Components of the Thesis

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Contents

1 Introduction

- Two Questions: 1. Why minority acquisition? 2. Why active and not passive?
- make a series of investments in the equity of software, entertainment and internet related firms. It did so for several reasons29. First, it gave Microsoft a say in the products and services these firms were developing and pre-empted competitors from forming partnerships with the firms. Second, it allowed Microsoft to work on joint products with these firms. In 1998 alone, Microsoft announced investments in 14 firms including ShareWave, General Magic, RoadRunner and Qwest Communications. In an earlier investment in 1995, Microsoft invested in NBC to create the MSNBC network to give it a foothold in the television and entertainment business (Damodaran, 2005) It is clearly a much cheaper option than acquiring the entire equity of the firm.

2 Motivation & Importance

2.1 Anecdotal Reference

- out of the 2005 merger between retail giants Sears an battle emerged over two little letters: D and G.1 ESL Partn investment entity controlled by Kmart Chairman Edward L hit with a class action lawsuit in which plaintiffs alleged ESL's of its newly acquired ownership position in Sears on a Schedul stead of a Schedule 13 D) was (Giglia, 2018)

2.2 Investor Activism

- Importance - who are the targets of activism? (Coffee Jr. and Palia, 2014)
- a minority, active investment (Damodaran, 2005)
- First, activism that adopts some characteristics of corporate takeovers, especially significant stockholdings, is associated with improvements in share values and firm operations (Denes et al., 2017)

- What is activism: We emphasize how dynamic changes in ownership structure are a crucial component of activism that is associated with value and performance improvements.(Denes et al., 2017)

- We find that the market reacts favorably to activism, consistent with the view that it creates value. The filing of a Schedule 13D revealing an activist fund's investment in a target firm results in large positive average abnormal returns, in the range of 7% to 8%, during the (–20,+20) announcement window (Brav et al., 2008)

- Filing a Schedule 13D allows the investor to behave in an active manner. (Brigida and Madura, 2012)

- these activist shareholders know they can increase the value of the firm they invest in by their own effort (e.g., shareholder activism).(Collin-Dufresne and Fos, 2015)

- In the spirit of Pound (1992), we define an entrepreneurial activist as 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 (Klein and Zur, 2009)

- is still largely unanswered where the announcement premium (and the upward drift in stock prices thereafter, for that matter) comes from (Greenwood and Schor, 2009)

- starting with Mikkelson and Ruback (1985), note that mergers and takeovers are often preceded by the acquisition of a minority stake in the target. (Greenwood and Schor, 2009)

- define an activist investor who tries to change the status quo through 'voice', without a change in control of the firm (Greenwood and Schor, 2009)

- To the extent that strategic corporate bidders are perceived to be less likely to abandon their pursuit of the full acquisition, the acquisition probability for corporate partial bidders should be higher than non-corporate bidders.

- Active vs. Passive – We offer an explanation for why raiders do not acquire the maximum possible toehold prior to announcing a takeover bid (Goldman and Qian, 2005)

- The acquisition of a partial stake in a target firm has been positively linked to the likelihood that the target will be involved in a follow on full acquisition involving either the original bidder or a third party bidder (Akhigbe et al., 2007)

2.3 13D Filings

- Much attention has recently been given to the current Securities and Exchange Commission reporting requirements for Schedule 13D, the beneficial ownership form many investors must file to report their equity hold (Giglia, 2018)

- Schedule 13D filings must be made within 10 days of acquiring a beneficial ownership of 5% or greater of the outstanding common stock of a U.S. public company. The use of the qualifier 'beneficial' is important because related, yet different entities, may have to file a schedule 13D if their combined ownership of the target is 5% or greater and their voting or investment power is combined (Brigida and Madura, 2012)

- Within the Schedule 13D and 13G filings is information important to this analysis. (Brigida and Madura, 2012)

- *Outlook*: with more information processed one could say... A 13D filing by an acquirer may have a more pronounced impact if the filing specifies that the investor intends to be an activist. (Brigida and Madura, 2012)

- 13D Filings (Collin-Dufresne, Pierre; Fos, Vyacheslav)

- Those investors with activist intentions must file a more detailed Schedule 13D, which along with other information, requires the investor to state its future intentions with respect to influencing control of the company (Giglia, 2018)

- Exchange Act of 1934 (1934 Act)16 in an attempt to increase regulation of tender offers and accumulations of stock. There were no corresponding regulations in connection with cash tender offer (Giglia, 2018).

- Of relevance here is section 13(d), which governs disclosures of beneficial ownership interests in excess of five percent of certain classes of equity securities.

- Purpose of the filing – Instead, the purpose of the section focused on informing investors about purchases of large blocks of shares acquired in a short period of time by individuals who could then influence or change control of the issuing company (Giglia, 2018)
- Most obviously, disclosing a large buying interest in the market may push stock prices up, as market makers reacts to this increasing demand by raising ask prices. (Giglia, 2018)
- A Schedule 13D/A is an amended filing by the same investor for the same firm and is filed subsequent to the original Schedule 13D (Klein and Zur, 2009)

2.4 Abnormal Returns

- An average Schedule 13D filing in our sample is characterized by a positive and significant market reaction upon announcement (Collin-Dufresne and Fos, 2015)
- Short-horizon event studies of stock returns: Many studies have examined what happens to targets firm's stock price when there is a Schedule 13D filing with the SEC (Coffee Jr. and Palia, 2014)
- Brav, Jiang, Partnoy, and Thomas (2008) have documented a positive and significant average abnormal return in response to 13D filings (Brigida and Madura, 2012)
- 10K-Finlings - While abnormal trading volume and return volatility may indicate market reaction to new information, they could also simply reflect an increase in noise trading. (You and X. j. Zhang, 2009)
- the high returns documented around the announcement of activism reflect investors' expectations that target firms will be acquired at a premium to the current stock price (Greenwood and Schor, 2009)
- We find that PTs experience significant gains when the partial acquisition is announced. (Akhigbe et al., 2007)
- Hedge fund activism and proxy fights lie between these two extremes in the "congealing of share votes," as they are associated with toehold investments by the activist that

average 8.8%and 9.9%, and are associated with average valuation effects of 5.0%and 6.8%, respectively.(Denes et al., 2017)

- t prior experience in the field), the second problem with much of the data on hedge fund activism is the missing evidence as to what causes the stock price gains that are observed. If the positive abnormal stock returns are attributable to actions by activists that reduce managerial agency problems, they should leave some trail. That is, there should be evidence about changed capital structure, reduced executive compensation, dividend payouts, or altered investments. Yet, most of the studies find that the positive abnormal returns are not statistically significantly related to changes in real variables that occur subsequently to the activists' intervention. (Coffee Jr. and Palia, 2014)

- A firm's abnormal stock return is the difference between its buy-and-hold return from 1 year prior to the 13D filing date to 30 trading day before the date and the buy-and-hold return for the same time period on the appropriate Fama–French size-matched port-folio of firms. (Klein and Zur, 2009)

- Specifically, hedge fund targets earn 10.2% average abnormal stock returns during the period surrounding the initial Schedule 13D. Other activist targets experience a significantly positive average abnormal return of 5.1% around the SEC filing window (Klein and Zur, 2009)

- We find that the market reacts favorably to activism, consistent with the view that it creates value. The filing of a Schedule 13D revealing an activist fund's investment in a target firm results in large positive average abnormal returns, in the range of 7% to 8%, during the (–20,+20) announcement window (Brav et al., 2008)

- In summary, Table IV shows that the market reacts positively to activism in general and that the positive abnormal returns are robust across different methodologies. (Klein and Zur, 2009)

- We show that these returns are largely explained by the ability of activists to force target firms into a takeover (Greenwood and Schor, 2009)

2.5 Corporations

- Corporation (sample selection) - (Collin-Dufresne, Pierre; Fos, Vyacheslav)
- but the runup is even larger if the acquirer is a nonfinancial corporation or a private investor.(Brigida and Madura, 2012)
- Third, among 13D filings, the level of informed trading is higher when the filer is a nonfinancial corporation, private investment firm, intends to merge or acquire, or intends to be an activist investor (Brigida and Madura, 2012)
- Akhigbe, Martin, and Whyte (2007) show that toeholds acquired by corporate bidders are more likely to result in a full acquisition when compared with all other toehold acquirers.(Brigida and Madura, 2012)
- Important table: Target runup by acquirer's identity (t = 0 is the 13D filing date) (Brigida and Madura, 2012)
- difference of the paper: Our analysis differs from earlier analyses...(Brigida and Madura, 2012)
- Partial bids initiated by corporate bidders are more likely to result in a full acquisition, and the size of the acquired stake and the level of institutional ownership are positively linked to the probability of acquisition. (Akhigbe et al., 2007)
- Further, studies show that establishing prior ownership increases the bidder's chance of a successful full acquisition. (Akhigbe et al., 2007)
- While no study has directly investigated between the link of the partial bidder and the ... (Akhigbe et al., 2007)
- Without exception, BIDCORP is positive and significant. Partial positions taken by corporate bidders (BIDCORP) generate significantly higher gains to the PTs. This result may reflect the hubris-based view (Roll, 1986) that corporate bidders are likely to overpay in the event of a full takeover. (Akhigbe et al., 2007)

- Within the sample of 13D filings, some of the acquirers are corporations that are potential fullacquirers, while other acquirers are institutional investors that are not likely to pursue a complete takeover. (Brigida and Madura, 2012)
- The gains are greater when corporate bidders initiate a partial position and are positively associated with the size of the announced partial position, and the degree of the target's free cash flow (Akhigbe et al., 2007)
- At the other extreme, corporate takeovers typically involve the formation of large blockholdings and create large changes in firm valuation that average 15.3% (Denes et al., 2017)

2.6 Minority Acquisitions, Toehold Acquisitions and Partial Acquisitions

- Minority acquisitions are an important organizational choice, accounting for around 20% of all acquisitions between 1990 and 2015 (huang)
- Most firms, private and public, have assets on their books that can be considered to be non-operating assets. The second is investments in equities and bonds of other firms, sometimes for investment reasons and sometimes for strategic ones (Damodaran, 2005)
- A firm contemplating making a bid for the target may also decide to purchase target shares – a toehold – in the market at the pre-bid (no-information) target share price. The implications of such toehold acquisitions for optimal bidding are discussed in detail later in this chapter. In the context of the free-rider problem, the important point is that the toehold bidder may gain on the toehold while making zero profits on the shares acquired in the formal takeover bid. (Betton, Eckbo and Katrin S. Thorburn, n.d.)
- A priori, there is a compelling case for acquiring a toehold prior to initiating a takeover bid. The toehold not only reduces the number of shares that must be purchased at the full takeover premium, but it may also be sold at an even greater premium should a rival bidder enter the contest and win the target. (Betton, Eckbo and Katrin S. Thorburn, n.d.)

- makes the toehold bidder a more aggressive competitor in the presence of rivals. (Betton, Eckbo and Katrin S. Thorburn, n.d.)

- Walkling (1985), Jennings and Mazzeo (1993), and Betton and Eckbo (2000) show that toehold bidding increases the probability of winning the target (Betton, Eckbo and Katrin S. Thorburn, n.d.)

- Moreover, the sample-wide frequency of short-term toeholds—defined as target shares purchased within six months of the offer—is only 2%. In sum, toehold benefits notwithstanding, toeholds acquired as part of an active bidding strategy are almost nonexistent. (Betton, Eckbo and Katrin S. Thorburn, n.d.)

- Consider first the argument that mandatory disclosure rules make toeholds too costly because they reveal the bidder's intentions early in the takeover process (Betton, Eckbo and Katrin S. Thorburn, n.d.)

- Betton, Eckbo, and Thorburn (2007) show that the toehold threshold averages 9% in the data, which is consistent with the observed bimodal distribution of observed toeholds (centered on zero or large toeholds) (Betton, Eckbo and Katrin S. Thorburn, n.d.)

- toeholds are much more common in hostile than in friendly takeovers. While 11% of initial bidders have toehold when the target is friendly, 50% of the initial bidders in hostile contests have toeholds (Betton, Eckbo and Katrin S. Thorburn, n.d.)

- The runup reflects takeover rumors generated from various public sources, such as Schedule 13(d) filings with SEC disclosing stake purchases of 5% or more in the target, media speculations, and street talk (Betton, Eckbo and Katrin S. Thorburn, n.d.)

- If so, acquiring a toehold prior to attempting friendly merger negotiations may backfire: if the target refuses, the bidder foregoes not only things like a termination agreement but also the opportunity to examine the target books—which is crucial for pricing the merger. (Betton, Eckbo and Katrin S. Thorburn, n.d.)

- Toehold is a dummy variable equal to one if the acquirer holds at least 5 percent of the target shares and zero otherwise. (Moeller et al., 2004)

- Merger: forces broadly as either "expansionary," in which case mergers are similar in spirit to internal investment, adding to the capital stock of a firm or industry; or "contractionary," whereby mergers facilitate consolidation and reduction of the asset base (Andrade and Stafford, 2004)
- choices include acquiring a pre-bid ownership stake (toehold) in the target (Eckbo, 2009)
- Initial takeover bids are typically preceded by substantial target stock price runups (Fig. 1). Runups are typically thought to reflect takeover rumors generated from various public sources, such as Schedule 13(d) filings with (Eckbo, 2009)
- The case for acquiring a toehold before initiating a takeover bid is compelling. The toehold not only reduces the number of shares that must be purchased at the full takeover premium, it may also be sold at an even greater premium should a rival bidder enter the contest and win the target. (Eckbo, 2009)
- A toehold is defined as the raider's ownership stake in the target firm prior to announcing his tender offer. SEC regulation specifies that anyone who acquires 5%of a company's outstanding shares must file Schedule 13(D) within ten days to disclose their identity, the number of shares owned, and their purpose in acquiring the shares. In practice, a bidder can continue purchasing target shares anonymously after hitting the 5% threshold until the disclosure date. (Goldman and Qian, 2005)
- These two features allow us to demonstrate that while a larger toehold increases the raider's profits if the takeover succeeds, it can also reduce his profits if the takeover fails (Goldman and Qian, 2005)
- to the prediction of our model, the toehold size should be negatively related to the premium. (Goldman and Qian, 2005)
- A second reason why a raider may choose to avoid buying a toehold is that a toehold acquisition can create hostility with the incumbent target manager (Goldman and Qian, 2005)
- toeholds are the norm in hostile bids and the toehold threshold estimate averages 9% across initial bidders (Betton, Eckbo and Karin S. Thorburn, 2009)

- We find that minority acquisitions are more common when keeping target managerial incentives intact is important and when the target is financially constrained or can benefit from certification (Ouimet, 2013)
- acquirer yield a prediction that minority acquisitions should be more likely when the target is large relative to the acquirer (Ouimet, 2013)
- Minority acquisitions tend to involve the transfer of a sizable portion of the target firm, with a mean purchase of 12%. (Ouimet, 2013)
- Industry distribution of minority and majority acquisitions between 1994 and 2006 by and of U.S. public firm (Ouimet, 2013) – for evidence
- Still little is known about why we sometimes observe takeover by proxy fight, sometimes by tender offer and sometimes by merger. (Harris and Raviv, 1988)

2.7 Motivation for Investments

- Block ownership by corporations is unique relative to block ownership by institutions or individuals because of the possibility that business agreements, alliances, or joint ventures might be reached between target firms and corporate owners. (Allen and M. G. Phillips, 2000)
- Blockholdings – First, block ownership might be useful in aligning the incentives of the firms involved in alliances or joint ventures (Allen and M. G. Phillips, 2000)
- A toehold provides an opportunity to interact with the target and its management and in the process get a better sense of the possible synergies from a merger or takeover. (Povel and Sertsios, 2014)
- thus with the idea that potential acquirers of a target use toeholds to improve their information about possible synergies with the target. (Povel and Sertsios, 2014)
- Taking a toehold allows the potential acquirer to interact with the target and its management (Povel and Sertsios, 2014)

- explore using the Capital IQ data, but it would be an interesting question for future research. We make some suggestions: A toehold often likely opens the door to a more intensive cooperation between the toeholder and the target, such that the toeholder learns more about the target's operations and prospects than regular suppliers or customers could hope to discover (without a toehold). That may happen because the toeholder negotiates the right to nominate one or more directors, who have direct access to the target's executives (a non-toeholder would not have that option), or through cooperation at the level of operations (by sharing production facilities or distribution networks). (Povel and Sertsios, 2014)

- The substantial control premium typically observed in corporate takeovers makes a compelling case for acquiring target shares (a toehold) in the market prior to launching a bid (Betton, Eckbo and Karin S. Thorburn, 2009)

- Allen and Phillips (2000) and Fee, Hadlock, andThomas (2006) show that minority acquisitions can mitigate incomplete contracts and thereby facilitate cooperation between two independent firms (Ouimet, 2013)

- Acquire a minority position to access greater information about the target firm and better assess the potential for a majority acquisition. (Ouimet, 2013)

- A majority acquisition will lead to a larger, and potentially less efficient, internal capital market at the acquirer. The only way for firms to avoid such costs is to instead pursue a minority acquisition (Ouimet, 2013)

- Our results suggest that bidders use minority acquisitions when they confront informational or integration barriers.(huang)

- Minority acquisitions can also help to serve as a stepping-stone towards full control. (huang)

- We show that minority stakes are also useful in mitigating some of the risks likely to affect takeover deals that involve greater information asymmetry (huang)

- The underlying logic is that such deals could both help the bidder to enforce incomplete contracts and to gather more information before launching a bid for full control. (huang)

- Activism: Specifically, we analyze and compare three mechanisms: (1) proxy fights (voting only); (2) takeover bids (buying shares only); and (3) a combination of proxy fights and takeover bids in which shareholders vote on acquisition offers (Bebchuk and Hart, 2001)
- We show how combining an acquisition offer with voting can be superior both to straight proxy fights and to straight takeover bids, (Bebchuk and Hart, 2001)

2.8 Payment Methods

- Payment: Bidders initiating takeover bids for U.S. targets over the period 1980-2005 offered all-cash as pay- ment in 26% of the cases, all-stock in 37%, and a mix of stock of cash in 37%. (Betton, Eckbo and Katrin S. Thorburn, n.d.)

2.9 Difference to prior Research

- difference of the paper: Our analysis differs from earlier analyses...(Brigida and Madura, 2012)
- Focus on the target and not on the investor
- only been seen from the targets perspective: First, does financial strength predict subsequent institutional demand? (Choi and Sias, 2012)
- Based on these studies, the economic significance of these partial positions is evident and the link between partial positions and acquisition likelihood is an important issue to examine (Akhigbe et al., 2007)

2.10 Acquisitions

- Important: Read Offenberg 2015 Difference between merger and tender offer https://www.wallstreetp offer-vs-merger/

3 Sample Selection

- The sample of trades by Schedule 13D filers is constructed as follows.(Collin-Dufresne and Fos, 2015)
- We compile data from several sources.Stock returns, volume, and prices come from the Center for Research in Security Prices (CRSP). Intraday transactions data (trades and quotes) come from the Trade and Quote (TAQ) database. Data on trades by Schedule 13D filers come from Schedule 13D filings (available on EDGAR) (Collin-Dufresne and Fos, 2015)
- We exclude the acquirer's stated intent within this model, as the set of variables indicating the acquirer type is highly correlated with the set of variables indicating the acquirer's intent (Brigida and Madura, 2012)
- We report that 10-K document file size provides a simple readability proxy that outperforms the Fog Index, does not require document parsing, facilitates replication, and is correlated with alternative readability constructs.(Loughran and Mcdonald, 2014)
- Since our focus is on portfolio investments, we restrict our sample by cross-referencing the 13D filings with a list of investment managers that have filed a Schedule 13F holdings report at some point in their history. We do this so as not to confuse corporate crossholdings with activism from portfolio investors. This restriction limits our data somewhat, because only institutions holding more than dollar 100 million in US stocks file 13F reports. (Greenwood and Schor, 2009)
- only public companies

3.1 Filters

- Construction of the SC13D Filings Sample - We retain only assets whose CRSP share codes are 10 or 11, that is, we discard certificates, ADRs, shares of beneficial interest, units, companies incorporated outside the United States, Americus Trust components,

closed-end funds, preferred stocks, and Real Es- tate Investment Trusts (REITs).(Collin-Dufresne and Fos, 2015)

- Further following Fama and French, we: (1) exclude financials, (2) require firms to have Center for Research in Security Prices (CRSP) share codes 10 or 11 (i.e., ordinary shares), and (3) require firms to have total assets of at least 25 million and book equity of at least 12.5 million. **2**pChoi2012

- Brav hedge funds, Collin all, my paper just corporations - The evidence is consistent with Brav et al. (2008) and Klein and Zur (2009), who report a significant positive stock reaction to the announcement of hedge fund activism, where the announcement is triggered by Schedule 13D filings. There are two main differences between our samples. First, we consider all Schedule 13D filings while Brav et al. (2008) and Klein and Zur (2009) consider only filings by hedge funds. Second, a Schedule 13D filing is required to have in- formation on trades in order to be included in our sample. That is, we restrict our sample to cases in which the Schedule 13D filer actively accumulates shares and crosses the 5% threshold.(Collin-Dufresne and Fos, 2015)

- We exclude filings for targets in the financial and utility industries (Brigida and Madura, 2012)

- We use company Web sites, newspaper articles, and the Center for International Securities and Derivatives Markets (CISDM) hedge fund database to determine whether or not the activist is a hedge fund or another type of investor (i.e., a mutual fund, pension fund, or investment management company) (Greenwood and Schor, 2009)

- Since our focus is on portfolio investments, we restrict our sample by cross-referencing the 13D filings with a list of investment managers that have filed a Schedule 13F holdings report at some point in their history. We do this so as not to confuse corporate crossholdings with activism from portfolio investors. This restriction limits our data somewhat, because only institutions holding more than dollar 100 million in US stocks file 13F reports. (Greenwood and Schor, 2009)

- Outlook on what could have been done to filter more

- All data are CPI-adjusted into 1990 dollars. (Duchin, 2010)

4 Summary Statistics for the sample - Investor & Target

- Table to show the sample-selection process: Table 1 Sample selection 10-K (You and X. j. Zhang, 2009)
- Characteristics of the Investor/Target (size, key figures) (Coffee Jr., John C.; Palia, Darius)
- Distribution of the Filings across the time window
- Outlook of what could be done or what will follow: depicts the average daily trading volume (number of shares traded scaled by the number of shares outstanding) over the 21 trading days centering around the 10-K filing date (You and X. j. Zhang, 2009)
- Fig. 1. Abnormal returns around activist filing by outcome (Greenwood and Schor, 2009, p. 370)
- Important table – Abnormal stock returns surrounding the initial schedule 13D filing dates (Klein and Zur, 2009)
- Based on these categories, the vast majority of acquisitions involve targets in the manufacturing sector (48.91%) followed by services (15.58%) and financials (10.69%) (Akhigbe et al., 2007)
- number of growth/value stocks?
- Events per industry
- distribution of the f-scores across targets and investors
- Fundamentals across the investors - Table 1 (Duchin, 2010)

5 Financial Strength Measures

- What do I use?
- Why can I use it?
- Control variables - implementation?
- It is important to make it clear that our results are mainly about the correlations between the firm performance and the selection of the firms (i.e. as acquirers, targets, or non-participants), but not about causal effects. (Liu and Qiu, 2013)
- only been seen from the targets perspective: First, does financial strength predict subsequent institutional demand? (Choi and Sias, 2012)
- Figure 1 shows the valuation methods most widely used by Morgan Stanley Dean Witter's analysts for valuing European companies. Surprisingly, the discounted cash flow (DCF) is in fifth place, behind multiples such as the PER, the EV/EBITDA and the EV/EG (Fernández, 2001)
- We first examine whether the overvaluation, equity signaling, growth opportunities signaling, and free cash flow hypotheses can explain the size effect. (Moeller et al., 2004)
- We present both raw and industry-adjusted metrics; the latter is defined as the difference between the firm's measure and the industry's median measure (Shah (1994)). (Klein and Zur, 2009)
- Panel B of Table 3 provides characteristics of the acquiring firm. Free cash flow theory predicts that firms with empire-building managers and poor investment opportunities prefer to invest the firm's excess cash flow rather than pay it to shareholders. Such firms accumulate excess cash, so that firms with excess cash are more likely to make poor acquisitions (see Harford, 1999). However, small firms have a higher mean and median ratio of cash to total assets, which deepens the puzzle of the size effect. Maloney et al. (1993) show that firms with higher leverage make better acquisitions and small firms have higher leverage than large firms. We also estimate Tobin's q using the market value of the firm's assets divided by the book value. As mentioned earlier, the existing evidence is

that firms with higher q values make better acquisitions. Small firms have lower q values than large firms, so that differences in q cannot explain the size effect. Finally, we report the equity book- to-market (BM) ratio, computed as in Fama and French (1993). Dong et al. (2002) argue that firms with low BM ratios are more likely to be overvalued. Small firms have higher BM ratios. There is no significant difference between the operating cash flows of large and small firms (Moeller et al., 2004)

- We present both raw and industry-adjusted metrics; the latter is defined as the difference between the firm's measure and the industry's median measure (Shah (1994)) (Klein and Zur, 2009)

- financial strength forecasts returns (Choi and Sias, 2012)

5.1 F-Score

5.1.1 What is it?

- I chose nine fundamental signals to measure three areas of the firm's financial condition: profitability, financial leverage/liquidity, and operating efficiency (Piotroski, 2000). I define the aggregate signal measure, F-SCORE, as the sum of the nine binary signals. The aggregate signal is designed to measure the overall quality, or strength, of the firm's financial position, and the decision to purchase is ultimately based on the strength of the aggregate signal.

- Piotroski's (2000, 2005) f-score is the sum of nine binary signals that form a "... composite measure of firm strength" [Fama and French (2006, page 496)] (Choi and Sias, 2012)

- The second composite measure of firm strength, PTt, is from Piotroski (2000).It is the sum of nine binary variables, each equal to 1 if a given condition holds and 0 otherwise.(Fama and French, 2006)

- Financial Performance Signals used to Differentiate high BM Firms (Piotroski, 2000)

- Instead, F-Score considers a) in what directions the fundamentals of a company are trending and b) whether general financial health conditions are met (i.e. "positive RoA: yes/no";

"equity issuance: yes/no"; "positive accruals yes/no" etc.). F-Score consist of nine binary variables that can be clustered into three dimensions of company health: profitability, balance sheet health and operating efficiency.(Mohr, 2012)

- In an effort to apply the general idea of F-Score to growth stocks, Mohanram (2005) constructs an indicator ("G-Score") that is supposed to better reflect the underlying fundamental situation of growth companies. (Mohr, 2012)

- Mohanram observes the highest predictive ability of G-Score within the largest and most widely followed sub-segment of the growth stock universe. This is an interesting contrast to Piotroski's (2000) findings that fundamental analysis bears most fruit in a slow information dissecting environment. (Mohr, 2012)

- I refer to companies with a F-Score of 0-3 as "low F-Score" and to companies with a F-Score of 7-9 as "high F- Score". This is different from Piotroski (2000), as he referred to 0-1 F-Score stocks as "low F-Score" and to 8-9 F-Score stocks as "high F-Score". I deviate from this approach to arrive at a larger sub-sample and to be independent from rare outliners. (Mohr, 2012)

5.1.2 Why is it used?

- Our key finding is that, consistent with previous evidence from both developed and emerging market studies, stocks with a high F score earn a significant return premium over stocks with a low F score. (Hyde, 2014) - justification using the f-score to determine company strength. High fscore leads to higher returns hence stronger firms have higher returns. Result: f-score can be used as a proxy for financial strength in comparison to market return. If the returns are higher for high f-scores, the investors must see a high f-score as a representation of financial strength

- We use f-score as the financial strength metric because: (1) it forecasts returns even after accounting for other known stock return predictors such as size, book to market, and asset growth (Fama and French, 2006), (2) the f-score components are commonly used in financial statement analysis, and (3) f-score forecasts profitability consistent with the

explanation that f-score proxies for expected profitability (Fama and French, 2006).(Choi and Sias, 2012) - check appendix

- In contrast, though the positive average slopes on the PTt measure of firm strength are smaller when other variables are in the profitability regressions, they remain more than 2.3 standard errors from zero (Fama and French, 2006)
- The Piotroski (2000) and Ohlson (1980) measures of firm strength, which are proxies for expected net cash flows (earnings minus investment), are also related to average returns in the manner predicted by Eq. (3) (Fama and French, 2006)
- financial variables that reflect changes in these economic conditions should be useful in predicting future firm performance. This logic is used to identify the financial statement signals incorporated in this paper. (Piotroski, 2000)
- Importance f-score: relative to broader variables capturing changes in the overall health of these companies (Piotroski, 2000)
- This approach represents one simple application of fundamental analysis for identifying strong and weak value firms (Piotroski, 2000)
- This finding confirms earlier research by Piotroski (2004) who states that F-Score does not lose its predictive ability when applied to growth (instead of value) stocks. (Mohr, 2012)
- After controlling for financial distress and historical changes in profi- tability, FJSCORE still displays power to discriminate between stronger and weaker firms within each partition (Piotroski, 2000)

5.1.3 Problems/Comments

- Outlook - Capital structure stability is the exception, not the rule (Deangelo and Roll, 2015)
- but none has permanently maintained even approximately stable leverage (Deangelo and Roll, 2015)

- The evaporating similarity of cross-sections raises questions about the empirical relevance of leverage targeting (Deangelo and Roll, 2015)
- What we do know is that the targets of hedge fund activism are not randomly distributed, but rather tend to have some common characteristics, including in most (but not all) studies a low Tobin's Q, below average leverage, a low dividend payout, and a "value," as opposed to a "growth," orientation. (Coffee Jr. and Palia, 2014)
- See Fama and French (2006) for evidence that accruals proxy for future profitability and forecast returns, Haugen and Baker (1996) for evidence ROE proxies for future profitability and forecasts returns and Fama and French (2006) and Chen, Novy-Marx, and Zhang (2011) for evidence ROA proxies for future profitability and forecasts return (Choi and Sias, 2012)
- Jensen (2004) argues that managers are more inclined to apply aggressive accounting when their companies' stock price is valuated excessively (Mohr, 2012)
- In our analyses, any increase in profitability that is solely due to accruals themselves has no relation with the cross section of returns.(Ball et al., 2016)
- In other words, the evidence implies that only the cash-based component of operating profits matters in the cross section of expected returns, and the predictive power of accruals is attributable to their negative correlation with the cash-based component (Ball et al., 2016)

5.2 Financial Distress Measures

- Bankruptcy is a legal status of an insolvent person or an organization, that is, the one who cannot repay the debts that owes to creditors. In most jurisdictions, bankruptcy is imposed by a court order, often initiated by the debtor. When the amount of organization debts is higher than its value of existence assets (Karamzadeh, 2013)
- A comparison between Altman and Ohlson model shows in all three situations Altman works better and it could be suggested to investors in order to predict bankruptcy of companies (Karamzadeh, 2013)

- Accounting based bankruptcy prediction models

5.2.1 Z-Score

- One of the most prominent of these fundamental indicators is 'Z-Score' (Altman, 1964), which shows statistically significant results in predicting bankruptcy of a company (Mohr, 2012)
- Z-Score uses the Altman (1968) model to determine the likelihood of bankruptcy amongst companies. (Klein and Zur, 2009)
- Finally, when comparing hedge fund targets to other entrepreneurial activist targets, hedge funds activists are more likely to invest in firms with lower debt-to-asset ratios and Altman Z-scores.(Klein and Zur, 2009)
- dimensions of financial distress (as measured by Altman's z-statistic (Piotroski, 2000)
- presents results where the entire portfolio of high BMfirms is split based on two accepted measures of firm health and perfor- mance: financial distress (Altman's z-score) and historical change in profitability (as measured by the change in return on assets) (Piotroski, 2000)
- Altman's Z-score and Ohlson's O-score have become popular and widely accepted measures of financial distress. They are used, for example, by Dichev (1998), Griffin and Lemmon (2002), and Ferguson and Shockley (2003) to explore the risks and average returns for distressed firms. (Campbell et al., 2008)
- that distressed stocks underperform the market (Campbell et al., 2008)
- In the Altman model (Z-score) for bankruptcy prediction analysis of ratios method is used. The model consists of five financial ratios that are coefficients by Discriminate Analysis Method and has been implemented as a function that financial ratios are as independent variables of it. (Karamzadeh, 2013)
- The Z-score model is still applied as a general practical tool for assessing the financial well-being of firms

- Financial ratios of the model: (R1) Working capital to total assets (R2) Retained earning to total assets (R3) Earnings before interest and tayes to total assets (R4) Market value of equity to book value total debt (R5) Sales to total assets – Z=1.2(R1)+1.4(R2)+3.3(R3)+0.6(R4)+0.9 Cut-off point is for Z=2.675 where a higher Z-score implies non-bankruptcy and a lower score bankruptcy (Kleinert, 2014)

- Elliott & Elliott (2006, p.703) the z-score has the advantage that it "can be employed to rise above some of the limitations of traditional ratio analysis as it assess corporate stability and more significantly predicts potential case of corporate failures" (Kleinert, 2014)

5.2.2 O-Score – Ohlson

- First, it was possible to identify four basic factors as being statistically significant in affecting the probability of failure (within one year). These are: (i) the size of the company; (ii) a measure(s) of the financial structure; (iii) a measure(s) of performance; (iv) a measure(s) of current liquidity (the evidence regarding this factor is not as clear as compared to cases (i)- (iii)). (Ohlson, 1980)

- We compute two summary measures of firm strength. The first, OHt, is a measure of bankruptcy risk developed by Ohlson (1980).(Fama and French, 2006)

- Altman's Z-score and Ohlson's O-score have become popular and widely accepted measures of financial distress. They are used, for example, by Dichev (1998), Griffin and Lemmon (2002), and Ferguson and Shockley (2003) to explore the risks and average returns for distressed firms. (Campbell et al., 2008)

- OHt produces strong negative average slopes when used alone to forecast profitability; higher probability of default is (not surprisingly) associated with lower future profitability. But in the multiple regressions, OHt loses most of its explanatory power, at least for forecasts more than a year ahead. (Fama and French, 2006)

- The nine independent variables: (1) Size log(total assets /GNP price level) (2) TLTA Total liablitites/total assets (3) WCTA working capital/total assets (4) CLCA current

liabilites/current assets (5) OENEG one if total liabilites exceed total assets, zero otherwise (6) NITA net income divided by total assets (7) FUTL funds provided by operations divided by total liabilities (8) INTWO one if net income was zero for the last two years, zero otherwise (9) CHIN ?? –

5.3 Book to market ratio / Tobins Q

- Tobin's q using the market value of the firm's assets divided by the book value. As mentioned earlier, the existing evidence is that firms with higher q values make better acquisitions. Small firms have lower q values than large firms, so that differences in q cannot explain the size effect. (Moeller et al., 2004)
- we find that firms classified as "high q" are significantly more likely to undertake both mergers and non-merger investment projects than "low q" firms, as would be predicted by the q-theory of investment.
- High q firms are expected to have more valuable assets and hence to pursue more acquisitions. (Arikan and Stulz, 2016)
- High q firms make acquisitions because they have greater productivity that they can transfer to the acquired firm (Arikan and Stulz, 2016)
- For example, Tobin's Q, which is used as a proxy for investment opportunity, has a mean of 1.7 and a standard deviation of 0.9.(Duchin, 2010)
- Expected stock returns are related to three variables: the book-to-market equity ratio (Bt/Mt), expected profitability, and expected investment.(Fama and French, 2006)
- Tobins Q as a measure for investment opportunity (Duchin, 2010)
- Tobins Q = market value of assets (book value of assets (at)+market value of common equity (csho*prcc))-common equity (ceq) -deferred taxes (txdb)/(0.9*book value of assets(at)+0.1*market value of assets) (Duchin, 2010)
- Te evidence consistently supports only the generalization that targets of activism often tend to have a lower Tobin's Q and a "value" orientation (Coffee Jr. and Palia, 2014)

- Tobins Q = (Market value of equity + book value of debt and preferred stocks - deferred taxes) / book assets (MacKay and G. M. Phillips, 2005)

- Tobins Q is past performance measure based on chung and pruitt's approximation: Market capitalization, liquidating value of preferred stock, short term liabilities, short term assets, book value of long term debt, total assets (all on COMPUSTAT) (Brigida and Madura, 2012)

$$ApproximateQ = \frac{MVE + PS + Debt}{TA}$$

- Constrained firms have higher Tobin's Q compared to unconstrained firms, which may be due to their unexploited investment opportunities (Whited & Wu, 2006). (Khatami et al., 2014)

- Acquisition premiums are inversely related to the target's Tobin's Q and positively related to the acquirer's Q, which suggests that targets that are undervalued aremore likely to be acquired at higher premiums; while acquirers that are overvaluedtendtopay higherpremiums. (Khatami et al., 2014)

$$Tobin'sQ = \frac{AT - CEQ - TXDB + PRCC_C * CSHO}{AT}$$

- In particular, this story predicts that both merger and non-merger investment should be increasing in estimates of growth opportunities, such as Tobin's q (Andrade and Stafford, 2004)

- Both merger and non-merger investment are positively related to the firm's Tobin's q and sales growth. (Andrade and Stafford, 2004)

$$TobinsQ = \frac{BookAssets + MarketEquity - BookEquity}{BookAssets}$$

- the existing evidence is that firms with higher q values make better acquisitions. (Moeller et al., 2004)

$$Tobin'sQ = \frac{Firmmarket Value(totalbookassets - bookvalueofequity + marketcapitalization)}{Book Valueof Assets}$$

5.4 Company Size

- In comparison to what? the target? Sample Portfolio?
- IMPORTANT: Moeller et al. (2004) talks about the effect on the acquirers stock not on the targets stock!
- We show in Table 4 how abnormal returns differ between large and small firm (Moeller et al., 2004) – we only report equally-weighted (and not dollar or value- weighted) abnormal returns to save space since we already take into account size differences by splitting the sample.
- To capture the size effect, we use a dummy variable that equals one if the acquiring firm is small. Controlling for firm and deal characteristics, we find that the abnormal return of an acquisition is 1.59 percentage points higher if it involves a small acquirer. (Moeller et al., 2004)
- There are good reasons to think that managers of large firms might be more prone to overconfidence. Such managers might have made the firm large or, if not, they might have to overcome more obstacles to become CEOs than managers of small firms. Since we have data on premiums for public offers, we can investigate whether large firms pay more. (Moeller et al., 2004)
- Large firms pay more. (Moeller et al., 2004)
- We have shown that small firms fare significantly better than large firms when they make an acquisition announcement. Overall, the abnormal return associated with acquisition announcements for small firms exceeds the abnormal return associated with acquisition announcements for large firms by 2.24 percentage points.(Moeller et al., 2004)

- Small (large) acquirers have a market capitalization equal to or less (greater) than the market capitalization of the 25th percentile of NYSE firms in the same year. (Moeller et al., 2004)
- We include firm size (the log of total market cap, lnMCt) among the fundamental variables because smaller firms tend to be less profitable (Fama and French, 1995).(Fama and French, 2006)
- Firm Size= natural logarithm of book assets (at) (Duchin, 2010)
- Overall, our models show that firm size becomes the driving force for merger dynamics in industries with economies of scale. (Gorton et al., 2009)
- Since firm size can affect the CAR (Moeller, Schlingemann, and Stulz (2004)), we include the logarithm of the acquirer's equity market value (Log valuej,t). (Gorton et al., 2009)
- Likelihood of making an acquisition depends on firm size distribution in industry (this paper, Section VI) – yes (Gorton et al., 2009)
- (**LyonJ.D.BarberB.M.&Tsai1999**)

$$FirmsSize = MarketValueofEquity = PricepersShare * SharesOutstanding$$

5.5 Credit Rating

- credit ratings, which can be interpreted as subjective default probabilities provided by credit rating agencies (Campbell et al., 2008)
- and Avramov et al. (2006), who use credit ratings to measure firms' financial status. (Campbell et al., 2008)

5.6 Diversification

- Importantly, diversification is measured directly through the cross-divisional correlations in investment opportunity (measured by Tobin's Q) and cash flow (measured by earnings

less interest and taxes), as well as the financing gap (measured by the correlation between Tobin's Q and earnings less interest and taxes) (Duchin, 2010)

- The results show that acquisitions that are more diversifying in investment opportunity (i.e., a lower correlation between the investment opportunities of the acquirer and the target) are followed by greater reductions in cash holdings (Duchin, 2010)

5.7 Leverage

- Maloney et al. (1993) show that firms with higher leverage make better acquisitions and small firms have higher leverage than large firms (Moeller et al., 2004)

- Book leverage=(debt in current liabilites (dlc) + long term debt (dltt))/boook assets (At) (Duchin, 2010)

- Furthermore, Barclay, Morellec, and Smith (2003) show how book leverage is theoretically preferable in regressions of financial leverage, arguing that using market values in the denominator might spuriously correlate with explanatory variables such as Tobin's q. However, Welch (2004) argues against book leverage in favor of market leverage, and Fama and French (2002) find strikingly different results for book leverage and market leverage. In light of this recent controversy, we rerun our regressions using total debt divided by the market value of equity plus the book value of debt and preferred stock minus deferred taxes (market leverage). (MacKay and G. M. Phillips, 2005)

$$Leverage = \frac{TotalDebt(DLTT + DLC)}{TotalDebtplusValueofofStockholder'sEquity(DLTT + DLC + SEQ)}$$

- Within the generally distressed value sample, an increase (decrease) in leverage (liquidity) is expected to result in more financial risk (Piotroski, 2000, p.7). (Mohr, 2012)

5.8 KZ-Index

5.9 Whited-Wu Index

- (**I**) use five different measures of financial constraints: (i) the fi- nancial constrains index of Whited andWu (2006),15 (ii) firm size (Gilchrist and Himmelberg (1995)), (iii) payout ratio (Fazzari, Hubbard, and Petersen (1988)), (iv) bond ratings (e.g., Whited (1992), Kashyap, Lamont, and Stein (1994)), (v) commercial paper ratings (Calomiris, Himmelberg, and Wachtel (1995)).16DUCHIN2010

5.10 Cash-Holdings

- the literature has highlighted the agency costs of high cash holdings and finds that firms with high cash holdings are more likely to acquire (Arikan and Stulz, 2016)
- Strikingly, we find that cash is the preferred mode of payment for both young and mature firms (Arikan and Stulz, 2016)

5.11 Other Measurements

- industry multiples
- Balance sheet ratios
- ROE, ROA, accruals
- Fundamental analysis
- Working capital adequacy
- Asset performance
- Capitalization structure

6 Financial Condition and Abnormal Returns

6.1 Cross-Sectional Regression

- To do so, I build a multifactor regression that consists of the explanatory factors size, P/B, momentum, accruals, equity offerings and F-Score. My model closely matches the model used by Piotroski (2000, p. 22) (Mohr, 2012)
- The factors in this regression are based on widely-quoted research. Indeed, size effect and P/B are components of the original three-factor model (Fama and French, 1992) (Mohr, 2012)
- Cross-sectional regression results (Akhigbe et al., 2007, p.3094)
- Cross-sectional regression analysis of announcement abnormal returns (Moeller et al., 2004) - check for nice layout and items
- Important!! – Variables used in the cross-sectional regression (Betton, Eckbo and Karin S. Thorburn, 2009)
- presents parameter estimates in two sets of cross-sectional regressions with either bidder abnormal returns (CAR$\frac{1}{2}$?41;1? and CAR$\frac{1}{2}$?41;end?) or offer premiums (initial and final) as dependent variables. (Betton, Eckbo and Karin S. Thorburn, 2009)
- We winsorize the explanatory variables at the 1% and 99% levels to eliminate variables whose extreme values could affect the regression coefficient meaningfully (Arikan and Stulz, 2016)
- All accounting variables are winsorized at the 1% and 99% levels to reduce the influence of outliers. (Greenwood and Schor, 2009)
- The first two regressions of Table IV test for the existence of life cycle effects when we control for firm characteristics, industry conditions, and economic conditions (Arikan and Stulz, 2016) - across industries etc. several regressions

- 13We winsorize extreme observations by setting the values in the bottom and top1%to the values of the 1st percentiles to present more meaningful mean statistics. For each activist sample, and 99th there are two observations below the 1st percentile, percentile and two observations above the 99th respectively. As a sensitivity check to this process, we redo the analyses after dropping these extreme observations. The empirical results with the smaller samples are qualitatively the same, and therefore we do not include them. We employ the same winsorzing process for all variables throughout the analyses and include these results only.

- The coefficient signs for risk and Tobin's q also change across the two estimation methods. These differences show that the simultaneity of financial leverage and its determinants is a real con- cern requiring proper econometric treatment. Since the GMM estimates address this issue directly, inasmuch as the chosen instrument set is both valid and relevant, we emphasize the GMM results over the OLS esti- mates. (MacKay and G. M. Phillips, 2005)

- Relation between abnormal returns and the aim of the filing (Brav et al., 2008)

7 Justification for using the underlying Inputs to determine the Financial Condition

- Information/Data Availability to the Market

- To ensure that investors would have the necessary information to compute f-scores, Piotroski (2000, 2005) examines annual returns beginning the fifth month following fiscal year end. (Choi and Sias, 2012)

- Check back with sample selection: We report that 10-K document file size provides a simple readability proxy that outperforms the Fog Index, does not require document parsing, facilitates replication, and is correlated with alternative readability constructs.(Loughran and Mcdonald, 2014)

- Readability: financial information is definitely available - is it readable? (Loughran, MacDonald)
- Because information is incorporated in a given manner, we can use several variables as proxies for financial strength observed by the market in the form of abnormal returns (they know what we know)
- At the time a company files its 10-K report with the SEC, most likely all key information has already been disclosed to the public.(You and X. j. Zhang, 2009)
- 10-K Filings - 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. 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, Form 10-K.(Loughran and Mcdonald, 2014)
- Second, we recommend using the file size of the 10-K as an easily calculated proxy for document readability (Loughran and Mcdonald, 2014)
- Check with Company Condition: Figure 1 shows the valuation methods most widely used by Morgan Stanley Dean Witter's analysts for valuing European companies. Surprisingly, the discounted cash flow (DCF) is in fifth place, behind multiples such as the PER, the EV/EBITDA and the EV/EG (Fernández, 2001)
- First, the predictive power of any model depends upon when the information (financial report) is assumed to be available. (Ohlson, 1980)

8 Characteristics Target

- Who are the targets - many report that the typical target firm of an activist investor is smaller, more profitable, has a large institutional ownership level, and has more of a "value" orientation (namely a higher book to market ratio) (Coffee Jr. and Palia, 2014)
- the evidence consistently supports only the generalization that targets of activism often tend to have a lower Tobin's Q and a "value" orientation (Coffee Jr. and Palia, 2014)

- For example, Brav, Jiang, Partnoy and Thomas, supra note 8, find no statistically significant relationship between the target's abnormal returns and their governance and capital structure (Coffee Jr. and Palia, 2014)

- These findings are consistent with the idea that the F Score is most effective when applied to stocks for which the market is slow to incorporate relevant financial information. Deep value stocks are typically neglected by analysts and investors and thus likely to exhibit slow impounding of new information (Hyde, 2014)

- the 'slow impounding of new information' hypothesis by showing that future institutional investor demand is high for stocks with high F scores. (Hyde, 2014)

- The finding by Mohr (2012) that the F score effectively discriminates between high and low return stocks amongst growth stocks provides additional justification for broadening the analysis to include all stocks. (Hyde, 2014)

- Our key finding is that, consistent with previous evidence from both developed and emerging market studies, stocks with a high F score earn a significant return premium over stocks with a low F score.(Hyde, 2014)

- First, does financial strength predict subsequent institutional demand? (Choi and Sias, 2012)

- Analogue to investors? Specifically, the difference between high and low f-score group returns averages 25.73% (statistically significant at the 1% level). (Choi and Sias, 2012)

- Consistent with Piotroski (2000, 2005) and Fama and French (2006), the results reveal a strong positive relation between f-score 10 and future returns. High f-score stocks average annual market-adjusted returns 8.35% greater (statistically significant at the 1% level) than low f-score stocks (Choi and Sias, 2012)

- One of the most prominent of these fundamental indicators is 'Z-Score' (Altman, 1964), which shows statistically significant results in predicting bankruptcy of a company (Mohr, 2012)

- Thus, whether we examine stock returns or accounting data, we conclude that hedge fund activists, on average, target better-performing firms than do other entrepreneurial activists (Klein and Zur, 2009)

- These findings make an interesting comparison to those reported by Bethel et al. (1998), who find that between 1980 and 1989, activist investors were more likely to purchase large blocks of shares in firms with relatively low EBITDA/assets (Klein and Zur, 2009)

- Table II supports the view that targets of hedge funds have substantially more cash than do other entrepreneurial activist targets on their balance sheets, be it cash or cash plus investments (Klein and Zur, 2009)

- The likelihood of acquisition decreases with firm size (Akhigbe et al., 2007) – for further literature check p. 3084 onwards.

- Check for comparison to previous studies: First, target firms tend to be poor performers (Denes et al., 2017)

- Industry average: An alternative approach that allows us to differentiate across firms in different industries uses the industry averages reported in Appendix 1. Based upon the presumption that there is no excess cash in the composite cash holdings of the sector, the industry averages become proxies for operating cash. Any firm that holds a cash balance greater than the industry average will therefore be holding excess cash. (Damodaran, 2005)

- Also one can easily modify the statistical framework so that the analysis of the abnormal returns is autocorrelation and heteroskedasticity consistent by using a generalized method-of-moments approach.(MacKinlay, 1997)

- Finally, when comparing hedge fund targets to other entrepreneurial activist targets, hedge funds activists are more likely to invest in firms with lower debt-to-asset ratios and Altman Z-scores (Klein and Zur, 2009)

9 Abnormal Returns - Event Study

9.1 Event Study

- ECONOMISTS are frequently asked to measure the effects of an economic event on the value of firms (MacKinlay, 1997)
- In the majority of applications, the focus is the effect of an event on the price of a particular class of securities of the firm, most often common equity. (MacKinlay, 1997)
- Definitely check Betton, Eckbo and Karin S. Thorburn (2009) tables!!!
- Ex ante abnormal return generating models (Kolari and Pynnönen, 2010) - Cross sectional correlation
- Short-horizon event studies of stock returns: Many studies have examined what happens to targets firm's stock price when there is a Schedule 13D filing with the SEC (Coffee Jr. and Palia, 2014)
- Trading strategy of Schedule 13D filers before the filing day (Collin-Dufresne and Fos, 2015)
- Useful papers which deal with the practical importance of many of the complications and adjustments are the work by Stephen Brown and Jerold Warner published in 1980 and 1985. The 1980 paper considers implementation issues for data sampled at a monthly interval and the 1985 paper deals with issues for daily data (MacKinlay, 1997)
- Describe the mathematics/procedure behind it! Formulas!
- Combined CARs (value-weighted) - see Betton, Eckbo and Katrin S. Thorburn (n.d.) for more information on CAR characteristics
- Difference tests are based on t-tests for equality in means. (Moeller et al., 2004)
- Average abnormal returns to bidders and targets sorted on toehold bidding - further description (Betton, Eckbo and Karin S. Thorburn, 2009)

- We use the buy-and-hold method to measure the abnormal stock returns for two reasons. (1) As shown in Barber and Lyon (1997), buy-and-hold is favored over cumulative abnormal return (CAR) on a conceptual ground. (2) BHAR facilitates the cross-sectional analysis of how abnormal return varies with complexity. However, as pointed out by Mitchell and Stafford (2000), BHAR may exaggerate the short-term abnormal return due to compounding. To address this issue, we conduct a calendar time analysis. Specifically, each month we place firms into five portfolios based on their most recent FDR (You and X. j. Zhang, 2009)

- We define market-adjusted returns as the firm's buy and hold return less the CRSP value-weighted index buy and hold return over the same period. (Choi and Sias, 2012)

- The market model represents a potential improvement over the constant mean model (MacKinlay, 1997)

- Restrictions of the CAPM: The use of the Capital Asset Pricing Model is common in event studies of the 1970s (MacKinlay, 1997)

- To reduce any effect of outliers on the estimated coefficients, we also estimate each equation using robust regression employing the Huber weight function. (Brigida and Madura, 2012)

9.2 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. The normal re- turn is defined as the expected return without conditioning on the event taking place. (MacKinlay, 1997)

- The general idea of this measure is to isolate the effect of the event from other general market movements. (eventstudymetrics)

- TThe abnormal return of firm i and event date is defined as the difference of the realized return and the expected return given the absence of the event: The expected return (henceforth referred to as normal return) is unconditional on the event but conditional on a separate information set.

- Result: Abnormal return Inputs: Actual Rreturn and Expected/Normal Return

- The target's size- adjusted return is the difference between its buy-and-hold return over a selected time period and the buy-and-hold return for the same time period on the Fama–French size-matched portfolio of firms.

- The market-adjusted return is the difference between the target's buy-and-hold return and the value-weighted NYSE/Amex/Nasdaq index from CRSP.

- The industry-adjusted return is the difference between the target's buy-and-hold return and the return for all firms (target excluded) in the target's Fama–French (1997) 48-industry code. (Klein and Zur, 2009)

9.3 Aggregated Abnormal Return

- Cumulative abnormal returns: Cumulating abnormal returns over time, additionally the cross sectional average CAR (CAAR)

- Buy-and-hold return: Difference between the realized buy-and-hold return and the normal buy-and-hold return

- Size adjusted BHAR:

9.4 Normal Return Models

1. Constant mean return model: Returns are constant over time , no estimation window necessary, statistical

2. Market return model: Restricted market model with alpha=0 and beta=1, no estimation window necessary, statistical

3. Market model: Constant and linear relation between individual returns and the return of a market index, ordinary least squares regression of the return on the market return, statistical

4. CAPM: Economic

5. Three factor model: Economic, excess return of small over big stocks (SMB), excess return of stocks with a high M/B ratio over stock with a low M/B ratio, regression of the risk-adjusted return on the risk-adjusted market return and the return of SMB and HML returns

9.5 Windows

- Figure 2 plots the average buy-and-hold return, in excess of the buy-and-hold return on the value-weightedNYSE/Amex/NASDAQ index from CRSP, from 60 days prior to the filing date to 40 days afterward.(Collin-Dufresne and Fos, 2015)

- For ease of exposition, let us define [-x, +y] to be x days before the 13D filing, to y days after the filing. On this basis - literature (Coffee Jr. and Palia, 2014)

- event-window: we find that most informed trading before a 13D filing is during the event window (-10, -6).(Brigida and Madura, 2012)

- event window - We also found that the target runup before a 13D filing is greatest during the event window (-10,-6). Therefore, future academic research that estimates the share price response surrounding 13D filings should use a window extending to at least 10 days prior to the filing. (Brigida and Madura, 2012)

- Runup = cumulative abnormal return of the target's stock over the intervals (-10, -1), (-5, -1), and (-2, -1) relative to t = 0 being the filing of the Schedule 13D or 13G. (Brigida and Madura, 2012)

- In fact, 92% of the effect of a Schedule 13D filing on the target's stock is realized before 3 days prior to the filing. These results show very little new information is revealed to the market when the Schedule 13D filing is made public (Brigida and Madura, 2012)

- Therefore, any analysis of the effect of a Schedule 13D filing on the target stock should consider an event window starting no later than ten days before the filing. (Brigida and Madura, 2012)

- Our event window begins on day –30 to allow for the 10-day 13D filing window, possible prior leakage of information, and prefiling price pressure that may occur due to the activist accruing a large stake in a relatively short period of time. We extend the event window to day +5, and alternatively to day +30 to accommodate subsequent press coverage of the filing event (Klein and Zur, 2009)

- The first event window covers trading days $\frac{1}{2}$?41;?2? (the runup period), the second is $\frac{1}{2}$?1;1? (the announcement period), and the third is $\frac{1}{2}$2;end? (the post-announcement period) (Betton, Eckbo and Karin S. Thorburn, 2009)

- We estimate mean cumulative abnormal returns (CARs) for various intervals surrounding the announcement: (?11,?2), (?1,0) (?1,+1) and (+2,+10). (Akhigbe et al., 2007)

9.6 Problems

- It is well known that event studies are prone to cross-sectional correlation among abnormal returns when the event day is the same for sample firms. (Kolari and Pynnönen, 2010)

- When there is event-date clustering, we find that even relatively low cross-correlation among abnormal returns is serious in terms of over-rejecting the null hypothesis of zero average abnormal returns. (Kolari and Pynnönen, 2010)

- There have been several other attempts in the literature to resolve the contemporaneous correlation problem (Kothari and Warner 2007).(Kolari and Pynnönen, 2010)

- In this article, we have demonstrated that even relatively low cross-sectional correlation in an event study with clustered event days can cause serious over- rejection of the null hypothesis of no event mean effect. (Kolari and Pynnönen, 2010)

9.7 Statistical Tests

- computed from the time-series of the differences in the 24 cross-sectional means with Newey-West (1987) standard errors] (Choi and Sias, 2012)

- The buy-and-hold Benchmark approach: The first approach uses a benchmark to measure the abnormal buy-and-hold return for every event firm, and tests the null hypothesis that the average abnormal return is zero.(Ang and S. Zhang, 2011)
- Testing the error terms from ordinary least-squares estimations of the below regression equations,using the Breusch-Pagan test, found no evidence for significant heteroscedasticity (Brigida and Madura, 2012)
- Also, when testing cumulative abnormal returns (CARs) in multiple-day windows, our test statistic increasingly dominates nonparametric tests as the window is lengthened (Kolari and Pynnönen, 2010)
- For example, theWilcoxon (1945) rank-sum test has relatively higher power com- pared with parametric tests, particularly for fat-tailed distributions (Kolari and Pynnönen, 2010)
- Corrado (1989) and Corrado and Zivney (1992) recommend non- parametric rank and sign tests that are expected to be robust against event-induced volatility and cross-correlation. The most popular approach for testing CARs with these methods is a cumulated ranks test. Over a small num- ber of periods, this cumulative rank test is able to detect abnormal behavior (Cowan 1992; Campbell andWasley 1993, 1996).(Kolari and Pynnönen, 2010)
- Particularly relevant to the present study, parametric tests based on scaled abnormal returns methods have been found to be superior in terms of power over those based on non-scaled returns (Kolari and Pynnönen, 2010)
- The most widely used scaled tests are the t-statistics of Patell (1976) and Boehmer, Musumeci, and Poulsen (1991). (Kolari and Pynnönen, 2010)
- Thus, scaled returns should be used only for statistical testing purposes as signal detection devices of the event effect, while raw returns carry the economic information for interpretation purposes when a signal is detected (Kolari and Pynnönen, 2010)
- For further reading of test statistics – Other test statistics (Kolari and Pynnönen, 2010)
- Table IV presents abnormal stock returns and both parametric and non- parametric test statistics to evaluate whether these returns are different from zero. (Klein and Zur, 2009)

10 Investor-Target Ratio

- These findings are consistent with the idea that the F Score is most effective when applied to stocks for which the market is slow to incorporate relevant financial information. Deep value stocks are typically neglected by analysts and investors and thus likely to exhibit slow impounding of new information (Hyde, 2014)
- What is the relation between the investor-target ratio and the market?
- Reference to the financial condition of the target: What are the characteristics?
- What kind of companies are the targets (Coffee Jr., John C. Palia, Darius)
- Vertical integration, scale effect - check with industry code - goal takeover?!
- MA participants are larger in size (measured in terms of sales, total assets, number of employees, and research and development (RD) expenditure, respectively); have better technol- ogies (measured in terms of asset to labor ratio, and RD expenditure to labor ratio, respectively); have higher productivity (defined as sales per worker); and have higher profitability (defined as total earning). For the participants, acquirers are better than targets in all these performance measures. (Liu and Qiu, 2013)
- MA participants have better performance measures than non-participants prior to their MAs. (2) Acquirers have better performance measures than targets prior to their MAs. (3) The comparisons in (i) and (ii) also hold for post-merger performance. (4) Acquirers' post-merger performance is better than their pre-merger performance, and targets' post-merger performance is also better than their pre-merger performance (Liu and Qiu, 2013)
- Industry of the investor/target

11 Data

11.1 COMPUSTAT - Financial Condition

11.1.1 Screening Variables

1. What consolidation level? - Consolidated
2. What industry? No financial services (FS)
3. What data format? - Standardized
4. Population source? - Domestic
5. Currency? - USD
6. Company Status? - Active & Inactive

11.1.2 Variables

1. Identifying Information
    - Company name
    - CIK number
2. Identifying Information cont.
    - GIC variables - GIC sectors etc.
    - NAICS - in addition to GIC?
    - SIC - in addition to GIC?
3. Company Descriptor
    - Acquisition method? - ACQMETH filter by takeover?
    -

4. Balance Sheet Items

   - Current Assets total (ACT)
   - Total Assets (AT)
   - Account receivables total (ARTFS)
   - Cash (CH)
   - Liabilities total (LT)
   - Long term debt total (DLTT)

11.2 F-Score Variables

(a) Positive net income before extraordinary items – IB

(b) Positive cash flow from operations

   i. If a company files a statement of working capital (Format Code 1)

      A. *cash flow from operations* is *funds fromm operations* less *other changes in working capital WCAPC.*

      B. *Funds from operations* is the sum of *earnings before extraordinary items IB income statement deferred taxes TXDI* and *equity's share of depreciation expenses.*

      C. *equity's share of depreciation expenses* is *depreciations expense DP* times *the ratio of market capitalization* to the sum of *market capitalization* and the difference between *total assets AT* and *book value of equity.*

      D. *book value of equity* is defined as *total assets AT* less *liabilities LT* plus *deferred taxes and investment tax credits TXDITC* less *preferred stocks liquidity value PSTKL* or *preferred stock redemption value PSTKRV* or *preferred stocks carrying value PSTK*

   ii. If a company files a statement of cash flows (Format code 7)

      A. *cash flow from operations* is *net cash flow from operating activities OANCF*

   iii. For all other Compustat format codes

A. *cash flow from operations* is the sum of *funds from operations* and *changes in working capital WCAPC*

(c) *Cash flow from operations* greater than *net income* – (2) larger than (1)

(d) Growth in net income (scaled by total assets) from the prior fiscal year end

i. *net income before extraordinary items IB* divided by *total assets AT*

(e) Decrease in leverage from prior fiscal year end

i. *long term debt DLTT + DD1* divided by *total assets AT*

(f) Increase in liquidity from prior fiscal year end

i. Ratio of *current assets ACT* to *current liabilities LCT*

(g) No new common or preferred stock issued over the previous year

i. If sales from *common and preferred stocks is zero SSTK*

(h) Increase in gross margin from prior fiscal year end

i. One minus *ratio of costs of goods sold COGS* to *sales SALE*

(i) Increase in asset turnover prior to fiscal year end

i. *ratio of sales SALE* to *total assets at the beginning of the year AT – AT from prior fiscal year*

11.3 CRSP - Event Study Abnormal Returns

12 Appendix

- Appendix C. Compustat data items - see for a good table Andrade and Stafford (2004)

13 Literature

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