hedge funds or mututal funds), other entrepreneurial activists (e.g. individual investors) (Klein and Zur, 2009, p.188) and relevant for this thesis, corporate investors. Amongst others, the filing specifies the security and the issuer subject to the filing, the identity and background of the filer, and the purpose of the transaction.

Whereas filing a Schedule 13(D) allows the investor to practice its voting power in an active manner, a passive investor can equivalently file a Schedule 13(G). It is a short-form filing that can be utilized if an investor holds a beneficial ownership interest passively, with no intent to change control of the company (Giglia, 2016). Therefore, corporations filing a Schedule 13(D)

confess to manage their investments actively, likewise confess to approach and interact with the target company and can therefore be called corporate activist investors.

So far, there exist many studies that examine the effect the disclosure of such an activist investment has on the target's stock. With regards to short-horizon event studies, all these studies find positive and significant abnormal returns around the Schedule 13(D) filing date.

Dealing with investor activism, especially filings disclosed by hedge funds, Brav et al. (2008, p.1730) find positive average abnormal returns in the range of 7% to 8% in the (-20,+20) event window. Klein and Zur (2009, p.188) have similar findings and observe 10.2% average abnormal stock returns on the target's stock. In a more recent study on investor activism by Denes et al. (2017, p.410), the average valuation effect is evaluated to be around 5%. A somehow different approach is found in a study of Greenwood and Schor (2009, p.363) who observe abnormal announcement returns of 2.36% for a sample of activist portfolio investors and document that the ability to force the target into a takeover is the driving force behind the abnormal market reaction. Nevertheless, all studies observe positive abnormal returns around the filing date and results only differ in magnitude.[1]

While all of these studies identify hedge fund activism, its motivation and the effect it has on the market, most of them leave filings submitted by corporations aside. Brigida and Madura (2012, p.29) however, note that if the acquirer is a non financial corporation abnormal returns in the (-10,-1) window are around 14%. The reaction implies the market perceives such corporate investments as value generating for target. Allen and Phillips (2000, p.2803) find abnormal returns of around 7% in the (-10,10) period on corporate purchase announcements which are significantly larger if the announcement is accompanied by strategic investments. Their sample however is based on purchase announcements and therefore differs from studies on the effect of Schedule 13(D) filings.[2] In addition Collin-Dufresne and Fos (2015) find a positive significant market reaction upon a more general sample of Schedule 13(D) filings, including

[1]Comparing the the abnormal returns across studies can be misleading as the authors used different models and event windows for estimating the abnormal returns. Greenwood and Schor (2009) use the market return model with matching portfolios and the CAR for aggregated abnormal returns; Brav et al. (2008) calculates the aggregated abnormal returns by subtracting the value-weighted market index from the buy-and-hold return; Klein and Zur (2009) use a similar approach with buy-and-hold returns but make more adjustments.

[2]In Allen and Phillips (2000, p.2801) sample, the mean fraction of equity acquired in the sample is 14%, and includes acquisitions of at least 5% of voting shares only.

corporate investors but not explicitly addressing them.
So what is the motivation of corporations to engage in active equity ownership, thereby disclosing a Schedule 13(D), and why are these investments anticipated to be value generating for the target?

2.2 Motives of Corporate Equity Ownership and Target's Value Increase

Corporate investments in other firms' equities can be be split into three broad categories. They can either be classified as ordinary, far more importantly as strategic and thirdly as stepping stones in a takeover process. In the sense of possibilities that might be reached, corporate ownership, in comparison to ownership by institutional investors, is unique (Allen and Phillips, 2000, p.2791).

Huang et al. (2017, p.1) suggest that corporations make strategic minority acquisitions in other companies when they confront informational or integration barriers. Therefore, one reason for corporations to acquire a partial stake is that in the presence of alliances or joint ventures, minority acquisitions help to align the incentives of both firms involved and thereby decrease contracting and monitoring costs (Allen and Phillips, 2000, p.2792). This especially is of importance, if the strategic cooperation involves relationship specific assets and the investing corporation might be concerned with a holdup problem.[3] Allen and Phillips (2000, p. 2793) show that in the years following a strategic investment, targets increase investment expenditures, exhibit substantive gains in operating cash flow and the partial stake leads to significant benefits for both firms.
The second motive behind corporate minority investments is that if asymmetric information has an adverse effect on cost and availability of external capital for the target, the investment can provide capital directly to the issuing firm or validate its investment opportunities (Allen and Phillips, 2000, p. 2792). This is supported by Ouimet (2013, p.1038) who finds that the investment helps to overcome asymmetric information and thereby helps to certify the target

[3]Ouimet (2013, p.1023) Defines the holdup problem as a decrease in the investors bargaining power in a renegotiation of the contract because the value of the initial investment is dependent on future cooperation with the target.

for other outside investors. This proposition is verified by Liao (2014, p.78) who finds that target firms issue new equity (debt) and raise their market capitalization thereby supporting the theory that equity stakes certify the investment opportunities of target firms. Target firms correspondingly increase their operating cash flows, sales and investment expenditures.

Thirdly, by acquiring partial stakes, corporations can effectively monitor or influence the target's management. When compared to institutional investors, a corporate investor has superior knowledge and operating expertise (Allen and Phillips, 2000, p.2792) and can thereby further increase the target's operational performance.

But acquiring a minority position also helps to better assess real options, notably that of expanding. The acquisition of a minority stake helps to better assess the target for a potential majority acquisition (Ouimet, 2013) and according to Huang et al. (2017, p.30) gather more information before launching a bid for takeover. In this sense, by decreasing informational barriers the investments can help as a stepping stone towards full control (Huang et al., 2017, p.3).

Because there exist two options two acquire full control of a publicly traded firm in the United States, either through a merger or through a tender offer (Offenberg and Pirinsky, 2015, p.2), Betton et al. (2008, p.1) use the term takeover "for any acquisition of corporate control through the purchase of the voting stock of the target firm, regardless of whether the bid is in the form of a merger agreement or a tender offer". Prior to the takeover bid, the corporations can also acquire a toehold where neither management nor target's shareholders know of the investor's takeover intention until the announcement of a Schedule 13(D) is due Eckbo (2009, p.158). Ultimately, takeovers are interlinked with offer premiums and target shareholders are compensated with premiums of around 45% relative to the target share price (Eckbo, 2009, p.154).

Concluding, corporations filing a Schedule 13(D) and thereby confessing to actively manage the investment have several reasons to do so. However, overcoming informational and integration barriers seems to pervade in almost all cases and there exists potential for actual value improvement. Strategic investments generate value through synergies, the target's financing validates investments opportunities and engaging in a takeover leads to offer premiums. So information contained in corporate Schedule 13(D) filings is of value to the market's target evaluation.

But beyond the motives of corporations to actively engage in another firm and the benefits such an investment brings to both, to what extent does the corporations financial condition matter when the market values such activist investments? While motives and benefits are conceivable, their successful implementation is dependent on the corporate investor. Thus if the investing company proxies for the target's value improvement, its financing capabilities should have an impact on the market's anticipation of present and future value of the target. At large, do financial constraints of corporate activist investors matter when the market reacts to Schedule 13(D) filings?

Under the assumption of perfect capital markets, the financial structure of the investor should be irrelevant to investment and the market, because "external funds provide a perfect substitute for internal capital" (**Fazzari2016**). This however, is not the case for financially constrained firms because they face an inelastic supply of external capital (Farre-mensa and Ljungqvist, 2013, p.1). Hence, financial constraints refer to the degree of access to external financing. Consequently, firms who are able to raise substantial amounts of external capital without much of an increase in the cost of capital are considered as unconstrained (Farre-mensa and Ljungqvist, 2013, p.1). This results in Whited and Wu (2006, p.531) measure of financial constraints, in which financial constraints affect the intertemporal substitution of investment today for investment tomorrow via the shadow price of scarce external funds – their investment policy is dependent on the cost of capital. Because constrained firms have less access to external financing, Fazzari et al. (1988, p. 142) argue that a constrained company's investment behavior is dependent on fluctuations in the companies cash flow and can therefore be unstable. As difficulties of external financing could also imply that the company is subject to information asymmetry, the quality of the investor's investment opportunities has not been evaluated comprehensively by providers of external finance (Fazzari et al., 1988, p.142). Furthermore, constrained firms appear to invest at a low rate, despite good investment opportunities (Whited and Wu, 2006, p.533). So financial constraints arise from friction such as information asymmetries that make external funds more costly than internal funds and lead to a different investment behavior compared to healthy firms. As the rational behind financial constrained firms is now comprehensible, this thesis focuses on whether financial constraints matter rather than analyzing why they should matter.

3 Data – Constructing the Sample

The data that is used to analyse the relation between the investor's financial condition and the market reaction to Schedule 13(D) filings, is primarily composed of information contained in the filings from SEC's Edgar database and secondly of data on stock and fundamentals, accessed through Wharton Research Data Services (WRDS). The sample of Schedule 13(D) filings is constructed as follows. First, using an automated search script, 48'626 filings from the 20 year period starting in January 1996 and ending in December 2016 were identified. The script identifies all Schedule 13(D) filings that appear on EDGAR and extracts the following information: name of filer and subject, the CUSIP of the underlying security and the filing date. Next, to only have filings submitted by corporations hence to separate corporate investors from institutional investors (i.e. hedge-funds or pension-funds), 10-K reports were cross-referenced with the initial sample of filings.[4] To be considered, the filer had to have a 10-K report submitted at least 12 months prior to the filing which reduced the sample to 3'325 filings. As daily stock returns and prices for the target's securities come from the Center for Research in Security Prices (CRSP) the subject not only had to have SEC's Cusip identifier but also an active link between Cusip and CRSP's Permno identifier. For estimating the market reaction to Schedule 13(D) filings, there had to be sufficient stock data for the remaining 1'467 filings. The data was only available to subject of 1'151 filings. The accounting fundamentals for identifying the investing corporation's financial condition were extracted from the Compustat database. To be included, the filer had to have a valid link between its 10K-CIK and Compustats's Gvkey indentifier. This further reduced the sample to 1'014 filings. In the next step and based on Fama & French's 48 industry classification, all filers belonging to the trading industry (industry code 47) were excluded. This was done for the reason that the investment behavior of corporations in this industry differs substantially from that of other industries. This left a sample 898 filings for which data on specific financials was only available for 644 investors. From the remaining 644 filings, the purpose of the transaction was manually extracted. During this process, Schedule 13(D/A) filings (amendments to previous filings)

[4] 10-K reports were used to identify corporations because "managers of publicly traded firms are required to produce public documents that provide a comprehensive review of the firm's business operations and financial condition and an important financial disclosure document created by managers to communicate with investors and analysts is the annual report filed pursuant to the Securities Exchange Act of 1934 the Form 10-K." (Loughran and Mcdonald, 2014, p. 1643)

that were mistakenly classified as original Schedule 13(D) filings and filings not submitted by corporations were excluded. This reduced the final sample to 494 filings.[5]

3.1 Measures of Financial Constraints

As financial constraints are not directly observable, two determining index-based and two univariate measures are established. Not least because recent literature has cast doubt on the usefulness (Khatami et al., 2015, p.109) of index-based measures but also as to increase the quality of results. The advantage of these four measures is that by allowing to separate the original sample into different sub-samples, a comparison within the sample is possible. Each measure is specifically computed for the fiscal year prior to the invetor's Schedule 13(D) filing. A detailed listing of each scores components and calculation is presented in Appendix A.

The investor's dividend pay-out ratio is the first measure of financial constraints. The reason why firms can be considered constrained if they pay low dividends is that they retain all of the low-cost internal funds they can generate because they require investment finance that exceeds their internal cash flow – the availability of external finance is uncertain (Fazzari et al., 1988, p.158). Following Almeida et al. (2004) and Khatami et al. (2015, p.119), the dividend payout ratio is defined as the two year average ratio of total distributions (dividends and stock repurchases) divided by operating income of the two preceding annual reports at each point in time. After computing the dividend payout ratios for all companies on Compustat, firms in the bottom (top) tercile of the annual payout distribution are then assigned to the financially constrained (unconstrained) group. For the initial sample of of Schedule 13(D) filings, this results in two groups of 184 constrained and 310 unconstrained investors.[6]
The investor's credit rating is the second identifier. Investors having a S&P 500 long term

[5]The only exception were filings submitted by the Commerce Group Inc., which provides both insurance and, real estate, brokerage services. These filings were excluded because (1) the largest part of them were amendments, (2) the amount of filings submitted was disproportionately and (3) all purposes of the transaction were general investments in an investment fund.

[6]Classifying companies based on the reduced sample of corporate activist investors would introduce a significant bias as companies involved in activist investments may have systemetically different characteristics from the entire population (Khatami et al., 2015, p.109). This procedure is applied to the dividend payout ratio, the Whited-Wu Index and the HP-Index.

domestic issuer credit-rating at least 3 months prior to the filing are considered to be unconstrained, whereas those not having a rating are considered to be constrained. Credit ratings are an objective assessment of a firm's creditworthiness in terms of risk of default and are often required to raise debt from bank or capital market. (Heller, 2015, p.18). They thus ease the access to outside financing. On the other hand there are many firms not publicly rated even though they may belong to the highest-ranked group regarding their creditworthiness. Hence some investors considered to be constrained are not truly constrained, thereby introducing an upward bias of average abnormal returns for targets belonging to constrained investors. Besides that, Heller (2015, p.175) finds evidence that credit ratings might nonetheless be helpful measures of financial constraints.

The first index-based measure of financial constraints to be included is the Whited-Wu index. The index is based on the findings of Whited and Wu (2006, p.543) who augment an intertemporal investment model, in which constraints affect the investment policy through the shadow price of the cost of external finance. The Whited-Wu Index is determined by the variables cash flow to total assets (negative loading), an indicator that takes the value one if the firm pays cash dividends (negative loading), the ratio of long-term debt to total debt (positive loading), the natural logarithm of assets (negative loading), the firms three digit industry sales growth (positive loading) and the firms sales growth (negative loading). Following Farre-mensa and Ljungqvist (2013, p.38) firms in from the entire Compustat database are then sorted into terciles based on their index value. Firms in the top tercile are coded as constrained whereas firms in the bottom tercile are coded as unconstrained. A pairing with the initial sample of investors yields 126 and 307 constrained investors.

The Kaplanz-Zingales in **as** also identifies financially constrained firms, but Farre-mensa and Ljungqvist (2013, p.29) note that it appears to be more of an outlier and Whited and Wu (2006) criticise, that it lacks parameter stability both across firms and over time. In addition, Khatami et al. (2015, p.111) and Almeida et al. (2004, p.1779) note that it yields groups of constrained and unconstrained firms that have different characteristics compared to those of other measures. Similar to Whited and Wu (2006, p.546), Hadlock and Pierce (2010, p.1909) cast serious doubt on the validity of the KZ-index as a measure of financial constraints in a more recent study suggest that researchers consider alternative measures of financial constraints

(Hadlock and Pierce, 2010, p.1938).
Based on these suggestion, investors are further grouped according to their HP-Index (SA-Index) as in Hadlock and Pierce (2010). It consists of the two quantities size and age and is therefore equally called the size-age (SA) index. The intuition is that small firms are typically young, less well known, and thus more vulnerable to capital market imperfection (**almeida**). As with the previous indices, the HP-Index is computed for all companies on Compustat and dependent on the firm's index value, firms are grouped into terciles with the top (bottom) tercile representing constrained (unconstrained) firms (Farre-mensa and Ljungqvist, 2013, p.29). A matching with the initial sample results in 58 constrained and 372 unconstrained corporate activist investors.

To further enrich the analysis, Edward I. Altman's (1968) Z-score identifies corporations in financial distress. Although distressed firms "behave differently from financially constrained firms" (Bhagat et al., 2005, p.461), the mentioned KZ-Index can allegedly also be used to identify distressed rather than constrained firms (Kim and Park, 2015, p.47). In addition the revised Z-score of Edward I Altman (2002, p.19) is in accordance with conventional credit ratings and therefore shows similarities with potential constraint measures. Furthermore, the Z-score allows to nearly use the full sample size and compared to the Whited-Wu index is not dependent on the scores of all firms on Compustat. In this case and under given limitations, the Z-score's can be appplicable. This thesis uses the original score (Edward I. Altman, 1968, p.607), which is applied to investors in the manufacturing industries (SIC industries 2000-3999) and the revised Z-score (Edward I Altman, 2002, p.17) for the reamaining investors (non-manufacutrers). The four variables included in both models all have a positive loading and the the score consists of working capital to total assets, retained earnings to total assets, earnings before interest and taxes (EBITA) to total assets and market value of equity to book value of total liabilites. the original model includes a fifth variable which is sales to total assets. Firms in the manufacturing industry below the threshold 1.81 are considered as distressed and those above 2.99 as not-distressed (Edward I Altman, 2002, p.14). For the remaining firms, a Z-score below 1.1 implies a state of distress and above 2.6 as not distressed (Sulub, 2014, p.175)

Concluding, three index-based measures (WW-Index & Z-Score) and two univariate measures (dividend payout ratio & credit rating) are used to group the complete sample of corporate activist investors in several sub-samples of financially constrained and unconstrained investors.

3.2 Descriptive Data

Table 1 identifies the sample's Schedule 13(D) filings based on several criteria. Column (1) presents information on all filings. In a first subdivision among investors, Column (2) and (3) give information on the two sub-samples of filings disclosed by investors according to their Whited-Wu Index. Thus column(2) represents filings of constrained and column (3) filings of unconstrained corporations. Turning to Panel A, the total sample consists of 561 filings, with 126 submitted by constrained and 307 by unconstrained investors. This imbalance in flings is due to the unequal distribution of the Whited-Wu index, its allocation process across investors and it could be an indicator that corporate activist investors in general are rather unconstrained. The filings had 507 individual targets but were disclosed by only 426 individual investors. This exemplifies that occasionally either one firm was investing in multiple targets (e.g. 6 filings submitted by AT&T) or a target was subject to more than one filing (e.g. four filings for investments in Clearwire Inc.). Yet multiple occurrences are not common throughout the sample.

With just 91 filings, the smallest amount was disclosed in the years from 1997 to 2001. In the following ten years however, more than 60% of the sample's filings were submitted. The largest amount in the 5-year span prior to the financial crisis and with 176 filings only slightly more than in the following five years surrounding the financial crisis from 2007 to 2011. Interestingly, the amount of filings decreased in the most recent period from 2012-2016 and the merger wave of 2007 (Huang et al., 2017, p.19) could be an explanation for the temporal irregularities. Remarkable is the fact that more than 60% of filings in the 2007-2011 period were disclosed by unconstrained investors and only 17% by constrained, thus implying that financially constrained firms are more sensitive to macroeconomic movements (Campello and Chen, 2006, p.1197).

Panel B lists the extracted "Purpose of Transaction", which represents item 4 in Schedule 13(D) filings. The purpose is only explicitly stated if it occurrs in at least five filings. Furthermore, the two purposes *Engaging into a Takeover* and *Strategic Investment* group several purposes by common characteristics. According to Betton et al. (2008, p.1), filings disclosed with the purpose of a merger agreement, tender offer or hostile bid are grouped under the purpose *Engaging into a Takeover* and filings disclosed due to alliance agreements, license agreements, strategic acquisitions and joint ventures are grouped under the purpose *Strategic Investment*. A detailed description on how the filings were categorized can be found in Appendix B. Close to half of the investments were made while engaging into a takeover process and only 53 of these 271 filings were disclosed by constrained investors.

On the other hand, more than 50% of the filings in which the investor was subject to a merger were disclosed by constrained investors – the securities underlying the Schedule 13(D) were acquired to distribute them to own shareholders at the execution of the merger. In this scenario, the relationship between investor and target is switched.

With 99 filings, the second most reported purpose was essentially to invest in the target. The target is considered to be a good investment opportunity, frequently undervalued and the investing corporation aims actively monitor and interact with it. The main idea is these filings do not directly imply future collaboration but give room for speculations.

Following actively held investments, strategic investments are the third most common purposes due to which filings were disclosed. Different to the former, they are based on the premise of future collaboration between investor and target and thus denote a likely value improvement for the target. Potentially of high interest, they represent around one quarter of filings. Interestingly, 54 of all filings were disclosed due to investments for financing the issuer – for instance direct financing or asset purchase agreements. This is in line with the findings of Allen and Phillips (2000, p.2792) and Liao (2014, p.78) who suggest a driver of minority acquisitions is the target's financing. There are only 7 filings in which the investor announced a proxy fight with the target's management. In general, these findings are in line with the research findings on why corporation would actively hold equity ownership, namely in the process of takeover discussions, while building strategic alliances, for direct issuer financing or overcoming informational barriers. Turning to Panel C, the major industries in which the investors operate according to their Fama & French's 48 industry classification code are presented. Shown are only industries,

which are represented by at least 15 corporate investors. For the complete sample, 42 out of the maximum 48 industries are existent. As mentioned previously, the sample is reduced by excluding the trading industry due the irregular investment behavior. The highest industry representation is in business services with 98 filings, followed by the industries of pharmaceutical products, petroleum and natural gas and electronic equipment. For the business industry, equally 28 are investors constrained and unconstrained. Looking at pharmaceutical products, there are more constrained than unconstrained investors and their representation in the computer industry is almost the same. This could mean that especially in industries in which property rights become blurry and contracting is complicated hence information asymmetry is large, financially constrained firms have a higher representation (Liao, 2014, p.4).

4 Identifying the Investors prior to the Schedule 13(D) Filing

After being familiar with general characteristics of the sample's filings, this section focuses on identifying the corporations prior to their Schedule 13(D) filing. What type of corporation makes activist investments and what are the characteristics of firms identified to be financially constrained? Do all these measures overall identify similar investors?

Following, Table 2 introduces financial characteristics of each measure's sub-samples.[7] By the virtue of each measure, the two samples do not necessarily have to add up to the total number of filings. Hence for the WW-Index, the two sub-samples consist out of 307 and 107 investors. By grouping the investors according to their dividend pay out ratio, 184 investors are identified to be financially constrained and 310 as not. The HP-Index identifies only 58 constrained investors in the initial sample and only for the rating measure do the two groups include all investors with 296 having a credit rating and 265 missing one.

For each sample, Table 2 reports the mean [median] of several key financials. For the complete sample, standard deviation and both, lowest and highest value are shown additionally. All

[7]Note that investors are classified into three groups based on the tertile values of the financial constraint indices but only the top and bottom groups are presented. There exists a "gray zone" in which investors are not directly classified.

reported data corresponds to the investor's fiscal year which is closest to the filing date and the reported values are winsorized at the 1% and 99% levels so that extreme values are replaced by the respective percentiles. This enables a presentation of more meaningful mean statistics (Klein and Zur, 2009, p.203). Moreover, characteristics for the WW-, HP- and Dividend Payout indices have explanatory power beyond the sample, as these investors are identified according to their comparative values across the entire Compustat database. Hence, a loose comparison to samples of other studies is possible. For further simplicity, the notion of "financially constrained" is used independently of the measure initially used to identify them.

Panel A reports two ratios on profitability – return on assets (ROA), defined as earnings before interest and taxes (EBITDA) to total assets and the ratio of cash flow from operations to total assets. On average, the sample's corporations have positive returns and a fairly small 0.059 cash flow ratio. Across all measures, financially constrained investors have a ROA which is significantly lower when compared to their counter-samples. Turning to the HP-Index, for financially constrained investors the return from the fiscal year prior to the filing is even negative. Furthermore, investors in this group also have a negative cash flow (same for the Whited-Wu index) and again, the difference between constrained and unconstrained investors is apparent across all measures. This implies that in general, constrained investors seem to be less profitable Whited and Wu (2006, p.544).

Panel B reports ratios on cash balances and debt. Constrained firms have considerably larger amounts of cash reserves (both cash and short-term investments) reflecting their dependency on internal funds when it comes to investments (Fazzari et al., 1988, p.142). Unsurprisingly, book leverage, defined as long-term debt plus current debt to total assets (MacKay and Phillips, 2005, p.1440) is higher for firms considered to be financially unconstrained, as financially constrained firms face the issue of restricted access to external finance. Across all sub-samples, the ratio of short-term debt to total assets is fairly small and only marginal differences exist. These characteristics show sub-samples similar to those presented in Whited and Wu (2006, p.544) and Hadlock and Pierce (2010, p.1917) and thereby suggesting a successful implementation of the measures on the initial sample of Schedule 13(D) filings.

Facing Panel C, information on firm size and investment is presented. The market value of equity is defined as the closing price at the end of the fiscal year times the number of

shares outstanding. Through all measures, financially constrained firms have a lower market value of equity when compared to their counter samples. The largest difference is among the two samples classified by the HP-Index. This however is unsurprising, as it only includes the two variables size and age and with size playing a determining role. Similar differences are apparent in the variable size, defined as the natural logarithm of total assets. In conclusion, this suggests the variable size (or market value) is an important determinant across all measures. Lastly, Panel C presents the investors investment opportunity in the form of Tobin's Q (MacKay and Phillips, 2005, p.1441), which is measured according to Khatami et al. (2015, p.1). Constrained firms have a higher Tobin's Q which may be evidence of their unexploited investment opportunities (Whited and Wu, 2006, p.539). This attribute holds for all sub-samples, except for the two identified by the investor's dividend payout ratio.

To conclude, firms identified to be constrained in the sample of corporate activist investors are less profitable, hoard more cash and have less debt when compared to unconstrained firms. They are usually smaller in size and have more unexploited investment opportunities. Across all measures, financial characteristics tend to move in the same direction and they show similarities to those of other studies (see Whited and Wu (2006, p.544) and Hadlock and Pierce (2010, p.1917))

5 Market Returns to Initial 13(D) Filings – Abnormal Stock Returns

In analyzing whether the financial condition of the activist corporate investor matters, abnormal share price reactions around the filing date identify the effect the 13(D) filing has on the target's stock, likewise the market's perception of value improvement, after accounting for general market movements. The set up of the event study performed for this purpose is as follows: The time line consists successively of the estimation window, in which parameter estimates are obtained, the event window for which the abnormal returns are computed and the post event window. The filing date, as reported by the SEC and reported on EDGAR is set as the event day. For simplicity, the event window [x,y] is determined relative to the event

day 0 with x days before and y days after the filing date. Abnormal returns are computed for various event windows. For that reason, the estimation window is set 120 days prior to the largest event window. With the largest event window starting 30 days before the event day, the estimation window begins 150 days prior to the actual event day.
The abnormal return $AR_{i,t}$ for the target's security i at day t is defined as the difference between the actual (observed) return $R_{i,t}$ and the expected return $E(R_{i,t}|Xt)$ given the absence of the event (MacKinlay, 1997, p.15):

$$AR_{i,t} = R_{i,t} - E(R_{i,t}|X_t) \tag{1}$$

The expected return $E(R_{i,t}|Xt)$ is the result of an estimation based the market model, in which the value-weighted NYSE/Amex/Nasdaq index from CRSP proxies for the market return $R_{M,t}$ and likewise is the independent variable (MacKinlay, 1997, p.18). [8] This yields the abnormal return $AR_{i,t}$

$$AR_{i,t} = R_{i,t} - (\hat{\alpha}_i + \hat{\beta}_i R_{M,t}) \tag{2}$$

To accommodate for a multiple period event window and to draw overall inferences of the Schedule 13(D) filings (MacKinlay, 1997, p.21), the abnormal returns $AR_{i,t}$ for target i are aggregated over the event window (τ_1, τ_2).

For robustness, two different methods in aggregation over time are used. The cumulative abnormal return $CAR_{i,(\tau_1,\tau_2)}$ and the abnormal buy-and-hold return $BHAR_{i,(\tau_1,\tau_2)}$.
The cumulative abnormal return $CAR_{i,(\tau_1,\tau_2)}$ for security i in event window (τ_1, τ_2), is the sum of the abnormal returns $AR_{i,t}$ from equation (2).

$$CAR_{i,(\tau_1,\tau_2)} = \sum_{t=1}^{T} AR_{i,t} \tag{3}$$

The second method of aggregation over time is the abnormal buy-and-hold return $BHAR_{i,(\tau_1,\tau_2)}$. It is independent from the results of equation (2) and no estimation window is required. The abnormal buy-and-hold returns $BHAR_{i,(\tau_1,\tau_2)}$ are the difference between the realized (observed)

[8] For the expected return the market model assumes a constant and linear relation between the observed returns $R_{i,t}$ and the return of a market index $R_{m,t}$ (MacKinlay, 1997, p.18). The parameters are estimated by ordinary least squares regressions based on estimation-window observations of stock returns.

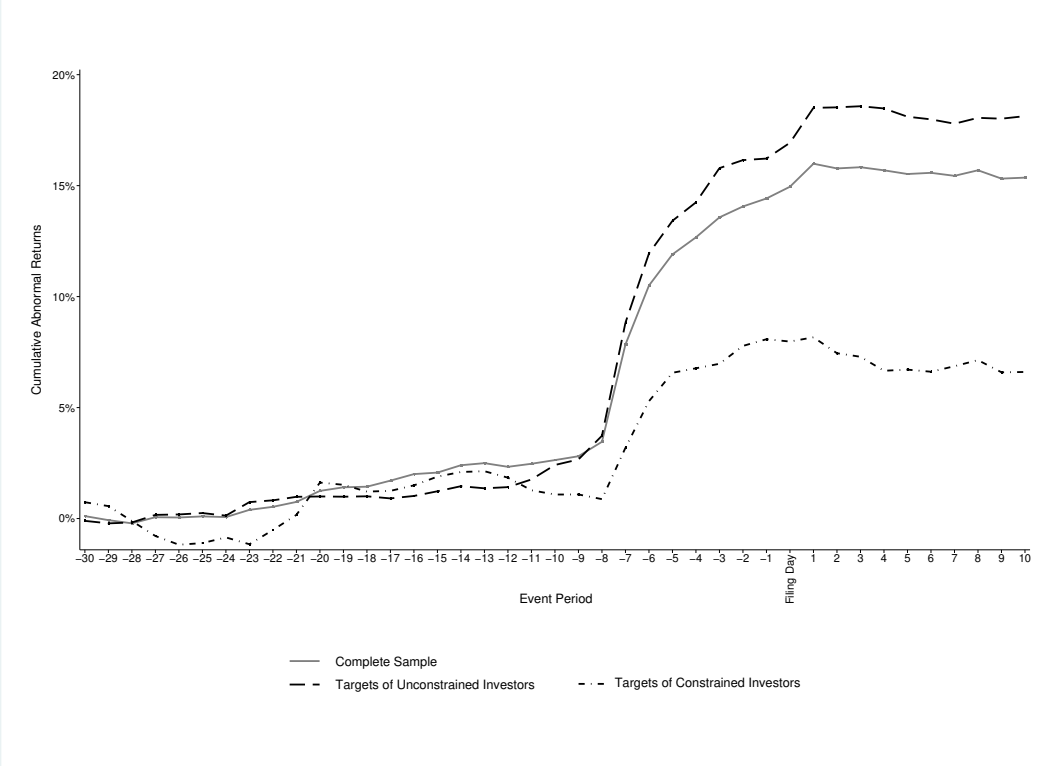
buy-and-hold returns and the normal buy-and-hold returns $R(R_{i,t}|X_t)$. But in contrast to the cumulative abnormal return, the buy-and-hold return mimics the investment strategy of investors that buy the stock and hold it for a longer period of time. In this sense, the actual (normal) buy-and-hold return on day t is the return on day t times its lagged return on day t_{-1}. This means that for the target's security i in the event window (τ_1, τ_2) the abnormal buy-and-hold return $BHAR_{i,(\tau_1,\tau_2)}$ is

$$BHAR_{i,(\tau_1,\tau_2)} = \prod_{t=\tau_1}^{\tau_2}(1 + R_{i,t}) - \prod_{t=\tau_1}^{\tau_2}(E(R_{i,t}|X_t) \tag{4}$$

Analogous to the estimation of normal returns for equation (2), the value-weighted NYSE/Amex/Nasdaq index from CRSP is used to calculate the normal buy-and-hold returns in the respective event windows (τ_1, τ_2) (Brav, 2009, p.25).

5.1 Abnormal Returns by Event-Windows

Graph 1 plots the times series of average cumulative abnormal returns for securities subject to all filings and subject to filings of constrained and unconstrained corporate investors (grouped by the WW-Index). Note that the targets' abnormal returns are grouped by the investors' financial characteristics – a introductory connection between market reaction and investor. A first glance reveals that independent of the investor's categorization, the abnormal returns evolve almost equally until day -10. At this point, the aggregation of abnormal returns for target's of constrained investors continues to proceed below the other two. Targets of unconstrained investors experience the largest increase in value to almost 20%. Parallel, abnormal returns for the complete sample of targets aggregate to roughly 15% in the 41-day window which is around 5% more when compared to the 10.2% abnormal returns for hedge fund targets reported in Klein and Zur (2009, p.208). For firms subject to filings disclosed by constrained investors however, abnormal returns differ drastically in magnitude and aggregate to only around 7-8%. The graphical presentation is first evidence that financial constraints of corporate activist investors could matter, when the market assesses a potential value improvement for the target. Also shown in Graph 1 is that for all three cases, abnormal returns start to substantially occur in the [-11,-8] period, implying that valuable information – in any



form – is available before the actual filing. To allow for the possibility that stock market participants knew about the pending stake before it was announced Allen and Phillips (2000, p.2802) choose their event window to be [-10,10] for their analysis of equity ownership stakes where corporations hold at least 5% of stock. Similarly, (Liao, 2014, p.87) uses a longer event window because of the possibility that such investments may not be reported until several days after the actual purchase. Furthermore, Brigida and Madura (2012, p.31) find evidence on a substantial information leakage prior to the actual filing date. Thus the early rise in abnormal returns could be explained by prior leakage of information. Above explanations are in line with characteristics of Schedule 13(D) filings, as Section 13(d) gives the investor a 10-day window for disclosing the filing, after passing the 5% threshold. Therefore, both information leakage and a late announcement are conceivable. In their study on entrepreneurial activism, Klein and Zur (2009, p.207) start their event window at day -30 to allow for the 10-day 13(D) filing window, possible prior leakage of information and prefiling price pressure. As it is the investor's own actions that potentially increase the value of the target firm, a potential increase in their trading activity could explain the market's reaction. This approach is adopted from Collin-Dufresne and Fos (2015, p.1561) who analyze the trading strategy of informed Schedule 13(D) filers. Firstly, they find that trading activity increases in the [-12,-9] period in which the reported

event dates are clustered (date on which the 5% threshold is passed). Secondly, they show that close to 1% of outstanding shares are purchased on the event date, compared to only 0.10% and 0.15% on the days before and after the event date (Collin-Dufresne and Fos, 2015, p.1561). Thirdly they note that the prices move up when Schedule 13(D) filers trade. By combining these three findings, firms could drive prices up by their own trading at the event day, thus further explaining the early increase in abnormal returns as in graph 1. This argument however is limited, as constrained firms experience negative abnormal returns for this period. Returning to Graph 1, the economic difference in abnormal returns for targets of constrained investors is clear to see.

mcwilliams1999 confounding events and Sharkrepellant.

For the aforementioned reason, table III present the mean [median] cumulative and buy-and-hold abnormal returns for the following four event windows: Event window 1 is [-10,3], to allow for the 10-day filing window, information leakage and accommodate subsequent press coverage. The second event window is [-10,-6] to detach the possible effect of information leakages and event-date trading. Analogous the third event window [-5,3] aims to control for these two. This seems to be reasonable, as the aggregation of abnormal returns in Graph 1 decreases at around day -5, implying that information has been processed. The fourth event window is [-1,3] to accommodate for just the filing date and press coverage.

Column (1) presents the abnormal returns for all targets. Column (2) and (3) show the abnormal returns for targets dependent on their investor's financial condition. The investors are grouped by the Whited-Wu index and groups are equal to those presented in Table II, with 126 filings disclosed by constrained and 307 disclosed by unconstrained investors. For the abnormal returns in columns (1), (2) and (3), significance levels are shown. The null hypothesis to be tested is that the mean day abnormal return is equal to zero, and thus concerns the average effect of an event on returns to shareholders. If the average abnormal returns are independent, identical distributed, and normal, the test statistic is distributed Student-t under the null hypothesis (Brown and Warner, 1985, p.7). As shown in Brown and Warner (1985, p.22) the market model seems to be a sufficient adjustment for cross sectional dependence (clustering) and therefore statistical significance is given by a two-tailed t-test.[9] The statistical significance

[9] include event clustering

of the median is computed by a quantile regression of the abnormal returns with the p-value of the coefficient representing the statistical significance of the median. Column (4) tests the difference in means [medians] of column (2) and (3). The t-statistics represents the standard parametric test for difference in means and Z-statistic is the non-parametric Mann-Whitney rank-sum test which tests the null hypothesis that the two independent samples of abnormal returns are from the populations with the same distributions and therefore not different. All returns presented in Table III are winsorized at the 1% and 99% level. This extensive presentation of abnormal returns is done for three reasons. Firstly, to check the differences in abnormal returns over varying event windows and thereby accomodate for the time-effect. Secondly, to check whether the estimated abnormal returns are similar for the two methods of measurement and thirdly to test whether the investor's financial condition matters independently of time (across all event windows).

Panel A presents the abnormal returns for the largest event window [-10+3]. Both, cumulative and buy-and-hold abnormal returns are positive and strongly significant at the 1% level with mean abnormal returns being 13.36% and 13.97% respectively. Consistent with Graph 1, targets of unconstrained investors have a mean CAR and BHAR of 16.81%, around 10% higher when compared to those of constrained investors. For both, CAR and BHAR, the difference in abnormal returns across the two groups is statistically significant at the 1% level. This shows, the investor's financial condition does matter economically and statistically when comparing the two means. These findings are supported by differences of around 7% in medians. Furthermore, the abnormal returns of around 13% are different to those observed in Klein and Zur (2009, p.208) but support Brigida and Madura (2012, p.29) findings that abnormal returns are higher for non-financial corporations.

Turning to panel B, the largest runup happens in the [-10,-6] event window. Abnormal returns aggregate to around 8%, making up more than 50% of the total [-10,3] runup. These results are matching with Brigida and Madura (2012, p.32) who find that the target's runup is greatest during the event window [-10,-6]. Again, targets of weak investors only gain 4% whereas those of unconstrained investors have abnormal returns up to 10.30%. Furthermore, the difference in means is is significant at the 1% level for both methods of estimation.

In Panel C, abnormal returns for the event window [-5,3] are shown. Independent of the investor, all targets experience a mean CAR of 6.63%, significant at the 1% level. Here too, targets of unconstrained investors outperform those of weak investors with around 5%, while being statistically significant at the 1% level.
Turning to abnormal returns for the smallest event window [-1,3] in Panel D, targets on avberage gain 1.77% which is significant at the 1% level. Hence a positive market reaction at the announcement of the filing exists and is not only apparent in the previous days. Striking is that on average, targets of constrained investors now experience negative returns although statistically not different from zero. Furthermore, the difference among the two samples is immensely high with approximately 3%. Especially when considering the short event window and the already low-level of abnormal returns is the difference apparent.

Concluding, both buy-and-hold and cumulative abnormal returns show similar results with positive and significant market reactions in all event-windows surrounding the Schedule 13(D) filing date. Furthermore, the largest aggregation happens in the [-10,-6] event window but is not exceptionally high when compared to the overall runup. Most importantly however is the difference in abnormal returns for targets of financially constrained and unconstrained investors. The difference is present, both on an economic and statistical level. When testing the differences in means, it is significant across all event windows and thus independent from the time-effect. These findings present further evidence that the financial constraints could matter.

5.2 Abnormal Returns by Purpose and across Measures

So far it has been shown that independent from the event window, targets of financially unconstrained corporate investors gain on average significantly more, when compared to those of financially constrained investors. Attached thereto, this section aims to analyse whether this difference is existent across filings' different transaction purposes and across different measures of financial constraints.

For this reason, Table 3 presents the mean [median] cumulative abnormal returns from the [-10,+3] event window for each each measure and further for the transaction purpose. The measures of financial constraints and among which the sample separation takes place are the Whited-Wu Index, the investor's dividend payout ratio, the HP-Index and lastly the investor's S&P's long-term issuer credit rating. For comparison, Panel A shows the abnormal returns for the complete sample of targets whereas Panel B presents the abnormal returns dependent on the filings purpose. Hence *Engaging into a Takeover* involves merger agreements, tender offers and hostile bids and *Strategic Investments* represents alliance agreements, license agreements, strategic acquisitions and joint ventures. *Other Purposes* groups the abnormal returns for the remaining transaction purposes. For each measure, Column (1) and (2) present mean [median] cumulative abnormal returns for the two sub-samples. Column (3) tests the difference between column (1) and (2) and displays the t-statistic [Z-Statistics].

Turning to Panel A, abnormal returns for all purposes and the sub-samples of each measure are shown. Across all measures, targets of financially constrained investors have significantly lower abnormal returns in the [-10,3] event window. Starting with the samples formed with to the Whited-Wu index, the difference in mean abnormal returns is 10% and significant at the 1% level. Targets of unconstrained investors gain 16.81% and those of constrained only 6%. Similar conclusions can be drawn when comparing the samples grouped by the investor's dividend payout ratio. Targets of constrained investors encounter abnormal returns of 9.79% compared to the 15.76% for unconstrained investors. Again, the difference in means is significant at the 5% level and comparing the sub-samples of the HP-index yields similar results – targets of constrained investors experience abnormal returns of 9.18%, those of financially unconstrained investors 16.2% and the 7% difference in means is significant at the 5% level. On the other hand, the differences in market reactions to filings of investors with and without a

credit rating are present but loose their statistical significance. An explanation could be a possible upward bias in mean abnormal returns for the sample of constrained investors, as some of the least constrained corporations might lack a credit rating and are therefore mistakenly identified as financially constrained (Heller, 2015, p.18). Nonetheless, across all measures and all purposes is a difference in abnormal returns visible, further indicating that financial constraints matter when the market assesses the value improvement for the target.

– size and takeover –

Turning to Panel B, abnormal returns of targets are now additionally sorted by the filing's purpose of transaction. The purpose of engaging into a takeover generates the largest market reaction with 21.45% abnormal returns for all targets. Across all measures, targets of financially unconstrained investors have a CAR of roughly 25% for the [-10,3] event window. Khatami et al. (2015, p.112) have similar results for acquisition announcement returns when the acquirer is financially unconstrained with an 11-day CAR of 25%. The difference in abnormal returns is the largest for the Whited-Wu index and the smallest for the investor's credit rating. For all all measures, except HP-index, the difference in means is statistically significant at least at the 5% level. For the targets of investor grouped by the HP-Index, the difference in means is only statistical at the 10% level. This might be due to the low sample size of only 43 filings from constrained investors. Nonetheless, the comparison of means reveals that investors' financial constraints might be especially important in the context of mergers and acquisitions (Khatami et al., 2015, p.112).

Targets of filings in a strategic have a 7.92% CAR which is significant at the 5% level. This market reaction is similar to the one observed by Allen and Phillips (2000, p.) who finds abnormal returns of 6.9% in response to strategic announcements. For the reason that the sample consists of only 74 filings reporting the purpose of a strategic investment, performing tests on the economic and statistical significance on tests of differences is problematic. The issue becomes even more demanding when further splitting these filings into sub-samples for each measure, as they become even smaller and tests loose their meaningfulness. Subsequently, there are only 16, 15 and 18 observations in the three samples of constrained investors from the WW-Index, dividend payout ratio and credit rating and just three for the HP-Index. Samples

of the Whited-Wu index and the investor's credit rating present differences in mean CAR's matching with previous findings but when considering the sub-samples of the dividend payout ratio and the HP-Index, results differ. Although for these, targets of constrained investors now have higher abnormal returns, the difference is not significant. Hence the samples small scales do not allow valid inferences between returns for targets of financially constrained and unconstrained investors in the case of strategic investments. For the remaining purposes, the sample size is large enough to draw univariate conclusions. The average cumulative abnormal return during the [-10,3] event window for all remaining purposes is only 1.01% so filings of strategic investments and takeovers evoke stronger market reactions. When looking at the abnormal returns for sub-samples of the Whited-Wu index, targets of constrained investors earn -0.49% and those of unconstrained investors 8.31%. The abnormal returns for targets of unconstrained investors is significantly different from zero at the 1% level and the difference between abnormal returns is significant at the 5% level. Similar conclusions can be drawn for the sub-samples formed according to the Hp-Index for which targets of constrained investor experience negative abnormal returns of -3.22% and those of unconstrained investor 7.86%. The difference average cumulative abnormal returns accross the two groups is significant at the 1% level. For the dividend payout ratio is the difference in means visible but not statistically sifferent from zero and for the two sub-samples based on the credit rating of the investor is the difference non-existent.

The univariate analysis shows that both, across measures and transaction purposes, the difference in abnormal returns for targets of constrained investors is present and significant. It gives further evidence on whether financial constraints of corporate activists matter. Abnormal returns are the highest for filings with the purpose of engaging into a takeover, followed by strategic investments. Only for filings with the purpose of engaging into a takeover and other, statistical tests are valid and show significant differences in abnormal returns. Hence, the applied measures for the investor's financial constraints have categorical power when analyzing the cumulative abnormal returns of the targets and support the assumption that financial constraints of corporate activist investors do matter.

6 Cross Sectional Variation of Abnormal Returns

advantage of the multivariate analysis is that it allows us to draw ceteris paribus conclusions, which simple t-tests if means cannot do (Khatami et al., 2015, p.111)

Equally important as the average abnormal return subject of analysis in the previous section is its cross-sectional variation because it reflects the heterogeneity in market perceptions regarding the expected value generated by activism. The advantage is that it allows to draw *ceteris paribus* conclusions, which simple t-tests of means cannot do. Does market anticipation depend on the investor? What is the relationship between financially constrained investors and target's abnormal returns among the sample of Schedule 13(D) filings? Table V reports the results from regressions exploring the cross-sectional variation in market response to corporate investor activism. The regression is constructed as follows

$$AR_i = \beta_0 + \beta_1 FC_i + \sum_{k=1}^{n} \beta_k + X_{k,i} + \epsilon_i \tag{5}$$

where the dependent variable AR_i is the cumulative abnormal return in the [-10,3] event window for target i. FC is a dummy variable equal to 1 if in filing i the investor is classified as financially constrained and zero if otherwise. $X_{k,i}$ represents a vector of control variables of filing characteristics, with *takeover* and *strategic* being equal to one if the transaction purpose was due to engaging into a takeover or strategic investment respectively. For each classification – Whited-Wu index, HP-Index dividend payout ratio and credit rating, the regression is performed separately. To minimize the risk of spurious inference, proxies for the business cycle *recession* and the investor's Tobin's Q are included. In addition, the regression controls for the *ROA* and *Cash flow from Operations to Assets* for both investor and target and the *Relative Size*, defined as the natural logarithm of target total assets divided by bidder total assets. In a last step, all regressions control for the investor's industry defined as the Fama & French 17 Industry classification.[10]

[10]In this case the 17 rather than the 48 industry classification is used to prevent over-classification of the model.

Table 1: Large Constrained

Constraints

VARIABLES	(1) car_seven_mm	(2) car_ten_mm	(3) car_seven_mm	(4) car_ten_mm	(5) car_seven_mm	(6) car_ten_mm	(7) car_seven_mm	(8) car_ten_mm
Whited-Wu Index	-0.1012***	-0.0340**						
	(-3.1909)	(-2.0327)						
hp_indicator_3			-0.0264	-0.0116				
			(-0.6352)	(-0.5479)				
Dividend Payout Ratio					-0.0447*	-0.0024		
					(-1.7344)	(-0.1882)		
rating_indicator							-0.0037	0.0193*
							(-0.1425)	(1.6855)
relsize	-0.2803***	-0.0511	-0.2541***	-0.0138	-0.2734***	-0.0459	-0.3038***	-0.0624*
	(-4.3565)	(-1.4509)	(-3.9225)	(-0.3099)	(-4.6737)	(-1.3701)	(-5.2627)	(-1.8600)
takeover	0.1635***	0.0126	0.1857***	0.0137	0.1691***	0.0068	0.1597***	0.0043
	(5.8778)	(1.0206)	(6.5362)	(0.9803)	(6.4145)	(0.5273)	(6.6681)	(0.3782)
strategic	0.0215	0.0238	0.0440	0.0289	-0.0100	0.0141	0.0272	0.0278
	(0.4372)	(0.7792)	(0.9104)	(0.9230)	(-0.2562)	(0.5003)	(0.6328)	(1.0699)
recession	0.0433	-0.0058	0.0216	-0.0040	-0.0077	-0.0070	0.0009	-0.0152
	(1.1501)	(-0.3986)	(0.5951)	(-0.2692)	(-0.2381)	(-0.5429)	(0.0297)	(-1.2534)
CF from Operations / Assets	-0.0135	0.2222**	0.2189	0.2282**	0.1333	0.2107***	0.2431	0.2083***
	(-0.0557)	(2.1552)	(1.1638)	(2.3739)	(0.8223)	(2.6552)	(1.5693)	(3.0030)
CF from Operations / Assets (Target)	0.1949**	0.0736**	0.0522	0.0742**	0.0690	0.0652**	-0.0825	0.0289
	(1.9948)	(2.0214)	(0.5188)	(2.2200)	(0.6959)	(2.0647)	(-0.7601)	(0.8392)
Tobin's Q	-0.0038	-0.0064	-0.0055	-0.0093	-0.0086	-0.0106	-0.0019	-0.0092
	(-0.3218)	(-0.9221)	(-0.5291)	(-1.2768)	(-0.8022)	(-1.6349)	(-0.2082)	(-1.6448)
Tobin's Q (Target)	-0.0232***	-0.0047	-0.0279***	-0.0076	-0.0243***	-0.0083**	-0.0261***	-0.0069*
	(-3.6815)	(-1.1280)	(-3.8742)	(-1.6418)	(-4.0870)	(-2.1867)	(-4.3028)	(-1.8040)
ROA	-0.1419	-0.2249**	-0.2760	-0.2102**	-0.1537	-0.1828**	-0.2657*	-0.1664**
	(-0.6171)	(-1.9719)	(-1.3470)	(-2.0753)	(-0.9216)	(-2.0664)	(-1.6641)	(-2.1507)
ROA (Target)	-0.2451**	-0.1047**	-0.0445	-0.1037**	-0.0741	-0.0866*	0.0859	-0.0501
	(-1.9925)	(-2.0825)	(-0.3643)	(-2.2350)	(-0.6216)	(-1.9544)	(0.7231)	(-1.1541)
Constant	0.2887***	0.0808*	0.2188***	0.0550	0.2629***	0.0846**	0.2390***	0.0759*
	(3.9297)	(1.7462)	(2.9130)	(1.1047)	(3.4050)	(1.9890)	(3.2169)	(1.9183)
Observations	401	401	403	403	458	458	521	521
R-squared	0.2553	0.1248	0.2482	0.1108	0.2360	0.1041	0.2170	0.1012

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Turning first to column (1) and keeping everything else equal, corporate activism of Whited-Wu-financially constrained investors generates abnormal returns 10.12% lower. The coefficient of the Whited-Wu dummy variable is significant at the 1% level, implying that investor's financial constraints matter when the market reacts to Schedule 13(D)filings. Furthermore, the relative size seems to be an important determinant of the market reaction, meaning that if investor and target have the same size, abnormal returns are reduced by 28%. With a significant intercept of 22.84% at the 1% level this implies negative returns of -5% other things being equal. This furthermore means, that the abnormal returns are not only driven by the size of the investor but the financial constraints do matter. Additionally, the purpose takeover can further explain the variation in abnormal returns with a coefficient of 16.35% at significant the 1% level. This is matching with the previous results which showed that large parts of the average abnormal returns were driven by filings having the purpose of a takeover. Moreover the coefficient on cash flow from operations to assets from the target shows that the more profitable the target is, the higher are the abnormal returns. Interesting is the fact that target's with a higher Tobin's Q have abnormal returns 2.3% lower, all other things being equal. Hence the target's investment opportunity has a negative influence on the market's perception of possible value improvement. Heading to Column (2) is which the [-1,3] CAR is the dependent variable, similar effects are shown. Targets of financially constrained investors have abnormal returns 3.4% lower, which is significant at the 1% level. As the intercept predicts abnormal returns of 8%, the 3.4% decrease in abnormal returns due to financially constrained investors seems to be relevant.

Column (3) and (4) show regression results using the HP-index as measure of financial constraints. Across both event windows, the coefficient points in the right direction of decreasing abnormal returns for constrained investors but is not significant. This might be due to its high correlation with the variable relative size as the HP-Index includes only the two variables size and age. Nonetheless, relative size, takeover, the target's Tobin's Q and ROA have similar effects as in the previous regressions.

Column (5) and (6) show regression results using the investors dividend payout ratio to sort them into financially constrained and unconstrained investors. The dummy variable is significant at the 10% level meaning that other things being equal, targets of constrained

investors have abnormal returns 4.37% lower in the [-10,3] event window. This is further evidence that financial constraints of the investors do matter. Nonetheless, the variable looses its significance in the short event window [-1,3] but the investor's cash flow from operations and return on assets, hence profitability, becomes an important factor. Other things equal, the higher the investor's profitability, the higher are the target's abnormal returns. The last two regressions in column (7) and (8) have the investor's rating dummy as their main regressor. Similar to the HP-Indicator, the investor's credit rating is even more correlated with the variable relative size and looses its significance. Strinking however is the variables coefficient in the [-3,1] event window which is significant at the 10% level but has a positive sign. Other things equal, targets of investors without a credit rating, have 1.93% higher abnormal returns compared to those with a credit rating. That's a result that provides evidence against the hypothesis that financial constraints do matter.

Column (2), (4) and (6) present the regression results from regressions including an interaction term between the dummy variables' purposes and the underlying financial constraints indicator. In this scenario, indicator of financial constraints lose their statistical significance. In columns (4) and (6) however, this effect is mitigated as the interaction between the purpose of strategic investment and the respective constraints indicator is significant at the 10% and 5% levels respectively. Other things being equal, the abnormal returns for the target are 37% (27%) lower when the investor is financially constrained (has no credit rating). So if if the investor is financially constrained and the investment is made due to strategic cooperation, abnormal returns for the target are significantly lower. On the other hand, the interaction between financial constraints and engaging into a takeover is not significant in either case implying that investor's financial constraints matter especially when the investor acquires the stake for strategic purposes.

Concluding, results from table V indicate that financial constraints of corporate activists investors matter. Targets of constrained investor (in either classification) earn significantly less in the announcement period of a Schedule 13(D) filing. Furthermore, the investor's financial constraints seem to matter to the market especially, when the filing is disclosed in the course of strategic investments.

7 Conclusion

Schedule 13(D) filings enjoy wide spread attention but and characteristics of minority acquisitions increasingly get into the focus of recent research. In this thesis, using a sample of Schedule 13(D) filings disclosed by corporation from the period 1996-2016, the effect of investor's financial constraints on target's gains is examined. The evidence presented is twofold. Firstly, target's of corporate activist investors experience significant gains around the filing date. Average abnormal returns are around 14%, in a [-10,3] window surrounding the filing date. They exceed those observed in the presence of hedge fund activism and are confirmation of the market's perception that corporate investor activism is an actual value improvement for the target. Secondly and far more importantly, this thesis provides evidence that investor's financial constraints matter when the market reacts to Schedule 13(D) filings, likewise evaluates possible value improvements for the target. On average provides evidence on the market's reaction subsequent to filings of corporate activist investors and analyses this thesis focuses on the relation between corporate activist investors and subsequent market reactions. On a sample of Firstly, targets of corporate activist investors experience significant gains of around 14% average abnormal returns around the filing date.

8 Appendix

8.1 Appendix A – Categroization of Filings

8.2 Appendix B – Financial Condition Measures

8.2.1 F-Score

Used from Piotroski (2000) and calculated according to Fama and French (2006) and Choi and Sias (2012). Each component contributes one point if the condition holds, zero otherwise.

1. Positive net income before extraordinary IB

$$IB > 0$$

2. Positive cash flow from operations $OANCF$– all investors had a reported cash flow format of 7. Therefore

$$OANCF > 0$$

3. Cash flow from operations is greater than net income

$$OANCF > IB$$

4. Growth in net income IB scaled by total assets AT from prior fiscal year end

$$\frac{IB}{AT}$$

5. Decrease in leverage from prior fiscal year end with leverage defined as the sum of long-term debt $DLTT$ and long-term debt due in one year $DD1$

$$\frac{DLTT + DD1}{AT}$$

6. Increase in liquidity from prior fiscal year end with liquidity defined as the ratio of current assets ACT to total liabilities LCT

$$\frac{ACT}{LCT}$$

7. No new common or preferred stock issued $SSTk$ over the previous year

$$SSTK = 0$$

8. Increase in gross margin from piror fiscal year end with gross margin defined as one minus the ratio of costs of goods sold $COGS$ to sales $SALE$

$$1 - \frac{COGS}{SALE}$$

9. Increase in asset turnover from prior fiscal year end with asset asset turnover defined as the ratio of sales $SALE$ to total assets at the beginning of the year AT_{t-1}

$$\frac{SALES}{AT_{t-1}}$$

8.2.2 Z-Score

The Z-score is computed according to Edward I. Altman (1968, p.549) and Edward I Altman (2002, p.14). For firms in manufacutring industries (SIC industries 2000-3999) the Z-score is

$$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5$$

where firms with a score below the threshold of 1.81 are considered as distressed and those above 2.99 as not distressed (Edward I Altman, 2002, p.14).
For all remaining industries the Z-Score is

$$Z = 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4$$

where firms with a score smaller than 1.1 are considered as distressed (Edward I Altman, 2002, p.18) and firms with a score higher than 2.6 as not distressed (Sulub, 2014, p.175).

With $X_1 - X_5$ being

X_1 = Working capital to total assets $\frac{WCAP}{AT}$

X_2 = Retained earnings to total assets $\frac{RE}{AT}$

X_3 = Earnings before interest and taxes to total assets $\frac{EBIT}{AT}$

X_4 = Market value of equity to book value of total liabilities $\frac{PRCC_F * CSHO}{LT}$

X_5 = Sales to total assets $\frac{SALES}{AT}$

8.2.3 Whited-Wu Index

The Whited-Wu index is calculated according to Whited and Wu (2006, p.543) and Farre-mensa and Ljungqvist (2013, p.6).

$$I_{WW} = -0.091X_1 - 0.062X_2 + 0.021X_3 - 0.044X_4 + 0.102X_5 - 0.0354X_6$$

With $X_1 - X_5$ being

X_1 = Cash flow to assets $\frac{IB+DP}{AT}$

X_2 = 1 if firm pays a dividend, zero otherwise $DVC + DVP > 0$

X_3 = Long-term debt to total assets $\frac{DLTT}{AT}$

X_4 = size of the firm $log(at)$

X_5 = Average industry sales growth, estimated for each three digit SIC industry and each year separately $\frac{SALE_t}{SALE_{t-1}}$

X_6 = Sales growth $\frac{SALE}{SALE_{t-1}}$

Following convention, firms are sorted into terciles based on their index value in the previous year. Firms in the top tercile are coded as constrained and those in the bottom tercile are coded as unconstrained (Farre-mensa and Ljungqvist, 2013, p.38).

8.2.4 Control Variables

1. Return on assets

$$\frac{EBITDA}{AT}$$

2. Cash flow from operations to total assets

$$\frac{OANCF}{AT}$$

3. Cash and short-term investments to total assets

$$\frac{CHE}{AT}$$

4. Cash to total assets

$$\frac{CH}{AT}$$

5. Short-term debt to total assets

$$\frac{DLC}{AT}$$

6. Long-term debt to total assets

$$\frac{DLTT}{AT}$$

7. Book leverage according to (MacKay and Phillips, 2005, p.1440)

$$\frac{DLTT + DLC}{AT}$$

8. Size of the firm

$$log(at)$$

9. Tobin's Q according to (Khatami et al., 2015, p.120)

$$\frac{AT - CEQ - TXDB + CSHO * PRCC_C}{AT}$$

8.3 Appendix A

In order to compute the abnormal returns $AR_{i,t}$ for security i at time t in (1) the following models are used:

1. Market Model – For the expected return it assumes a constant and linear relation between the observed returns $R_{i\tau}$ and the return of a market index $R_{m\tau}$. The parameters are estimated by ordinary least squares regressions based on estimation-window observations. The value-weighted NYSE/Amex/Nasdaq index from CRSP is used as the market return $R_{M\tau}$.

$$R_{i,\tau} = \alpha_i + \beta_i R_{M,\tau} + \epsilon_{i,\tau} \tag{6}$$

with

$$E[\epsilon_{i,\tau}] = 0 \tag{7}$$

and

$$Var[\epsilon_{i,\tau}] = \sigma^2_{i,\tau} \tag{8}$$

This yields the abnormal return $AR_{i,\tau}$

$$AR_{i,\tau} = R_{i,\tau} - (\hat{\alpha}_i + \hat{\beta}_i R_{M,\tau}) \tag{9}$$

2. Market Return Model – The model is classified as the restricted market model with $\alpha_i = 0$ and $\beta_i = 1$. This means that there is no estimation window required and the abnormal return $AR_{i,\tau}$ is simply the difference between the observed return $R_{i,\tau}$ and the value-weighted NYSE/Amex/Nasdaq index return $R_{M\tau}$.

$$AR_{i,\tau} = R_{i,\tau} - R_{M,\tau} \tag{10}$$

Table 2: F-Score
Regression F-Score

VARIABLES	(1)	(2)	(3)	(4)	(5)
F-Indicator	0.0885*	0.0583	0.0600	0.0636	0.0056
	(1.8171)	(1.2234)	(0.0634)	(0.0607)	(0.0898)
Return on Assets			-0.1732		-0.3401
			(0.2084)		(0.3384)
Cash flow from Operations to Assets			-0.0311		-0.0021
			(0.1149)		(0.2613)
Cash and short-term Investments to Assets			-0.1337		-0.2147
			(0.1326)		(0.1911)
Leverage			-0.1187		-0.2236
			(0.1170)		(0.1470)
Ln(At)			0.0395**		0.0402**
			(0.0161)		(0.0184)
Tobin's Q			0.0397**		0.0326
			(0.0155)		(0.0251)
Takeover Purpose		0.1077**			0.0872
		(2.3818)			(0.0715)
Strategic Purpose		0.1764**			0.2157*
		(2.0002)			(0.1200)
Return on Assets Targets				0.1493	0.2380
				(0.1923)	(0.2053)
Cash flow from Operations to Assets Targets				-0.2191	-0.2409
				(0.2066)	(0.2256)
Cash and short-term Investments to Assets Targets				-0.0374	-0.1205
				(0.1727)	(0.2046)
Leverage Targets				-0.0642	0.0291
				(0.1429)	(0.1463)
Ln(At) Targets				0.0004	-0.0120
				(0.0237)	(0.0280)
Tobin's Q Targets				0.0021	-0.0190
				(0.0154)	(0.0215)
Constant	0.0376	-0.0888	-0.3225*	0.2873	-0.1172
	(0.2684)	(-0.6475)	(0.1908)	(0.1855)	(0.2203)
Observations	192	192	192	137	137
R-squared	0.3593	0.3975	0.4375	0.4875	0.5870

Robust t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3: Z-Score

Regression Z-Score asdjhaskjdhkajshdkjashdkjashdkjahsdkjhaskjdhkasjhdkjhas askjhdkasjhdkjashdd

VARIABLES	(1)	(2)	(3)	(4)	(5)
Z-Indicator	-0.0099	-0.0344	-0.0572	0.0013	-0.0930*
	(-0.2604)	(-0.9528)	(0.0447)	(0.0485)	(0.0558)
Return on Assets			-0.0933		-0.2435
			(0.1364)		(0.1991)
Cash flow from Operations to Assets			0.1154		0.2382
			(0.1098)		(0.1611)
Cash and short-term Investments to Assets			0.0849		0.1079
			(0.0841)		(0.0893)
Leverage			-0.0366		0.0021
			(0.0840)		(0.0913)
Ln(At)			0.0315***		0.0488***
			(0.0092)		(0.0109)
Tobin's Q			-0.0062		-0.0179
			(0.0122)		(0.0149)
Takeover Purpose		0.1595***			0.1546***
		(5.6436)			(0.0327)
Strategic Purpose		0.1278**			0.0938
		(2.4042)			(0.0659)
Return on Assets Targets				-0.0856	-0.1876
				(0.2183)	(0.2141)
Cash flow from Operations to Assets Targets				0.0144	0.1025
				(0.2089)	(0.2008)
Cash and short-term Investments to Assets Targets				0.0256	-0.0125
				(0.0953)	(0.0933)
Leverage Targets				0.0359	-0.0212
				(0.0765)	(0.0701)
Ln(At) Targets				-0.0162	-0.0372***
				(0.0122)	(0.0130)
Tobin's Q Targets				-0.0034	-0.0090
				(0.0109)	(0.0108)
Constant	-0.2050**	-0.3064***	-0.3668***	-0.0719	-0.2840
	(-2.0256)	(-3.1507)	(0.1167)	(0.1851)	(0.1861)
Observations	454	454	454	345	345
R-squared	0.1655	0.2200	0.2040	0.2028	0.3317

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4: Whited-Wu Indicator

Regression WW-Index

VARIABLES	(1)	(2)	(3)	(4)	(5)
WW-Indicator	0.0975**	0.0860**	-0.0516	0.1552***	0.0077
	(2.4224)	(2.1823)	(0.0764)	(0.0545)	(0.0858)
Return on Assets			-0.1487		-0.2366
			(0.1877)		(0.2158)
Cash flow from Operations to Assets			0.0811		0.1388
			(0.1384)		(0.1631)
Cash and short-term Investments to Assets			0.0932		0.1191
			(0.1148)		(0.1097)
Leverage			0.0106		0.0509
			(0.1150)		(0.1100)
Ln(At)			0.0393**		0.0391*
			(0.0183)		(0.0206)
Tobin's Q			-0.0116		-0.0268
			(0.0161)		(0.0187)
Takeover Purpose		0.1801***			0.1551***
		(4.7829)			(0.0404)
Strategic Purpose		0.1191*			0.1150
		(1.8678)			(0.0735)
Return on Assets Targets				-0.2153	-0.3091
				(0.3749)	(0.3747)
Cash flow from Operations to Assets Targets				0.1157	0.2155
				(0.3707)	(0.3570)
Cash and short-term Investments to Assets Targets				0.0669	0.0109
				(0.1051)	(0.1042)
Leverage Targets				0.1661	0.1034
				(0.1362)	(0.1362)
Ln(At) Targets				-0.0299*	-0.0311*
				(0.0157)	(0.0176)
Tobin's Q Targets				-0.0044	-0.0073
				(0.0119)	(0.0115)
Constant	-0.1420	-0.2625*	-0.2791*	-0.0110	-0.2054
	(-1.1435)	(-1.9005)	(0.1579)	(0.1569)	(0.2000)
Observations	329	329	329	257	257
R-squared	0.2182	0.2783	0.2374	0.2872	0.3563

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5: Rating Regression

Regression Ratings

VARIABLES	(1)	(2)	(3)	(4)	(5)
rating_indicator	0.0668**	0.0644**	-0.0071	0.0981**	-0.0047
	(2.2413)	(2.2096)	(0.0377)	(0.0392)	(0.0443)
Return on Assets			-0.1766		-0.3255*
			(0.1408)		(0.1934)
Cash flow from Operations to Assets			0.1044		0.1859
			(0.1110)		(0.1612)
Cash and short-term Investments to Assets			0.0299		0.0554
			(0.0884)		(0.0904)
Leverage			-0.0063		0.0449
			(0.0785)		(0.0863)
Ln(At)			0.0318***		0.0463***
			(0.0104)		(0.0124)
Tobin's Q			-0.0060		-0.0148
			(0.0119)		(0.0142)
Takeover Purpose		0.1621***			0.1523***
		(5.5861)			(0.0332)
Strategic Purpose		0.0948*			0.0771
		(1.9100)			(0.0624)
Return on Assets Targets				-0.0484	-0.1267
				(0.2108)	(0.2054)
Cash flow from Operations to Assets Targets				0.0100	0.0668
				(0.2007)	(0.1919)
Cash and short-term Investments to Assets Targets				0.0488	-0.0029
				(0.0946)	(0.0918)
Leverage Targets				0.0752	0.0636
				(0.1006)	(0.0961)
Ln(At) Targets				-0.0260**	-0.0393***
				(0.0120)	(0.0134)
Tobin's Q Targets				-0.0053	-0.0094
				(0.0107)	(0.0106)
Constant	-0.1740	-0.2361	-0.3333***	0.1071	-0.0795
	(-1.4256)	(-1.5782)	(0.1213)	(0.1230)	(0.1442)
Observations	494	494	494	376	376
R-squared	0.1621	0.2145	0.1857	0.2049	0.2955

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 6: Size Regression

Regression Size

VARIABLES	(1)	(2)	(3)	(4)	(5)
size_indicator	0.0724**	0.0673**	-0.0561	0.1208***	-0.0383
	(2.4793)	(2.3634)	(0.0466)	(0.0368)	(0.0548)
Return on Assets			-0.1939		-0.3334*
			(0.1438)		(0.1948)
Cash flow from Operations to Assets			0.1044		0.1845
			(0.1119)		(0.1621)
Cash and short-term Investments to Assets			0.0263		0.0562
			(0.0871)		(0.0893)
Leverage			-0.0105		0.0421
			(0.0755)		(0.0867)
Ln(At)			0.0419***		0.0533***
			(0.0139)		(0.0166)
Tobin's Q			-0.0048		-0.0138
			(0.0121)		(0.0142)
Takeover Purpose		0.1607***			0.1512***
		(5.5508)			(0.0331)
Strategic Purpose		0.0941*			0.0743
		(1.8843)			(0.0616)
Return on Assets Targets				-0.0201	-0.1364
				(0.2099)	(0.2035)
Cash flow from Operations to Assets Targets				-0.0312	0.0786
				(0.1981)	(0.1892)
Cash and short-term Investments to Assets Targets				0.0248	-0.0037
				(0.0903)	(0.0920)
Leverage Targets				0.0950	0.0651
				(0.0999)	(0.0949)
Ln(At) Targets				-0.0316**	-0.0395***
				(0.0124)	(0.0133)
Tobin's Q Targets				-0.0055	-0.0096
				(0.0105)	(0.0106)
Constant	-0.1429	-0.2049	-0.4051***	0.1133	-0.1275
	(-1.3996)	(-1.6170)	(0.1409)	(0.1237)	(0.1622)
Observations	494	494	494	376	376
R-squared	0.1641	0.2156	0.1882	0.2145	0.2965

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1