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# **The Wondrous World of Hedge Fund Activism**

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Master of Science in de Handelswetenschappen

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# **The Wondrous World of Hedge Fund Activism**

Master Dissertation Submitted in Partial Fulfillment of the  
Requirements for the Degree of Master of Business Administration

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**Hannes Stieperaere  
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Ghent

26<sup>th</sup> of May, 2014

**Wouter Spitaels**



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*Clear Eyes, Full Hearts, Can't Lose.*





## Abstract

This master dissertation examines the impact of hedge fund activism on the financial performance of targeted firms during the financial crisis. I explore the wondrous world of hedge fund activism by studying a data sample of more than 3,000 activist events. The differentiating aspect of this master thesis is that it analyses data which includes unique events for the years 2012 and 2013, making this master thesis one of the most updated works on hedge fund activism.

I find that the financial crisis of 2008 and 2009 is likely to have a negative impact on the number of firms targeted by activist hedge funds and wolf pack tactics. This research confirms the earlier findings in the literature that activist hedge funds target smaller undervalued companies with lower sales growth. Activist hedge fund managers kept on targeting undervalued firms during the financial crisis. During this period, targeted firms were also characterized by a significant lower market value when compared to their benchmark groups.

I find evidence that in the five years after the filing of the schedule 13D, return on assets significantly improved in comparison to ROA of their benchmark firms. This supports the theory that hedge fund activism yields positive long-term effects for target firms. Firms with a higher ROA, leverage, cash holdings, research and development are also more likely to be targeted by activist hedge funds. A low Tobin's Q, dividend yield and cash flow also significantly increase the likelihood of being targeted. During the financial crisis only ROA, leverage and research and development had a positive significant impact on the probability of being targeted.

I also find that targeted firms, on average, yield a positive cumulative abnormal return of 5.73% in the [-20, +20] event window. During the financial crisis however, hedge fund activism yielded lower cumulative abnormal returns when compared to the cumulative abnormal returns yielded by firms targeted before and after the financial crisis. In the debate whether hedge fund activism is beneficial for target firms on a short- and long-term notice, this master thesis follows Bebchuk's research results, as the conducted event studies also prove that hedge fund activism yields long-term positive abnormal returns.

Finally, The Icahn case study in my research links theory with harsh reality and illustrates that Icahn invests in undervalued large-cap companies with lower sales growth. Hedge fund activism executed by Icahn is accompanied by a significant increase in leverage, a drop in sales growth and a positive mean compound abnormal return of 2.61% on the 13D filing date.



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# 1

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## Introduction

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*"This has become a golden age for activist investors."*

Carney (2013)

Activist investing has been with us since the early 1980s, also known as the 'Deal Decade'. Corporate raiders, such as financial institutions and mutual funds, armed themselves with aggressive financial strategies to improve the level of corporate governance in their targeted firms and to get a grip on their management. Around the turn of the century, hedge funds got involved in shareholder activism and started dominating this less known type of investing. For several years now, academics debated about the benefits of hedge fund activism for targeted firms and the activist shareholders themselves. Has it really become a golden age for activist investors? Boyson and Mooradian (2010), Partnoy and Thomas (2006), Klein and Zur (2011), Clifford (2008) and Brav et al. (2008, 2010, 2013a and 2013b) amongst others, emphasize the positive effects of hedge fund activism and find that it yields positive abnormal returns after the filing of a schedule 13D, a public announcement where the fund declares to have more than 5% of the target firm's shares. Gillan and Starks (2007), Kahan and Rock (2007) and Lipton refute these findings and claim the non-existence of positive abnormal returns yielded by hedge fund activism. This claim by the opponents of hedge fund activism however, is not backed by statistical evidence.

The debate between academics, where the disagreement between Bebchuk and Lipton stands out, left one important question unanswered: What was the impact of hedge fund activism on the financial performance of targeted firms during the financial crisis? This master thesis makes use of the most extensive activist hedge fund data sample up till now to address this question. In general, I find that hedge fund activists look for firms which are undervalued; have a lower sales growth and dividend yield but still have a sounding operational performance. This operational performance significantly increases in the five years after the attacks of hedge funds and confirms the long-term positive effects of hedge fund activism on targeted firms. Furthermore, this thesis shows that hedge fund activism suffered a setback during the financial crisis of 2008 and 2009. An event study illustrates that, during the crisis, hedge fund activism yielded lower cumulative abnormal returns in the [-20, +20] event window around the 13D filing date. A concluding case study of Carl Icahn, the

godfather of hedge fund activism, links theory with harsh reality and shows that Icahn outperforms other hedge fund managers when it comes to mean compound abnormal returns on the 13D filing date and the long-term event window.

This master thesis proceeds as follows. Chapter 2 gives an overview of the existing literature on hedge fund activism. The first part of this literature review explores the concept of hedge funds and discusses their history, legal structure and the techniques they utilize. Furthermore, it shows how the existing regulation favours hedge funds. The literature also reveals that the hedge funds are doing very well these days. Their dynamic profile allows them to make huge profits, but also brings various types of risk along with it. The second part gives more comprehensive insights in shareholder activism and hedge fund activism in particular. It also shows the link between hedge fund activism and the agency theory of Jensen and Meckling (1976). Based on previous research, I make a distinction between the objectives and tactics used by activist hedge funds. Finally, I conclude that the majority of academics finds that hedge fund activism creates value for hedge funds and target firms on short-term and long-term notice.

Chapter 3 describes the different steps in the data-collecting process. Based on the North-American activist hedge fund sample of Brav et al. (2013b), I collected unique additional data on firms targeted by activist hedge funds between 2012 and 2013. This aspect differentiates this master thesis from existing literature. Furthermore, descriptive sample statistics show that the financial crisis of 2008 and 2009 is likely to have a negative impact on the number of firms targeted by activist hedge funds which has now stabilized. The same goes for the number of wolf pack tactics, where activist hedge funds join forces to impose changes in the governance of their targeted firms. My data also shows that of the 235 hedge fund activists who filed a schedule 13D between 2007 and 2008, the booming years of hedge fund activism, 126 funds never filed a 13D again.

Chapter 4 looks at the characteristics of targeted firms. Summary statistics show that hedge funds target smaller undervalued companies with lower sales growth. These findings are confirmed by an additional probit regression model. Activist hedge fund managers also prefer firms with a lower dividend yield, higher cash flows and higher payout ratio when compared to their peers. A fixed effects panel model shows that in the five years after the filing of the schedule 13D, return on assets significantly increase in comparison to the ROA of their benchmark firms. This finding confirms the results of Bebchuk et al. (2014), who counter the 'myopic' claim of Lipton et al. (2013); by proving that hedge fund activism results in long-term positive effects for targeted firms. Furthermore, I find evidence that targeted firms are characterized by an increase in leverage, cash flows and payout



ratio in the years following the filing of a schedule 13D. When looking at the target firms' characteristics during the financial crisis, I find that activist hedge funds still look for undervalued companies, but also target firms with a significant lower market value. The probit regression model adds to this that firms with a higher ROA, leverage and research and development were more likely to be targeted during the financial crisis.

Chapter 5 examines the short- and long-term returns of hedge fund activism before, during and after the financial crisis. The results of the event study illustrate that targeted firms yield on average a cumulative abnormal return of 5.73% in the [-20,+20] event window and a significant mean compound abnormal return of 0.99% on the filing day itself when compared to market indexes. The mean abnormal relative volumes and cumulative returns of firms, approached by hedge fund activists during the financial crisis of 2008 and 2009, are lower than the mean abnormal relative volumes and cumulative abnormal returns yielded by firms targeted before and after the financial crisis. Lastly, I disclose positive mean abnormal relative traded share volume in the [-20,+20] event window.

Chapter 6 focuses on the most important activist investor of Wall Street: Carl Icahn. An extensive study of the schedules 13D filed by Icahn, shows that Icahn invests in undervalued large-cap companies with a lower sales growth. Furthermore, my results show a significant increase in leverage and drop in sales growth after a firm is targeted by Icahn. The probit regression model for Icahn's firms illustrates that there is a higher probability of being targeted by Icahn when a firm is more receptive to debt financing. Lastly, an event study shows that firms targeted by Icahn yield a significant positive mean compound abnormal return of 2.61% on the 13D filing date, which is significantly higher than the full sample's average abnormal returns. Within the event window, I also notice higher stock trading volumes for funds targeted by Icahn when compared to the mean abnormal relative stock volumes of the full sample of activist hedge funds.

Finally, Chapter 7 concludes and discusses future research.

# 2

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## Literature

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Hedge funds form a relevant segment of the activist investor family. In the first part of this literature chapter I take a closer look on what hedge funds really are, their history, the techniques and strategies they employ, their legal structure, the exceptional regulation hedge funds are confronted with, other main characteristics and their current state of affairs.

Second, I give more comprehensive insights in shareholder activism and hedge fund activism in particular. A short history shows that activist shareholders are active for more than twenty years. Here it is interesting to see where hedge funds fit in the story, how it is linked with the agency theory of Jensen and Meckling (1976) and what made them take the lead in shareholder activism during the beginning of the 2000s. Next, I discuss the particular objectives and tactics which are unique for activist hedge funds and conclude, based on the literature, that hedge fund activism creates value for hedge funds and target firms on short-term and long-term notice.

### 2.1.Hedge Funds

#### 2.1.1. What is a Hedge Fund?

*"It does not make sense to say hedge funds can never be a problem."*

-Michael Barr, a major architect of the Dodd-Frank Act in Delevingne (2011)-

In the aftermath of the recent financial crisis in 2008 and 2009 hedge funds have been heavily criticized. Some of them doomed hedge fund managers as they were the blame for the entire crisis. Anyway, the hedge funds came into the picture and their managers are more in the spotlights than ever before. With all this media coverage during the previous years, it can be seen as a surprise that there does not exist an official definition of what a hedge fund is and what is actually contains. As there is some overlap between hedge funds and other private equity, venture capital and other mutual funds, a multitude of hedge fund definitions are applied. The United States Securities and Exchange Commission (SEC) tried to respond to this issue by organizing a roundtable conference in

2003. This roundtable did not come up with an exhaustive definition but they set the boundaries of the concept. An updated investor bulletin of the SEC (SEC, 2014, p. 1) describes this concept of hedge funds as privately organized and pooled investment vehicles which invest their capital in order to earn a positive return. Hedge funds are only accessible for sophisticated, high value investors. As the amount of investors is limited for some hedge funds, they need each investor to make a sufficient contribution if they want to play an important role in the market.

Some authors give their own definition to the concept of 'hedge fund'. Brav et al. (2008, p. 1730) state that "Hedge funds employ highly incentivized managers who manage large unregulated pools of capital. Lack of regulation implies that they are able to hold highly concentrated positions in small numbers of companies, and making use of leverage and derivatives to extend their reach." Evans et al. (2005, p. 53) describe hedge funds more as "... a private investment club, usually a partnership open to a small number of wealthy investors, that invests in a variety of securities". Fung et al. (2008, p. 1777) stress the importance of the trading flexibility, sophisticated investment strategies and returns -which are less affected by market circumstances- as important hedge fund characteristics. The following paragraphs discuss the history of hedge funds and the main characteristics that form the cornerstones of what a hedge fund is and which distinguish them from mutual funds.

### **2.1.2. History of Hedge Funds**

Even though there does not exist an official definition of hedge funds, they are here with us since the early 1900s. Table 1 below, shows the history of hedge funds which commenced several decades ago. I conclude that, during the previous age, hedge funds were confronted with numerous difficulties but survived.

According to the Credit Suisse survey (2014), in which over 500 respondents representing \$1.16 trillion of hedge fund investments participated, the hedge fund market today is actually doing quite good. It states that the aggregate assets under management (AUM)<sup>1</sup> by the hedge fund industry reach \$ 2.8 trillion in 2014, a figure which is rising for years now. Strachman (2012, p. 1) sees hedge funds as "...the last pure bastions of capitalism". To put it in another way, the hedge fund business is a very dynamic business where a lot of money can be made.

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<sup>1</sup> According to Ang et al. (2011, p. 103), Assets Under Management (AUM) of a hedge fund "... is cash plus the difference between the fund's long and short positions and is the value of the claim all investors have on the fund.

As one might expect: easy money does not come without risk. Figures of the Credit Suisse survey (2014) also show the impact of the financial crisis with a drop of around 20% in AUM in 2008. As the past financial crisis showed, hedge funds bring risks along with it which are similar to other financial investments. Among them are: political risk, transfer risk, settlement risk, credit risk, legal risk, market risk, liquidity risk and operations risk (Evans, Atkinson, & Cho, 2005, p. 56).

[Insert Table 1]

### 2.1.3. Hedge Fund Techniques

Nicholas (2010, p. 12) says that when investors used to talk about a hedge fund, they initially referred to “a leveraged long portfolio hedged by stock short sales”. Nowadays, a hedge fund is no longer seen as an investment technique but as the structure conducting the leverage-based trades. The initial ‘hedging’ is often no longer applicable for certain hedge funds. One of the aspects which makes hedge funds different from mutual funds is their freedom to use different combinations of investing techniques. Among these techniques are trading on margin, leverage - the usage of debt to finance assets which levers gains and losses- and short-selling. According to Ang et al. (2011, p. 103), leverage “...measures the extent of the relative size of the long and short positions in risky assets relative to the size of the portfolio”. Selling short on the other hand, is selling something you do not possess yet. This can be done by borrowing some securities, selling them to another party in the market and at the moment you have to give the shares back to the person from who you lend them; you buy them from the market.

Professional hedge fund managers, who run the fund and make the investment decisions, often use aggressive strategies with only one goal: hitting the jackpot year after year by securing the highest absolute return and outperform the market. Their aim is to maximize Jensen’s alpha, a risk-adjusted performance measure which Jensen added to the Capital Asset Pricing Model and is also known as the abnormal return or excess of a security (Jensen, 1967):

**Jensen's Alpha (1967):**

$$\alpha_p = R_p - [R_f + \beta_p(R_m - R_f)]$$

Where  $R_p$  is the return on the portfolio,  $R_f$  is the risk free rate,  $\beta_p$  is the beta for the portfolio and  $R_m$  is the market return. Appendix A gives an overview of the strategies which are frequently used by present-day hedge fund managers. (CS/Tremont, 2014; Jaeger, 2003; Phillips & Surz, 2003;

Garbaravicius & Dierick, 2005; Lhabitant, 2006; Evans, Atkinson & Cho, 2005 and Boyson & Mooradian, 2010).

It goes without saying that investors who invest in hedge funds expect a periodic return. With performance-based wages as remuneration for their efforts, the managers of the funds pull out all the stops to meet their set returns, even when the market is going through a bad patch. It is needless to say that these excessive strategies make them run the risk to suffer huge losses.

Hedge fund investors can reduce their risk by investing their money in funds of funds (Jaeger, 2003). Like a mutual fund, a fund of fund manages a portfolio of hedge funds and other stocks, which allows you to diversify your money. This is very tactful because for a lot of hedge fund investors, the required minimum capital forces them to put all their eggs in one basket. The double fee structure, lack of transparency and unfamiliarity form disadvantages of investing in funds of funds (Ineichen, 2002).

#### **2.1.4. Legal Structure**

As this master thesis puts its focus on American hedge funds it is important to understand how these firms are legally structured, how their behaviour is regulated and which other characteristics distinguish them from other funds.

As a pooled investment vehicle, a hedge fund collects money from its investors. Because only sophisticated investors may enter in most of the hedge funds, due to the regulations discussed below, the amounts brought in by them are extremely large. The structure of the U.S. fund depends on the type of investors the fund want to address and how it wants to organize the fund. Lhabitant (2006, p. 85) and Nicholas (2010, p. 41) find that, on a first level, one can choose to set up an onshore or offshore fund. Generally onshore funds are all domiciled in the United States; offshore funds are situated outside of the United States of America. Offshore funds are mostly domiciled in tax-favourable countries like the Cayman Islands, British Virgin Islands, Bahamas or many others. In addition to the tax advantages, hedge funds also find limited reporting responsibilities and confidentiality. Disadvantages of running an offshore hedge fund are the extra operational costs and a negative reputation (Lhabitant, 2006).

When the choice between an onshore or offshore fund is made, the fund has to make a second-level decision regarding the jurisdiction it wants to domicile its legal structure. It is the view of Black (2007) and Strachman (2007) that most funds choose for the Delaware jurisdiction because

of its laws which are in favour for business in general. This implies flexibility, advantageous tax rates: non-residents are not taxed on personal income and the protection against shareholder lawsuits.

Some hedge funds are characterized by complex and difficult structures. Most of them classify the activities of the fund in a US Limited Partnership (LP) or US Limited Liability Company (LLC). Article 1 of the Uniform Limited Partnership Act (ULPA) from 1976 (p. 8) states that with a Limited Partnership, minimum one general partner is fully in charge and responsible of the management of the fund. There also has to be minimum one limited partner who is only liable for his own investment. This structure allows the fund to centralize the management and decisions. Despite the limited protection of the general partner, limited partners can leave the fund without having to make an end to it. Next to the LP, an 'LLC' or a US Limited Liability Company can be created. Article 1 of the Revised Uniform Limited Liability Company Act (ULLCA) from 2006 (p. 15) states that with an LLC structure everyone is only responsible for their own paid contribution to the firm. According to the amount of your investment, you have an amount of voting rights and a say within the fund. This can create quite some chaos when it comes to making important decisions. Overall, the biggest difference between the two structures lies within the personal liability of the investors, where the LLC seems to offer the most protection.

### **2.1.5. Regulation**

In the aftermath of the stock-market crash of 1929, the U.S. government wanted to protect investors and came into action by limiting the financial markets. As a result the SEC was founded in 1934 and several Acts came into effect. Many of those Acts still have their influence on hedge funds today. Here, I briefly discuss the Securities Act of 1933, the Securities Exchange Act of 1934, the Investment Company Act of 1940 the Investment Advisers Act of 1940 and the recently established Dodd–Frank Wall Street Reform and Consumer Protection Act of 2010 which are the five most important Acts today. More specific hedge fund regulation can be found in Lhabitant (2006), Jaeger (2003), on the website of the Securities and Exchange Commission (SEC, 2014), Managed Funds Association (2014) and various law-related hedge fund papers.

Firstly, the general purpose of the Securities Act (1933)<sup>2</sup> is the registration of all securities with the authorities and to increase the level of transparency, so investors have more detailed information on the securities they buy. Most of the hedge funds make use of 'Section 4(2)', which exempts "transactions not involving any public offering" (SEC, 2012a, p. 21). Regulation D under the

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<sup>2</sup> The Securities Act (1933) can be found on <https://www.sec.gov/about/laws/sa33.pdf>  
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Securities Act clarifies the specific rules under which an offering is private. One of the conditions is that most of the investors in the fund should be accredited. Rule 501 of Regulation D in Lhabitant (2006, p. 41) defines what kind of criteria an investor has to meet in order to be accredited. Remarkable is that a natural person, together with his or her spouse, needs a net worth of minimum \$ 1 million or an income of minimum \$ 200.000 during each of the last two years to be known as accredited (Lhabitant, 2006, p. 41). In addition to this, all investors should be sophisticated. This means they should have a financial background which makes him capable of estimating all potential risks. The Managed Fund Association in Jaeger (2003, p. 2) states correctly that exemption for registration under one Act does not imply exemption for other Acts. Each hedge fund tries, as one might expect, to wriggle out of registering under every Act because registering means that hedge funds need to disclose a lot of sensitive information.

The Securities Exchange Act of 1934<sup>3</sup>, which forms the second important Act and the cornerstone of the creation of the SEC, regulates the transactions on the secondary market (Managed Funds Association, 2014). According to Lhabitant (2006, p. 44), hedge funds who want to avoid registration under the Securities Exchange Act "... must trade solely on their own account and refrain from executing trades directly for client" and "... therefore always have less than 500 investors". Section 13 of the Securities Exchange Act regulates the filing of certain periodical reports and reports in case of special events. This section contains rule 13D which states that: "When a person or group of persons acquires beneficial ownership of more than 5% of a voting class of a company's equity securities registered under Section 12 of the Securities Exchange Act of 1934; they are required to file, within ten days after the purchase, a Schedule 13D with the SEC." (SEC 2014; SEC, 2012b, p. 125).

The third important Act is the Investment Company Act of 1940<sup>4</sup>. Section 3(A) of this Act defines an Investment Company as "... any issuer which is or holds itself out as being engaged primarily, or proposes to engage primarily, in the business of investing, reinvesting, or trading in securities (SEC, 2012c, p. 17). Each and every investor that falls within the scope of this definition needs to register with the SEC. This means the fund needs to disclose its strategies. This is the reason why most of the hedge funds use Sections 3(c) (1) and 3(c) (7) to slope off. Section 3(c)(1) exempts funds from registering "...when a fund's outstanding securities - other than short-term paper- are beneficially owned by not more than one hundred persons" (SEC, 2012c, p. 18). Section 3(c) (7) drops

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<sup>3</sup> The Securities Exchange Act (1934) can be found on <https://www.sec.gov/about/laws/sea34.pdf>

<sup>4</sup> The Investment Company Act (1940) can be found on <https://www.sec.gov/about/laws/ica40.pdf>.

the registration obligation if “...the outstanding securities of which are owned exclusively by persons who, at the time of acquisition of such securities, are qualified purchasers” (SEC, 2012c, p. 20). A qualified purchaser is described by Lhabitant (2006, p. 47) as a “super-accredited” investor which owns investments with a total value of more than \$ 5 million.

The fourth major Act installed in the aftermath of the Great Depression is the Investment Advisers Act of 1940<sup>5</sup>. This Act aims at regulating the investment advisors. This means that every hedge fund with at least \$ 150 million of assets under management and which advises its investors, needs to register with the SEC (SEC, 2012d, p. 18).

Right after the financial crisis of 2008, a heated discussion started between hedge funds and the critics who blamed hedge fund managers for being the cause of the global recession. The fact that hedge funds exploited the loopholes in the law could not be tolerated anymore. The loud call for more hedge fund regulation was answered by the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010<sup>6</sup>. Title four<sup>7</sup> of this last important Act contains more strict regulation for investment advisers and hedge funds in particular. Hedge fund advisers with \$ 100 million or more in assets under management have now to register with the SEC (SEC, 2010, p. 202). With additional disclosure obligations and new regulation for derivatives, the Dodd-Frank aims to maintain systemic stability (Managed Funds Association, 2014).

#### **2.1.6. Other Typical Characteristics**

Besides from strategies, legal structure and regulation, hedge funds are characterized by other characteristics which make them unique. At first, hedge funds want to reduce all costs. That is why they offer limited liquidity to the investors. According to Garbaravicius and Dierick, they often offer a “... predefined schedule with quarterly or monthly subscription and redemption” (2005, p. 7). Most of them make use of lock-up periods of one or more years in which the investor’s money is frozen in the fund and redemption is impossible. As hedge funds are not allowed to advertise (Evans, Atkinson, & Cho, 2005, p. 53), the lock-up arrangements offer certainty that the fund’s pool will not dry out at short notice. In addition, hedge fund managers are spared of the fuss and trouble with applying and leaving managers.

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<sup>5</sup> The Investment Advisers Act (1940) can be found on <https://www.sec.gov/about/laws/iaa40.pdf>.

<sup>6</sup> The Dodd-Frank Wall Street Reform and Consumer Protection Act (2010) can be found on <https://www.sec.gov/about/laws/wallstreetreform-cpa.pdf>.

<sup>7</sup> The fourth chapter of the Dodd-Frank Act is the ‘Private Fund Investment Advisers Registration Act of 2010’.



Furthermore, Lhabitant (2006) sees hedge funds exploiting market inefficiencies by hiring the best analysts. As they are actively managed they have faster and cheaper access to the market. Flexible investment policies and regulations give them more freedom than mutual fund managers and allow them to switch their strategies whenever they like.

Lhabitant (2006, p. 30), Zucosky in Jaeger (2003, p. 48) and Garbaravicius and Dierick (2005, p.7) mention the fees which hedge funds charge for executed duties. The typical 'two and twenty' compensation structure consists of a 2% management fee and an 20% performance fee. The management fee can be seen as a charge on the invested assets the hedge fund manager has invested in. The 20% performance fee is charged by the fund on the income it has made. The Economist (2014) claims that the 'two and twenty' structure is overrated and writes that the average management and performance fees lie around 1.4 and 17. According to The Economist (2014), the reason for this drop in returns are the "... lousy returns that alternative assets have brought: Hedge funds as a whole have undershot just about any benchmark in recent years". The current low interest rates may also be the reason why investors demand lower fees.

Another typical characteristic of hedge funds is the opacity of the fund. The existing law and regulations make it possible that smart hedge fund managers do not have to disclose all the vital information on their funds, what makes hedge funds less transparent in comparison to other mutual or pension funds. Some funds also operate from earlier mentioned offshore countries which makes it very hard for the U.S. authorities to get a grip on them.

## **2.2.Hedge Fund Activism**

### **2.2.1. What Is Shareholder Activism?**

Jensen and Meckling (1976, p. 5) define the relationship between shareholder(s) and manager(s) as an agency relationship which is "...a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent". It goes without saying that shareholders want the firm's managers to increase the value of their firm. However, in most of the cases managers act in their own self interest. As a consequence, shareholders try to monitor and get a grip on the managers by stimulating them with performance based wages and bonuses (Partnoy & Thomas, 2006, p. 2-3). According to Jensen and Meckling (1976, p. 6), this comes with agency costs which include: monitoring costs, bounding expenditures and residual loss.

The agency theory as described above is one of the most important motives for shareholder activism where passive shareholders sometimes turn active when the course of events is going to the bad and change is badly needed. When the management fails to meet the wishes and demands of the shareholders, some of them want to exercise their ownership rights and actively influence the firm's governance. Shareholder activism is defined by Gillan and Starks (2007, p. 5) as "...investors who, dissatisfied with some aspect of a company's management or operations, try to bring about change within the company without a change in control". Armour and Cheffins (2009, p. 2) distinguish offensive from defensive shareholder activism. A defensive investor only becomes active because he wants to protect his initial stake and does not want to lose his voice in the company. Offensive shareholders however, step forward because they want to maximize shareholders' returns.

The work of Gantchev (2013, p. 6, 42) shows that activism is as a decision process consisting of a sequential set of tactics. Firstly, an activist investor crossing the five percent threshold share amount, needs to disclose whether he is going to be active or passive by filing a 13D filing<sup>8</sup> or a less strict 13G<sup>9</sup> filing. Secondly, the activist shareholder explains its demands to the board of management. If formal communication fails, the activist might claim his seat in the board. When this proves unfruitful, the activist frequently gathers support from other shareholders and opts for one of the most hostile tactics: a proxy threat mostly followed by a proxy fight (Bradley, Brav, Goldstein, & Jiang, 2009, p. 3).

### **2.2.2. History of Shareholder Activism**

Because of the enormous amount of SEC regulation and restraints imposed after the big depression in the 1930s, the moving space of shareholders was very restricted. It was during the 1980s, also known as the 'Deal Decade', shareholder activism came forward for the very first time. Institutional ownership by financial institutions, public pension funds and mutual funds became very popular (Goranova & Ryan, 2013, p. 4; Gillan & Starks, 2007, p. 3-5). In their attempts to keep target firms' management in line, these active 'corporate raiders' made use of their institutional funds to execute their arsenal of aggressive financial strategies (Armour & Cheffins, 2009, p. 17-22; Klein &

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<sup>8</sup> Rule 13d-1(a) of section 13 of the Securities Exchange Act of 1934 states that: "When a person or group of persons acquires beneficial ownership of more than 5% of a voting class of a company's equity securities registered under Section 12 of the Securities Exchange Act of 1934; they are required to file, within ten days after the purchase, a Schedule 13D with the SEC." (SEC, 2014; SEC 2012b, p. 125).

<sup>9</sup> Rule 13d-2(b) of section 13 of the Securities Exchange Act of 1934 states that: "... securities acquired by such person in the in the ordinary course of his business and were not acquired for the purpose of and do not have an effect of changing or influencing the control of the issuer nor in connection with or as a participant in any transaction having such purpose or effect." (SEC 2012b, p. 125). When a filer meets the requirements, it can file a 13G filing, which is less strict. Here, a filer only needs to update new information once a year and is disclosure of the investment's purpose not required (Briggs, 2006, p. 690)

Zur, 2007, p. 8). Anabtawi & Stout (2008, p. 27) however, state that during the eighties, most of the block holders were very passive.

The 1990s were characterized by more diverse forms of shareholder activism where large pension and labour union funds played the leading part (Goranova & Ryan, 2013, p. 4; Gillan & Starks, 2007, p. 3-5). According to Partnoy & Thomas (2006, p. 2-3), these funds tried to improve corporate governance and held higher stakes, which means they held even more power. One of the most famous state pension funds and shareholder activists, which was founded during that decade, is CalPERS. CalPERS is famous for its yearly 'focus list' which names the so-called underperforming firms they targeted. For years, lots of authors discussed the existence of the CalPERS effect. Smith (1996) finds that firms on this 'focus list' outperformed other firms after successfully being targeted by CalPERS. Karpoff (2001, p. 29) disagrees and concludes that there is still no evidence which proves the existence of the CalPERS effect.

### **2.2.3. The Rise of Hedge Fund Activism**

Around the turn of the century hedge funds started targeting underperforming companies. Bit by bit they became more active and started dominating shareholder activism. This was due to several factors.

One of the most important reasons for the rise of hedge fund activism was the deregulation during the 1990s. In 1992, the SEC liberalized the proxy regulation which made it much easier for hedge funds to make contacts with other shareholders in order to organize the proxy fight (Bradley, Brav, Goldstein, & Jiang, 2009, p. 4). According to Anabtawi and Stout (2008, p.28) and Briggs (2006, p. 689-690), the most important regulatory change was the 'Rule 14a-12<sup>10</sup>' in 1999, which relaxed the filing of proxy solicitations. Shareholders could now use all kinds of media to make public statements, share opinions and form even bigger blocks with other proxy holders before filing the official proxy statement. The fact that hedge funds can avoid from registering under the different Acts<sup>11</sup> makes them ideal activist investors and is also an important explanation for their recent dominance in shareholder activism.

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<sup>10</sup> Rule 14a-12 as an addition to the Securities Exchange Act of 1934 can be found on <http://www.law.uc.edu/sites/default/files/CCL/34ActRIs/rule14a-12.html>

<sup>11</sup> See 2.1.5 for more information

Another reason for the appearance of hedge funds in shareholder activism was the financial markets conditionis of the early 2000s, which made it easier for hedge funds to ‘attack’ their targets. First, there was a fall of share prices in 2003 which made that a lot of firms were undervalued. Secondly, low interest rates allowed hedge funds to finance their activities with cheap debt. Armour and Cheffins (2009, p. 35) find that the credit bubble was the ideal environment for hedge funds to grow and execute activist strategies. Third, Armour and Cheffins (2009, p. 26) indicate that, despite the lock-up period and high minimum capital requirements, the booming hedge fund sector offered stagnating returns (Briggs, 2006, p. 683). As a result, hedge funds knew a higher capital inflow. Lastly, hedge funds made use of advanced financial techniques such as derivatives and options, which fell outside the regulation’s scope of that time. Hedge funds became the new “sheriffs of the boardroom” (Murray, 2005).

#### **2.2.4. The Differentiating Aspects of Hedge Fund Activism**

Table 2 gives a summary of all the major studies conducted on hedge fund activism and shareholder activism in general. It shows that hedge fund activism differs in multiple aspects from other forms of shareholder activism. Brav et al. (2008, p. 1733) for example, find that activist hedge funds are characterized by their flexibility. Boyson and Mooradian (2010, p. 3) together with Kahan and Rock (2007, p. 1048, 1068) add to this that a low number of conflicts of interests creates an ideal setting for activist activities. The work of Brav et al. (2008, p. 1730) adds: “... Hedge fund managers also suffer few conflicts of interest because they are not beholden to the management of the firms whose shares they hold.” So, on a first level, the hedge fund characteristics discussed in § 2.1 distinguish hedge fund activists from other activist funds. In the following 2 subchapters I further discuss other typical objectives and tactics which make hedge funds unique shareholder activists.

##### ***2.2.4.1. Objectives***

The work of Armour and Cheffins (2009, p. 6) and Burkart & Dasgupta (2013, p.2) shows that active hedge funds are not interested in taking full control of their target companies. The most updated sample of Brav et al. (2013, p. 4) shows that almost 60% of the activist hedge funds in their sample wants to maximize shareholder value. 31% of the funds in their sample, target a company with the objective to change the governance of the firm. This could imply the dismissal of some or all the board members, a change in CEO compensation or just more information on the state of affairs. Almost 13% of activist hedge funds in the sample of Brav and 20% in the sample of Gantchev (2013, p. 35) express in the 13D file that they want to change the capital structure by increasing leverage, pay-outs and reducing excess cash by increasing the dividends or buying back a number of shares.

15% (Brav, Jiang, & Kim, 2013, p. 4) and 30% (Gantchev, 2013, p. 35) wants to sell a division or the entire company. Another 17% in Brav et al. (2013, p. 4) aims for a revision of the business strategy.

#### **2.2.4.2. Tactics**

In general, Goranova and Ryan (2013, p.4) say that "... hedge fund activism is strategic and ex ante". This means that hedge funds decide upfront, based on a profound analysis, which company would benefit from activist hedge fund 'support'. If the hedge fund too would benefit from the activism, the hedge fund manager takes an active position in the firm. According to Brav et al. (2009, p. 4), hedge funds look for "cash cows with low growth potentials": undervalued companies with weaker shareholder rights. Kahan and Rock (2007, p. 1021, 1069) have expressed a similar view and add that hedge fund activism "... is directed at significant changes in individual companies".

In addition to the main tactics of Gantchev (2013) discussed in § 2.2.1, hedge funds go one step further. Activist hedge fund managers do not flinch from using hostile tactics like public criticism or filing lawsuits. Others opt sometimes for a surprise attack by slowly building up the stakes and filing 13Gs until they think the time is ripe for activist intervention (Briggs, 2006).

According to Armour and Cheffins (2009, p. 13), Anabtawi and Stout (2008, p. 31) and Briggs (2006, p. 698) 'wolf pack tactics' are more and more used by activist hedge fund managers. A wolf pack is a group of hedge funds which is interested in one specific company. After one hedge fund made its move by targeting an underperforming company, other hedge fund activists jump in and leave the 'prey' no chance.

I can conclude that a Hedge fund activist buys the shares of the company with the objective of increasing the value of the target company, change the pay-out policy, increase leverage, restructure business, force a sale or a merger, install new management or to obtain more information and transparency. Shareholders want to be actively involved and make their voice heard in the decision-taking process. To reach their objectives hedge funds make use of very different (non-)hostile tactics such as communication with the management, public criticism, proxy fights and wolf pack tactics.

#### **2.2.5. Creation or Destruction of Value?**

From in the beginning of the 2000s, the bright rise of hedge fund activism raised questions. Karpoff's empirical research (2001) was one of the first to investigate and summarize the research on returns of hedge fund activism and the operational performance of target companies. He concluded that hedge fund activism did not lead to significantly higher returns and operating performance. He

added that a lot of disagreement in literature was due to different definitions of what, in the process of activism, should be considered as the event date.

More recent studies, which are summarized in table 2, divided academics into 2 sides where non-believers of the activist hedge fund hype and supporters, who believe in additional value created by hedge funds, are polar opposites. A minority (Gillan & Starks, 2007; Fung, Hsieh, Naik, & Ramadorai, 2008) finds that hedge fund activism does not yield any abnormal returns. Others (Lipton, 2013; Kahan & Rock, 2007) go one step further and report that hedge fund activism is a 'dark force' which only focuses on short-term profits and neglects long-term goals, resulting in a destruction of long-term target firm value. Anabtawi and Stout (2008) note that hedge funds are the only ones who benefit from their activism and are a zealous advocate of a reinterpretation of the fiduciary laws. Partnoy and Thomas (2006, p. 57) are less negative but are concerned about the negative influence hedge fund activism can have on corporate voting. Li and Xu's research (2009) in Klein & Zur (2011, p. 6) shows that hedge fund activism negatively impacts target firms' bank loan contracts. According to their research, targeted firms are more likely to pay higher spreads, pledge more collateral and have shorter loan maturities. Klein & Zur themselves (2011) found that hedge fund activism can significantly reduce existing bondholders' wealth. Their studies show that bondholders of targeted firms are confronted with an average excess return of -3.9% and that there is an expropriation of wealth from the bondholder to the shareholder. In the cases where there is no expropriation of wealth, Klein & Zur (2011, p. 7) find that there is a higher chance of being merged or acquired. This result is consistent with the results of Greenwood and Schor (2009, p. 362) who found that "... high returns are only realized when a target firm is involved in a future takeover."

With their study about the Hermes UK Focus Fund, Becht et al. (2009) were one of the first to provide statistical evidence that hedge fund activism yielded positive abnormal returns. Boyson and Mooradian (2010), Partnoy and Thomas (2006), Klein and Zur (2011), Clifford (2008) and Brav et al. (2008, 2010, 2013a and 2013b) find similar results and conclude that hedge funds do not harm their target firms. The research of Brav et al. (2009) adds to this that activism campaigns, aimed at selling the target firm or changing the business strategy, yield the highest returns. Aslan & Kumar (2013) have expressed a similar view. They found that hedge fund activism has a significant impact on its close environment. Their work shows that during the observed event window "... the target firm's rivals experience an average negative market-adjusted abnormal return of -4%." (Aslan & Kumar, 2013, p. 3 ). Boyson and Mooradian (2010) and Bebchuk et al. (2014) both discovered that hedge fund activists are not short-term investors. This goes right against the findings of Lipton (2013) and Kahan and Rock (2007). Lastly, Partnoy and Thomas (2006, p. 57) have drawn the attention to

the fact that hedge funds play an important role in disclosing additional important information about target companies. Macey in Cheffins (2009, p. 10) shows that the impact of hedge funds as activist investors affects all companies in the market. Because companies who are afraid of being targeted will also increase their level of corporate governance in order to satisfy current shareholders and discourage interested hedge fund activists.

Recently, the disagreements between the academic commentators of hedge fund activism escalated, with the feud between Martin Lipton and Lucian Bebchuk as most remarkable example. Lipton, as inventor of the famous 'poison pill'<sup>12</sup>, states that hedge fund activists lack experience, are opportunistic and intransparent, only focus on short-term profits, pump up the returns and neglect long-term performance (Lipton, 2013). In his opinion, target firms should receive more legal protection against activist's attacks. As a response on the memorandum of Lipton, Bebchuk et al. (2014) recently published their research in which they prove that hedge fund activism leads to a long-term increase of returns and operational performance of the target firms. Bebchuk argues that Lipton's 'myopic activists claim' is not backed with statistical evidence and should be considered as untrue. In 2011, the debate between the two academics only became more intense when Lipton filed a petition<sup>13</sup> with the SEC in order to review the 13D regulation. The opinion of Lipton is that, in a world which is characterized by digitalization, the ten days between crossing the five percent threshold and filing the 13D, should be reduced. Again, Bebchuk (2013) replied with a research which points out that modernization of pre-disclosure accumulation regulation is not justified. According to Bebchuk (2013, p. 4), only a small minority of 13D filings is filed by activist hedge funds. Tightening the regulation would have an enormous impact for non-hedge funds, for whom the 10 day filing window is much needed. Lipton devotes himself now for more strict activist hedge fund regulation and found support from Leo Strine, the current Chief Justice in the state of Delaware Court, who joined the debate (Lenzner, 2014). The fight between Lipton and Bebchuk is one we have to keep an eye on.

[Insert Table 2]

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<sup>12</sup> The poison pill, a defensive tactic against a takeover.

<sup>13</sup> Lipton's petition can be found on: <http://www.sec.gov/rules/petitions/2011/petn4-624.pdf>

# 3

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## Research Questions

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This master thesis research focuses on hedge funds activism during the financial crisis. There are still questions left unanswered when it comes to hedge fund activism during the crisis. Burkart and Dasgupta (2014, p.4) find that for an investor, investing in activist funds when future macro-economic outlooks looks good, yields higher profits. The research of Burkart and Dasgupta however, looks at the investors of activist hedge funds, not to the hedge funds themselves or the target firms. Cheffins (2009, p. 2) concludes that corporate governance did not fail during the financial crisis. Cheffins only added that certain strategies used by activist hedge funds became harder to execute (Armour & Cheffins in Cheffins, 2009, p. 49) but he did not back up his findings with evidence, nor focussed on target firms. Other academic authors, like Greenwood & Schor (2009) only give a brief outline of hedge fund performance during the financial crisis and overlook the impact of the financial crisis on target firms. Armour and Cheffins (2009, p. 26) conclude that the financial crisis ended the rise of hedge funds because of their investments in small- and mid-cap companies, which suffered heavy losses when compared to large cap companies. Zuckerman (2009) in Bratton (2010, p.25) finds that "...activist funds were reported to have lost an aggregate 31 percent of portfolio value in 2008". In brief, the differentiating aspect of this master thesis is that it analyses data which includes unique data for the years 2012 and 2013, making this master thesis one of the most updated works on hedge fund activism. Another differentiating aspect of this research is that it focuses on the impact of financial crisis on financial performance of target firms, which is not covered yet by literature. Moreover, the Icahn case study in my research links theory with harsh reality.

With this master thesis I want to contribute to the literature of hedge fund activism and choose a position in the debate between Lipton and Bebchuk. The purpose of this master thesis is to give an answer to the question:

*What was the impact of hedge fund activism on the financial performance of targeted firms during and after the financial crisis?*



At first, with the most recent data set on hedge fund activism today at my disposal, I want to look if past tendencies still stand. How many targets were approached by activist hedge funds between 1994 and 2013? How many hedge funds were active during this observed period? What are the most active funds? Does the data set show wolf pack tactics in the period 1994-2013? Is wolf pack activism more present during the last years? After how many days, after crossing the five percent threshold, do activist hedge funds file a 13D?

In this first chapter, my research also casts the light on what the characteristics of these targeted firms really are and what hedge funds are looking for. Therefore I compared the characteristics of the targeted firms with the same characteristics of non-targeted industry benchmark firms and modelled these relationships in a fixed effects model to see the evolution in time. Under characteristics I understand amongst others market capitalisation, book to market value, sales growth, return on assets, cash flow, leverage, dividend yield and pay-out ratio. I compare my results with similar research findings of Brav (2013b), Greenwood and Schor (2009), Boyson and Mooradian (2010), and (Clifford, 2008). I conclude this chapter with a probit regression model, which gives more insight in the targeting strategies of active hedge funds and the performance of target companies before and after being targeted. The model gives an answer to the question 'Which firm characteristics make it more likely to become a target of hedge fund activism?'

The second chapter of this master thesis research covers the impact of hedge fund activism on the obtained returns of their targets. It is generally known and proven that hedge fund activism causes abnormal buy and hold returns on the 13D filing date. Again, with the most recent data at my disposal and by performing an event study, I want to check if my data also shows significant cumulative abnormal returns around the event date. Furthermore, I want answers to the questions "How do activist hedge funds build up their stake in the [-20:+20] event window?" and "How do targeted firms perform on the long-term?"

The final chapter of this research focuses on one of the major hedge fund activist investors in the United States: Carl Icahn. This chapter takes a closer look into Icahn's hedge fund business. In this final part I want to dig deeper in Icahn's active investments and find an answer to following questions: Who is Icahn? How many firms did Icahn target during the observed period? What are Icahn's motives for hedge fund activism? What tactics does Icahn use when targeting a company? Are these tactics hostile? Does Icahn join other activist hedge funds in these so-called wolf packs? What are the characteristics of the firms targeted by Icahn? What are the returns of Icahn's hedge fund activism? How does Icahn build up his stakes in target companies?

Moreover, I want to check if the pursued activism by hedge funds experienced a different approach during the financial crisis of 2008-2009. In each of the three parts of this research, I focus on the financial crisis and its impact on the financial performance of targeted firms: Was there a drop in hedge fund activism during the crisis? What are the characteristics of targeted firms during the financial crisis? Which firms were more likely to become a target of hedge fund activism during this economic downturn? Did hedge fund activism yield significant cumulative abnormal returns during the financial crisis? How did Icahn's targeted firms perform during the crisis compared to benchmark and other targeted firms?

# 4

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## Data Sample

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### 4.1. Constructing the Sample

In order to perform my research I collected data on active hedge funds and the North American companies they targeted. In a first step I compiled the activist hedge fund's name, the name of the targeted company, unique identifiers, the dates when the 13D filing was filed and the date when the company actually crossed the 5% threshold. During this process I made use of the data set from Prof. Alon Brav (2008, 2010, 2013a and 2013b) which was made available for this research and is also the backbone of my data set. Brav's valuable data is also used in the research of acknowledged academics such as Bebchuk et al. (2014), Gantchev (2013) and Burkart & Dasgupta (2014). Several other authors worked with Alon Brav to build this extensive data set that comprises data from 1994-2011. Among these authors are Wei Jiang, Frank Partnoy and Randall Thomas (2008), Wei Jiang and Hyunseob Kim (2009, 2013a and 2013b), Lucian Bebchuk, Robert J. Jackson Jr. and Wei Jiang (2013) and Lucian Bebchuk and Wei Jiang (2014).

#### 4.1.1. Activist Event Data

The data set Brav et al. (2008) put together is an independent sample based on 13D filings. First they purchased a list of all 13D filers, active during 2001-2006, from LiveEdgar (11,602 filers). Secondly, based on names and descriptions (item 2 of the 13D) they filtered out banks, brokerage companies, regular corporations, foreign institutions, individuals, insurance companies, pension funds and trusts. This resulted in a remaining list of filers that consists of hedge funds, private equity, venture capital funds and non-fund investment advisors. Next, they used web search and Factiva<sup>14</sup> to distinguish the hedge funds from the others. As a result, Brav et al. obtained an official list of 311 active hedge funds.

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<sup>14</sup> Factiva is Dow Jones' news and Information database and can be found on <http://new.dowjones.com/factiva/>  
The Wondrous World of Hedge Fund Activism

In a following step they gathered all 13D filings of these hedge funds. They looked at each and every 13D filing to mark the purpose of the investment. After looking at these 'Item 4' purpose statements on the 13D filings they excluded: "the events where the purpose of the investor is to be involved in bankruptcy or reorganization due to financial distress, events where purpose of the filer is to engage in merger/acquisition related to risk arbitrage (take a long position in target stock before a pending acquisition deal in order to exploit any price convergence) and events where security in which the investment is made not a common share" (Brav 2008, p. 1737). This resulted in a data set of 1,032 events and 236 active hedge funds.

To find the hedge fund motives and target company's response they used news searches (Factiva) which resulted in 27 additional events. They did an additional check on Thomson Financial Form 13F database to avoid bias towards smaller targets because of the large amount of capital required to acquire more than 5% stake in a large-cap company.

During the years after they set up their original data set they used the same method to collect data from 1994-2011. The final data set of Brav et al. (2013b) consists of 2624 fund-target firm pairs and 480 unique activist hedge funds. For their research they made additional use of Compustat and CRSP to collect operating performance data and stock return data of the target companies. By constructing their own data set, Brav et al. avoid the survivorship bias, reporting selection bias and backfill.

This list of active hedge funds and their targeted firms of Brav et al. forms the foundation of my own data set. This data set contains the names of active hedge funds and their targeted companies. Furthermore this database provides the dates when the 13D filing was filed, the actual date when the 5% threshold was crossed by the hedge fund, the target firms' cusip<sup>15</sup> codes and gvkeys<sup>16</sup>, identifiers which I used to track company specific data on WRDS' Compustat and CRSP databases.

First, I extended this data set for the years 2012 and 2013. By using the Morningstar Document Research tool<sup>17</sup>, I went through all 13D filings and checked if the hedge fund names in Brav's list did additional 'active' investments in 2012 and 2013. In all cases, I kept the 3 'exclusion-

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<sup>15</sup> The Committee on Uniform Securities Identification Procedures code.

<sup>16</sup> The Global Company Key

<sup>17</sup> <http://www.10kwizard.com/>

criteria' used by Brav and stated above. This search resulted in 400 additional events which I added to their data set.

Secondly, I went through various websites<sup>18</sup>, the data set of Ivan Kühne (2011, p. 287) and the 'Top 200 Activist Hedge Funds' (National Investor Relations Institute, NIRI, 2014) to look for new hedge funds that were not included in the data set of Alon Brav. I used Factiva to check if the new hedge funds I found are actually a hedge fund and no pension fund, mutual fund, etc. I also scanned item 4d of each 13D file to verify the purpose of transaction of the activist hedge fund. This resulted in 35 additional activist hedge funds and 153 activist events.

My personal final deal data set consists of 3,314 activist events, 515 unique hedge funds activists and 2,275 different target companies. This is the biggest, most extensive data sample ever used in literature up till now. The fact that the data includes the years 2012-2013 makes it unique.

#### **4.1.2. Target Company Performance Data**

I use the Committee on Uniform Securities Identification Procedures (CUSIP) codes and Global Company Key (gvkey) of the target companies to obtain Compustat and CRSP data. This allows me to get the latest operational performance- and stock return data of these targeted companies. For the companies of which no Global Company key or CUSIP was available, I performed Internet searches to find them. In the end I excluded 129 activist events for which no identification code could be found or the 13D event date was not available, leaving me with 3,185 activist events for the analysis.

#### **4.1.3. Bias**

Collecting unbiased activist hedge fund data is not obvious. Since 1996, the SEC obliged companies to file 13D and 13G filings electronically. This implies that for the years 1994 and 1995, when hedge fund activism was still in its infancy, only voluntary filings are recorded in the SEC EDGAR's database. This form of bias has no impact on this study on the 2008 financial crisis.

A second form of bias arises when looking at the performance of activist hedge funds themselves. Because a lot of hedge funds take advantage of the loopholes in the current

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<sup>18</sup> Credit Suisse consulted on 19/02/2014: <http://www.hedgeindex.com/hedgeindex/secure/en/weights.aspx?indexname=HEDG&ChartType=PieCharty=USD>:  
Hedge Tracker consulted on 26/02/2014: <http://www.hedgetracker.com/directory/Shareholder-Activist>  
Richard Wilson consulted on 24/02/2014: <http://richard-wilson.blogspot.be/2007/12/free-hedge-fund-book.html>  
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regulation (See § 2.1.5), they do not have to register under SEC regulation. Some of them however, voluntary share performance-related data with hedge fund databases. Here, bias arises as hedge funds choose to which database they disclose this information and when they do this. This leads to situations where hedge funds, in order to promote their activities, only disclose fund performance when profits were made. I do not have to take selection bias into account because my research only focuses on target firm performance.

In this master thesis I take bias towards multinational targets into account. Hedge funds who set their heart at targeting a multinational might invest in their target for an amount which is lower than the 5 percent threshold. Despite of the fact that these hedge funds do not need to file a 13D, they might implement their activist strategies. Brav (2008) eliminated this form of bias by making use of the on Thomson Financial Form 13F database. Limited time and data-availability forced me to use Factiva to check for small activist hedge fund investments. This search yielded no additional results for the years 2012 and 2013.

## **4.2.Descriptive Statistics**

[Insert Table 3]

[Insert Figure 1]

Table 3 reports the descriptive statistics of the activist hedge fund sample. Panel A shows the general features of this data sample. From the 3.314 collected activist events, 129 events dropped out because of the unavailability of 13D dates or identification codes. Panel B of table 3 and figure 1 summarize the number of schedule 13D filings, filed by activist hedge funds, over time. As figure 1 shows, there is a first peak of active 13D filings in 1997. I find that there is a serious drop in activism from 1998 until 2001. A decrease in the size of the hedge fund industry might be due to the burst of the technology bubble in 2000 and 2001. Cheffins (2009, p. 35) shows that the credit bubble was an ideal environment for hedge funds to increase in size and execute activist strategies. Figure 1 shows a second drop in the number of filed 13Ds in 2008 and 2009. The most recent data shows that the yearly number of activist events remains stable. The number of Active funds per year, which is not displayed, shows a similar trend.

Panel C of table 3 details the most active hedge funds in my data sample. Gamco Investors leads this list with almost 300 activist attacks over almost twenty years. Carl Icahn, whose investments are discussed in detail in chapter seven, occupies the second place. More profound research shows that of the 337 activist hedge funds who filed a 13D between 2004 and 2008, 198 funds never filed a 13D again between 2009 and 2013. More specific, of the 235 hedge fund activists who filed a schedule 13D between 2007 and 2008, the booming years of hedge fund activism, 126 never filed a 13D again. This means that 53% of these funds left the activist business. Despite the fact that I don't have any access to more detailed hedge fund data, I can already conclude that the financial crisis is very likely to have a negative impact on hedge fund activism during and after the financial crisis.

Panel D provides descriptive statistics regarding the industries in which targeted firms operated. I make use of the Fama and French 49 Industry Classification Code<sup>19</sup> which is based on SIC<sup>20</sup> codes. During the entire period, firms in the computer software business turned out to be hedge fund's favourites. Furthermore, Panel D shows no new industries when looking at the industry top-ten during the financial crisis where pharmaceutical companies top the list.

Panel E of table 3 categorizes the number of events where different activist hedge funds filed a 13D for the same target firm within the same year, or so-called wolf pack tactics<sup>21</sup>. As Panel E shows, wolf pack culminate in 2007, fall during the financial crisis and stabilize in 2012 and 2013. My results are similar to those of Cheffins (2009, p. 13), Anabtawi and Stout (2008, p. 31) and Briggs (2006, p. 698). I found one event in 2012 where four different hedge funds filed a schedule 13 within the same year for the same target firm. The wolf pack, which consisted of Basswood Capital Management, Loeb Arbitrage Management, Castine Capital Management and Opportunity Partners set up their wolf pack within five months and left First California Financial Group no chance.

[Insert Figure 2]

Finally, figure 2 shows the number of days between crossing the 5% threshold and the actual 13D filing. Surprisingly, in 889 out of the 3.314 events hedge funds do not file their 13D within the obliged ten-day window which follows the crossing of the 5% threshold. Lipton et al. (2013) are a zealous advocate of bringing the 10 day window to 2 days. However, Bebchuk's evidence (2013)

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<sup>19</sup> More information about the Fama and French 49 Industry Classification Codes can be found on the website of Kenneth R. French via: [http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data\\_Library/det\\_49\\_ind\\_port.html](http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/det_49_ind_port.html)

<sup>20</sup> The Standard Industrial Classification (SIC) is a four digit code which is used to classify companies.

<sup>21</sup> See § 2.2.4.1.

shows that modernization of pre-disclosure accumulation regulation is not justified. In order to reduce the high amount of violations, the SEC might reconsider a revision of their penalty system and make it more strict. Higher fines for example could reduce the number of offenders and make hedge fund activism more fair.



# 5

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## Characteristics of Target Companies

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### 5.1. Summary Statistics

#### 5.1.1. General Target Firm Characteristics

In this Chapter I discuss the characteristics of companies targeted by hedge funds. From the 3,185 useful activist events 247 events drop, because of multiple 13D filings for the same company that year. In that case, I selected the earliest activist events. In several events, target companies merged with other companies which led to unavailable gvkeys for the event year in the Compustat database. Here, data from one or two years before the event year is retrieved. This resulted in a match of 2,878 target firms with the entire Compustat database. With the gvkeys available, I use Compustat to obtain more company specific data for the years 1990 till 2013. More information about the variables used during this research can be found in appendix B.

[Insert Table 4]

Panel A of Table 4 below reports the summary statistics of the target companies' characteristics and the differences between these targeted firms and benchmark firms. The target firms' characteristics of the full sample, which are displayed in Column (1) to (4), are very similar to the findings of Klein and Zur (2007), Gantchev (2013) and Brav et al. (2013b). Boyson and Mooradian (2010) find slightly different values which could be due to their relative smaller sample size.

In column (5) to (7) I compare the target firms' characteristics with a set of year/industry/size/book to market benchmark firms. Where authors like Brav et al. (2013b) and Gantchev (2013) compare on industry/size/book-to-market level, I include the year of targeting in the comparison. For industry matching I use the Fama and French 49 Industry Classification Codes instead of the less accurate SIC code, used in Brav et al. (2013b). Market value matching is dropped for calculating the market value differences and book to market matching is dropped for calculating the book to market and Tobin's Q differences. The t-statistic and Wilcoxon statistic measure the significance of the differences. I say that a difference in means between target firm characteristics

and their benchmark firms's characteristics is significant when both statistics are significant at the 5% level.

The significant differences between the market value and Tobin's Q of targeted firms and their benchmark group, shows that activist hedge funds target smaller undervalued companies. This finding is in accordance with the results in Brav et al. (2008, 2009, 2013a, 2013b), Bebchuk et al. (2013), Boyson and Mooradian (2010), Klein and Zur (2007), Gantchev (2013). It comes not as a surprise that activist hedge funds do not target large-cap companies, as this implies a higher cost to obtain a meaningful holding in the target company. This finding confirms the fact that activist hedge funds are value investors.

Brav et al. (2013b) come to a different conclusion when looking at the book to market value, cash flows and cash holdings of target and benchmark firms. Panel A of Table 4 shows that activist hedge funds look for firms with sounding cash flows to target. This finding is also confirmed by the results of Boyson and Mooradian's research (2010). This difference in results might be due to the fact that Brav et al. (2013b) use less strict benchmark conditions. Furthermore, Brav et al (2013b) do not provide detailed information on their book to market variables which does not allow me to verify this part of their research.

When looking at the significant differences between returns on assets and sales growth, I conclude that activist hedge fund managers look for firms with low sales growth but which are still more profitable than their benchmarks. Furthermore, hedge funds are also attracted by target companies with lower capital expenditures. Remarkable is that target firms have lower dividends but a higher payout ratio when compared to peers. These findings are similar to Brav et al (2013b).

Columns (1) to (3) of Panel B display similar but less significant results when looking at the differences between target firms and benchmark firms during the financial crisis of 2008 and 2009. When I compare these results with Columns (4) to (6), I find that the differences in characteristics between targeted firms and their peers are even bigger in the newest activist target data available. Column (4) shows that during 2012 and 2013, activist hedge funds invest in the smallest companies in the sector: the difference in market value between targeted firms and benchmark firms is twice as big as the difference in market value in 2008 and 2009.

Columns (1) to (4) of Panel C summarize the means of the target firms' characteristics before, during and after the financial crisis. I find that firms targeted during the crisis lost a lot of their market value compared to firms targeted before, but recovered afterwards. Firms targeted

nowadays have a significant lower market value and capital expenditures than firms targeted two years before the financial crisis. The sales growth of targets however is higher for firms targeted in 2012 or 2013.

Lastly, Columns (1) and (2) in Panel D show the changes in characteristics between the year before and the year after the activist event for the full sample. I find that there is a significant decrease in growth of sales figures. Furthermore, there are significant increases in dividend yield and payout when I compare the means of the target company the year before and after the activist events. For firms targeted in 2008 or 2009 there is only a significant decrease in payout, which could be due to the fact that hedge funds reorganized the business to keep the firm alive.

## **5.2.The Evolution of Target Firm Characteristics**

In table 5 below, I make use of a fixed effects<sup>22</sup> panel model which compares the target firms' characteristics with the characteristics of benchmark firms before and after the event year. For this model, the same variables are used as in §4.1.1. Benchmark firms are also determined in the same way as defined above.

[Insert Table 5]

Column (1) and (4) confirm the earlier finding that hedge fund activists target companies with a lower sales growth and a higher return on assets than their peers. I find that, in the five years after the filing of the schedule 13D, ROA increases significantly in comparison to the ROA of their benchmark firms. With significant decrease in sales growth, column (4) confirms again that, when compared to its benchmarks, the growth in sales tend to drop in the years after a firm is targeted. I conclude that, when looking at the evolution of operational performance, target firms benefit from hedge fund activism.

Secondly, column (2) shows a significant increase in difference between the target firms' level of leverage and the one of its peers. This finding supports the results of Brav et al. (2008), who show that right after the activist intervention, the hedge fund manager demands for a higher level of debt financing.

Thirdly, Regression (5) displays a significant difference in the level of cash flow between benchmarks and their benchmark group. Two years after the event, target firms seem to generate

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<sup>22</sup> A Hausman test was conducted to see if a fixed or random effects model was appropriate to estimate the model. The model was tested and corrected for heteroskedasticity and residual autocorrelation.

almost 0.10% more cash flow in comparison to non-targeted peers. After four years, the cash flow difference between both levels out.

Next, Regression (6) and (7) show that target firms, in the aftermath of the event, know a significant increase in payout ratio and a slightly significant decrease in dividend yield when compared to peers. This increase in payout is a confirmation of earlier significant findings in panel D of table 4 and is similar to the results of Brav et al. (2009, p. 5). This means that the demands of activist hedge fund are heard by the target firm's managers and that communications are followed by an increase the payout.

Lastly, target firms are characterized by capital expenditures which are significantly lower than their benchmarks. The results of the regression show that this difference gets slightly bigger in the years following the activist attack. Four years after the activist move, this average difference reaches the hundred million dollar mark.

### **5.3. Probability of being Targeted**

The data collected between 1994 and 2013 shows a 1.40% probability of becoming a hedge fund activist's target. The multivariate probit regression model, which is displayed in table 6 below, looks which characteristics make it more or less likely a firm will be targeted. The dependent variable is a dummy which takes the value of one in the year before the hedge fund activist filed the 13D and zero in all other years. For this model, I make use of the same variables and benchmark comparison approach as described in § 4.1.1. Columns (1) and (3) report  $\alpha$  and  $\beta$  coefficients of the independent variables within the model. Columns (2) and (4) show the marginal probabilities.

[Insert Table 6]

First, I find that a decrease of one standard deviation in  $q$ , ceteris paribus, leads to an extra 0.22% significant increase in the probability of being targeted. This confirms the findings of Brav et al. (2008, p. 1753) and my earlier finding: hedge funds look for undervalued companies to target. Furthermore, this probit model proves again that firms with a higher return on assets and lower sales growth have a higher probability of being targeted. These findings are also similar to the ones of Brav et al. (2008, p. 1753). An increase of one standard deviation in cash flows will lead to a 0.63% decrease in the probability of being targeted. A lot of cash holdings on the other hand, result in a higher likelihood of being targeted (ceteris paribus).

Unlike the insignificant coefficients for leverage and research and development in the research of Brav et al. (2008), I found that higher leverage and research and development ratios increase the probability of being targeted (*ceteris paribus*). Lastly, I find a big discrepancy between the marginal impact of the dividend yield on the probability of being targeted and the findings of Brav et al. (2008). Brav et al. find a significant coefficient (-5.26) which is very similar to the one in table 6 (-5.57). Their marginal probability (-0.38%) for this independent variable however, is much lower as the one shown below (-13.48%). This could be due to the less strict benchmark conditions used in their comparison between benchmark firms and targeted firms.

When looking at the firms who were targeted between 2008 and 2009 (columns 3 and 4 of table 6), I only find four independent variables of which the marginal probability is significant and different from zero. The most important finding when looking at the probability of being targeted during the financial crisis is that activist hedge funds attach more importance to the value of a potential target as the Tobin's Q is lower than the value for Q in the 1994-2013 sample. Return on assets (1.60%), leverage (0.61%) and research and development (3.98%) remain positively related to the probability of being targeted.

## 6

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# The Returns of Hedge Fund Activism

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The second part of this master thesis research looks at the returns of hedge fund activism before and after the filing of the schedule 13D, which forms the observed event. Does hedge fund activism yield positive short- and long-term abnormal returns for the target firms' shareholders? Furthermore I look at the evolution of stock's abnormal relative volumes during the [-20:+20] event window and compare with market and Fama & French benchmark returns. Finally I conclude with a summary of hedge fund returns and stock volumes before, during and after the financial crisis.

WRDS' Eventus was used to perform an event study and obtain data on target firms' abnormal returns and traded stock volumes. From the 3.314 activist events in my sample, 130 drop because of a missing PERMNO<sup>23</sup> code. Depending on the settings of the estimation window and the unavailability of stock return/volume data, other events were excluded from the event study.

In order to evaluate and compare targeted funds' returns in the event study, I used market-adjusted<sup>24</sup> and Fama & French benchmark returns. In 1993 Fama & French (1993) introduced their three factor model: " ... a time-series model of the evolution of excessive security returns (relative to a risk-free rate) as a function of excess market returns, a high minus-low market-to-book ratio factor, and a small-minus big market capitalization factor" (Cowan, 2007, p. 25). This model is an expansion of the capital asset pricing model, which is described above<sup>25</sup>. The Fama and French three-factor model uses three variables to describe stock returns:

**Fama & French three-factor model (1993):**

$$r_i = r_f + \beta_1(r_m - r_f) + \beta_2(\text{SMB}) + \beta_3(\text{HML}) + \varepsilon$$

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<sup>23</sup> A target firm's PERMNO code is WRDS' (CRSP) unique and permanent issue identification number.

<sup>24</sup> Eventus uses NYSE, AMEX and NASDAQ as market indexes.

<sup>25</sup> See § 2.1.3.

Where  $r_i$  is the rate of return of stock  $i$ ,  $r_f$  is the risk-free return,  $r_m$  represents the return of the market portfolio. SMB (Fama & French, 1993, p. 9) stands for the difference between the average return of small market value portfolios and the average return of big market value portfolios. HML (Fama & French, 1993, p. 9) is "... the difference between the simple average of the returns on the two high book-equity/market-equity portfolios and the average of the returns on the two low book-equity/market-equity portfolios.

Carhart (1997, p. 67), a student of Fama, adds a fourth factor: the momentum factor (UMD). The momentum represents the concept that stocks with a good with a double performance will continue to go up in the future and stocks with a bad performance will continue to go down. Adding this fourth factor to the model of Fama & French results in Carhart's four factor model:

**Carhart four-factor model (1997):**

$$r_i = r_f + \beta_1(r_m - r_f) + \beta_2(\text{SMB}) + \beta_3(\text{HML}) + \beta_4(\text{UMD}) + \varepsilon$$

I will use this time-series model<sup>26</sup> as a benchmark for target firms' returns.

[Insert Table 7]

[Insert Figure 3]

Figure 3 and Panel A of Table 7 above report the cumulative abnormal returns of firms targeted by activist hedge funds between 1994 and 2013. The results of the event study show that my sample of targeted firms yield on average a cumulative abnormal return of 5.73% in the [-20, +20] event window. Column (1) and (2) of Panel A shows that on the 13D filing day, there is a significant mean compound abnormal return of 0.99%. When the target firms' returns are compared to the Fama-French-Momentum benchmarks, I find a cumulative abnormal return of 6.61% in the [-20, +20] event window and a compound abnormal return of 1.03% on the filing date. Figure 3 adds to this that there are no negative abnormal returns in the days following the 13D filing date. These findings are similar to those of Klein and Zur (2007), Brav et al. (2008, 2009, 2013a, 2013b), Boyson and Mooradian (2010), Gantchev (2013) and Bebchuk (2014).

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<sup>26</sup> More information can be found on [http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data\\_library.html](http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html)

Columns (5) to (8) of panel A report the returns of firms targeted by hedge funds during the financial crisis. With a significant mean compound abnormal return of 1.09% during the [-20, +20] event window, hedge fund activism generates returns which are similar to the results in columns (1) to (4). Furthermore, figure 3 shows cumulative returns of firms approached by hedge fund activists during the financial crisis of 2008 and 2009 which are lower than the cumulative abnormal returns yielded by firms targeted before and after the financial crisis. I conclude that, during the financial crisis, the effect of hedge fund activism on the returns of targeted firms in the [-20, +20] window was lower.

Panel B of table 7 looks at the long-term returns of target firms between 1994 and 2013. I observe that in the six months preceding the 13D filing date, target firms yield significant negative mean compound abnormal returns: -4.31% when compared to market adjusted returns and -14.56% when compared to the Fama-French-Momentum benchmark. This finding invigorates that hedge funds look for underperforming companies. Furthermore, I find extreme significant positive mean compound abnormal returns when an activist hedge fund manager would hold its investment for minimum three years. This is also the case when the Fama-French-Momentum returns are used as a benchmark. These findings support the conclusions of Bebchuk et al. (2014): hedge fund activism yields significant positive long-term abnormal returns.

The results also show remarkable high long-term cumulative abnormal returns for firms targeted in the crisis. Firms targeted in the financial crisis almost yield a cumulative abnormal return of 95% when compared to the Fama-French-Momentum benchmark. This shows that activist hedge fund strategies were still very lucrative when executed in the great recession of 2008 and 2009.

[Insert figure 4]

Finally, figure 4 displays the mean abnormal relative volumes around the 13D filing event. This figure shows a jump in relative volumes around ten and eight days before the event. This can be seen from the perspective that hedge funds have to file a 13D ten days after crossing the 5% threshold. The work of Bebchuk (2014) reveals that active hedge funds steadily increase their holdings, which explains the high abnormal relative volumes in the days preceding the event date. Furthermore, figure 4 shows that during the ten days following the event, abnormal relative volumes slowly decrease. These abnormal relative volumes however, remain positive until the end of the [-20, +20] event period. When looking at the crisis-period, I find that abnormal relative stock volumes are not as high as during the years before and after. This finding could indicate that activist hedge funds are more prudent and spread out their investments over a longer time-period.



I conclude that hedge fund activism yields positive short- and long-term abnormal returns for targeted firm's shareholders. Even during the financial crisis of 2008 and 2009 hedge fund activism was beneficial for activist investors as it yielded three year cumulative abnormal returns which were almost twice the Fama-French-Momentum benchmark. On short-term, target firms did not yield returns as high as hedge fund activism normally receives. These returns however, were still higher than their benchmarks.

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## The Carl Icahn Case

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*“Some people get rich studying artificial intelligence. Me, I make money studying natural stupidity.”<sup>27</sup>*

Carl Icahn (2014)

The third and final part of this master thesis research focuses on one of the greatest hedge fund activists in history: Carl Icahn. By taking a closer look at Icahn’s investment approach, the characteristics of his targeted firms and their returns, I systematically find an answer to question: “Who is Carl Icahn?”.

### 7.1. Who is Carl Icahn?

Icahn (78) is with a net worth of \$23.1 billion the richest man on Wall Street (Forbes, 2014). After learning the tricks of the trade as Wall Street stockbroker, Icahn founded his own hedge fund ‘Icahn Capital Management’ which now outperforms other hedge funds year after year. Gantchev (2013, p. 20) sees Icahn as one of the most confrontational hedge fund activists on the market or a ‘lone wolf’ as described by Armour & Cheffins (2009, p.18). Carney (2013) adds that ‘the golden age of activist investors’ has arrived with Icahn as the godfather who talks his way to gains instead of speculating.

During his career Icahn expanded his portfolio of targeted firms. With 100 activist events, Icahn is the second most represented activist investor in my activist hedge fund data sample. Table 8 below summarizes five remarkable investments of Icahn which are represented in my data sample. I find that Icahn, in contrast with the general findings on hedge fund activism in the literature (Greenwood & Schor, 2009, p. 366; Klein & Zur, 2011, p. 24), targets large-cap companies. More recently, Icahn continued this investment strategy by targeting firms like eBay and Apple. In the former case, Icahn started a proxy fight against the online market place in order to enforce a spin-off of PayPal<sup>28</sup>. The latter illustrates Icahn’s influential power on the stock market: When Icahn revealed

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<sup>27</sup> Carl Icahn (2014)

<sup>28</sup> PayPal is eBay’s online payment division

his participation in the technology giant; its share price went up with 5%. Size does matter for Icahn.

[Insert Table 8]

### **7.1.1. Icahn's Strategies: Descriptive Statistics**

Table 9 below reports the descriptive statistics for Icahn's hedge fund activism. Panel A reports general information on the Icahn Sample. Panel B shows that Icahn, with 8 investments in 2008, was very active in the beginning of the financial crisis. Armour & Cheffins (2009, p.34) write that despite the fact that Carl Icahn's fund was down 36% in 2008, he invested more than \$500 million of his personal fortune which made him an example of how investors should support their firms during a period of economic decline.

[Insert Table 9]

Icahn was involved in 12 wolf packs, from which six occurred after 2008. Apart from the energy and pharmaceutical investments, which are in favour among all the activist hedge funds (see § 4.2), Icahn also targeted a number of entertainment and food companies (Panel C).

Lastly, panel D gives an overview on Icahn's objectives when targeting a firm of interest. My findings show that in 35% of the cases, Icahn aims for a reorganization of the company. As in some filings, the purpose of the 13D filing remains very vague, this rate will be an underestimation of the actual rate. Furthermore in more than 60% of the filings, Icahn expresses he wants to maximize the target firms' shareholder value. In almost 50 events, Icahn started up conversations with the management in order to renegotiate business to get what he wants. My results show only six events where Icahn initiated a proxy fight. This figure is also an underestimation of the actual situation because proxy fights are mostly initiated after filing a schedule 13D.

Armour and Cheffins (2009, p. 18) have drawn the attention to the fact that Icahn has the disposal of more than 40 "silent partners" to execute his activist attacks. After an extensive study of Icahn's 13D filings, I find 57<sup>29</sup> vehicles of which Icahn made use between 1994 and 2013. Appendix C shows that 43 of these companies, which are solely used for filing 13Ds and transferring money are based in the state of Delaware. This finding confirms the conclusions of Black (2007) and Strachman (2012).

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<sup>29</sup> A complete list of Icahn's filing companies can be found in Appendix C.

## **7.2.Characteristics of Icahn’s Targeted Firms**

### **7.2.1. Summary Statistics**

Table 10 reports the summary characteristics of the firms targeted by Carl Icahn between 1994 and 2013. Although Icahn mostly targets large-cap firms, he still manages to target the undervalued ones. With a significant average difference in market value of more than \$3,000 million and a significant difference of 0.569 in Tobin’s Q between the benchmark firms and the firms targeted by Icahn, Icahn outperforms the average activist hedge fund when it comes to value-investing. When looking at the benchmark, column 5 also shows that Icahn targets firms with lower sales growth (significant at the 10% level). This finding is similar with the full sample findings discussed in § 4.1.

[Insert Table 10]

Panel B of table 10 gives an overview of the changes in characteristics of the targeted firm between the year before and after filing the 13D schedule. I find a significant increase in leverage between the year preceding activism and the year after. This means that in most of the cases, Icahn enters the firm’s boardroom and demands more debt financing. Furthermore, I find that Icahn’s intervention is accompanied by a decrease in sales growth (significant at the 10% level).

A limited amount of observations during the crisis does not allow generating significant firm characteristics results, comparing and evaluating them during the financial crisis.

### **7.2.2. Probability of being Targeted**

Similar to table 6 in § 4.2, table 11 reports the coefficients and marginal probabilities of the estimated probit model. First, I find that an increase of one standard deviation in leverage, ceteris paribus, leads to an extra 0.394% significant increase in the probability of being targeted. This finding shows that Icahn looks for companies which are receptive to debt financing. Furthermore, firms with sounding cash flows have a higher probability of being targeted. The results of this probit regression model however, do not confirm the earlier findings that Icahn looks for undervalued companies as the reported marginal probability for Tobin’s Q is close to zero and insignificant. The insignificance might find its root in the limited amount of firms targeted by Icahn relative to the full sample size.

[Insert Table 11]

Column (3) and (4) of table 11 show that leverage and research and development have a significant impact on the probability of being targeted during the financial crisis. A limited amount of observations during the crisis however, results in insignificant marginal probabilities during the crisis and makes that no conclusions, with regard to marginal effects, can be drawn.

### **7.3. The Returns of Icahn's Hedge Fund Activism**

Table 12 shows the returns of firms targeted by Carl Icahn between 1994 and 2013. From the 100 activist events, only 88 PERMNO codes are available on CRSP. For computing target firms' abnormal returns and traded stock volumes I made use of the same event study approach as described in § 5.

[Insert Table 12]

Panel A of table 11 discusses the short-term market adjusted and Fama-French-Momentum returns. Column (1) shows a significant positive mean compound abnormal return of 2.61% on the 13D filing date. I find similar results when the Fama-French-Momentum model is used as a benchmark. When I compare these results with the abnormal returns of target firms in the full sample I find a significant difference between both. This finding proves that Carl Icahn's 13D filings have a bigger impact on targeted firms' stock returns than other funds have on theirs.

Panel B of table 11 indicates that when compared to market-adjusted returns, firms targeted by Icahn yield on average significant positive abnormal returns of 4.78% in the month of the event. This figure is similar to the full sample abnormal return on the 13D filing date. On the long-term, hedge fund activism realizes a positive mean compound abnormal return of almost three percent which is significant at the 10% significance level. Icahn's activist strategies however, turn out to be less profitable on the long-term when compared to Fama-French-Momentum model returns.

Figure 5 shows the short-term cumulative abnormal returns and the mean abnormal relative volumes from 1994 until 2013. This figure bears a close resemblance with figures 3 and 4 (See § 5). It is plain that when Icahn files a schedule 13D, the returns around the filing date are significantly higher than when the average hedge fund manager would file a 13D.

Finally, Figure 6 points out that the log-transformed mean abnormal relative volumes of Icahn are significantly higher than those of the target firms in the full sample. A first reason for this difference could be the fact that investors are aware of the significant positive abnormal returns Icahn's activist strategies yield in the days following the 13D filing. As a consequence some of them

copy Icahn's strategies, buy shares from the firm targeted by Icahn and try to get a piece of the pie. A second reason for the big difference between the two sample's log-transformed mean abnormal relative volumes could be the average percentage of stake initially acquired by Icahn. My Icahn data sample shows an average of 46.84% of shares initially acquired, which is quite high when compared to the mean of the targets' market value. I also find that both graphs in figure 6 are characterized by the same pattern. A jump in relative volumes between tenth and the eighth day before the event indicates the days where activist hedge fund managers' investments in the target firm cross the 5% threshold. The second peak in mean abnormal relative volumes is between two days before and the event date itself.

[Insert Figure 5]

[Insert Figure 6]

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## Conclusion

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The rise of shareholder activism cannot be ignored. Since the 'Deal Decade' in the 1980s, activist shareholders bought themselves in, aiming to change the corporate governance within the firm. By making use of a varied arsenal of non-hostile and hostile tactics, corporate raiders try to get a grip on the management of their targeted firms. The deregulation in the 1990s and the optimal macro-economic environment in the early 2000s resulted in the dominance of hedge funds as shareholder activists. The question whether hedge fund activism is beneficial for target firms on a short- and long-term notice divides current literature into two sides. Lipton et al. (2013) on one side, find that activist hedge funds only focus on short-term profits and neglect long-term goals, resulting in a destruction of long-term target firm value. Bebchuk et al. (2014) publicly criticize Lipton and proves, by using statistical evidence, the existence of short- and long-term positive abnormal returns yielded by hedge fund activism.

By making use of an extensive activist hedge fund data sample and by conducting several statistical tests, models and event studies; I measure the impact of hedge fund activism on the financial performance of targeted firms during the financial crisis.

Firstly, this master thesis shows that the financial crisis of 2008 and 2009 is likely to have a negative impact on the number of firms targeted by activist hedge funds. I also find that of the 235 hedge fund activists who filed a schedule 13D between 2007 and 2008, 126 never filed a 13D again. Wolf pack tactics, which were very popular in the build-up to the financial crisis, also dropped in the following years. It is also remarkable and important to notice that in almost 27% of the events, hedge funds do not file their 13D within the obliged ten-day window which follows the crossing of the 5% threshold.

Full sample summary statistics show that activist hedge funds target smaller undervalued companies with lower sales growth. Furthermore, activist hedge fund managers also prefer firms with a lower dividend yield, higher cash flows and higher payout ratio when compared to their peers. Activist hedge fund managers kept on targeting undervalued firms during the financial crisis. During this period, targeted firms were also characterized by a significant lower market value when compared to their benchmark group.

In addition to the descriptive tests, this master thesis uses a fixed effects and probit model to report the general evolution of the target's characteristics over time and to measure the impact of each characteristic on the probability of being targeted. The fixed effects panel model shows that in the five years after the filing of the schedule 13D, return on assets significantly improve in comparison to ROA of their benchmark firms. The probit regression model adds to this that firms with a higher ROA, leverage, cash holdings, research and development are more likely to be targeted by activist hedge funds. A low Tobin's Q, dividend yield and cash flow also significantly increase the likelihood of being targeted. During the financial crisis only ROA, leverage and research and development had a positive significant impact on the probability of being targeted.

Results of the event study demonstrate that targeted firms, on average, yield a cumulative abnormal return of 5.73% in the [-20, +20] event window, which is consistent with the findings of Brav et al (2013b). During the financial crisis however, hedge fund activism yielded lower short-term cumulative abnormal returns when compared to the cumulative abnormal returns yielded by firms targeted before and after the financial crisis. When comparing these cumulative abnormal returns of firms targeted in the financial crisis to the long-term Fama-French-Momentum benchmark, I find evidence of cumulative abnormal returns of almost 95%. This shows that long-term activist hedge fund strategies were still very lucrative when executed in the great recession of 2008 and 2009. In the debate whether hedge fund activism is beneficial for target firms on a short- and long-term notice, this master thesis follows Bebchuk's research results as the conducted event studies also prove that hedge fund activism yields both short-term and long-term positive abnormal returns.

In order to address the practical side of hedge fund activism, I conducted a case study on the activist hedge fund manager of all times: Carl Icahn. The results illustrate that Icahn invests in undervalued large-cap companies with lower sales growth. Hedge fund activism executed by Icahn is accompanied by a significant increase in leverage and drop in sales growth. Firms which are more receptive to debt financing have a higher probability of being targeted by Icahn. An event study based on Icahn filing data, shows that the godfather of hedge fund activism outperforms the full sample as firms targeted by Icahn yield a significant positive mean compound abnormal return of 2.61% on the 13D filing date. Within the event window, I also notice higher stock trading volumes for funds targeted by Icahn when compared to the mean abnormal relative stock volumes of the full sample of activist hedge funds.

### ***Future Research***

The findings in this master thesis raise important questions for further research.



First of all, the data sample built for this master thesis research only consists of North American hedge funds and target firms. How does hedge fund activism in Europe look like? Does the European regulation allow hedge funds to be as flexible as their American equivalents? Is there a big difference between European and American target firm characteristics?

Second, when adding additional activist hedge fund data for the years 2012 and 2013, I made a list of 'doubtful' activist hedge funds of which there was a lot of uncertainty whether they were hedge funds or not. The limited amount of time and available data did not allow me to verify their financial background. As I dropped these events for this thesis research, further research could take a deeper look into the activist events of these doubtful hedge funds and involve them in new performed analysis if the funds turn out to be activist hedge funds.

Thirdly, one could verify if hedge fund activism has an impact on the relationship lending of targeted firms. More specific, further research could check if hedge fund activists prove their loyalty to one financial institution and force their targeted firms to do business with these banks or insurance companies.

Lastly, this master thesis only looks at the impact of hedge fund activism on the financial performance of targeted firms during and after the financial crisis. Researchers with access to hedge fund databases like CISDM, CSFB/Tremont, Lipper Tass, MSCI, HFR or others, could expand this data sample and examine the impact of the financial crisis on the returns of activist hedge funds.

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## Tables

**Table 1**

Year	Hedge fund history
1926	Jaeger (2003, p.28) refers to Benjamin Graham as one of the first hedge fund investors. Although the investment pool founded by Graham mainly focused on long-term investments, Graham and some of his colleagues might have shortened some of his positions.
1931	Lhabitant's handbook of hedge funds (2006 p.7) mentions Karl Karsten as oldest hedge fund source ever. In 1931 Karsten his book 'Scientific Forecasting' describes the characteristics of a hedge fund and the strategies the fund used. Karsten, a statistician, used the stock market to test his statistical theories. He started his own fund to exploit the forecasts of his own developed barometers such as volume of trade, interest rates, price level, railroad stocks, steel stocks, oil stocks and others.
1949	Strachman (2012), HedgeCo.net (2014), Evans et al (2005), Jaeger (2003) and many others refer to Alfred Winslow Jones as the first modern and original hedge fund manager. In 1949, he started his own private equity fund with a starting capital of \$100.000. He structured his fund in a way to avoid the restrictive regulations of the Securities and Exchange Commission. His investment model: combine long positions in undervalued securities and short positions in overvalued securities. Jones used the gains from his short sales for leveraging up his other positions. Others followed Jones' investment strategies in the 1950s.
Late 1960s – Early 1970s	During the late 1960s and 1970s a lot of other investors started copying Jones' investment strategies. A lot of them, though, dropped the short selling strategy in the bullish market in the early 1960s as this was more profitable. According to Lhabitant (2006 p.11-12), this resulted in a rise of the number of hedge funds to almost 200 hedge funds in the late sixties. Jaeger (2003, p.28-29), however, mentions only 150 hedge funds in 1970 with aggregate assets of about 1 billion dollar. Among these imitators were Warren Buffet, George Soros and Michael Steinhardt. In 1969-1970 and the years after, the bearish market characterized by high inflation, caused a lot of trouble as many funds had no short positions anymore to hedge their capital. This situation caused huge losses for hedge fund managers which forced them to leave the business. Typical hedge funds did not possess oil or gold but those, who invested in commodity-related firms, survived and remained profitable.
1980s	The U.S. markets recovered in the early 1980s and stories of successful and rich hedge fund managers got media attention. As a result hedge funds became more popular again. Lhabitant found that hedge fund managers themselves experienced that macroeconomic strategies were more successful in this period of time and included, according to Jaeger, non-US equity in their portfolio (2003, p.31). Black Monday, however, shooked up the global economy and the hedge fund market. The global market funds survived the crash and made soon after this shock profits again .
1990s	Unfortunately, during the late 1990s the hedge fund market was again confronted with troubles. According to Lhabitant (2006 p.15-17), the Asian and Russian crisis in 1997 and 1998 took a heavy toll and caused huge losses for several hedge funds, with the result that even funds like Long Term Capital Management (LTCM) nearly had to step out of the business (Evans, Atkinson, & Cho, 2005, p. 52). People blamed the hedge funds for being too risky and destabilizing the economy by their speculative transactions. The markets gained strength again but hedge funds also fed the equity bubble by investing a lot of their portfolio in technology firms. Funds who did not hedge this with short positions knew severe troubles when the bubble bursted. Lhabitant (2006 p.18) concludes that hedge funds did quite good in this economically uncertain period.

**Table 1: The History of Hedge Funds**

**Table 2**

Year	Authors	Journal	Title	Data Source	Sample	Research Question	Theoretical Framework & Findings
2008	Anabtawi, I., Stout, L.	Stanford Law Review, 60: 1255-1308.	Fiduciary Duties For Activist Shareholders	Empirical Research: Theory.	-	Which impact has the new trend of activist hedge funds on the fiduciary duties of shareholders? How does shareholder democracy today look like?	In many cases, the hedge fund is the only party which benefits from the activism. A reinterpretation of fiduciary laws would lead to a shareholder democracy which is advantageously for everyone.
2009	Armour, J., Cheffins B.R.	Journal of Alternative Investments, Vol. 14, No. 3, 2012	The Rise and Fall (?) of Shareholder Activism by Hedge Funds.	Theory & case studies	-	Why did activism by hedge funds achieve prominence in the 2000s? Was hedge fund activism prevalent before the 2000s? Will hedge fund activism remain an important part of the corporate governance landscape?	The authors describe the history of defensive and offensive shareholder activism. They give arguments for the upswing of hedge fund activism during the 2000s. With 'Market for Corporate Influence' as a heuristic model they look at supply and demand side to evaluate hedge fund activism. They also look at activist hedge funds during the crisis in a theoretical way and find that offensive shareholderism will remain at the forefront of U.S. corporate governance.

**Table 2 (Continued)**

Year	Authors	Journal	Title	Data Source	Sample	Research Question	Theoretical Framework & Findings
2013	Aslan, H., Kumar, P.	Working Paper	The Product Market Effects of Hedge Fund Activism	They make use of Factiva and the SEC's EDGAR database to look for activist hedge funds.	The final data sample consists of 1,332 unique target firms, 1,610 activist events and about 140 hedge funds covering the 1996-2008 period.	What are the spill over effects of hedge fund activism on the product market competitors, customers, and suppliers of target firms?  What are the relative effects of hedge fund activism on product markets?	Hedge fund activism has a significant impact on product market rivals, customers and suppliers, especially when they have strong fundamentals. Three years after being targeted, the target's company market share has risen by 5.5%. During these 3 years, their rivals' cash flows and return on assets declined by 3.5%.  During the [-22:+22] event window around the 13D filing date, the target firm's rivals experience negative market-adjusted abnormal returns.
2009	Becht, M., Franks, J., Mayer, C., Rossi, S.	Review of Financial Studies 22(8), 3093-3129	Returns to Shareholder Activism: Evidence from a clinical study of the Hermes UK Focus Fund	Case Study with full access to all Hermes UK Focus Fund data. External data was obtained from Datastream, Factiva and London Stock Price Database.	Sample which consists of 41 target companies between October 1998 and December 2004	What are the gains of the shareholder activism performed by the Hermes UK Focus Fund? Does the change of governance in a target firm eventually increase the value of the firm?	The shareholder activism of the Hermes UK Focus Fund results in significant gains for the fund and returns for all of the shareholders. The activism leads to significant positive abnormal returns (5.3%) around the announcement date.



**Table 2 (Continued)**

Year	Authors	Journal	Title	Data Source	Sample	Research Question	Theoretical Framework & Findings
2014	Bebchuk, L., Brav A., Jiang, W.	Forthcoming, Columbia Law Review, Vol. 114, December 2014	The Long-Term Effects of Hedge Fund Activism	Data sample from Brav et al. (2009).	The activist hedge fund data sample consists of events between 1994 and 2007. It contains 2,040 observed events, 236 different hedge funds and 882 unique target companies.	Is it right to claim that hedge fund activism has an adverse effect on the long-term interests of companies and their shareholders?	<p>This paper finds no evidence of a decline in operating performance in the five years after filing the 13D. The results refute the criticism of hedge fund activists cashing out before negative stock returns occur. Long-term shareholders experience no losses on the long-term.</p> <p>They counter the criticism of ‘myopic activists’, which state that companies who got their pay-outs increased and levered up face operating performance declines on the long term, by giving statistical evidence that the opposite is true.</p>
2013	Bebchuk, L., Brav A., Robert J. Jackson, Jr., Jiang, W.	Journal of Corporation Law, Vol. 39, No. 1, pp. 1-34, 2013	Pre-Disclosure Accumulations by Activist Investors: Evidence and Policy	Data sample from Brav et al. (2009).	The activist hedge fund data sample consists of events between 1994 and 2007. It contains 2,040 observed events, 236 different hedge funds and 882 unique target companies.	As a reaction on a petition, the paper wants to investigate if a modernization of pre-disclosure accumulation regulation (13D filing regulation) is justified.	<p>During the observed period, the median stake disclosed by hedge fund activists remained stable.</p> <p>In about 10% of activist events, a 13D filing is filed after the 10-day window which is imposed by the SEC.</p> <p>Only a small minority of 13D filings is filed by activist hedge funds. Tightening the regulation would have an enormous impact for non-hedge funds, for whom the 10 day filing window is much needed.</p>

**Table 2 (Continued)**

Year	Authors	Journal	Title	Data Source	Sample	Research Question	Theoretical Framework & Findings
2010	Boyson, N., Mooradian, R.	Review of Derivatives Research, Vol. 14, No. 2, 2011	Corporate Governance and Hedge Fund Activism	Hedge fund data was obtained from CSFB/Tremont.  Target firm data was obtained from the SEC's database which can be found on www.sec.gov and Compustat  The authors used Factiva and Lexis-Nexis for more background information.	Activist hedge fund data sample containing events between 1994 and 2005.  The authors only include hedge funds with at least \$ 10 million in total assets and at least 24 months of consecutive returns.  The final data sample consists of 418 observed hedge fund events, 111 activist hedge funds and 397 different target companies.	What is the impact of hedge fund activism for the target firm and hedge fund?	Activist hedge funds are not short-term investors. They focus on small firms with strong operating performance, large cash position, high book to market ratio, and low Tobin's Q.  Both the hedge fund activists as the target firms benefit from the activist intervention. According to the authors, activist hedge funds stick to their stated objectives, improve both short-term stock performance and long-term operating performance of their targets.
2010	Bratton, W.	University of Pennsylvania Institute for Law & Economics Research Paper No. 10-17	Hedge Funds and Governance Targets: Long-Term Results	Databases of press reports	Activist hedge fund data sample from January 2002 to June 2006, which consists of 114 activist events.	This paper takes a second look at the collected data sample and tries to find an answer to the question: "What is the long-term return of hedge fund activism?".	In a governance way of viewing hedge fund activism, all of the performed tactics and strategies seem a great success.  When looking at long-term financial yield, the authors doubt if hedge fund activism is as profitable as it seems.

**Table 2 (Continued)**

Year	Authors	Journal	Title	Data Source	Sample	Research Question	Theoretical Framework & Findings
2008	Brav, A., Jiang, W., Partnoy, F., Thomas, R.	Journal of Finance, Vol. 63, p. 1729- 1775, 2008	Hedge Fund Activism, Corporate Governance, and Firm Performance.	Independent sample from 2001 until 2006 based on 13D filings purchased from Live Edgar. After removing financial oriented companies, news searches (Factiva) were used to find hedge fund motives and target companies' responses to the hedge fund activism. Thomson Financial Form 13F was used to find additional events (27) in order to avoid bias towards smaller targets or large-cap firms.  Compustat and CRSP were used for collecting operating performance and stock return target firm data.	The activist hedge fund data sample consists of events between 2001 and 2006. It contains 1,059 observed events, 236 different hedge funds and 882 unique target companies.	Which firms do activists target and how do those targets respond?  How does the market react to the announcement of activism?  Do activists succeed in implementing their objectives?  Are activists short term in focus?  How does activism impact firm performance?	Activists have heterogeneous objectives and use a variety of tactics  Target firms experience a positive return to hedge fund activism. The authors find an abnormal stock return around the announcement day of hedge fund activism of about +7%, which is not reversed over time. Furthermore, target firms experience increases in pay-out, operating performance, higher CEO turnover.  Activist hedge funds are value investors: looking for target firms with low market value relative to book value but with good cash flow and operating performance figures.  Hedge fund activism does not shift value from creditors to shareholders.

**Table 2 (Continued)**

Year	Authors	Journal	Title	Data Source	Sample	Research Question	Findings
2009	Brav, A., Jiang, W., Kim, H.	Foundations and Trends in Finance, Vol. 4, No. 3, 2009	Hedge Fund Activism: Review	Compustat and CRSP were used for collecting operating performance and stock return target firm data.	Data sample from Brav et al. (2008). Extended for 2007 by using the same procedure as Brav et al. (2009).  The activist hedge fund data sample consists of events between 2001 and 2007. It contains 1,172 observed events.	What is the nature of activist hedge funds' intervention in target firms?  Does hedge fund activism create value for shareholders in the target firms and investors in the hedge funds?	Hedge fund activists target undervalued companies with weaker shareholder rights when compared to the matched companies and 'fundamentals'. The authors formulate it in their own words as: "cash-cows with low growth potentials".  Target companies, in the years after filing the 13D, are characterized by increases in CEO turnover, leverage, and pay-outs. On the other hand they are characterized by a decrease in CEO compensation in the years following the activist's 'attack'.
2013a	Brav, A., Jiang, W., Kim, H.	Working Paper	The Real Effects of Hedge Fund Activism: Productivity, Asset Allocation, and Industry Concentration	The authors extend their data sample (Brav et al., 2009) to 1994.	The activist hedge fund data sample consists of events between 1994 and 2006. It contains almost 2,000 observed events.	What is the long-term effect of hedge fund activism on the productivity of target firms?	The results show that a target company's productivity, measured by the standardized total factor productivity, doubles within three years after the intervention. This is coupled with a decrease in working hours. The authors find that hedge funds have a long-term positive impact on the target firm's fundamentals
2006	Briggs, T.	Journal of Corporation Law, Vol. 32, No. 4, Summer 2007	Corporate Governance and the New Hedge Fund Activism: an Empirical Analysis	Hand-collected data	Activist hedge fund data sample for the period 2005 - August 2006 (20 months). 52 Activist hedge fund events	What is the meaning of hedge fund activism?	There is not a 'dark side' in hedge fund activism in this sample of activist events. The authors give reasons for the rising of hedge funds in the 2000s and a description of the wolf-pack tactics used by some activist hedge funds.

**Table 2 (Continued)**

Year	Authors	Journal	Title	Data Source	Sample	Research Question	Findings
2014	Burkart, M., Dasgupta, A.	Swedish House of Finance Research Paper No. 14-10	Activist Funds, Leverage, and Procyclicality.	The authors made use of the updated sample of Alon Brav (2013b).	2,624 events covering the period 1994 - 2011. This sample includes more than 500 different hedge funds.	Do market booms lead to investor flows into activist funds?	Via a series of propositions, micro-founded approach and separating equilibria the authors come to the conclusion that Investing in activist funds when future macro-economic outlooks looks good yields higher profits. They believe in the procyclicality of hedge fund activism.
2008	Clifford, C.	Journal of Corporate Finance, Vol. 14, No. 4, 323-336, 2008.	Value Creation or Destruction? Hedge Funds as Shareholder Activists	Activist hedge fund data was obtained from the "Dow Jones Newswire's CFA Weekly Summary Of Key 13D Filings To The SEC". Additionally, Factiva, internet research, Compustat and CRSP were used to verify the results and to obtain additional Target firm data.	The author distinguishes an active sample (788 13D filings) from a passive sample (1,114 13G filings). Final data sample consists of 1,902 different activist events and 197 different active hedge funds (1998-2005).	Hedge fund activism: failure or success?  Is there a difference in returns between active and passive investments of hedge fund activists?	Firms targeted by activist hedge funds experience a higher excess return than firms targeted by passive hedge funds.  Hedge fund target companies with undervalued assets and earn more from their activist participations than from their passive holdings. In comparison to non-activist hedge funds, activist hedge funds have longer lock-up periods and notification periods.
2009	Cheffins, B.R.	ECGI - Law Working Paper No. 124/2009	Did Corporate Governance 'Fail' During the 2008 Stock Market Meltdown? The Case of the S&P 500	Empirical Research: Theory & Factiva for news searches.	-	Did Corporate Governance 'Fail' During the 2008 Stock Market Meltdown?	Corporate governance did not fail during the crisis. The financial meltdown of 2008 silenced mutual funds and pension funds but some hedge funds remained very active. The vast majority of the paper looks at the performance of corporate governance in general in the years before and during the crisis.

**Table 2 (Continued)**

Year	Authors	Journal	Title	Data Source	Sample	Research Question	Findings
2013	Edmans, A., Fang, V. W., Zur, E.	Review of Financial Studies, 26: 1443-1482.	The effect of liquidity on governance	13D and 13G filings from the SEC's EDGAR database. Factiva searches were performed to verify the classification of the funds. Additional Target company information obtained from Compustat & CRSP.	The final data sample consists of 709 13D filings, 1,112 13Gs and 101 different hedge funds between 1995 and 2010.	What is the effect of stock liquidity on blockholder governance?  Does liquidity increases the likelihood that a hedge fund acquires a block?	13G filing lead to positive announcement returns and improvements in operating performance.  Blockholders <sup>30</sup> are attracted by firms with a higher liquidity. Liquidity leads to an overall increase in frequency of both intervention and exit: an alternative channel of governance, which is good for governance in general.
2008	Fung, W., Hsieh, D. A., Naik, N. Y., & Ramadorai, T.	Journal of Finance, 63(4), 1777-1803.	Hedge Funds: Performance, Risk, and Capital Formation.	The authors used data on funds-of-funds to mitigate potential bias. Combination of hedge fund data from major hedge fund database vendors (HFR, CISDM & Lipper Tass, now CSFB Tremont).	Fund-of-fund data sample from 1995 to 2004. This data sample consists of 1,603 funds-of-funds	Are (average) hedge funds capable of delivering an alpha?  Do capital inflows adversely affect the ability of funds to deliver alpha in the future?	The authors find that the average fund-of-fund did not generate alpha except between October 1998 and March 2000.  They also find that sophisticated investors with an ability to detect the presence of alpha are more likely to invest in these 'have-alpha' funds.

<sup>30</sup> Shareholders with a large amount of shares and influence in the company.

**Table 2 (Continued)**

Year	Authors	Journal	Title	Data Source	Sample	Research Question	Findings
2013	Gantchev, N.	Journal of Financial Economics, 107: 610-631	The costs of shareholder activism: Evidence from a sequential decision model.	Hand-collected data: Hedge fund data was collected from: 13D filings (Dow Jones Newswires), definitive proxy statements and SharkRepellent.net. Verification of hedge funds by using multiple web sites & Factiva. Proxy data obtained via 14A and filings. Completion of the data sample with data from Brav et al. (2008), Compustat & CRSP.	Data sample of activist hedge fund campaigns from 2001 to 2007. This sample includes information on 171 hedge funds and 1,023 unique targets.	What are the costs of activist monitoring?  What are the net returns for hedge fund activists?	The average cost of a hedge fund campaign which ends in a proxy fight is \$10.71 million. This shows that costs play a major role in the decision-making process of activist hedge fund managers.  More confrontational activist tactics like lawsuits and proxy fights have higher success rates.
2000	Gillan, L., Starks, L. T.	Journal of Financial Economics, 92: 79-97	Corporate Governance proposals and shareholder activism: the role of institutional investors.	The data consists of shareholder proposals reported by issues of the Investor Responsibility Research Center (IRRC) and the Corporate Governance Bulletin.	The initial data sample consists of 2042 shareholder proposals which identifies 452 unique companies over the 1987-1994 proxy sample period	How is institutional shareholder activism through proxy proposals evolved through history?  How does the stock market respond to proxy proposals?	There is hardly a market reaction to the proxy proposals and voting outcomes. The nature of the stock market reaction varies according to the issue and the sponsor identity.  Non-coordinated activism is ineffective.

**Table 2 (Continued)**

Year	Authors	Journal	Title	Data Source	Sample	Research Question	Findings
2013	Goranova, M., Ryan, L.V.	Journal of Management December 17, 2013	Shareholder Activism: A Multidisciplinary Review	Empirical Research: Theory.	-	Which characteristics (firm, activist & environment) trigger hedge fund activism events? The paper wants to inform about the literature on hedge fund activism.	Discuss the arguments and stand points of the supporters and opponents of hedge fund activism. Hedge fund activists look for undervalued companies. Authors use their managerial experience to look at the financial and environmental aspects of activism. They make use of a multi-level model.
2009	Greenwood, R., Schor, M.	Journal of Financial Economics 92 (2009) 362-375	Investor Activism and takeovers	Activist event data from the SEC's EDGAR database and merging 13D filings with DFAN14A filings (proxy statements).  CISDM data was used to obtain hedge fund data. Web sites, news articles, CRSP and Compustat were used to find company-specific data.	A merger of 13D's and DFAN14As covering the Q3 1993 - Q3 2006 period. The merger leads to 784 activist events, 139 unique hedge funds and 196 events by 38 unique non-hedge funds.	Are the abnormal returns, due to the announcement of hedge fund activism, driven by activists' success at getting target firms taken over?	The main finding of this paper is that positive abnormal returns generated by firms which stay independent after the announcement of hedge fund activism are not significantly different from zero. High returns are only realized when a target firm is involved in a future takeover.  The authors also find that activist hedge fund's portfolios "perform poorly during a period in which market wide takeover interest declined".
2007	Kahan, M., Rock, E.	University of Pennsylvania Law Review, Vol. 155, p. 1021, 2007	Hedge Funds in Corporate Governance and Corporate Control	Empirical Research: Theory.	-	How does hedge fund activism differ from activism by traditional institutional investors?  What is the impact on corporate governance?	Reasons for the upswing of hedge fund activism. Discuss the fact that hedge fund activism could be designed to focus on short-term returns and ignore the long-term profitability. This however, has still not been proved.



Table 2 (Continued)

Year	Authors	Journal	Title	Data Source	Sample	Research Question	Findings
2001	Karpoff	Working Paper	The Impact of Shareholder Activism on Target Companies: A Survey of Empirical Findings	Empirical Research: Theory.	-	What are the effects of shareholder activism on target firms' values, operations, and governance structures?	Contradictory results are found in the literature.  Differences in the literature are due to the different ways 'success' of a hedge fund attack is defined by the authors of different papers
2007	Klein, A., Zur, E.	Journal of Finance, 63 (2009), pp.187-229	Entrepreneurial Shareholder Activism: Hedge Funds and Other Private Investors.	Activist investor data (13D and 13D/A filings) from the SEC's EDGAR database.  The funds' Internet web sites, investor journals, Factiva and newspaper articles were used to determine if the filer was a hedge fund or a different active private investor.	Activist Investor data sample consisting of activist events between 2003 and 2005. The author makes a distinction between activist hedge funds and other active private investors.  By making use of 13D filings and 13D/A they construct a database which consists of 151 activist events.	Is there a difference between hedge fund activism and other active private investors?	Both the targeted firms of activist hedge funds as the targeted firms of other active private investors are characterized by significant positive returns around the 13D filing date.  The authors find two differences between the activist hedge funds and the other active private investors:  - Hedge funds invest in more profitable target firms than other active private investors. - "Hedge funds address cash flow agency costs whereas other private investors change the target's investment strategies."  Activists achieve these significant returns by using a proxy solicitation process or threatening a proxy fight.

**Table 2 (Continued)**

Year	Authors	Journal	Title	Data Source	Sample	Research Question	Findings
2011	Klein, A., Zur, E.	Review of Financial Studies (2011) 24 (5): 1735-1771	The Impact of Hedge Fund Activism on the Target Firm's Existing Bondholders.	Activist investor data (13D filings) from the SEC's EDGAR database.  To verify the blockholder's identities, the authors used various web sites like Factiva, news sites, investor journals, etc.  Bond ratings were taken from the WRDS Mergent Fixed Income Securities Database (Mergent FISD). Target firm ratings were collected from the bond rating agencies: S&P, Moody's and Fitch.	Hedge fund activist sample from 1994 to 2006 which consists of 635 activist events.  193 firms have outstanding bonds which provide sufficient information.	What are the wealth effects of hedge fund activism on the existing bondholders?  What is the impact of hedge fund activism on the bond returns?  Is there a transfer of wealth from the bondholder to the shareholder around the 13D filing date?	The main finding of this paper is that hedge fund activism can significantly reduce existing bondholders' wealth. The authors claim that bondholders are confronted with an average excess return of -3.9%. These negative bond returns are even more negative when hedge funds use confrontational campaigns.  Their results show a decline in cash and total assets after the filing of the 13D. On the other hand they find that hedge fund activism is followed by an increase in total debt as a percentage of total assets and a high number of credit rating downgrades  The results of this paper show an expropriation of wealth from the bondholder to the shareholder. In around 20% of the cases, where there is no expropriation of wealth and higher bond and share returns, there is a higher chance of being merged or acquired. This finding supports the findings of Greenwood & Schor (2009).

**Table 2 (Continued)**

Year	Authors	Journal	Title	Data Source	Sample	Research Question	Findings
2010	Zur, E.	Working Paper	A Leopard Does Not Change His Spots – Evidence of Activism Persistence in the Hedge Fund Industry	Hand-collected data: -Factiva (keywords: 'hedge fund', 'activism' and 'activist'). -SEC EDGAR: 13D & 13G filings. -Comparison with CISDM hedge fund database. -Compustat & CRSP	Activist hedge fund data sample from 1994 to 2006 which includes all the events where a 13D or 13G file was filed by a hedge fund & that exceeded 5% ownership. Focus on aggressive events. This data sample contains of 117 hedge funds and 695 active events.	This paper focuses on the persistence in activism and looks if past activism has an influence on future activism.	The author finds results which are similar to those of Brav et al. (2008).  By making use of his own indexes like relative activism and various activist events, the author shows that hedge fund activism is positively correlated with minimum investment amounts and a manager's attendance at a top MBA program.

**Table 2: Literature Summary**

**Table 3****Panel A: Data information**

Number of 13D Filings (Activist Events)	3.314
<i>with useful gvkey &amp; 13D filing date</i>	3.185
Number of different Activist Hedge Funds	515
Number of different Target Companies	2.275

**Panel B: Number of 13D Filings (Activist Events) by year**

1994	10	2004	143
1995	34	2005	234
1996	103	2006	279
1997	234	2007	330
1998	167	2008	281
1999	117	2009	143
2000	124	2010	179
2001	93	2011	171
2002	129	2012	197
2003	124	2013	190

**Panel C: Active Hedge funds with the most 13D filings**

Gabelli Funds Inc / Gamco Investors Inc.	287
Carl Icahn	100
Steel Partners II, LP	72
ValueAct Capital/VA Partners	69
Wynnefield Partners Small Cap Value LP	54
Biotechnology Value Fund L P	49
Discovery Equity Partners, LP	48
Elliott Associates LP	47
Sandler Oneill Asset Management LLC	47
Hummingbird Management LLC	46

**Panel D: Industries with the most targeted firms**

<u>1994-2013</u>		<i>Frequency</i>
<i>Fama French 49 Industry Classification Code based on SIC codes</i>		
36	Computer Software	282
45	Banking	241
34	Business Services	195
13	Pharmaceutical Products	179
43	Retail	163
37	Electronic Equipment	151
12	Medical Equipment	105
32	Communication	105
30	Petroleum and Natural Gas	93
44	Restaurants, Hotels, Motels	93

<u>2008-2009</u>		<i>Frequency</i>
<i>Fama French 49 Industry Classification Code based on SIC codes</i>		
13	Pharmaceutical Products	41
36	Computer Software	35
45	Banking	33
34	Business Services	25
37	Electronic Equipment	19
43	Retail	19
12	Medical Equipment	17
30	Petroleum and Natural Gas	12
44	Restaurants, Hotels, Motels	11
32	Communication	10

**Panel E: Wolf pack tactics**

*Number of events where different activist hedge funds filed a 13D for the same target firm within the same year (Wolf pack tactics).*

	2	3	4		2	3	4
	Activist Hedge Funds	Activist Hedge Funds	Activist Hedge Funds		Activist Hedge Funds	Activist Hedge Funds	Activist Hedge Funds
1994				2004	10		
1995				2005	18	2	
1996	2			2006	23	3	
1997	4	2		2007	29	2	
1998	1			2008	24		
1999	4			2009	8	1	
2000	5			2010	13	1	
2001	1	1		2011	6		
2002	4			2012	9		1
2003	7			2013	10	2	

**Table 3: Descriptive Statistics**

**Table 4**  
**Characteristics of Target Companies**

Table 4 summarizes the target firms' characteristics and compares with the characteristics of benchmark firms. All variables are lagged one period. If the lagged target company data is not available, data from two years before the event or the event year is retrieved. All of the variables, except for Market Value, are winsorized at the 1% and 99% extremes. Market Value is defined as (Common Shares Outstanding\* Price Close Annual Fiscal) or, when not available, Compustat's Market Value. Book To Market is defined as (Book Value of Equity/Market Value) where Book Value of Equity is defined as (Book Value of Stockholders' Equity + Balance Sheet Deferred Taxes and Investment Tax Credit - Book Value of Preferred Stock). When Book Value of Equity is not available, it is computed as (Book Value of Common Equity + Preferred Stock) or (Total Assets + Common Dividends - Total Liabilities). Tobin's Q is defined as [(Total Assets - Book value of Common Equity + Market Value)/(Total Assets)]. Sales Growth is the growth of sales over the previous year. Return On Assets are defined as (Earnings before interest, taxes, depreciation, and amortization)/(Lag of Total Assets). Cash Flow is defined [(Net Income + Depreciation and amortization)]/(Lag of total Assets). Leverage is defined as (Book Value of Debt)/[(Book Value of Debt + Book Value of Equity) where Book Value of Debt is defined as (Long-term Debt + Short-term Debt). Cash Holdings is defined as (Cash & Short term investment)/(Total Assets). Dividend Yield is defined as (Common Dividend)/(Market Value). The Payout Ratio is defined as (Share Repurchase + Common Dividend)/(Market Value). R&D is Research and Development, defined as (R&D expenses)/(Lag of Total Assets). When R&D is not available, it is replaced by zero. See appendix B for more variable information. The sample's targeted companies are matched with benchmark firms with data in the same fiscal year, the same Fama and French 49 Industry Classification and the same market value and book to market quintiles. Market value matching is dropped for calculating the MV difference and book to market matching is dropped for calculating the BM and Q differences. The average difference is the average of the difference between the average value of the benchmark group and the value of the target company. \*\*\* Significant at the 0.01 level; \*\* Significant at the 0.05 level; \* Significant at the 0.1 level.

**Panel A: Summary Statistics Full Sample & Differences with benchmark firms**

Firm Characteristics	Summary Statistics 1994-2013				Differences with benchmark firms 1994-2013		
	(1) Mean	(2) Median	(3) Standard Deviation	(4) Number of Observations	(5) Average Difference (Benchmark – Target)	(6) t-stat [difference]	(7) Wilcoxon statistic
Market Value	799.495	135.824	2484.483	2810	873.528***	9.685	10.181
Book To Market	0.628	0.643	1.858	2809	0.065***	2.789	2.298
Tobin's Q	1.915	1.256	9.444	2810	0.804***	4.304	14.095
Capital Expenditures	57.783	5.593	218.365	2731	20.860***	6.175	13.712
Sales Growth	0.172	0.033	0.937	2730	0.051***	3.110	18.426
Return On Assets	0.003	0.072	0.574	2784	-0.062***	-5.577	-3.340
Cash Flow	-0.049	0.037	0.612	2802	-0.068***	-5.329	-4.063
Leverage	0.342	0.270	0.533	2832	-0.030	-3.444	-0.539
Cash Holdings	0.209	0.109	0.239	2834	-0.003	-0.982	5.106
Dividend Yield	0.008	0.000	0.026	2793	0.003***	6.401	23.691
Payout Ratio	0.032	0.000	0.069	2486	-0.002**	-2.048**	12.647
R&D	0.058	0.000	0.150	2835	0.002	0.913	12.663

**Panel B: Difference in means between firms targeted in sub periods 2007-2008 and 2012-2013 and benchmark firms**

Firm Characteristics	Differences with benchmark firms 2008-2009			Differences with benchmark firms 2012-2013		
	(1)	(2)	(3)	(4)	(5)	(6)
	Average Difference (Benchmark-Target)	t-stat [difference]	Wilcoxon statistic	Average Difference (Benchmark – Target)	t-stat [difference]	Wilcoxon statistic
Market Value	803.577***	3.849	4.825	1854.707***	4.121	4.637 0
Book To Market	0.092	0.783	0.782	0.117***	3.112	2.656 0
Tobin's Q	0.787***	4.138	4.056	0.668	0.415	3.807 0
Capital Expenditures	32.405***	3.110	5.971	44.896***	2.954	5.782 0
Sales Growth	0.026	0.778	6.232	0.074***	3.589	5.093 0
Return On Assets	-0.058	-3.131	-0.431	-0.088	-1.617	-0.426 0.67
Cash Flow	-0.065	-2.668	-0.256	-0.140	-2.791	-0.919 0.36
Leverage	-0.038	-1.516	-0.506	-0.017	-0.674	0.356 0.72
Cash Holdings	-0.024	-2.506	-0.824	0.000	-0.019	1.845 0.065
Dividend Yield	0.004**	2.203	8.514	0.003	1.528	6.486 0
Payout Ratio	-0.005	-1.006	5.463	0.000	-0.076	3.542 0
Research & Development	-0.006	-0.956	2.178	-0.004	-0.544	3.938 0

**Panel C: Summary Statistic: Before/During/After Financial Crisis + Difference between the means of targeted firms**

Firm Characteristics	Summary Statistics								Differences between means					
	(1)		(2)		(3)		(4)		(2)-(1)		(3)-(2)		(4)-(1)	
	Pre-Crisis ('06-'07)		Crisis ('08-'09)		Post-Crisis ('10-'11)		New Data ('12-'13)		Crisis - Pre-Crisis		Post-Crisis - Crisis		New Data- Pre-Crisis	
	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev	Difference	t-stat	Difference	t-stat	Difference	t-stat
Market Value	1061.375	3816.624	606.413	1640.717	1041.353	2458.984	1808.967	3798.843	-454.963	-2.136**	434.941	2.756***	747.592	2.654***
Book To Market	0.523	1.083	0.834	3.260	0.797	0.903	0.564	1.028	0.311	2.012**	-0.038	-0.201	0.041	0.523
Tobin's Q	1.798	2.091	1.440	2.077	1.594	1.137	3.409	28.915	-0.358	-2.503**	0.153	1.183	1.611	1.258
Cap Exp	71.27724	264.868	62.653	215.749	49.502	188.861	115.507	357.948	-8.624	-0.513	-13.151	-0.848	44.230	1.978**
Sales Growth	0.129	0.618	0.099	0.727	0.049	0.313	0.024	0.311	-0.029	-0.629	-0.050	-1.142	-0.105	-2.633***
ROA	-0.022	0.771	-0.009	0.328	0.066	0.182	-0.033	0.930	0.012	0.283	0.076	3.669***	-0.012	-0.190
Cash Flow	-0.041	0.789	-0.069	0.381	0.026	0.220	-0.048	0.532	-0.028	-0.631	0.095	3.952***	-0.007	-0.127
Leverage	0.329	0.529	0.353	0.578	0.277	0.402	0.344	0.534	0.023	0.625	-0.076	-1.982**	0.015	0.385
Cash Holdings	0.217	0.240	0.246	0.259	0.237	0.238	0.191	0.199	0.029	1.703*	-0.009	-0.494	-0.026	-1.545
Dividend Yield	0.009	0.027	0.013	0.043	0.006	0.016	0.012	0.032	0.004	1.789*	-0.007	-2.951***	0.003	1.491
Payout Ratio	0.034	0.069	0.052	0.109	0.025	0.048	0.036	0.063	0.018	2.944***	-0.027	-4.013***	0.002	0.421
R&D	0.057	0.138	0.074	0.166	0.055	0.113	0.059	0.164	0.017	1.655*	-0.019	-1.697*	0.002	0.218

**Panel D: Changes in characteristics of the target firm: Mean characteristic year after event – Mean characteristic year before event: comparison**

	1994-2013		2008-2009	
	(1) Mean (after) – Mean (before)	(2) t-stat	(3) Mean (after) – Mean (before)	(4) t-stat
<i>Δ Market Value</i>	-34.426	-0.456	64.510	0.278
<i>Δ Book To Market</i>	-0.010	-0.148	-0.039	-0.315
<i>Δ Tobin's Q</i>	-0.107	-1.020	0.160	1.016
<i>Δ Capital Expenditures</i>	-4.437	-0.668	-12.172	-0.719
<i>Δ Sales Growth</i>	-0.093***	-3.644	-0.0517	-1.042
<i>Δ Return On Assets</i>	0.008	0.602	0.002	0.069
<i>Δ Cash Flow</i>	0.011	0.666	- 0.000	-0.003
<i>Δ Leverage</i>	0.030*	1.877	-0.013	-0.311
<i>Δ Cash Holdings</i>	-0.005	-0.710	-0.036*	-1.771
<i>Δ Dividend Yield</i>	0.003***	3.086	-0.004	-1.410
<i>Δ Payout Ratio</i>	0.010***	4.660	-0.016**	-2.426
<i>Δ R&amp;D</i>	-0.008*	-1.802	-0.018	-1.3570

**Table 4: Characteristics of Target Companies: Full Sample**



**Table 5**

**Fixed Effects Model: Characteristics of Target Companies 1994-2013**

Table 5 displays the results of the regression which compares the target firms' characteristics with the characteristics of benchmark firms before and after the event year. The sample's targeted companies are compared to benchmark firms with data in the same fiscal year, the same Fama and French 49 Industry Classification and the same market value and book to market quintiles. Market Value is defined as (Common Shares Outstanding\* Price Close Annual Fiscal) or, when not available, Compustat's Market Value. Book To Market is defined as (Book Value of Equity/Market Value) where Book Value of Equity is defined as (Book Value of Stockholders' Equity + Balance Sheet Deferred Taxes and Investment Tax Credit - Book Value of Preferred Stock). When Book Value of Equity is not available, it is computed as (Book Value of Common Equity + Preferred Stock) or (Total Assets + Common Dividends - Total Liabilities). Return On Assets are defined as (Earnings before interest, taxes, depreciation, and amortization)/(Lag of Total Assets). Leverage is defined as (Book Value of Debt)/[(Book Value of Debt + Book Value of Equity) where Book Value of Debt is defined as (Long-term Debt + Short-term Debt). Cash Holdings is defined as (Cash & Short term investment)/(Total Assets). Sales Growth is the growth of sales over the previous year. Cash Flow is defined [(Net Income + Depreciation and amortization)]/(Lag of total Assets). The payout ratio is defined as (Share Repurchase + Common Dividend)/(Market Value). Dividend Yield is defined as (Common Dividend)/(Market Value). All of the variables, except for Market Value, are winsorized at the 1% and 99% level. See appendix B for more variable information.  $\alpha_{iff}$  and  $\alpha_t$  are Fama & French 49 industry and time fixed effects. Lastly, Event Year (-3, -2, -1, 0, +1, +2, +3, +4, +5) are dummy variables which are equal to one if a firms was/will be targeted during that year relative to the event year. \*\*\* Significant at the 0.01 level; \*\* Significant at the 0.05 level; \* Significant at the 0.1 level. Regression:

$$y_{i,t} = \alpha_{iff} + \alpha_t + \gamma_{-3}(Event\ Year - 3)_i + \gamma_{-2}(Event\ Year - 2)_i + \gamma_{-1}(Event\ Year - 1)_i + \gamma_0(Event\ Year)_i + \gamma_{+1}(Event\ Year + 1)_i + \gamma_{+2}(Event\ Year + 2)_i + \gamma_{+3}(Event\ Year + 3)_i + \gamma_{+4}(Event\ Year + 4)_i + \gamma_{+5}(Event\ Year + 5)_i + \beta_1 \ln(MV_{it}) + \beta_2 BM_{i,t} + \epsilon_{i,t}$$

Independent Variable	Dependent Variable							
	(1) ROA	(2) Leverage	(3) Cash Holdings	(4) Growth	(5) Cash Flows	(6) Dividend Yield	(7) Payout Ratio	(8) Capital Expenditures
Event Year -3	0.078***	0.025**	0.001	-0.017	0.094***	-0.001***	0.001	-85.427***
Event Year -2	0.019**	-0.004	-0.004	-0.015	0.027***	-0.001	0.001	-10.230***
Event Year -1	0.066***	0.006	0.003	-0.028*	0.072***	-0.002***	-0.001	-87.471***
Event Year	0.029***	-0.005	-0.001	-0.043***	0.038***	-0.001	0.002*	-24.517***
Event Year +1	0.059***	0.020**	0.001	-0.060***	0.071***	-0.002***	0.003**	-95.666***
Event Year +2	0.085***	0.023**	0.001	-0.069***	0.104***	-0.001	0.006***	-93.223***
Event Year +3	0.100***	0.031**	0.004	-0.070***	0.119***	-0.003***	0.001	-95.868***
Event Year +4	0.107***	0.026*	0.000	-0.070***	0.135***	-0.001	0.004**	-104.046***
Event Year +5	0.111***	0.036**	-0.002	-0.038*	0.127***	-0.002***	-0.002	-107.778***
ln(MV)	0.076***	-0.006***	0.008***	0.065***	0.082***	0.000***	-0.000	26.417***
BM	0.035***	-0.007***	-0.002***	-0.012***	0.047***	0.000***	0.001	.745**
R-squared	0.197	0.006	0.126	0.092	0.189	0.128	0.001	0.153
Observations	141803	144616	144615	141619	141914	144524	142815	143836

**Table 5: Fixed Effects model: Characteristics of Target Companies 1994-2013**

**Table 6**

**Probit Model: Probability of being Targeted (1994-2013) (Full Sample)**

Table 6 summarizes the marginal probability of firms being targeted during the 1994-2013 and 2008-2009 period. The dependent variable is a dummy which takes the value of one in the year before the hedge fund activist filed the 13D and zero in all other years. All variables are lagged one period. If the lagged target company data is not available, data from two years before the event or the event year is retrieved. All of the variables, except for Market Value, are winsorized at the 1% and 99% extremes. Market Value is defined as (Common Shares Outstanding\* Price Close Annual Fiscal) or, when not available, Compustat's Market Value. Tobin's Q is defined as [(Total Assets - Book value of Common Equity + Market Value)/(Total Assets)]. Sales Growth is the growth of sales over the previous year. Return On Assets are defined as (Earnings before interest, taxes, depreciation, and amortization)/(Lag of Total Assets). Leverage is defined as (Book Value of Debt)/[(Book Value of Debt + Book Value of Equity) where Book Value of Debt is defined as (Long-term Debt + Short-term Debt) and Book Value of Equity is defined as (Book Value of Stockholders' Equity + Balance Sheet Deferred Taxes and Investment Tax Credit - Book Value of Preferred Stock). When Book Value of Equity is not available, it is computed as (Book Value of Common Equity + Preferred Stock) or (Total Assets + Common Dividends - Total Liabilities). Dividend Yield is defined as (Common Dividend)/(Market Value). Cash Flow is defined [(Net Income + Depreciation and amortization)]/(Lag of total Assets). Cash Holdings is defined as (Cash & Short term investment)/(Total Assets). R&D is Research and Development, defined as (R&D expenses)/(Lag of Total Assets). When R&D is not available, it is replaced by zero. See appendix B for more variable information. In order to estimate the probability of being targeted, the sample's targeted companies are matched with benchmark firms with data in the same fiscal year, the same Fama and French 49 Industry Classification and the same market value and book to market quintiles. Market value matching is dropped for calculating the MV difference and book to market matching is dropped for calculating the BM and Q differences. \*\*\* Significant at the 0.01 level; \*\* Significant at the 0.05 level; \* Significant at the 0.1 level. Regression:

$$Targeted_{i,t} = \alpha + \beta_1 Market Value + \beta_2 Tobin's Q + \beta_3 Sales Growth + \beta_4 ROA + \beta_5 Leverage + \beta_6 Dividend Yield + \beta_7 Cash Flows + \beta_8 Cash Holdings + \beta_9 R\&D$$

Dependent Variable = Dummy: Targeted that year: (1) Not targeted that year: (0)	Targeted between 1994 and 2013		Targeted between 2008 and 2009	
	(1) Coefficient	(2) Marginal Probability	(3) Coefficient	(4) Marginal Probability
Market Value	-0.000***	0.00%***	0.000***	0.00%***
Tobin's Q	-0.090***	-0.22%***	-0.177***	-0.32%***
Sales Growth	-0.111***	-0.27%***	-0.055	-0.10%
ROA	0.434***	1.05%***	0.884***	1.60%***
Leverage	0.194***	0.47%***	0.335**	0.61%***
Dividend Yield	-5.566***	-13.48%***	-2.468	-4.47%
Cash Flows	-0.260***	-0.63%***	-0.407*	-0.74%
Cash Holdings	0.583***	1.41%***	0.414	0.75%
R&D	0.390**	0.94%**	2.198***	3.98%***
Constant	-20.326***	-	-1.810***	-
Pseudo R-squared	0.043		0.086	
Observations	169,618		12,841	

**Table 6: Probability of being targeted (1994-2013) (Full Sample)**

**Table 7**

**Returns of Hedge Fund Activism: Full Sample**

Table 7 summarizes the market adjusted, value weighted returns and the Fama-French-Momentum time-series Model of targeted firms. WRDS' Eventus was used to perform the event study. Targeted firms are identified by their PERMNO codes. The estimation window in this event study used for estimating short-term returns, as in Brav (2013b, p. 8) is [-221, -21] (days). The estimation window, used for estimating long-term returns, is [-17,-7] (months). Events with less than 200 days (short-term) or 10 months (long-term) of estimation dropped. All of the abnormal returns are estimated by using the Ordinary Least Squares (OLS) method. In the Fama-French-Momentum Time-Series Model, the Fama & French 2 step and Momentum Factor are used to estimate the benchmark returns. \*\*\* Significant at the 0.01 level; \*\* Significant at the 0.05 level; \* Significant at the 0.1 level.

**Panel A: Market Adjusted Returns & Fama-French-Momentum Time-Series Model (Short-term event window)**

<i>Market Adjusted Returns, Value Weighted Index 1994-2013</i>			<i>Fama-French-Momentum Time-Series Model, Value Weighted Index 1994-2013</i>	
CAR (-20,+20): <b>5.73%</b>			CAR (-20,+20): <b>6.61%</b>	
2,603 Security Events with useful returns				
Time Period Window (days)	(1) Mean Compound Abnormal Return	(2) Patell Z p-value	(3) Mean Compound Abnormal Return	(4) Patell Z p-value
(-20,-2)	1.64%***	<.0001	2.06%***	<.0001
(-1,-1)	0.39%***	<.0001	0.46%***	<.0001
(0,0)	0.99%***	<.0001	1.03%***	<.0001
(+1,+1)	0.86%***	<.0001	0.86%***	<.0001
(+2,+20)	1.49%***	<.0001	1.59%***	<.0001

<i>Market Adjusted Returns, Value Weighted Index 2008-2009</i>			<i>Fama-French-Momentum Time-Series Model, Value Weighted Index 2008-2009</i>	
CAR (-20,+20): <b>3.77%</b>			CAR (-20,+20): <b>4.06%</b>	
350 Security Events with useful returns				
Time Period Window (days)	(5) Mean Compound Abnormal Return	(6) Patell Z p-value	(7) Mean Compound Abnormal Return	(8) Patell Z p-value
(-20,-2)	-1.53%	0.2158	-1.25%	0.1647
(-1,-1)	0.29%**	0.0271	0.52%**	0.0355
(0,0)	1.09%***	<.0001	1.19%	0.1711
(+1,+1)	0.80%***	<.0001	0.76%***	<.0001
(+2,+20)	2.21%	0.1073	1.68%	0.1647

**Panel B: Market Adjusted Returns & Fama-French-Momentum Time-Series Model (Long-term event window)**

		<i>Market Adjusted Returns, Value Weighted Index 1994-2013</i>		<i>Fama-French-Momentum Time-Series Model, Value Weighted Index 1994-2013</i>	
		<i>CAR (-6,+36): <b>21.43%</b></i>		<i>CAR (-6,+36): <b>34.06%</b></i>	
2,554 Security Events with useful returns		(1)	(2)	(3)	(4)
<b>Time Period Window (months)</b>	<b>Mean Compound Abnormal Return</b>		<b>p-value</b>	<b>Mean Compound Abnormal Return</b>	<b>p-value</b>
(-6,-1)	-4.31%***		<.0001	-14.56%***	<.0001
(0,0)	4.45%***		<.0001	5.11%***	<.0001
(1,+36)	15.61%***		<.0001	Extreme positive Value***	<.0001

		<i>Market Adjusted Returns, Value Weighted Index 2008-2009</i>		<i>Fama-French-Momentum Time-Series Model, Value Weighted Index 2008-2009</i>	
		<i>CAR (-6,+36): <b>44.78%</b></i>		<i>CAR (-6,+36): <b>94.55%</b></i>	
345 Security Events with useful returns		(5)	(6)	(7)	(8)
<b>Time Period Window (months)</b>	<b>Mean Compound Abnormal Return</b>		<b>p-value</b>	<b>Mean Compound Abnormal Return</b>	<b>p-value</b>
(-6,-1)	-5.27%***		<.0001	-10.75%***	<.0001
(0,0)	2.48%***		0.0049	3.13%***	<.0001
(1,+36)	45.94%***		<.0001	Extreme positive Value***	<.0001

**Table 7: Returns of Hedge Fund Activism: Full Sample**

**Table 8**  
**Major Hostile Icahn Investments**

<b>13D Date</b>	<b>Target Company</b>	<b>Amount of Shares bought</b>	<b>Price paid</b>	<b>% of Shares initially acquired</b>	<b>Purpose</b>	<b>Extra</b>
16/02/2006	Time Warner	109,460,088.00	\$427,017,584.00	2.39%	Influence Management of Time Warner, split the company in multiple parts and share buy back	Gantchev (2013) discusses the Time Warner case very extensively.
04/12/2008	Yahoo Inc.	75,605,124.00	\$1,783,774,263.00	5.45%	Influence Yahoo's management + maximize shareholder value	Icahn wanted Microsoft to takeover Yahoo; therefore he needed to get rid of the management.
31/10/2012	Netflix Inc.	5,541,066.00	\$168,900,000.00	9.98%	Undervalued shares: maximize shareholder value	In 2013 Icahn sold more than 50% of these shares which made him pocket more than \$800 million.
25/05/2012	Chesapeake Energy Corporation	50,085,202.00	\$785,300,000.00	7.56%	New management, maximize shareholder value	May 25 letter, where Icahn other shareholders demands to no longer support the management.
10/05/2013	Dell Inc.	80,468,322.00	\$1,100,000,000.00	4.52%	Want to ask other shareholders to vote against he 'going private transaction' of the company.	May 9 letter, where Icahn asks shareholders to not support the management's 'going private' transaction.

**Table 8: Major Hostile Icahn Investments** (Source: 13D filings)

**Table 9**

Detailed information on Icahn's active investments is obtained after an extensive study of the 13Ds filed by Icahn. 13D filings are retrieved from the Morningstar Document Research tool.

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**Panel A: Data Information**


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Number of 13D Filings (Activist Events) filed by Carl Icahn	100
<i>with useful gvkey &amp; 13D filing date</i>	82

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**Panel B: Number of 13D Filings (Activist Events) by year**


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1994	0	2004	5
1995	4	2005	5
1996	1	2006	4
1997	1	2007	5
1998	4	2008	8
1999	4	2009	1
2000	6	2010	6
2001	3	2011	6
2002	4	2012	5
2003	4	2013	6

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**Panel C: Most targeted industries by Carl Icahn**


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<b>1994-2013</b>		<i>Frequency</i>
Fama French 49 Industry Classification Code based on SIC codes		
30	Petroleum and Natural Gas	13
13	Pharmaceutical Products	12
7	Entertainment	8
36	Computer Software	7
2	Food Products	4
23	Automobiles and Trucks	4

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**Panel D: Strategies & Tactics**


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<b>1994-2013: Objectives</b>	<i>Frequency</i>
Investment purposes	18
Maximize Shareholder Value	61
Company Reorganization	35
Change in management	6
Spin-offs	5
<b>1994-2013: Objectives</b>	
Management Talk	48
Proxy Fight	6

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**Table 9: Descriptive Statistics Icahn**

**Table 10**

**Characteristics of Target Companies: Icahn Sample**

Table 10 summarizes the target firms' characteristics and compares with the characteristics of matched firms. All variables are lagged one period. If the lagged target company data is not available, data from two years before the event or the event year is retrieved. All of the variables, except for Market Value, are winsorized at the 1% and 99% extremes. Market Value is defined as (Common Shares Outstanding\* Price Close Annual Fiscal) or, when not available, Compustat's Market Value. Book To Market is defined as (Book Value of Equity/Market Value) where Book Value of Equity is defined as (Book Value of Stockholders' Equity + Balance Sheet Deferred Taxes and Investment Tax Credit - Book Value of Preferred Stock). When Book Value of Equity is not available, it is computed as (Book Value of Common Equity + Preferred Stock) or (Total Assets + Common Dividends - Total Liabilities). Tobin's Q is defined as [(Total Assets - Book value of Common Equity + Market Value)/(Total Assets)]. Sales Growth is the growth of sales over the previous year. Return On Assets are defined as (Earnings before interest, taxes, depreciation, and amortization)/(Lag of Total Assets). Cash Flow is defined [(Net Income + Depreciation and amortization)]/(Lag of total Assets). Leverage is defined as (Book Value of Debt)/[(Book Value of Debt + Book Value of Equity) where Book Value of Debt is defined as (Long-term Debt + Short-term Debt). Cash Holdings is defined as (Cash & Short term investment)/(Total Assets). Dividend Yield is defined as (Common Dividend)/(Market Value). The Payout Ratio is defined as (Share Repurchase + Common Dividend)/(Market Value). R&D is Research and Development, defined as (R&D expenses)/(Lag of Total Assets). When R&D is not available, it is replaced by zero. See appendix B for more variable information. The sample's targeted companies are matched with firms with data in the same fiscal year, the same Fama and French 49 Industry Classification and the same market value and book to market quintiles. Market value matching is dropped for calculating the MV difference and book to market matching is dropped for calculating the BM and Q differences. The average difference is the average of the difference between the average value of the benchmark group and the value of the target company. \*\*\* Significant at the 0.01 level; \*\* Significant at the 0.05 level; \* Significant at the 0.1 level.

**Panel A: Summary Statistics Icahn Sample & Differences with benchmark firms**

Icahn Target Firm Characteristics	Summary Statistics 1994-2013				Differences with benchmark firms 1994-2013		
	(1) Mean	(2) Median	(3) Standard Deviation	(4) Number of Observations	(5) Average Difference (Benchmark – Target)	(6) t-stat [difference]	(7) Wilcoxon statistic
Market Value	3957.890	798.097	10075.830	83	3497.301***	2.826	(2.5
Book To Market	0.310	0.500	4.831	83	0.236	0.665	-1.192
Tobin's Q	1.734	1.285	1.422	83	0.569***	3.600	4.843
Capital Expenditures	258.490	46.150	614.923	82	27.057	0.742	1.248
Sales Growth	0.144	0.059	0.518	81	0.118*	1.751	3.801
Return On Assets	0.084	0.094	0.231	83	-0.035	-1.211	-0.048
Cash Flow	0.040	0.053	0.327	83	-0.032	-0.903	0.620
Leverage	0.462	0.456	0.534	83	-0.091	-2.489	-2.836
Cash Holdings	0.225	0.136	0.235	83	-0.038	-2.678	-1.442
Dividend Yield	0.012	0.000	0.035	83	0.000	0.145	3.648
Payout Ratio	0.037	0.002	0.074	74	-0.004	-0.628	2.498
R&D	0.052	0.001	0.106	83	0.006	0.804	0.951

**Panel B: Changes in characteristics of the targeted firm: Year before / Year after comparison: Icahn Sample**

	1994-2013 (observations)	
	(1)	(2)
	Mean (after) – Mean (before)	t-stat
<i>Δ Market Value</i>	-980.548	-0.5368
<i>Δ Book To Market</i>	0.290	0.4151
<i>Δ Tobin's Q</i>	-0.310	-1.1773
<i>Δ Capital Expenditures</i>	-64.636	-0.6607
<i>Δ Sales Growth</i>	-0.170*	-1.6919
<i>Δ Return On Assets</i>	-0.036	-0.7572
<i>Δ Cash Flow</i>	-0.032	-0.6734
<i>Δ Leverage</i>	0.297**	2.5451
<i>Δ Cash Holdings</i>	0.066	1.5265
<i>Δ Dividend Yield</i>	0.006	1.5169
<i>Δ Payout Ratio</i>	0.017	1.3825
<i>Δ R&amp;D</i>	0.002	0.1149

**Table 10: Characteristics of Target Companies: Icahn Sample**



**Table 11**

**Probit Model: Probability of being Targeted 1994-2013: Icahn Sample**

Table 11 summarizes the marginal probability of firms being targeted by Carl Icahn during the 1994-2013 and 2008-2009 period. The dependent variable is a dummy which takes the value of one in the year before Icahn filed the 13D and zero in all other years. All variables are lagged one period. If the lagged target company data is not available, data from two years before the event or the event year is retrieved. All of the variables, except for Market Value, are winsorized at the 1% and 99% extremes. Market Value is defined as (Common Shares Outstanding\* Price Close Annual Fiscal) or, when not available, Compustat's Market Value. Tobin's Q is defined as [(Total Assets - Book value of Common Equity + Market Value)/(Total Assets)]. Sales Growth is the growth of sales over the previous year. Return On Assets are defined as (Earnings before interest, taxes, depreciation, and amortization)/(Lag of Total Assets). Leverage is defined as (Book Value of Debt)/[(Book Value of Debt + Book Value of Equity) where Book Value of Debt is defined as (Long-term Debt + Short-term Debt) and Book Value of Equity is defined as (Book Value of Stockholders' Equity + Balance Sheet Deferred Taxes and Investment Tax Credit - Book Value of Preferred Stock). When Book Value of Equity is not available, it is computed as (Book Value of Common Equity + Preferred Stock) or (Total Assets + Common Dividends - Total Liabilities). Dividend Yield is defined as (Common Dividend)/(Market Value). Cash Flow is defined [(Net Income + Depreciation and amortization)]/(Lag of total Assets). Cash Holdings is defined as (Cash & Short term investment)/(Total Assets). R&D is Research and Development, defined as (R&D expenses)/(Lag of Total Assets). When R&D is not available, it is replaced by zero. See appendix B for more variable information. In order to estimate the probability of being targeted, the sample's targeted companies are matched with benchmark firms with data in the same fiscal year, the same Fama and French 49 Industry Classification and the same market value and book to market quintiles. Market value matching is dropped for calculating the MV difference and book to market matching is dropped for calculating the BM and Q differences. \*\*\* Significant at the 0.01 level; \*\* Significant at the 0.05 level; \* Significant at the 0.1 level. Regression:

$$Targeted_{i,t} = \alpha + \beta_1 Market Value + \beta_2 Tobin's Q + \beta_3 Sales Growth + \beta_4 ROA + \beta_5 Leverage + \beta_6 Dividend Yield + \beta_7 Cash Flows + \beta_8 Cash Holdings + \beta_9 R\&D$$

Dependent Variable = Dummy: Targeted that year: (1) Not targeted that year: (0)	Targeted between 1994 and 2013		Targeted between 2008 and 2009	
	(1) Coefficient	(2) Marginal Probability	(3) Coefficient	(4) Marginal Probability
Market Value	0.000***	0.00%	0.000***	0.00%
Tobin's Q	-0.025	0.00%	-0.025	0.00%
Sales Growth	-0.152	-0.01%	-0.152	-0.01%
ROA	-0.141	-0.01%	-0.141	-0.01%
Leverage	0.394***	0.03%**	0.394***	0.03%
Dividend Yield	-1.734	-0.14%	-1.734	-0.14%
Cash Flows	0.901**	0.07%***	0.901*	0.07%
Cash Holdings	0.717**	0.06%*	0.717	0.06%
R&D	0.553	0.04%	0.553***	0.04%
Constant	-3.509***	-	-3.509***	-
Pseudo R-squared	0.035		0.120	
Observations	169,607		12,848	

**Table 11: Probability of being targeted 1994-2013: Icahn Sample**

**Table 12**

**Returns of Hedge Fund Activism: Icahn Sample**

Table 7 summarizes the market adjusted, value weighted returns and the Fama-French-Momentum time-series Model of targeted firms. WRDS' Eventus was used to perform the event study. Targeted firms are identified by their PERMNO codes. The estimation window in this event study used for estimating short-term returns, as in Brav (2013b, p. 8) is [-221, -21] (days). The estimation window, used for estimating long-term returns, is [-17,-7] (months). All of the abnormal returns are estimated by using the Ordinary Least Squares (OLS) method. In the Fama-French-Momentum Time-Series Model, the Fama & French 2 step and Momentum Factor are used to estimate the benchmark returns. \*\*\* Significant at the 0.01 level; \*\* Significant at the 0.05 level; \* Significant at the 0.1 level.

**Panel A: Market Adjusted Returns & Fama-French-Momentum Time-Series Model (Short-term event window)**

	<i>Market Adjusted Returns, Value Weighted Index 1994-2013</i>		<i>Fama-French-Momentum Time-Series Model, Value Weighted Index 1994-2013</i>	
	CAR (-20,+20): <b>4.35%</b>		CAR (-20,+20): <b>5.27%</b>	
69 Security Events with useful returns	(1)	(2)	(3)	(4)
<b>Time Period Window (days)</b>	<b>Mean Compound Abnormal Return</b>	<b>Patell Z p-value</b>	<b>Mean Compound Abnormal Return</b>	<b>Patell Z p-value</b>
(-20,-2)	-1.21%	0.1044	-0.49%	0.39
(-1,-1)	0.87%***	0.0092	0.77%**	0.0273
(0,0)	2.66%***	<.0001	2.65%***	<.0001
(+1,+1)	2.31%***	<.0001	2.24%***	<.0001
(+2,+20)	-0.55%	0.248	-0.29%	0.4355

**Panel B: Market Adjusted Returns & Fama-French-Momentum Time-Series Model (Long-term event window)**

	<i>Market Adjusted Returns, Value Weighted Index 1994-2013</i>		<i>Fama-French-Momentum Time-Series Model, Value Weighted Index 1994-2013</i>	
	CAR (-6,+36): <b>27.70%</b>		CAR (-6,+36): <b>53.08%</b>	
69 Security Events with useful returns	(1)	(2)	(3)	(4)
<b>Time Period Window (months)</b>	<b>Mean Compound Abnormal Return</b>	<b>p-value</b>	<b>Mean Compound Abnormal Return</b>	<b>p-value</b>
(-6,-1)	2.96%	0.1598	5.60%*	0.0620
(0,0)	4.78%***	0.0043	1.95%*	0.0947
(1,+36)	2.97%*	0.0710	-313.08%***	<.0001

**Table 12: Returns of Hedge Fund Activism: Icahn Sample**

# Figures

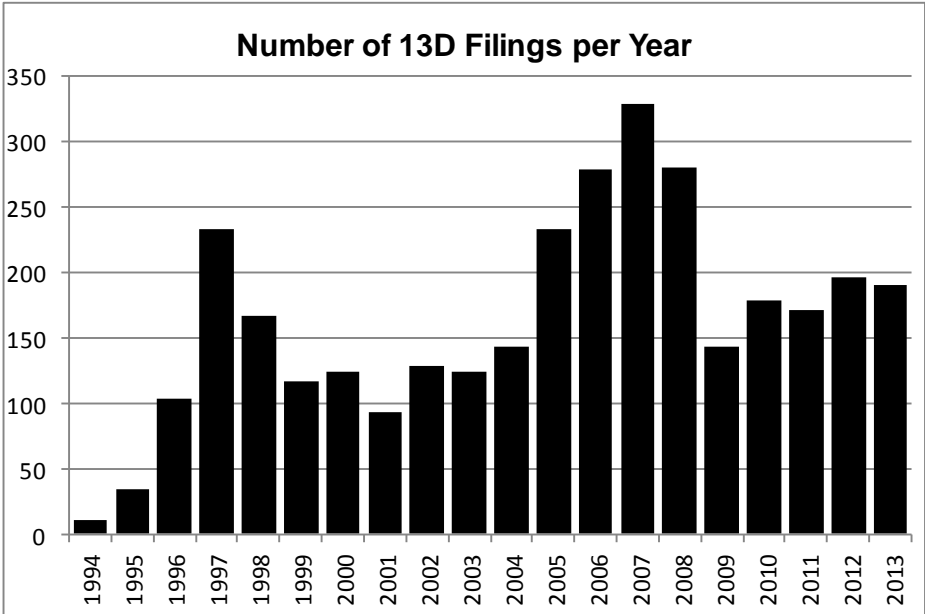


Figure 1: Number of 13D Filings per Year

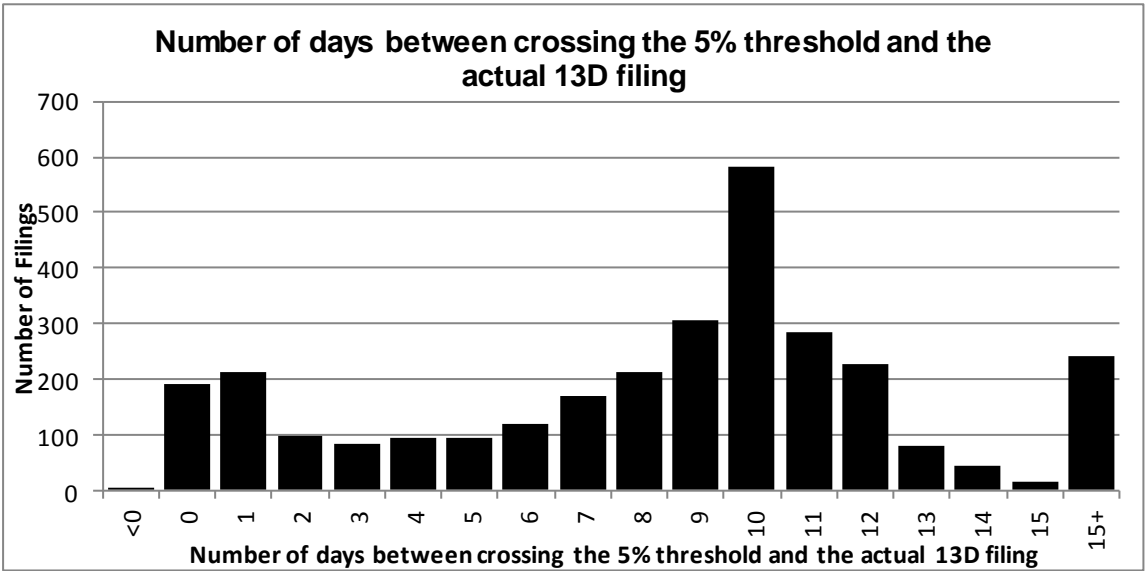


Figure 2: Number of days between crossing the 5% threshold and the actual 13D filing

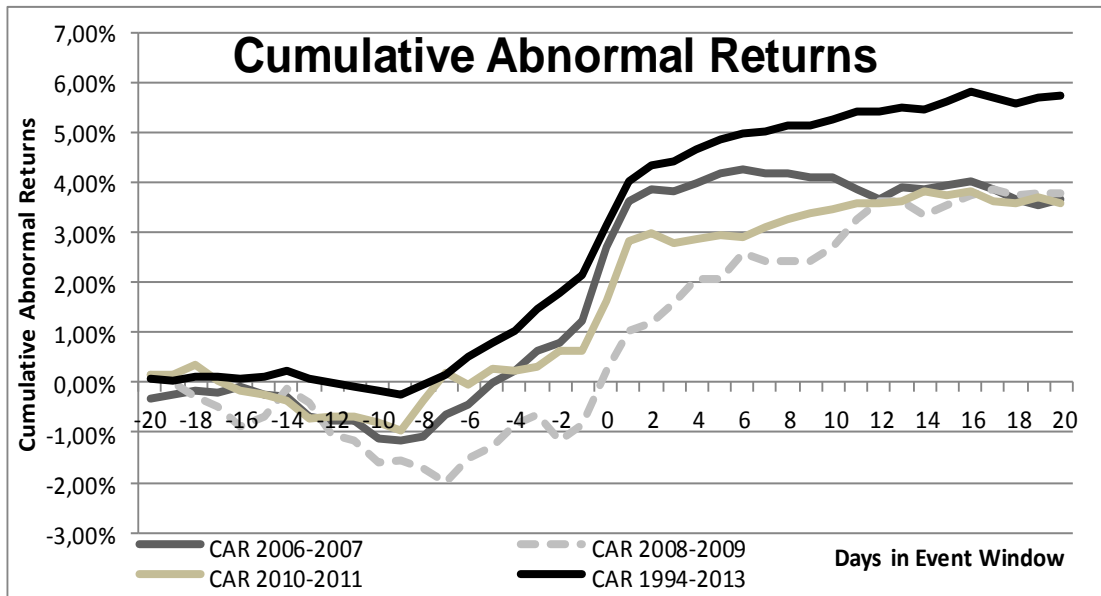


Figure 3: Cumulative Abnormal Returns

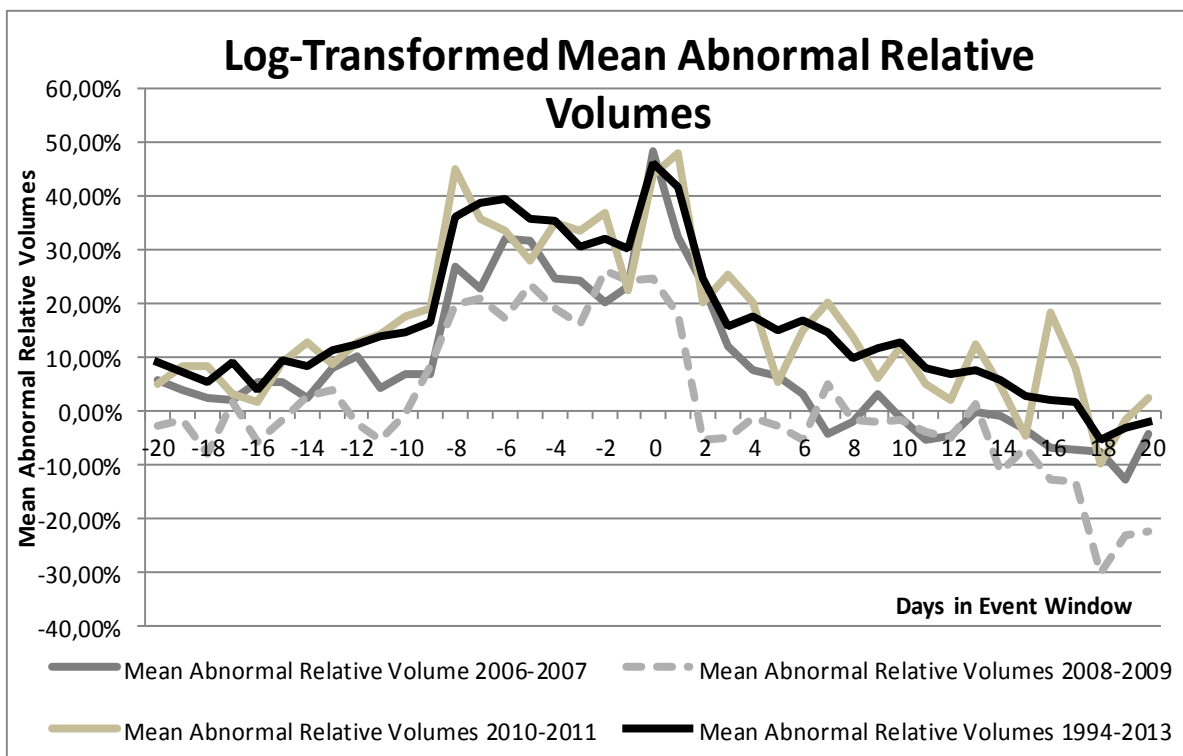


Figure 4: Mean Abnormal Relative Volumes

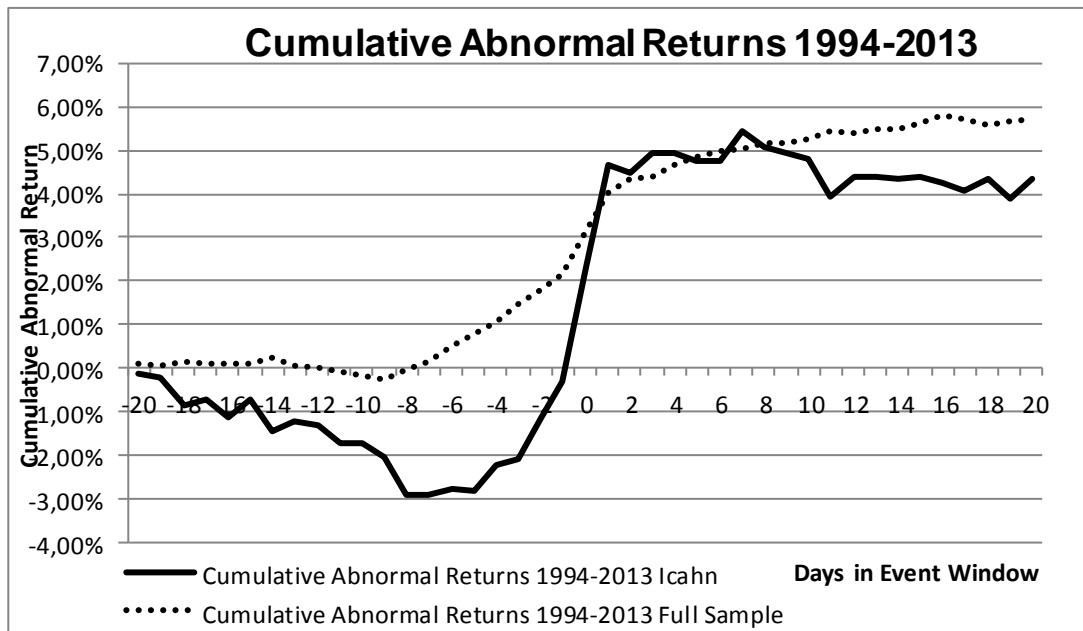


Figure 5: Cumulative Abnormal Returns Icahn Full Sample Comparison<sup>31</sup>

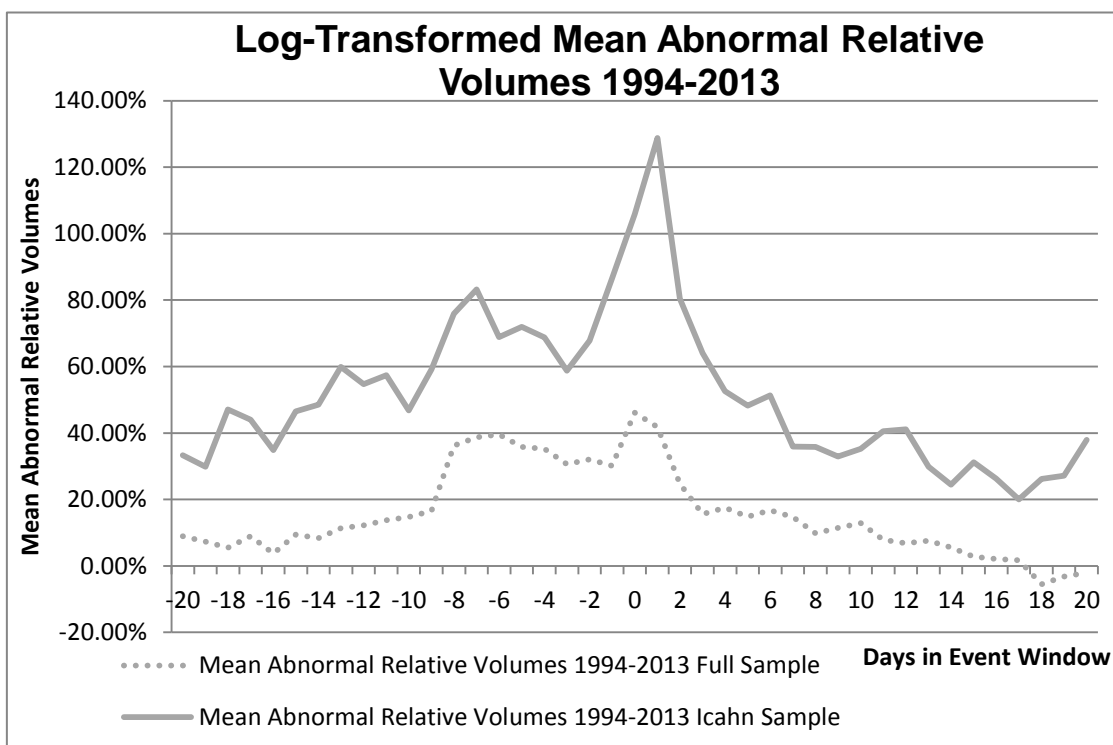


Figure 6: Mean Abnormal Relative Volumes Icahn Full Sample Comparison<sup>31</sup>

<sup>31</sup> The estimation window in this event study used for estimating short-term returns, as in Brav (2013b, p. 8) is [-221, -21] (days).

## Appendix A – Hedge Fund Strategies

The right side of figure 1 shows that hedge fund managers, when they collected the money, have to choose one or multiple investment strategies. With these strategies hedge funds can differentiate themselves from the others. Table A (CS/Tremont, 2014; Jaeger, 2003; Phillips & Surz, 2003; Garbaravicius & Dierick, 2005; Lhabitant, 2006; Evans, Atkinson & Cho, 2005; Boyson & Mooradian, 2010) gives an overview of the strategies which are used the most by hedge funds.

Strategy	Description of the strategy
<b>Long/Short equity</b>	A strategy used by the first hedge fund manager: Alfred Winslow Jones. Combines a long and short position on different companies. This strategy reduces the risk and diversifies your portfolio.
<b>Dedicated short bias</b>	This strategy takes more short positions and is therefore more risky.
<b>Equity market neutral</b>	This strategy aims to exploit differences in pricing between securities from the same sector, industry, etc . This strategy eliminates market risk. As there is no such thing as a free lunch the expected returns will be lower.
<b>Distressed securities funds</b>	Distressed securities funds are looking for companies which experience financial and operational troubles.
<b>Merger arbitrage funds</b>	A merger arbitrage fund's goal is to get a return from a merger or take-over.
<b>Convertible bond arbitrage</b>	By using this strategy, a hedge fund tries to make profit out of price inefficiencies between the convertible bond and the underlying shares.
<b>Fixed income arbitrage</b>	This strategy aims to get a return out of fixed income securities arbitrage.
<b>Emerging markets</b>	Hedge funds which focus lies on stocks, bonds, debt instruments from countries with emerging markets.
<b>Global macro funds</b>	Global macro funds invest in global currencies, bonds and securities and hold a much diversified portfolio. Hedge fund managers make use of a typical top-down global approach to see and forecast how political trends and global macroeconomic events affect the valuation of financial instruments.
<b>Managed futures</b>	Managed futures or often referred to as Commodity Trading Advisors (CTA's) usually invest in global securities, bond, currency and other markets. They make use of systematic trading programs and algorithms which use historical price data and market trends to decide on actual investments.
<b>Event Driven</b>	Event driven funds are designed to invest in events which may bring changes in the respective market price. Events on which the hedge fund managers can speculate are: mergers, restructuring of a specific company, bankruptcies and liquidations.
<b>Multi Strategy</b>	Hedge funds are considered to be a multi strategy fund when they use different strategies depending on the market conditions and forecasts.

## Appendix B – Variables

<b>Variable</b>	<b>Unit</b>	<b>Compustat Code</b>	<b>Database</b>
<i>Common Shares Outstanding</i>	Actual	CSHO	Compustat
<i>Price Close Annual Fiscal</i>	\$	PRCC_F	Compustat
<i>Market Value</i>	Million \$	MKVALT	Compustat
<i>Book Value Of Stockholders' Equity</i>	Million \$	SEQ	Compustat
<i>Balance Sheet Deferred Taxes and Investment Tax Credit</i>	Million \$	TXDITC	Compustat
<i>The Book Value of Preferred Stock</i>	Million \$	PSTK	Compustat
<i>Book value of Common Equity</i>	Million \$	CEQ	Compustat
<i>Preferred Stock</i>	Million \$	PSTK	Compustat
<i>Total Assets</i>	Million \$	AT	Compustat
<i>Common Ordinary Dividends</i>	Million \$	DVC	Compustat
<i>Total Liabilities</i>	Million \$	LT	Compustat
<i>Long-term debt</i>	Million \$	DLTT	Compustat
<i>Short-term debt</i>	Million \$	DLC	Compustat
<i>Net Sales</i>	Million \$	SALE	Compustat
<i>Earnings Before Interest Taxes Depreciation and Amortization</i>	Million \$	EBITDA	Compustat
<i>Net Income</i>	Million \$	NI	Compustat
<i>Depreciation &amp; Amortization</i>	Million \$	DP	Compustat
<i>Cash &amp; Short term investments</i>	Million \$	CHE	Compustat
<i>Common Dividend</i>	Million \$	DVC	Compustat
<i>Capital Expenditures</i>	Million \$	CAPX	Compustat
<i>Share Repurchase</i>	Million \$	PRSTKC	Compustat
<i>R&amp;D expenses</i>	Million \$	XRD	Compustat
<i>Standard Industry Classification</i>	Four-digit Code	SIC	Compustat

## Appendix C – Icahn’s Filing Companies

Icahn’s 13D Filing Company	Place of Organization
ACF Industries Holding Corp.	Delaware
ACF Industries, Incorporated	New Jersey
AMERICAN HOLDINGS I, - GP, INC.	Delaware
AMERICAN HOLDINGS I, L.P.	Delaware
AMERICAN PROPERTY INVESTORS, INC.	Delaware
American Railcar Industries, Inc.	North Dakota
American Real Estate Holdings, L.P.	Delaware
ARI Longtrain Inc.	Delaware
Barberry Corp.	Delaware
Beckton Corp.	Delaware
Beckton Corp.	Delaware
Buffalo Investors Corp.	New York
Carl C. Icahn	United States of America
CCI Offshore Corp.	Delaware
CCI Onshore Corp.	Delaware
Chelonian Corp.	New York
Cyprus, LLC	Delaware
Dixon Guarantor LLC	Delaware
Fleetwood Corp.	Delaware
Gail Golden (Icahn's Spouse)	United States of America
High River Limited Partnership	Delaware
Highcrest Investors Corp.	Delaware
Highcrest Investors Corp.	New York
Holding	Delaware
Hopper Investments LLC	Delaware
Icahn Building LLC	Delaware
Icahn Capital LP	Delaware
Icahn Enterprises G.P. Inc.	Delaware
Icahn Enterprises Holdings L.P.	Delaware
Icahn Offshore LP	Delaware
Icahn Onshore LP	Delaware
Icahn Partners LP	Delaware
Icahn Partners Master Fund II LP	Delaware
Icahn Partners Master Fund III LP	United States of America
Icahn Partners Master Fund LP	Cayman Islands
IEH ARI Holdings LLC	Delaware
IPH GP LLC	Delaware
Koala Holding LLC	Delaware
Larch LLC	Delaware
Leyton LLC	Delaware
Little Meadow Corp.	Delaware
Longacre Corp.	Delaware
LTBD	Delaware
Meadow Star LLC	Delaware
Meadow Star Partner LLC	Delaware
Meadow Walk Limited Partnership	Delaware
Nevar LLC	New York
Nybor Limited Partnership	Delaware
Olympia Investors, L.P.	Delaware
Olympia-GP, Inc.	Delaware
Pichin Corp.	Delaware
Riverdale LLC	New York
Starfire Holding Corporation	Delaware
Testudo Corp.	New York
Thornwood Associates Limited Partnership	Delaware
Tortoise Corp.	New York
Unicorn Associates Corporation	New York