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Do Hedge Funds Activities Lead to Higher Market Evaluations of Companies by Increasing Shareholder Value?

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ABSTRACT

Research in this thesis focuses on publicly traded U.S. target firms documented by the SEC Schedule, providing a perfect platform to examine the achieved returns by hedge funds activities. A purchase of at least 3% of a target firms' stake is subject to a Section 13D filing for active purposes or 13G filing for passive purposes within the SEC. Using a database of hedge fund campaigns allow to investigate whether hedge funds activities lead to substantial shareholder value creation for target firms during the period 2009 to 2020. The method of choice is the event study approach.

In 1969, Fama et al. (1969) introduced the event study methodology as a methodological improvement in accounting, economics and finance. As the event study methodology has become a standard method of measuring security price reactions around a certain event, this widely used methodology is utilised to measure – for instance – the impact of the announcement or disclosure of a 13D or 13G filing with the SEC. Hedge fund activism with its influence on a company's financial situation and performance over time is investigated, relying on financial and fundamental data of target companies. Hypothesis tests are performed to explore significant differences between the targeted companies and their peers from the same industry.

This thesis aims to contribute to existing literature by investigating and quantifying the outcomes of hedge fund interventions. Few empirical studies consider both, the effect of an activism event on the stock market valuation, but also on the financial health of a target company. Analyses of this thesis are based on the updated empirical evidence from extended samples from that by Clifford (2008), Bebchuk, Brav and Jiang (2015) and Brav, Jiang, Ma and Tian (2016). The findings suggest strong empirical evidence about improvements in short-term stock performance and long-term operating performance for target firms experiencing hedge fund activism. The level of abnormal returns for actively targeted companies remains higher with no regard to the market cycle (Schwill, 2020).

Research of this thesis offers insight into the status quo of companies after hedge funds exit their positions, i.e., how do companies fare after the stake is either reduced significantly or sold off. The findings show, that hedge funds usually improve the performance of target companies thus, leaving a lasting positive impact on the long-term stock performance.

Furthermore, research of this thesis contributes to the claim of myopic-activism over a 5-year period after hedge fund interventions. The dataset consists of the full universe of approximately 2,000 active and 12,000 passive interventions by activist hedge funds. The focus is set to analyse long-term effects of activists' interventions on both operating performance and shareholder wealth.

Results suggest that the threat of short-sighted interventions by hedge fund activists cannot be supported by data. These assertions affect debates by policy makers and public officials. No evidence is found for the counterfactual claim that hedge fund activists only apply stock picking without adding value to a target firm. This thesis contributes to the debate on the long-term impact of hedge fund activists on target firms and to what extent hedge funds facilitate the innovation ability of target firms. The findings show more efficiency in management and corporate governance by refocusing the scope of innovation including resource allocation indicating a link between hedge funds activities and improved innovation efficiency.

For a comprehensive understanding of the efficiency of hedge fund activism, this thesis analyses economic consequences for target firms, i.e. whether hedge fund activism weakens companies under the aspect of myopic actions and affects shareholders' wealth.

Overall, the results of this thesis largely confirm the multitude of evidence from different studies that hedge funds activities create shareholder value with substantial improvements in target firms' profitability, innovation efficiency, capital structure decisions and operating performance.

KEYWORDS: Hedge funds, Shareholder Value, Abnormal Returns, Event study, Innovation Efficiency

ABSTRACT

La investigación de esta tesis se centra en las empresas objetivo que cotizan en bolsa en EE.UU., documentadas por el calendario de la SEC, lo que proporciona una plataforma perfecta para examinar los rendimientos obtenidos por las operaciones de los fondos de cobertura. Una compra de al menos el 3% de la participación de una empresa objetivo está sujeta a una presentación de la Sección 13D para fines activos o 13G para fines pasivos en la SEC. El uso de una base de datos de campañas de fondos de cobertura recopilada a mano permite investigar si las actividades de los fondos de cobertura conducen a una creación de valor sustancial para los accionistas de las empresas objeto de estudio durante el período 2009 a 2020. El método elegido es el enfoque de estudio de casos.

En 1969, Fama, Fisher, Jensen y Roll introdujeron la metodología de estudio de casos como una revolución metodológica en contabilidad, economía y finanzas. Dado que la metodología de estudio de casos se ha convertido en un método estándar para medir las reacciones de los precios de los valores en torno a un determinado hecho, esta metodología ampliamente utilizada se utiliza para medir -por ejemplo- el impacto del anuncio o la divulgación de una presentación 13D o 13G ante la SEC. Se investiga la actividad de los fondos de cobertura y su influencia en la situación financiera y los resultados de las empresas a lo largo del tiempo, basándose en una selección de datos financieros relevantes de las empresas objetivo. Se realizan test de hipótesis para explorar las diferencias significativas entre las empresas objetivo y sus homólogas del mismo sector.

Esta tesis pretende contribuir a la literatura existente investigando y cuantificando los resultados de las actuaciones de los fondos de cobertura sobre la base de fundamentos teóricos. La mayoría de los estudios empíricos no tienen en cuenta tanto el efecto de la actividad en la valoración bursátil, como la salud financiera de la empresa objetivo. Los estudios de esta tesis se basan en la evidencia empírica actualizada de las muestras ampliadas de Clifford (2008), Bebchuk, Brav y Jiang (2015) y Brav, Jiang, Ma y Tian (2016). Los resultados sugieren una fuerte evidencia empírica sobre las mejoras en el rendimiento de las acciones a corto plazo

y el rendimiento operativo a largo plazo para las empresas objetivo que experimentan la actividad de los fondos de cobertura. El nivel de los rendimientos irregulares de las empresas objeto de la actividad de los fondos de cobertura, sigue siendo más alto, sin tener en cuenta el ciclo del mercado.

La investigación de esta tesis ofrece una visión nueva y única de la situación de las empresas después de que los fondos de cobertura abandonen sus posiciones, es decir, ¿cómo les va a las empresas después de que la participación se reduzca significativamente o se venda?. Los resultados muestran que los fondos de cobertura suelen mejorar el rendimiento de las empresas objetivo, dejando así un impacto positivo duradero en el rendimiento de las acciones a largo plazo. Además, la investigación de esta tesis contribuye a la afirmación del activismo cortoplacista durante un período de 5 años después de las intervenciones de los fondos de cobertura. El conjunto de datos consiste en un conjunto completo de aproximadamente 2.000 intervenciones activas y 12.000 pasivas de fondos de cobertura activistas. El objetivo es analizar los efectos a largo plazo de las intervenciones de los activistas tanto en el rendimiento operativo como en la riqueza de los accionistas.

Los resultados sugieren que la amenaza de actuaciones cortoplacistas por parte de los activistas de los fondos de cobertura no puede ser respaldada por los datos. Estas afirmaciones afectan a los debates de los responsables políticos y de los funcionarios públicos. No se encuentran pruebas de la afirmación contrafactual de que los activistas de los fondos de cobertura sólo ejecutan una selección de títulos sin añadir valor a la empresa. Esta tesis contribuye al debate sobre el impacto a largo plazo de los activistas de los fondos de cobertura en las empresas objetivo y hasta qué punto los fondos de cobertura aumentan la capacidad de innovación de las empresas objetivo. Los resultados muestran una mayor eficiencia en la gestión y el gobierno corporativo al reorientar el alcance de la innovación, incluida la asignación de recursos, lo que indica un vínculo entre las actividades de los fondos de cobertura y la mejora de la eficiencia de la innovación.

Para una comprensión global de la eficiencia de la actividad de los fondos de cobertura, esta tesis pone de resalto las consecuencias económicas para las empresas objetivo, es decir, si la actividad llevada a cabo por los fondos de cobertura debilita a las empresas con motivo de sus actuaciones cortoplacistas, o

tal como sostienen sus defensores, las empresas logran un mayor éxito al enfrentarse a menos problemas de agencia.

En general, la investigación de esta tesis respalda la multitud de pruebas procedentes de diferentes estudios de que las actividades de los fondos de cobertura crean valor para los accionistas con mejoras sustanciales en la rentabilidad de las empresas objetivo, la eficiencia de la innovación, las decisiones sobre la estructura del capital y el rendimiento operativo.

PALABRAS CLAVE: fondos de cobertura, valor para el accionista, rendimientos irregulares, estudio de casos, eficiencia de la innovación.

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ACRONYMS AND ABBREVIATIONS

AAR:	Average Abnormal Return
BHARs:	Buy-and-Hold Abnormal Returns
CAPM:	Capital Asset Pricing Model
CDAX:	Composite DAX
CEO:	Chief Executive Officer
CARs:	Cumulative Abnormal Returns
CAAR:	Cumulative Average Abnormal Return
CMA:	Conservative Minus Aggressive
CRSP:	Center of Research for Securities Prices
EDAGR:	Electronic Data Gathering, Analysis and Retrieval System
E-Index:	Entrenchment Index
EPS:	Earnings per Share
ERISA:	Employee Retirement Income Security Act
FF30:	Fama French 30
HML:	High Minus Low
KPI:	Key Performance Indicator
LBO:	Leverage-Buy-Out
LTCM:	Long-Term Capital Investment
M & A:	Mergers & Acquisition
MKT:	Market Risk Factor
NBER:	National Bureau of Economic Research
NPV:	Net Present Value
N:	Number
OLS:	Ordinary Least Squares
PATSTAT:	Worldwide Patent Statistical Database

PPIP:	Public-Private Investment Program
R^2:	R-Squared
R & D:	Research and Development
RMW:	Robust Minus Weak
ROA:	Return on Assets
ROE:	Return on Equity
SEC:	Securities Exchange Commission
SIC:	Standard Industrial Classification
SMB:	Small Minus Big
TCI:	The Children's Investment Fund
WRDS:	Wharton Research Data Services

1 INTRODUCTION: HEDGE FUNDS AND THEIR ROLE IN FINANCIAL MARKETS

Shareholder activism by hedge funds started in the 2000s and rose to prominence bringing up various important questions about the tactics and the changes hedge funds seek to promote in United States' (U.S.) publicly traded companies (Gillian and Starks, 2007; Bratton, 2010). The different facets of their stated objectives are discussed and whether hedge fund activists generate shareholder value for target firms (Brav et al., 2008a).

In the past decade, academics responded to the rise of hedge fund driven shareholder activism by providing valuable research and empirical studies on key aspects of their activities (Klein and Zur, 2009). The relevant literature answers many important background questions, which mostly date back to over a decade ago. A debate is ongoing whether hedge funds generate shareholder value for target firms or whether hedge fund activism represents a critical problem for U.S. public firms, investors and the economy.

1.1 HISTORICAL DEVELOPMENT OF HEDGE FUNDS' ROLE IN THE FINANCIAL MARKETS

In global financial markets, hedge funds evolved over time to sizeable important institutional investors playing active roles in both corporate governance and corporate control (Kahan and Rock, 2007). Hedge fund activism emerged as a new form of corporate governance mechanism to the benefit of all shareholders, while promoting managerial and directional accountability (Bebchuk et al., 2015; Boyson et al., 2017).

While some studies identify hedge fund activists as performance improving for target firms (Brav et al., 2015a; Brav et al., 2018), diverse studies suggest that short-term gains realised by hedge funds through their activities might impair the sustainable long-term performance of target firms (Cremers et al., 2018). Additionally, hedge funds' activities might hinder the wealth transfer from other shareholders or stakeholders (Klein and Zur, 2011).

Opponents of hedge funds consider activism as short-term focused and oriented on financial engineering without any value creating real and long-term effect. Kahan and Rock (2007) refute these assertions. In their view, a sufficient case for legal intervention has not been made. Kahan and Rock (2007) find that market forces and adaptive devices employed by companies individually may be more effective than regulation.

Shareholder activism by hedge funds is not considered to be a new phenomenon in the U.S. (Gillian and Starks, 2007), as financial institutions, i.e., mutual funds, banks and insurance companies influenced corporations as active participants in the U.S. corporate governance in the early 1900s (Gillian and Starks, 2007). In 1942, the SEC adopted a rule that paved the way for the current rule 14a-8 modernising shareholders' proposals in September 2020.

The amendments revised certain procedural requirements pertaining to shareholder's rights to make proposals and resubmit proposals. The rule also governs the eligibility of an investor, based on substantive and procedural grounds, to have a proposal included in the proxy statement of a publicly traded company. The 14a-8 rule allows shareholder activists to make proposals, which constitute a "proper subject for action by the security holders" (Gillian and Starks, 2007). The amendments of September 2020 should modernise and enhance the process with more efficiency and integrity of a shareholder activist's proposal.

Today, it is considered as an attempt to appropriately calibrate the proposal of an activist and to take into account the interest of not only the activist shareholder submitting the proposal, but those interests of other shareholders and the company itself (Gillian and Starks, 2007). All parties bearing the costs having to be paid and being associated with the inclusion of such proposals in the company's proxy statement should be considered.

The rule first adopted by the SEC in 1942 opened the door for activist shareholders to submit proposals aimed at improving corporate governance and performance in target firms (Karpoff et al., 1996). The following decades showed a flood of shareholder activist resolutions with activities to improve performance in target firms and to raise shareholder value. Hedge funds activities are offensive, as hedge funds select their target firms to pursue a proactive agenda (Coffee and Palia, 2015; Cheffins and Armour, 2011).

Shareholder activists serve on corporate boards in major roles using the proxy process and other approaches in target firms (Gillian and Starks, 2007). Until hedge funds emerge, activist institutional investors employed a variety of techniques to influence corporate management (Gillian and Starks, 2000).

In the first years of the 2000s, different varieties of activism evolved. Hedge funds have assumed prominence in their activist stance as important players in financial markets bringing about change by monitoring corporate performance. Considering hedge funds taking stakes and long-term positions in underperforming companies, they appear as an equivalent of those active investors who disciplined U.S. management boards in the 1980s and 1990s (Gillian and Starks, 2007).

Varieties of shareholder activism can be considered as reactive responses to corporate performance and activities and as dissatisfaction with some aspects to corporate governance or operations. Finally, shareholder activism is driven by the benefits addressing agency conflicts at the core of publicly traded companies with absentee owners (Gillian and Starks, 2007).

Given the case of absentee owners, hedge funds as shareholder activists delegate decision-making responsibility to managers, whose interests may be others than those of shareholders (Jensen and Meckling, 1976). The control of agency problems qualifies as one of the most important task of the board of directors including the responsibility to hire and fire staff and to monitor the management. If the board obviously fails in the due diligence to perform their tasks properly, the demand for activism arises, providing potential targets to hedge fund activists.

Stock prices incorporate and quickly mirror all publicly available information, i.e., the stock market is a reliable monitor of managerial performance and provide an indication about future performance and the value of a company, not captured by financial statements (Holmstrom and Tirole, 1993). The stock market performs an inherent monitoring function by exerting pressure on managers and boards to elicit decisions serving the interests of shareholders (Fama and Jensen, 1983; Jensen and Meckling, 1976).

Moreover, substantial theoretical and empirical evidence exists to confirm the monitoring effects of institutional investors (Agrawal et al., 1992; Gillian and

Starks, 2000). Hedge funds as shareholder activists and institutional investors differ from other institutional investors in trading styles, incentives for managers, in legal and regulatory environments (Briggs, 2007) and the ability to gather and process information.

The presence of hedge fund activists in a company's ownership base often influence executive compensation policy, the operating performance and merger & acquisition strategy (Boyson et al., 2017) including the market for corporate control (Bratton, 2010). A target firm under the influence and presence of a hedge fund may place greater emphasis on the pay for performance, generate higher returns on capital and concentrate on core competency avoiding value-reducing mergers (Borokhovich et al., 2006).

The capacity of hedge funds' unique investment strategies (Brav et al., 2008a) enables them to create positive long-term value and even though their strategies have become commoditised, it could yield misleading results by using them improperly. Hedge funds have the ability to perform during periods of market distress, due to the potentiality of their strategies to offer a more complex risk exposure varying in style and market circumstances. They adopt non-standard strategies with a higher idiosyncratic portfolio risk (Brav et al., 2008a).

As hedge funds typically exhibit a pro-cyclical behaviour, they increase the number of interventions during economic booms. At the opposite, they decrease the number of interventions during economic recessions and increase the number of exits (Brav et al., 2008a). Hedge fund managers have the ability to exploit ex-ante market concerns and deliver excess returns.

Activist hedge funds prepared to take the initiative accelerate matters to actively interfere with incumbent management pushing through their demands. They anticipate profiting as minority shareholders due to changes the management makes, but they do not prefer to tie up capital in the form of majority ownership (Greenwood and Schoor, 2009). Hedge fund activists rarely intend to acquire outright control of target companies ending up with a majority stake that might be acquired by a higher offer (Bratton, 2010).

Klein and Zur (2006) find evidence that U.S. hedge fund activists focus on firms with low dividend payout ratios, low leverage and (sales) growth rates, but sound operating cash flows. With low potential to grow, these target firms can be

characterised as "cash cows" suffering from the agency problems of free cash flow (Jensen 1986).

The nature of hedge fund activism differs from activism by traditional institutional investors and its implications for corporate governance and regulatory reforms (Kahan and Rock, 2007). The unique organisational structure enables hedge funds to change the boundaries of shareholder activism.

Some hedge fund activists purchasing minority stakes intent to influence managerial decision-making, while others seeking more fundamental changes by initiating takeovers and LBOs at the market for corporate control (Gillian and Starks, 2007). Dissatisfied activist shareholders may sell their shares, as the act of selling causes the market to react with a decrease in share price. A negative market response may have a disciplinary effect on the target firms' incumbent management and can lead to changes in governance (Parrino et al., 2003; Gillian and Starks, 2007).

After a large sell-off, the probability of CEOs replacement by executives outside the firm is relatively high (Parrino et al., 2003). This practice of hedge funds to discipline managers is known as "the Wall Street Walk", evidenced by theoretical and empirical studies.

It may be difficult to establish a causal link between shareholder activism and changes following in corporate governance and the probably subsequent changes in corporate performance (Gillian and Starks, 2007). Theoretically, the observed changes can be referred to as the result of shareholder proposals, the pressure of public media or due to behind-the scenes negotiations with activists.

The question remains whether the changes lead to increased efficiency of a target firm and create shareholder value. A major aim of shareholder activists seems to be a more independent board. Gillian and Starks (2007) argue that, even though, the board composition has changed to more independent directors, it is difficult to assess whether changes led to enhanced profitability and shareholder value.

While key changes to market and regulatory structures ensured hedge funds' engagements until the 2000s, the 2008 financial crisis appeared as a setback to them (Cheffins and Armour, 2011). Regulatory changes that were introduced after the

financial crisis seem to influence the business model of hedge fund activists to some degree and represent a liability for them.

Hedge fund's interventions continue to occur with regularity, even in the midst of the market turmoil (Cheffins and Armour, 2011). Despite the undertaken reforms, it will unlikely fundamentally undermine the hedge fund sector, as hedge fund activism appears as a feature of the global corporate landscape with worldwide interventions.

The basic parameters of shareholder activism delineate the focus on shareholder rights to enhance shareholder value as a tactic of corporate governance. In comparison to shareholder activism by mutual funds and pension funds occurring ex-post as traditionally dominant mainstream institutional investors, hedge fund activism is strategic and ex ante (Kahan and Rock, 2007).

Hedge fund's skills to select a target firm depend on the ability to determine, whether a target firm would benefit from activism before becoming active (Kahan and Rock, 2007). Mutual funds and pension funds engaging in shareholder activism work more defensively - reactive and ex-post - and generally do not own enough shares to guarantee victory in, for instance, a contest for boardroom control or policy changes (Cheffins and Armour, 2011). By using their stakes to support hedge funds activities, they can work defensively and promote the changes they advocate.

Offensive shareholder activism by hedge funds is featured by the intention of agitating for change, unlocking shareholder value should this be necessary. A hedge funds' decision to purchase a stake is based on the presumption that a company is not currently maximizing shareholder value. This is the sort of activism for which hedge funds have gained notoriety (Cheffins and Armour, 2011). Brav et al. (2010) consider hedge fund activists as shareholder activists taking advantage from their organizational structure.

In publicly traded companies, hedge fund activism will do much to shape manager/shareholder interaction. Advocates of activism argue that hedge funds activities typically generate improved shareholder value (Cheffins and Armour, 2011) by prompting target firms to manage their assets better or more efficiently. Hedge funds promote managerial and directorial accountability and improve the performance of undervalued firms (Brav et al., 2015a; Bebchuk et al., 2015).

Hedge funds often buy stakes in underperforming firms, which have sound operating cash flows and return on assets (Bebchuk et al., 2015). They justify their investments (Cheffins and Armour, 2011) with the low share price relative to book or market value and low dividend payout ratios of target firms (Brav et al., 2010). This causes the market to react belatedly but friendly with the share price subsequently increasing without any additional action taken by hedge fund activists (Cheffins and Armour, 2011).

The results can be interpreted as relative easily earned money. Given that, after hedge fund's purchase of a stake, the incumbent management makes changes on its own initiative serving to increase shareholder value, the hedge fund needs to do nothing other than wait and manage its exit (Cheffins and Armour, 2011).

Cheffins and Armour (2011) consider hedge funds as a financially well-placed industry that started in the 2000s approaching the market for corporate influence as active shareholder activists. Hedge funds can intervene outside the rules on investment companies and advisers, as they take advantage of exclusions and less regulations. In "safe harbours" (Cheffins and Armour, 2011), hedge funds often do not hedge their positions.

During diverse financial crises and volatile markets, the hedge fund industry rebounded smartly never giving up completely their strategies on shareholder activism. Nevertheless, all crises provided major stress tests for hedge funds with some of the activist hedge funds becoming unnerved by poor returns (Cheffins and Armour, 2011). A rerun of financial crises could seriously affect institutional investors and policymakers' faith in hedge funds.

The essential feature and original purpose of a hedge fund - hedging – (Schwill, 2020) is no longer a characteristic of it (Thießen and Walther, 2006). Hedging consists of taking a position in an investment (Schneider and Ryan, 2011). A reduced risk exposure is obtained by offsetting that investment with an oppositional position and that provides downside protection (Lhabitant, 2004; Madura, 2006). As hedge funds often refrain from hedging, that could bring out protection in a declining stock market, hedge funds take the risk of being particularly badly affected by volatile markets and downward trends (Cheffins and Armour, 2011).

However, financial crises imply a temporary setback for hedge funds as practitioners of controversial form of shareholder engagement. Nevertheless, hedge fund activism is considered as an remaining feature of the legal and financial landscape (Cheffins and Armour (2011) with propitious conditions for offensive shareholder activism in the future.

The Dodd-Frank Act of 2010 provides more empowerment for shareholders but do not support the increase of leverage of activist hedge funds. Additionally, with the Dodd-Frank Act's blessing, the Security and Exchange Commission introduced disclosure reforms reducing a hedge funds' ability to profit by acquiring stakes in target firms by stealth (Cheffins and Armour, 2011).

Shareholder activism has gone global and is seen as a widespread approach that effectively replaces hostile takeovers as an important disciplining device. Becht et al. (2017) report that as known for the U.S., but find activism as also frequently present in countries in Europe including France, Germany, Italy and Asia; not only in countries where hedge fund activism is associated with an active market for corporate control. While hedge fund activists' engagements are frequent in many markets, their success differs across countries.

In publicly traded companies and global markets around the world, shareholder activism (Gillian and Starks, 2007; Karpoff, 2001) and more broadly, large investors' monitoring of corporate managers (Gillian and Starks, 2007) brought about operational, financial and governance reforms in corporations (Shleifer and Vishny, 1986; Grossmann and Hart, 1980). Since the 1980s institutional investors, such as pension and mutual funds in the U.S. have been actively engaging in the management of invested firms pursuing the goal of gaining more shareholder value (Brav et al., 2010).

Because of regulatory and structural barriers, as not to mention the free-rider problem and conflict of interest (Black 1990), empirical evidence on the efforts of activism has largely been mixed (Brav et al., 2010). The globally widespread hedge fund activism across many sectors creates an ongoing debate in public.

Hedge funds became active due to a lack of regulatory and structural barriers (Brav et al., 2008a; Coffee and Palia, 2016) by signalling the market potentially unaddressed agency problems (Gantchev, 2013). Thus, significant abnormal

returns because of investor reactions to the announcement of hedge funds' acquisition can be expected (Becht et al., 2017).

Discussions about hedge fund activism are not limited only to academics achieving more attention from regulators and managers in recent years (Cheffins and Armour, 2011). The Brokaw Act (introduced in the U.S. Senate in 2016) represents the first attempt at federal legislation to restrict hedge fund activism with its ability to gain stakes in target firms. Even though SEC Commissioners have likewise raised concerns about strategies of hedge funds (Gallagher, 2015), they also express concerns about curbing the practice. As a response to critical voices, hedge funds built up a lobbying group in 2016, with the intention to shed some light on the benefits of hedge fund activism.

The capability of hedge funds to acquire a considerable amount of equity in target firms (Fung and Hsieh, 2000) enables them to monitor firms and to engage in activism more often than smaller investors. Thus, they acquire more easily an informational advantage to smaller investors and exercise good corporate monitoring. Smaller investors take advantage of hedge funds' ability to reduce agency costs; i.e., benefit from free riding and enjoy cost-free gains derived by more powerful hedge fund activists.

The market turmoil throughout the period of financial crises 2007 - 2008 and 2012 - 2013 affected hedge fund's engagements significantly, as engagements declined after a peak in 2007 (Becht et al., 2017). The year 2010 shows some recovery and the environment for activism became more attractive.

In the past decade, U.S. firms were hoarding levels of nearly 1 trillion USD cash. Thus, hedge funds posted their demands in U.S. firms to buy back shares and pay dividends to shareholders. Assets under management by hedge funds worldwide rose from 263 bn USD in 2000 to 3,380 bn USD in the third quarter of the year 2020. Hedge fund activism has changed to a less adversarial status (Schwill, 2020) despite public accusations of value destruction and low performance in target firms. Nowadays, it is usual for hedge funds to negotiate with target firms (Schwill, 2020).

Based on specific characteristics, regulations hedge funds face differ from that of other institutional investors. They are not on the same level of regulatory

restraints (Schneider and Ryan, 2011) like other institutional investors (Anderson, 2006).

Often organised as a limited partnership, hedge fund managers are general partners (Crerend, 1998), while investors take the role of limited partners and benefit of limited liability (Lins, 2002). This organisation form and the funds' agreement not to solicit publicity, allow hedge funds to avoid significant regulations (Gordon, 2005).

Hedge funds are pursuing a range of unique and dynamic trading strategies (Schneider and Ryan, 2011) enabling them to produce absolute returns that are independent of market conditions. A return claim to "market neutral" is not correlated to financial trends (Papier, 2005; McClean, 2006). Schneider and Ryan (2011) argue that for investors, the notion of absolute return is particularly enticing during volatile and declining markets. The performance of hedge funds is evaluated against a total return benchmark.

Hedge fund managers take on market risk to generate high alpha-excess returns above relevant market indices by using leverage and derivatives as instruments (Till and Gunzberg, 2005). Their skills to generate "alpha" are rewarded generously. A managers' compensation often consists of a 1–2% management or asset-based annual fee. Additionally, asset-based fee managers gain incentive fees of 20% per annum. This typically is reinforced by the manager's own investment in the fund (Crerend, 1998; Pearl, 2006), indicating that hedge fund managers use campaigns and interventions to earn short run excess returns, as hedge fund managers have strong financial incentives to make profits (Brav et al., 2010).

Passivity by institutional investors, not actively intervening in target firms, implies that shareholders may have to face reduced profitability over the long run. Following the former "Wall Street Walk", institutional investors sell their stocks if they are dissatisfied with the incumbent management (Gillian and Starks, 2007).

The future for shareholder value by passive investors is not entirely secure. Passivity without any attempt of interventions to challenge the management consequently leads to dispersion of shareholders (Coffee and Palia, 2016). Hedge funds on the other hand have the ability to bridge the separation of ownership and control to hold management accountable (Coffee and Palia, 2015).

1.2 RESEARCH APPROACH OF THIS THESIS

This thesis attempts to contribute to a comprehensive understanding of the efficiency of hedge fund activities and the impact on financial markets. Companies, investors and regulators should benefit from the results provided by empirical research of this thesis.

While hedge fund activism is a well-studied topic, very few studies exist combining summary statistics of accounting variables (industry-adjusted and based on the median of the firm's Fama-French 30 industries classification in comparison with the development of active -13D- and passive -13G- SEC filings). This thesis provides unique research spanning a period from 2009 until 2019 on hedge funds impact on operational performance, firm evaluation over the long-term, and innovation efficiency.

These studies allow to assess the situation quantitatively to make a more definite statement about tangible improvements and the role of hedge fund activists in the last decade. This thesis aims to advance the debate by searching empirical evidence whether such activists or even named as short-term opportunists are detrimental to long-term value creation goals of target companies.

The ambiguous role of activist investors can be understood with a closer look at the market leader activist investor:

the New York Hedge Fund, Elliott. In September 2019, Elliott won control over the Telekom Italia board of directors and unveiled a $3.2 billion stake in AT&T Inc. Elliott Management urged the sprawling U.S. telecommunications and media conglomerate to end its acquisitions spree and focus on improving its business. Elliott as a New York-based hedge fund and one of the world's most successful activists wrote to AT&T sending a four-part proposal that it said, could help lift its stock price at least 60% by the end of 2021.

How hedge funds activities impact the investment and financing policies of target firms can be shown in various examples of prominent hedge funds, such as Starboard Value LP and Carl Icahn. The objectives include splitting up a company, forcibly paying a special dividend, having a say in M&A activities of the target companies and refurbishment. The results from hedge funds activities are diverse (Brav et al., 2010). Schneider and Ryan (2011) argue that management scholars and practitioners would benefit from an examination of these corporate activists.

Hedge fund managers have considerable work experience and transfer their skills to hedge fund activism, as their work requires strong analytical, interpersonal, networking, negotiation and monitoring skills. Looking for satisfactory investment returns (Cheffins and Armour, 2011), the proportion of assets that is allocated to hedge funds rose steadily. The skills previously acquired by hedge fund managers are likely to play an important role in targets' selection by a hedge fund, its planned engagement and strategy and impact on governance and the strategic or financial policies.

Furthermore, the skills of managers may affect a target firm's response to hedge fund's approach and the potentiality of hedge funds to restructure a target firm. This further implies that hedge funds' ability to restructure target firms and to generate value is driven by the quality of knowledge and skills of hedge fund managers.

Additionally, hedge funds as shareholder activists benefit from the support of activism-friendly shareholders, as they are approached by large institutional investors who are disappointed with the performance of companies in which they are invested. This further implies the importance of hedge fund's propensity to target firms with existing institutional investors, who are willing to provide the desired support.

In theory, hedge funds seem to be able to change target firms' governance with activism efforts by proxy contests (Schwill, 2020) or board representation, but little evidence is found that activism efforts yields significant increases in share value or operating performance (Karpoff, 2001; Schwill, 2020).

This thesis investigates the impact of hedge funds activities on target companies, i.e., whether shareholder value is generated. There is a variety of aspects to consider activism: the firm value, accounting metrics, long-term strategies and financial policies. Hedge funds activities are evaluated with respect to these metrics to draw conclusions as to the efficiency of interventions.

This study will investigate the significant implications of hedge funds on target firms in detail, whether they generate shareholder value. The focus is on capital market-oriented U.S. target companies over a period of 2009 to 2019. This thesis serves as a comprehensive survey of research on hedge funds activities relying on the most recent data.

Since the late 1990s, hedge fund activism evolved and emerged widespread during the past two decades across sectors and multiple countries. A review of hedge fund activists' objectives, tactics and target selection distinguish shareholder value creation from alternative hypotheses, such as stock picking and wealth transfer (Brav et al., 2010). As innovation qualifies as a firm's primary channel to create value through growth associated with survivability and competitiveness (Burgelman, 1983), hedge funds also focus on this mechanism to create long-term value for target firms (Covin and Miles, 1999).

From an investor's perspective, the astonishing growth of hedge funds reflects an abiding demand for what hedge funds can offer: higher risk-adjusted expected returns, a greater diversification across assets and markets, sophisticated styles of strategies and fewer constraints on the portfolio managers' "alpha". As managers invest a substantial amount from their personal wealth into their own funds, this might be a strong incentive to generate high investment returns (Brav et. al, 2010). Economic policy debates discuss the insufficient transparency of these highly speculative investment industries, their profit motives and the resulting threat to company targets and to international financial markets.

A range of empirical studies document hedge fund activism as associated with significant positive abnormal returns around the date of announcement followed by operational, financial and governance related improvements over time. Nevertheless, cross-sectional differences in abnormal returns and the perceived increase in firm value occur (Brav et. al, 2010). Because of public perception of myopic behaviour and value destruction concerning hedge funds activities, critics will continue to question their campaigns and efficiency in value creation.

1.3 RESEARCH QUESTIONS

Research to date has not verified how hedge fund activists create value in target firms during the period of interest. Little is known about channels through which the efficiency and shareholder value increased.

This thesis attempts to answer the prominent question discussed in public: Do hedge funds activities lead to higher market evaluations of target companies in

the long run and whether they achieve a sustainable increase in shareholder value? This objective is covered by examining the following questions:

1. What impact do hedge funds activities have on target companies in terms of cash generation, leverage, accounting metrics and dividends with regard to a time period experiencing up- and down-market periods?
2. What is the positive impact in particular and what are the circumstances necessary to achieve such results, i.e., on shareholder value and innovation activity?
3. How do companies fare after hedge funds interventions and exit?

These issues have not been comprehensively addressed thus far. The database used by this empirical study relies on the SEC database of filings (EDGAR API 2019) to retrieve all Section 13D and 13G filings over the period of interest.

Existing empirical research does not provide sufficient and detailed information about long-term increases in the fundamental value of target firms and shareholder wealth. Furthermore, the influence of hedge funds' activities on companies' innovation efficiency and capacity is explored to judge the value creation of hedge funds' efforts for target companies.

Some existing studies on hedge fund activism analyse engagements on target firms during an upmarket period with favourable market conditions. In good times, capital markets offer sufficient liquidity to take measures to enhance company results and raise the company value at capital markets.

The period of interest of this study covers both up and down markets. Research in this thesis focuses on publicly traded U.S. target firms only. The analyses are based on the updated empirical evidence of extended samples by Clifford (2008), Bebchuk, Brav and Jiang (2015), and Brav, Jiang, Ma and Tian (2016).

1.4 STRUCTURE OF THE THESIS - A BRIEF OVERVIEW

This thesis is structured as follows. The first part introduces the design and the organisational structure of hedge funds as well as their approach in financial markets. The literature on hedge fund activism is reviewed, capturing many of the nuances of hedge funds activities. Finally, it delineates the employed methodology

to analyse the impact of hedge funds activities on the market evaluation of companies.

The second part delivers broad statistical evidence of hedge funds' ability to generate shareholder value. As database, during a period of 2009 to 2019 all 13D / 13G filings from the SEC EDGAR data portal API are retrieved. The long-term impact of acquisitions on target companies' financial health and fundamental parameters is explored. Furthermore, insights into the preferences of hedge funds when selecting their targets is obtained by exploring the correlation between a portfolio consisting of active (13D) / passive (13G) to the Fama French 5 market factors.

The results presented within the different chapters document how hedge funds affect their target companies. The analyses focus on financial/fundamental metrics, such as ROA, ROE, EBITDA, Assets, Cash, Leverage and Dividend yield. An event study provides statistical evidence of abnormal returns around the date of filing.

The third part addresses the claim of myopic-activism by analysing the operating performance and stock returns of target companies over a period of five years after the initial filings. Statistical evidence of enhanced innovation efficiency and capacity for target firms is provided to evaluate hedge fund's efforts to create shareholder value.

Finally, all findings will be presented in a conclusion. Additionally, the main limitations will be discussed as well as topics for future research.

1.5 MAIN FINDINGS AND RESEARCH CONTRIBUTIONS

This study investigates the effect of hedge funds activities on shareholder value, whether activism improves operating performance and innovation efficiency in target firms. The aim of this study is to quantify shareholder value created by hedge funds activities. This study is based on nearly 12,000 blockholdings, including active and passive blockholders that filed with the SEC in the period between 2009 and 2019.

The empirical part of this thesis bridges an existing gap in the literature as this study is based on the most recent data about hedge fund activism. By

comparing active and passive filings to each other, the difference in value creation for target firms is examined. This study focuses on hedge funds activities as to whether shareholder value is created for target firms.

The results show cumulative abnormal returns around the filing date, as well as a positive and significant difference in returns between active (13D) and passive (13G) filings. The findings suggest a correlation with diverse former studies documenting activist campaigns resulting on average in short-term gains for shareholders (Krishnan et al., 2016; Denes et al., 2017).

The positive significant abnormal returns around the announcement of a hedge funds' 13D filing indicate a friendly positive market response to hedge funds activities. Hedge funds' filings for passive purposes cause the market to react in the opposite way by a negative return.

As this thesis attempts to continue empirical research in the field of hedge fund activism, the long-term effects, which have been less reviewed, are explored. To base the long-term effects on empirical data, this study considers a period up to 3 years after the acquisition providing statistical evidence of hedge funds' ability to restructure target firms. The analysis shows statistical evidence of positive changes in target companies' financial health and fundamental parameters after the initial filing.

The results show improved operating performance in all three years with regard to financial metrics, such as EBITDA, Cash generation and ROA. The targeted companies tend to outperform the market, as represented by an appropriate index. The findings show that after hedge funds' interventions, a pattern of initially low performance will follow a consistent recovery.

Furthermore, insights into the preferences of hedge funds when selecting their targets is delivered by investigating how a portfolio consisting of active / passive targets is correlated to the Fama and French 5 market factors. The propensity of hedge funds to target underperforming firms can be confirmed consistent with findings by Brav et al. (2008a), Clifford (2008) and Klein and Zur (2009).

To continue with contributions on extant literature, this study explores hedge funds' efforts to achieve enhanced innovation efficiency and competitiveness by examining patenting activities of target firms. By following an approach of Brav et

al. (2018), the value creating effect in the long-term is analysed by considering the development of patent counts, citations, originality and generality. Findings of this study are consistent with findings by Brav et al. (2018) and Wang and Zhao (2015) that in general, hedge funds' activities improve innovation efficiency.

The theoretical framework of this thesis attempts to shed more light on hedge funds' role in financial markets, as monitors of corporate performance, and their appearance as financial intermediaries.

The findings of this thesis provide statistical evidence of hedge fund's ability to create shareholder value. The results may contribute to a change in public picture of hedge funds' role and activities.

2 STATE OF RESEARCH

Empirical evidence was found by Black (1998), Karpoff (2001) and Romano (2001), that proposals made by institutional investor shareholders in context of overt activism had very little impact on firms they target. More recent data by Bebchuk (2005a) shows similar conclusions regarding efforts and success to elicit changes in the target firms' corporate governance structures or corporate strategies. The free rider problem seems to be a primary rationale why activist campaigns are regularly instruments, used by hedge funds to interfere into target firms' business strategies and financial policies.

Free riding is the problem of exceeding the costs of expected benefits to be derived from activist campaigns. The benefit of those campaigns may be shared by many shareholders, but one sole shareholder carries the costs. As discussed by Bebchuk (2005b), the paucity of observed proxy contests in the decade before 2005 between institutional investors and publicly traded U.S. companies is due to costs of free riding with no consistently positive returns for investors surrounding the disclosure of these initiatives nor long-term tangible benefits.

The target characteristics of interest for hedge funds to become activists are firm size, interest expenses on debt divided by sales, and book-to-market ratio (Mietzner and Schweitzer, 2009). In past decades, hedge funds preferred smaller targets in comparison to private equity investors (Mietzner and Schweitzer, 2009).

Smaller companies might have higher book-to-market multiples (Mietzner and Schweitzer, 2009) and higher average valuations than more mature firms (Tirole, 2006). Brav et al. (2010) find that hedge fund activists can accumulate quickly a significant ownership stake by spending a given amount of capital in targets exhibiting a high trading liquidity, analyst coverage and institutional ownership.

Brav et al. (2010) argue that due to these characteristics, the purchase of a large stake does not result in adverse price impact and activists may gain more support for their agendas from fellow sophisticated investors. Poorly governed firms with weak shareholder rights offer the potential for value improvement.

Mietzner and Schweitzer (2009) document that blockholders enhance firm value by reducing agency costs using their voting power as provided by the agency-theoretical background by Shleifer and Vishny (1997).

2.1 HEDGE FUNDS ACTIVISTS AS FINANCIAL INTERMEDIARIES

Hedge Funds in their role as financial intermediaries differ in several important aspects from conventional investment vehicles. Not strongly regulated and under less restrictions, they lie outside the bounds of federal regulation of mutual funds and other investment companies, as hedge funds are exempt from the Investment Company Act of 1940 (Bratton and Wachter, 2010).

Hedge funds can use leverage and derivatives as instruments to generate above average returns independently from the market environment and situation without comparing themselves with a benchmark. Kahan and Rock (2007) document that hedge fund activism is directed at significant changes in individual companies entailing higher costs. Hedge funds improve the efficiency of international capital markets in a market-based financial system.

The original interest of hedge funds is to actively influence companies according to the Shareholder Value approach (Spreemann, 2007). Behind this lies the systematic methodology to identify value-enhancement for target companies, based on company and market analyses determining the distributable funds of the target company (Rappaport, 1995).

Schneider (2000) documents that concentrated investment brought about by intermediation yields a potential source of power over target firm managers (Schneider and Ryan, 2011), resulting in reduced agency costs. Concentrated investment facilitates activism to the benefit of hedge funds' general and limited partners.

Compared to various types of institutional investors, hedge funds tend to have ambitious goals and achieve more success in activism campaigns, often to the benefit of their investor-partners (Schneider and Ryan, 2011). Kahan and Rock (2007) argue that hedge fund activism differs from activism by traditional institutional investors, as hedge fund managers enjoy different incentive structures. If hedge funds yield poor performance, they face liquidation after 1 or

2 years, due to performance problems, insufficient capital, credit issues or management conflicts (Getmansky et al., 2004).

Schneider (2000) raises concerns that, while financial intermediation generally benefits its investors, it presents the potential for its investors to incur agency costs due to self-serving behaviour of intermediaries. Schneider and Ryan (2011) document that in rare and extreme cases, hedge funds and their general partners or managers might engage in insider trading, fraud, or misappropriation of funds at the expense of their general partners.

2.1.1 Strategies

Krishnan et al. (2016) and Denes et al. (2017) document hedge fund's success in implementing their strategies followed by short-term and long-term positive stock price performance. The question arises whether strategies of hedge fund activists became more effective. Results seem to depend on the sample period, motives, tactics and market conditions. Brav et al. (2008a) document that hedge funds engage in a new form of shareholder activism and monitoring that differs from previous activist efforts.

Denes et al. (2017) assume that in the past thirty years, activists' strategies became more effective with numerous innovations resulting in improved monitoring and lower agency costs. Many of those target firms have poor prior stock returns, but do not poorly perform by all metrics (Denes et al., 2017). Alchian and Demsetz (1972) argued that, additional to market monitoring, board oversight and the market for corporate control, the monitoring and control of managerial agency problems can be facilitated by activist interventions.

Researchers started exploring activists' motives and tactics by examining the conditions that facilitate coordination by multiple hedge funds being focused on the same target firm (Brav et al., 2017). Activist campaigns organised in a group, improved efficiency in operations and gained more value for target firms than activist campaigns by single hedge funds (Becht et al., 2017).

Cremers et al. (2018) find that activist hedge funds show strong selection and trading skills. Brav et al. (2008a) found no evidence for an alternative hypothesis confirming hedge funds' sophisticated stock picking skills to be the only value enhancing effect for target firms.

Portfolio managers of hedge funds are challenged to generate unique sources of excess returns, incentivised by their compensation packages. The ability of managers and their success to generate expected returns is associated to hedge fund performance (Titman and Tiu, 2011). Hedge fund managers, connected to political lobbyists seem to benefit from the advantage of informed securities trading (Gao and Huang, 2014).

During the Technology Bubble in 2000, hedge funds benefitted from an informational advantage, as they reduced their exposure to technology stocks before the stock prices collapsed. Stock holdings in technology by hedge funds outperformed characteristics-matched benchmark technology stocks (Brunnermeier and Nagel, 2014). Hedge fund managers adjust the portfolios' market exposure to the equity-market liquidity.

The distinctiveness of hedge funds' strategies is associated with a higher dynamic and performance (Fung and Hsieh, 1997). The astonishing growth of hedge funds, despite several industry-wide crises, seems not to be accidental. From an investor's perspective, this reflects an abiding demand for what hedge funds can offer: higher risk-adjusted expected returns combined with greater diversification across assets and markets.

Hedge funds seek confidentiality, as their stock holdings are associated with information-sensitive events. Events, such as mergers and acquisitions have strong impact on stock prices. The confidential stock holdings exhibit superior outperformance. Thus, hedge funds disclose their amendments through 13F filings with a delay, due to concerns about the price impact after public information (Aragon et al., 2013).

To magnify their gains, hedge funds usually borrow capital from banks or brokers. They employ leverage in their strategies to boost their returns. Ang et al. (2011) document that economy-wide factors can better predict changes in hedge fund leverage than their individual organisational structure and characteristics. Volatile fund returns, decreased funding costs, and increases in market value may forecast an increase in hedge fund leverage. A study by Cao et al. (2013) shows evidence of the ability of hedge funds to adjust their portfolios in time when market liquidity conditions change.

Through the direct use of leverage or borrowing, and utilisation of indirect leverage through investment in equity derivatives, hedge funds affect the financial markets and the stock prices of potential target firms. The ability of hedge funds to use leverage and to pursue their strategies is based on "prime brokerage" and thus, their close relationship with investment banks (Henry and Goldstein, 2007).

In 2007, Goldman Sachs, Morgan Stanley and Bear Stearns - as now being a part of J. P. Morgan - covered about 60% of the market of prime brokerage. The prime brokerage business is subject to much concern (Schneider and Ryan, 2011), as hedge funds use multiple prime brokers, exposed to unknown risks from hedge funds activities (Stulz, 2007).

Due to the lack of transparency, prime borrowing may cause unknown risks to large financial institutions. The price pressure in downward trends and reduced liquidity represent a high risk, should prices turn against a hedge fund's expectations (Stulz, 2007). Downward pressure and certain market conditions may cause the liquidation or closing of similar positions held by hedge funds leading to losses and/or a liquidity crisis.

The rescue of Long-Term Capital Management (LTCM) hedge fund in 1998 demonstrates the close relationship of hedge funds to prime brokers. LTCM appeared as "Too big to fail" and needed the rescue by the Federal Reserve. Because of its largely leveraged positions, closed abrupt and disorderly, LTCM posed unacceptable and systemic risks to the U.S. economy (Dungey et al., 2007). Consequently, the Federal Reserve Bank of New York decided to rescue LTCM that involved 14 banks and a total sum of $3.5 B.

In general, hedge funds intend to bring security prices closer to fundamental values that subsequently lower market volatility (Partnoy and Thomas, 2007). Schneider and Ryan (2011) note that increased financial market volatility depends on factors, such as computerised trading, globalisation and the influence of other large investors (Baele, 2005). Dungey et al. (2007) suggest that hedge funds activities might play a role in financial contagion transmitting a shock or crises from one firm or market to others.

Though the evidence of hedge funds' financial behaviour is far from clear (Stulz, 2007), as they seek inefficiencies in capital markets to bring security prices closer to fundamental values of companies by the disclosure of new information

about such companies. Partnoy and Thomas (2007) argue that reduced information asymmetry can reduce market volatility.

Financial markets benefit from hedge funds trading strategies, the achieved gains depend on diverse techniques with various success rates (Brav et al., 2008a). In comparison to other institutional investors who show no measurable performance improvements in portfolio firms, Partnoy and Thomas (2007) find that hedge funds activities have significant impact on firm value.

As hedge funds tend to be highly activist investors (Schneider and Ryan, 2011), and thus a separate investor class, hedge funds' interests sometimes appear as oppositional to other investor's interests (Gregoriou and Christopherson, 2005). Hedge funds are not obliged to practice sole "buy-long" trading. Unlikely other long-only managers, they can extract security mispricing. To that knowledge, there are concerns about the effects of activist campaigns (Partnoy and Thomas, 2007).

Other investors engage in diverse investment strategies, but those strategies are not as dynamic and complex as of hedge funds. Especially, the use of derivative securities, leverage (Bratton and Wachter, 2010) and short-selling as well as investment strategies forcing a declaration of bankruptcy from a target firm, emerge as unique strategies of hedge fund activists.

Opponents of hedge funds describe these strategies as shareholder value destroying. The claim is about control structures and voting-rights enabling activist shareholders to control corporations without making a commensurate capital investment (Morck et al., 2005). Schneider and Ryan (2011) find that some specific hedge fund types may expropriate value from shareholders.

Excessive and increased use of short selling can trigger a change in financial markets' dynamics resulting in longer periods of market decline. This might strengthen a just started downward market spiral. Unlike most institutional investors, hedge funds can quickly move in and out of large positions. They can evoke a desired downward change, due to their trading volume and frequency (Krugman 1999). Ryan and Schneider (2002) document a negative effect on other investors through combination of value destroying strategies by hedge funds seeking a disproportionate gain.

The collapse of the investment bank Bear Stearns in 2008 elicited rumors that short-sellers - like several hedge funds - had been contributing to the decline of its

stock price from $171 in early 2007 to the purchase price of $10 in late spring 2008. Bear Stearns was overtaken in 2008 by its competitor - JP Morgan Chase & Co. - avoiding bankruptcy. The collapse of Bear Stearns is characterised as example that short selling by hedge funds can put pressure (Schneider and Ryan , 2011) on stock prices.

The distinction of hedge funds to other institutional investors is desirable, because hedge funds can improve market efficiency despite the lack of transparency. Considering the suitability of the various risk dimensions associated with hedge fund strategies, the highly competitive nature of this industry implies potentiality of generating attractive returns. Nowadays, hedge funds serve critical functions in the global financial system, as they provide liquidity, price discovery, credit and risk transfer (Partnoy and Thomas, 2007).

2.1.2 Heterogeneous Skills

The history and specific role of hedge fund activists show that more than two-thirds of hedge fund managers gained work experience in a former career with investment banks. Activists boast considerable work experience and transfer skills to hedge fund activism, as their work requires strong analytical, interpersonal, networking, negotiation and monitoring skills. Hedge fund activists benefit from attained skills in prior careers and thus, the magnitude of their interventions. Previously acquired skills are likely to play an important role in target selection, planned engagement and strategies to affect a target firm's governance and strategic or financial policy.

Furthermore, their skills may affect the target firm's response to a hedge fund's approach and the potentiality to restructure a target firm. A study by Boyson et al. (2020) identifies skills that activists bring to activism from prior work experience, as a potential source of success. Target firm selection seems to reflect those skills of activists, acquired through prior work experience. For instance, hedge fund activists with strong financial expertise select target firms with more liquid stocks choosing targets that appear conducive to their approach (Boyson et al., 2020).

Activists that are identified as specialists due to prior work experience and attained monitoring and mentoring skills are more likely to choose higher-risk

targets. Boyson et al. (2020) expect specialists to show strong commitment to activism in comparison to less qualified activists, as hedge fund managers skill sets and success differ.

Boyson et al. (2020) shows that activism by specialists counts for the highest number of campaigns with higher aggregate dollar amounts and the development of a close and long-term relationship. Hedge fund managers with a specialist's expertise invest frequently in target firms through private placement to become involved in governance with board representation and a minimum holding period. The results by Boyson et al. (2020) imply that the prior attained experience empowers specialists to extensive involvement with target firms.

Consistent with the broad literature, the markets' response is favourable to the announcement of an activist campaign (Brav et al., 2010; Bebchuk et al., 2015), especially, when the market expects a subsequent merger deal. Hedge fund interventions resulting in mergers show considerable long-term stock performance (Greenwood and Schor, 2009). The higher announcement returns may reflect the markets' belief in activist's investment banking expertise following a merger. Thus, negotiation and deal-making skills are of high importance for activist campaigns (Boyson et al., 2020) to take an active role with counterparties and to develop close relationships.

The heterogeneous skills of activists are evidenced by intermediate positive steps following activist's interventions (Boyson et al., 2020). Negative events or a bad outcome, such as bankruptcy, a liquidation or delisting are rarely observed in firms targeted by skilled activists. Boyson et al. (2020) document a positive long-term operating performance for target firms and value added by activists with financial expertise, who appropriately leverage their skills.

Activists with specialist skills are more likely to have success in obtaining board seats of target firms, seeking to influence governance, management and operations (Bebchuk et al., 2020; Keusch, 2019). Empirical studies on activism commonly find a positive relation between hedge fund activism and outcomes of target firms (Greenwood and Schor, 2009; Gantchev, 2013; Brav et al., 2015b). Especially, activists with good deal-making skills lobbying for more aggressive changes, i.e., a merger, cause the market to react positively with a higher stock price reaction (Greenwood and Schor, 2009).

More broadly, activists' ability to restructure target firms encompasses a continuum of possible responses to the firms' financial policies and strategy. As hedge fund activists can choose the market for corporate control to initiate takeovers and LBOs (Leverage-Buy-Out), they aim to accomplish fundamental corporate changes. As a less extreme measure to influence managerial decision-making, hedge fund activists can purchase minority stakes.

Hedge fund activists select a special population, i.e., smaller slightly underperforming firms with low leverage and good liquidity. Brav et al. (2008b) report that hedge fund activists identify undervalued firms with poor prior stock performance, but with potential for future improvement. A causality between activist success, i.e., the market and the target firms' response and activist choices seem to exist (Boyson et al., 2020), based on heterogeneous skills of hedge fund activists to generate short-term and long-term performance for target firms.

Boyson et al. (2020) find that hedge fund activists' skills set influence their decision to target firms, to intervene with activities having a greater impact. Activists as financial experts attend higher quality universities in comparison to activists without specific financial expertise. Hedge fund managers with financial expertise have a strong commitment to activism and foster a close relationship with their target firms (Boyson et al., 2020).

The probability of a merger completion is high, due to the close involvement with the target firm, a more frequent board representation and greater insight in firms' governance, financial and strategic policies. Campaign choices reflect skills of hedge fund managers (Boyson et al., 2020) in governance and operations and thus, prepare activists to engage extensively with target firms to create shareholder value.

Hedge funds focusing on governance improvements, commonly replace underperforming CEOs using hostile techniques trying to receive board representation (Keusch, 2019). Activists with remarkable deal-making, quantitative and analytical skills focus on asset sales, as this strategy may quickly increase return on assets and reveal gains on undervalued assets.

Boyson et al. (2020) document a majority of hedge fund managers, who gained experience in the financial industry featuring academic skills with strong quantitative and analytical expertise. The heterogeneous skills of activists differ in

expertise and prior work experience, ranging from corporate transactions, M & A activities to networking and governance skills. The very specialist in activism conducts campaigns with high commitment and face less resistance from target firms. Financial expertise plays an important role for all procedural aspects of activism.

2.2 EVENT DRIVEN ABNORMAL RETURNS

Empirical studies show positive effects of hedge fund activists' events on target companies (Brav, et al., 2015b; Brav et al., 2018). As argued by Bebchuk et al. (2015), Brav et al. (2008), Klein and Zur (2009), Greenwood and Schor (2009), the announcement of hedge fund's interventions can be seen as good news.

2.2.1 Overview on Empirical Research

Empirical findings during a period between January 2003 and December 2005 show that hedge funds have engaged in successful and profitable activist campaigns over years; even against a large group of publicly traded companies (Klein and Zur, 2006). The financial gains of hedge funds are through both: higher stock prices and increased dividends paid by target firms (Becht et al., 2009).

Furthermore, a spillover effect by activist campaigns is suggested by Aslan and Kumar (2015), i.e., improved productivity and governance of target firms can additionally exert pressure on peer companies with regard to innovation, technology and the displacement of competitors out of their market position.

Unfettered from pay-for-performance restrictions, imposed by the Investment Advisors Act of 1940, hedge fund manager's compensation packages typically include a percentage of invested funds and a percentage of the funds' profit. Therefore, they can personally benefit from a successful activist campaign (Brav et al., 2010). Evidence in the literature indicates that activist campaigns are successful in achieving the goal of increasing shareholder value in target firms (Krishnan et al., 2015).

The majority of literature around hedge fund activism shows that the stock prices of target firms experience significant positive returns when international financial markets notice the presence of activists (Bebchuk et al., 2015). Across all

studies and markets, the short-term announcement window shows a consistent range of abnormal returns. Average event returns range from 5% to 10%, i.e., the visible difference between an observed stock return and the expected return – under a hypothetical situation (Klein and Zur, 2006; Clifford, 2008). These results in both stock returns and operating performance show a favourable effect of hedge fund activism (Greenwood and Schor, 2009).

However, several important related questions have to be addressed. Considerable cross-sectional differences in abnormal returns and the perceived increase in firm value through hedge fund activism are found (Brav et al., 2010). Brav et al. (2010) note that the evidence of diverse studies suggests that investors associate and perceive hedge fund activism as value enhancing.

Findings by Krishnan et al. (2016) and Denes et al. (2017) document hedge fund's success in implementing their strategies, which are accompanied by positive short-term and long-term (unadjusted) stock price performance.

Brav et al. (2008a) find that abnormal returns around the announcement date do not reverse in the following years. The vast strand of literature about hedge fund activism provides no consistent picture as to whether hedge funds activities create or destroy long-term value in target companies. Becht et al. (2017) document positive and significant returns during the period of activism when hedge funds achieve their goals.

Hedge fund activism is a key aspect of corporate governance to get engaged and to influence strategies and policies of global companies. Nowadays, in public media, hedge fund activism is discussed as to be the "golden age of activist investing". One question is fundamental for hedge fund activism, whether an increase of shareholder value can be achieved in addition to the event returns.

Brav et al. (2008b) report average abnormal monthly returns of 5.10% for 1,059 interventions of 236 hedge fund activists, targeting 882 unique firms. Using different samples, researchers like Clifford (2008), Greenwood and Schor (2009), Brav et al. (2010), Boyson and Mooradian (2011), Becht et al. (2017) document positive stock returns in a range of 3.39% up to 6.97%. These results indicate on average increased value for firms targeted by hedge fund activists.

Brav et al. (2010) reviewed a time period from 2001 to 2007 by examining both short-run stock returns around the announcement as well as the long-run returns.

Their analysis adopts both short and long-run event windows around the announcement of activism to find out how the stock market perceives the effect of hedge fund activism on shareholder value. Their findings are consistent with findings by Klein and Zur (2009), Clifford (2008), Boyson and Mooradian (2007), i.e., that, in general, hedge fund activism creates value for shareholders by affecting the governance of target firms, improved operating performance and influencing decisions concerning the financial policy.

Brav et al. (2010) plotted average buy-and-hold returns around the announcement date, in excess of the buy-and-hold return on the value-weighted NYSE/AMEX/NASDAQ index utilising the data from CRSP. Announcement-windows vary from 1 day to 20 business days prior to the filing and 1 day and 20 days after the filing date. Especially the magnitude of the announcement-window shows comparable abnormal returns to those of other studies on U.S. activism events. The conventional method to analyse an activist's performance is to measure the abnormal returns (i.e., Ren and Xiao, 2019) around the public announcement of an activists' stake.

Klein and Zur (2006) report 7.2% average abnormal returns for an event-window of (-30,30). Clifford (2008) and Boyson and Mooradian (2007) document significantly positive abnormal announcement returns in a range of 3.4% to 8.1% for various event windows around the announcement date. Greenwood and Schor (2009) show average abnormal returns of 3.6% relating to an event window of (-10,5) for their sample of target firms representing the peak of abnormal returns for events related to asset sales and serial mergers.

A look at the stock markets' reaction outside of the United States shows similar results. Becht et al. (2009) report mean abnormal returns around the announcement of 3.94% over an (-5,5) event window in the United Kingdom. Restructuring measures as well as the replacement of a CEO or chairman seem to be associated with particularly high returns.

Findings by Becht et al. (2008) document CARs about 6% around an (-25,25) announcement-window for Europe. Stokman (2008) reported CARs almost the double with 12.2% for a same event window. Considering activism events in Germany, Mietzner and Schweizer (2008) find 6.24% CARs for an event window of

(-20,20) around the announcement date. Uchida and Xu (2008) find average excess returns of 5.6% for Japan at the (-2,2) window.

Thus, a multitude of different studies supports the view that hedge fund activism in general creates value for shareholders in the short-term indicating that investors perceive hedge fund activities as value-enhancing.

Brav et al. (2010) measure abnormal trading volume over a (-100,40) window. Brav et al. (2010) find an increase in abnormal trading volume during the 10-day period before the filing date, unlike CARs that mostly appear around the announcement date. Investors are subject to SEC Schedule 13D filing within 10 days after the purchase.

Brav et al. (2010) suggest that the filing fund may be engaged in another additional purchase prior to the announcement of activism. Therefore, market reactions may not be an unbiased estimate of expected benefits from ex-post successful activism. The cross-sectional variation of average abnormal returns reflects the heterogeneity in market perceptions of expected benefits from hedge funds' interventions.

Brav et al. (2010) run regressions with the dependent variable being the abnormal return with a (-20,20) window around the event date. The regression shows the highest abnormal returns ever, with an average of 8.54%, when activism aims for a target firm to be acquired. These findings are consistent with findings by Greenwood and Schor (2009). They report the highest abnormal returns for subsequently acquired targets. Becht et al. (2008) evidence similar results in the difference in average abnormal returns; they find abnormal returns of 8.1% for acquired target firms and 5.2% for non-acquired firms in Europe.

Research by Boyson and Mooradian (2007) reports a favourable stock market reaction in governance-related hedge fund activism. By using a unique dataset of hedge funds acting as agents of corporate change for the period 1994 – 2005, they find strong evidence of improvements in both short-term stock performance and long-term operating performance. Most remarkable changes in performance are due to aggressive activism to push through changes in corporate governance and reductions in excess cash.

Brav et al. (2010) find that the average announcement returns from hedge fund's previous interventions may influence market reactions. Cross-sectional

differences in the Schedule 13D announcement premium may occur due to a hedge fund's reputation (Johnson and Swem, 2019) being successful in previous interventions.

Motives of hedge funds to purchase a stake and get engaged with target firms might be partly driven by their negotiated performance-based compensation contracts with investors (Hennessee, 2007). It is important to note that hedge funds calculate their fees on unrealised capital gains. Therefore, hedge fund activism can be associated with the notion to a strong preference for short-term and trading-induced profits (Mietzner and Schweizer, 2009).

Clifford (2008), who runs calendar-time portfolio regressions for event windows of (0, +12), (0, +24), and (0, +36) documented average three- and four-factor alphas in the range of 1.0% to 1.9% per month, all being statistically significant. Overall, the results of diverse studies in the literature suggest that alphas around event time are positive for target firms of hedge fund activism (Brav et al., 2010).

Klein and Zur (2006) find 10.3% abnormal returns during the period surrounding the initial 13D filing, disclosed by hedge funds as blockholders. They collect a sample of 151 activism events over the period 2003-2005. The returns significantly exceed the returns of firms targeted by non-hedge funds as well as the returns for a sample of control firms based on industry, firm size and book-to market ratio.

Klein and Zur (2006) focus on confrontational hedge fund activism and document that hedge funds are successful in pushing through their demands. They show success rates higher than 50% in achieved demands made in the initial 13D filings, i.e., of representation on the firm's board, scuttling an existing merger proposal or forcing share repurchases. The findings by Klein and Zur (2006) provide a glimpse of how several measures of hedge fund activists affect target firms' governance.

After one year post 13D filing, Klein and Zur (2006) document no improvements in target firm's performance. The results show a decline in earnings per share (EPS), return on assets (ROA) and return on equity (ROE). Klein and Zur (2006) find a lack of innovations with no additional investments in research and development.

2.2.2 Event-induced Global Variations of Abnormal Returns

Global research by Becht et al. (2017) supplements research limited to U.S. publicly traded companies, based on SEC data by using a sample of 1,740 activist engagements across 23 countries over a decade (2000–2010). They draw the conclusion that returns to activism, i.e., of improved performance is driven by engagement outcomes of hedge fund activists. Activist campaigns with outcomes seem to deliver positive and significant abnormal performance during the entire engagement period, compared to equity blocks bought with an intention of being held passively, i.e., without any interventions.

Contrary to expectations, disclosure returns appear similar across regions. Becht et al. (2017) suggest that success and outcome of an activist campaign depend on the utilised business model, suggesting not every type of activism is beneficial to target firms.

Becht et al. (2017) further contribute to existing literature by reporting that the U.S. model of activism is mimicked by foreign activists successfully outperforming U.S. activists in domestic markets. The variation in terms of performance emerges across countries in both the type of outcome and incidence. Changes in board structure seem to create less shareholder value compared to successful corporate restructurings, for instance, takeovers leading to increased shareholder value.

Based on a sample of 1,740 activist engagements covering the period 2000 to 2010, several findings by Becht et al. (2017) emerge: takeovers show abnormal returns with an average of 9.7%, followed by restructuring measures with 5.6% and changes to the board with 4.5% on average. A change in payout policy does not create any additional value with a negative performance of -0.2% to target firms. Significant variation in the magnitude of abnormal returns may be attributed to the variety of reasons, hedge fund activism is cited for (Brav et al., 2008b; Klein and Zur, 2009; Becht et al., 2017; Bebchuk et al., 2015).

Spanning the period 2000-2010, Becht et al. (2017) report abnormal returns of 7% for U.S. companies around a (-20,20) day window. The results are consistent with prior abnormal returns, reported by Brav et al. (2008b), Klein and Zur (2008), Clifford (2008), and Greenwood and Schor (2009). Abnormal returns to European

and Asian target companies are reported to be significant and 6.4% and 4.8% higher, respectively, compared to U.S. target companies.

Becht et al. (2017) document that the announcement of outcomes contributes to holding period returns on average 6.4% during a (-20, +20) event window across all 23 countries. For the period 2000 to 2010, hedge fund activists seem to create tangible improvements in firm value by counting for the highest returns in Europe with 8.8% followed by North America with 6.0% and Asia with 2.7%. These returns count additionally to the disclosure returns for those subsamples with outcomes generated by the activist during the holding period.

Becht et al. (2017) cite shareholder activism as developed to be a "global phenomenon". They estimate that hedge fund engagements involving more than one hedge fund account for roughly a fifth of overall activism and seem to be among the most successful types of activism. Becht et al. (2017) report average blockholdings by hedge funds of 11%. They draw the conclusion that activists should seek support of other institutional investors or other hedge funds. This is confirmed by (Brav et al., 2019).

Moreover, Becht et al. (2017) argue that hedge fund activists do not only focus on short-term results as increases in shareholder value of target firms are tightly linked to those activist campaigns with goals achieved. The results by Becht et al. (2017) make important contributions to existing literature by providing large-sample evidence about the incidence and performance of international hedge fund activism.

2.2.3 Long-Term Productivity

Brav et al. (2015b) analyse the long-term effects of hedge fund activism on target firm's productivity by using a sample of close to 2,000 activism events in the U.S. over a time period 1994 – 2007 and a control sample with similar size, age, year and Standard Industrial Classification (SIC). Using plant-level information provided by U.S. Census Bureau, they find improvements in productivity in the third year after hedge funds' arrival, focusing on business strategy-oriented interventions. This may indicate that activists would not willingly bear the costs of engagements and agency costs, if they do not expect to achieve results in line with their goals (Gantchev, 2013).

Brav et al. (2015b) document growing productivity for plants owned by firms experiencing hedge funds activism in a similar pattern concerning the evolvement and dynamic of ROA. They identify the efficient reallocation of corporate assets of target firms as a value-creating channel. Plants that were sold after hedge fund's interventions exhibit higher productivity under a new ownership than their peer group being sold without any involvement of hedge fund activists. Brav et al. (2015b) suggest the presence and involvement of hedge fund activists to prepare plants to the acquisition of new owners, who may operate those underperforming plants more efficiently.

At the time of divesture, plants show worse performance, but experience a substantial improvement under a new ownership. Brav et al. (2015b) document improved labour productivity without any positive significant changes in working hours and wages. They draw conclusion that stable wages coupled with significant improvement in labour productivity indicate that workers do not benefit from the surplus. Equity investors capture most of the surplus after hedge fund intervention.

Due to the gains in productivity, target plants increased investments in information technology significantly. Key findings by Brav et al. (2015b) refute the assertion that activism only pursues financial goals to extract payouts to shareholders by increasing leverage. The results support evidence that hedge fund activism facilitates improvements in productivity in terms of both efficiency in assets and capital reallocation.

The study by Brav et al. (2015b) highlights the real and fundamental effects of hedge fund interventions and supplements earlier work on real effects of other types of blockholders, such as Private Equity Firms (Davis et al., 2011). Targets of hedge fund activists are typically slightly underperforming smaller companies. Better governance can improve the value of these firms by reallocation of assets and a more efficient use of their cash flows. Research by Brav et al. (2015b) demonstrates that hedge fund activism takes the middle ground in corporate governance between corporate control and routine monitoring for diverse target firms.

Brav et al. (2015b) measure the performance of target firms when hedge funds switched their blockholdings from 13G to a 13D filing status, i.e., from passive to active stance. With a subsample of cases, they test the incremental

effect of intervention of hedge funds over stock picking and find significant performance improvements for target firms after the switch from passive to active.

Brav et al. (2015b) conduct the first study in the literature to identify value-creating channels tracing the source of value creation to the fundamental production process. They conduct an analysis at production unit level that allows to evaluate the post intervention performance of plants targeted by hedge funds despite events, such as a delisting or a change in the ownership structure. The studies by Brav et al. (2015b) provide evidence about the real effect of shareholder monitoring on manufacturing plants. Thus, they made unique accomplishments by providing a more detailed view of hedge funds' efficiency gains according to their interventions.

2.2.4 Critics of Long-Term Shareholder Value Creation by Hedge Funds

In the past decade, the number of firms that became subject to activism threat increased in size and in number. SEC Commissioners raised concerns about hedge fund activism (Gallager, 2015) expressing reservations to curb the practice.

From a proponents' view of shareholder activism, companies targeted by hedge funds are more likely to succeed and facing less agency problems. The presence of activists can mitigate and help overcome the classic agency problem (Kahan and Rock, 2007) and might be important, considering the disciplinary effect on managers with regard to the market of corporate control.

Opponents of activism allege that hedge fund activism weakens companies under the aspect of myopic actions (Bebchuk et al., 2015) of activists. The interference of hedge fund activists is described as adverse effect on companies and their long-term shareholders. Companies trying to avoid becoming a target of hedge fund activists seek to maximise their earnings at the expense of their economic viability (Lipton, 2013).

Researchers estimating long-term effects of hedge fund activism, based on an equal weighted approach, find mean abnormal stock returns ranging from 3.4% to 7% around the initial 13D filing date reaching a peak of 11% over 1 or 2 years (Denes et al., 2017). These estimated results of abnormal stock returns seem to indicate that hedge fund activism generally improves long-term firm value but do not

necessarily create shareholder value, i.e., of enhanced wealth for the average shareholder (deHaan et al., 2019).

Considering that nearly 90% of the total market value is covered by 20% of U.S. public companies, the effect of an activist campaign in a large firm is different from an intervention in a small one. Thus, investors of a large firm are more affected by an activist campaign as investors of a small firm.

Consequently, to evaluate the real effect of hedge fund interventions, an empirical analysis should be based on the value-weighted average long-term stock returns (Brav et al., 2000) to measure the impact of activist interventions on shareholder wealth. Brav et al. (2000) recommend a value weighted methodology to explore whether investors' average wealth change subsequent to an activist event.

An equal weighted approach to evaluate stock returns tend to show higher stock returns than a value weighted approach based on market capitalisation. Thus, an equal weighted approach can lead to a possibly false interpretation, as returns might be driven by small firms to obscure the negative or insignificant returns for larger firms; whereas the total wealth effects for shareholders is captured by larger firms (Fama, 1998).

deHaan et al. (2019) used a sample of 1,964 activist interventions spanning a period from 1994 through 2011 to measure short-term abnormal returns. They find that short-term equal-weighted abnormal returns within a 21-day window surrounding the activist intervention are significantly positive, as well as the cumulative pre- to post-activism mean returns over a time span of 1 to 2 years. deHaan et al. (2019) document that the equal-weighted long-term returns result from approximately 20% of all targets, whereas long-term results for the larger 80% of target firms are initially positive before becoming insignificant within 3 months.

Compared to a value-weighted approach, deHaan et al. (2019) report short-term returns less than half the size of the equal-weighted returns and insignificant cumulative pre- to post-activism long-term returns. Thus, the total shareholder wealth through hedge fund interventions seems to be insignificant. They interpret their results as minimal support for the hypothesis that activist interventions drive long-term increases in wealth for shareholders. The findings by deHaan et al. (2019) do not support that activist interventions lead to long-term wealth for the average

investor, but also find no evidence that activist interventions have a value destroying effect on target firms.

The long-term shareholder value creation for target firms seems to be unclear, whereas researchers consistently document positive equal-weighted stock returns around the announcement date of activist interventions (Klein and Zur, 2009; Becht et al., 2017; Bebchuk et al., 2015).

Greenwood and Schor (2007) find high abnormal returns surrounding investor activism for the subset of targets that are acquired ex-post. These findings supplement empirical studies by deHaan et al. (2019) reporting that nearly all of the positive long-term returns to activist interventions occur among target firms that subsequently were acquired by hedge fund activists. Greenwood and Schor (2007) argue that a combination of hedge funds' short investment horizon and a large stake in a target firm leave an M & A event as the only attractive exit option.

As hedge fund activists have overtaken nearly all other institutional investors to be the most prevalent shareholder activists, raising concerns and debates are about potential myopic actions (Gillian and Starks, 2007).

Bebchuk et al. (2015) test the empirical validity of a claim that interventions by activist hedge funds are detrimental to shareholder value in the long-term. Testing this claim, they conduct a comprehensive empirical analysis examining a 5-year long window, ex-post to hedge fund activists' interventions. Their study consists of a universe of about 2,000 interventions by hedge funds during the period 1994-2007. Their dataset includes information drawn from disclosures by hedge funds filed under Section 13D with the SEC.

Bebchuck et al. (2015) provide statistical evidence on the long-term impact of hedge fund activism with data on the operating performance and stock returns of target companies by using standard sources - Compustat for operating performance data and (CRSP) Center for Research in Security Prices for stock return data. Bebchuk et al. (2015) use standard metrics such as Tobin's Q and ROA to analyse the long-term impact of hedge fund intervention on the operating performance and shareholder wealth.

Bebchuk et al. (2015) find no empirical evidence of declines in operating performance during the five-year window. Their findings provide important contributions to existing literature in terms of concerns that hedge fund activist's

interventions are followed by a stock-return underperformance in the long-run. The initial spike seems to reflect the interventions' long-term consequences correctly.

The research by Bebchuk et al. (2015) has several widespread implications, especially with respect to the role of hedge fund activists becoming clearer to have a positive long-term effect on target firms by creating shareholder value. First, Bebchuk et al. (2015) reject the considered assertions and concerns, because of no support by data. In their view, the assertions, that activist campaigns are costly to shareholders in the long-term, should not be accepted by policymakers.

Second, the findings by Bebchuk et al. (2015) do not support claims, such as to weaken shareholders' power vis-à-vis directors; using board classification to insulate directors from shareholders and taking advantage of rights available only for minority shareholders (Cheffins and Armour, 2011). Furthermore, Bebchuk et al. (2015) do not support the claim to tighten the disclosure rules for hedge fund activists. The key message by Bebchuk et al. (2015) contend that, curtailing the power of activists without studying the full implications and role of hedge fund activists, could be detrimental to shareholder activism and to target firms.

2.2.5 Collaborative Evidence of Long-Term Shareholder Value

Literature on the real effects of hedge fund activism reveals value gains following activist interventions (Greenwood and Schor, 2009). Cremers et al. (2018) argue that irrespective of an activist's effort, incumbent managers and directors of poorly performing firms may take actions that lead to a firm's turnaround. From their view, subsequent changes in corporate policy and increasing firm value might follow those endogenous interventions rather than through activists' efforts and interventions.

Analyses by academic researchers provide evidence about improvements in operations and profitability of target firms by activists' campaigns (Aslan and Kumar, 2016). Furthermore, target firms of hedge fund activists obtained a better competitive position in the product market showing improvements in innovation efficiency (Brav et al., 2018).

Firms under the influence of hedge fund activists seem to concentrate more on core competency by reducing the number of acquisitions and increasing

frequency of divestures (Gantchev et al., 2018). Hege and Zhang (2019) find a positive response on activism campaigns, i.e., positive value effects for target firms over two years after activism campaigns. Furthermore, target firms having gone through an activism campaign conducted divestures. By using interaction dummies, they show significant long-run performance effects measured by Tobin's Q and ROA. Based on these findings, the positive long-term impact of hedge fund activism becomes clearer.

Analysing the long-run performance effects for small target firms of hedge fund activism - which are buyers of firms or buyers of assets - Hege and Zhang (2019) achieved the result of a strong performance-enhancing effect. These gains might be attributed to the smaller size of the target firms.

The research by Hege and Zhang (2019) identify channels of activism pressure and show that switches of hedge fund activists from a passive to an active stance, i.e., from 13G to 13D, produce significant changes in firms' corporate transactions. They document evidence of activist interventions beyond the intent of stock picking by looking at Tobin's Q as a stock-based measure of long-run performance. Studies by Hege and Zhang (2019) show value for target firms generated by hedge fund activism suggesting that hedge funds create shareholder value.

2.3 IMPROVEMENT OF CORPORATE GOVERNANCE AND OPERATIONS

Hedge fund activism attracts attention from researchers and policymakers. The emerging findings can be informational for future research. Shareholder activism can be considered as the outgrowth of an external market for corporate control (Pound, 1992; Black, 1992).

Hedge fund activists seek alternate methods to monitor managers, as they are equipped with organisational structures to pursue their activism agenda with the goal of improving value for target firms (Brav et al., 2010). The monitoring of corporate managers (Shleifer and Vishny, 1986; Grossman and Hart, 1980) seems not to be a new phenomenon (Brav et al., 2010). Corporate control and corporate governance qualify as important channels through which hedge fund activists affect target firms to change strategies and financial policies.

Activist hedge funds promote the accountability of managers and directors to the benefit of other shareholders (Brav et al., 2015b; Bebchuk et al., 2015). On the

other side, and consistent with Klein and Zurs' (2011) view, some scholars argue that hedge funds are professional arbitrageurs, able to use governance levers to their own profit at the expense of other shareholders or stakeholders (Cremers et al., 2018).

Due to barriers they face, other institutional investors remain passive or sell shares being dissatisfied (Karpoff et al., 1996). In comparison, hedge funds are unfettered from restricted performance incentives, political constraints (Black, 1990) and securities regulation (Brav et al., 2008a).

Denes et al. (2017) respond to a debate about effective corporate governance reflecting the characteristic of a political democracy, or being undemocratic and representing an enforcement problem. They conclude that a shareholder proposal - comparable with political democracy - has a minimal impact on target firms. Activism with a notably undemocratic stance focusing on shareholdings is associated with increases in value and performance for target firms. Based on their findings, Denes et al. (2017) emphasise the importance of changes in the ownership structure to be associated with value and performance improvements for target firms.

Hedge fund activists utilise diverse tactics that are characterised as a blend of an effectual and more undemocratic behaviour (Denes et al., 2017). This picture of activism can be associated with prior research results by Karpoff and Rice (1989); (Denes et. Al, 2017). As democracy seems to be a poor model for effective corporate governance (Denes et. Al, 2017), valuation effects can be obtained by the united power of principals being aware of the benefits to offset their costs.

Denes et al. (2017) find that activism by hedge funds depends on the activists' average shareholding in the target company, whereas empirical studies document that hedge funds' strategies play an important role in its success seeking different objectives (Venkiteshwaran et al. 2010). Boyson and Mooradian (2011) report that hedge fund activists purchase an average stake of 8.8% of target firms. Buchanan et al. (2012) document an average stake of 9.9% for activists initiating proxy fights. Brav et al. (2010) report a median of 6.3% of shares acquired by hedge fund activists.

In the late 1980s, shareholder activist's proposals show no evidence for positive results, i.e., proposals are not associated with an increase in shareholder value (Karpoff et al. 1996). Shareholder proposals in the period of 1996 to 2005

document small but statistically significant increases in share prices of target firms (Renneboog and Szilagyi, 2011). The results reflect the rise of emerging hedge fund activists, sometimes also initiating shareholder proposals. To compare hedge fund activism and shareholder proposals or direct negotiations, overall evidence is consistent and robust across studies reporting average positive abnormal stock returns around an announcements of hedge funds' purchasing a stake (Denes et al., 2017).

Greenwood and Schor (2009), Klein and Zur (2009) and Boyson et al. (2016) document significantly positive long-run stock returns following proxy fights initiated by hedge fund activists, confirming that firms targeted by hedge fund activists experience increased value on average. Denes et al. (2017) draw conclusion by supporting the view that hedge fund activism and proxy fights - leading to more efficiency in corporate governance and strategic policies - are associated with improvements in the long-term operating performance.

Brav et al. (2010) document increased operating performance relative to a control sample, based on industry, size and book-to-market ratio, covering a period of two years after the initial 13D filing. Brav et al. (2010) support the view that hedge fund activism is associated with an effective influence on corporate governance and capital structure decisions of target firms.

Boyson and Mooradian (2011) also report an increase in ROA the year following activism. Similarly, Clifford (2008) and Gantchev et al. (2017) report increases in ROA for target firms in the year following hedge funds' arrival. This implies that hedge fund interventions can lead to positive effects on operating performance, but results are not unanimous. Greenwood and Schor (2009) find positive changes in ROA for target firms subsequently acquired after hedge fund interventions. Greenwood and Schor (2009) find that changes in ROA have a significant correlation with long-term returns but obviously for a subset of targets that are acquired ex-post.

Denes et al. (2017) summarise their results of how hedge fund activism affects several aspects of target firm's operations, such as capital expenditures, payouts, sales growth, asset divestures and restructurings. They find mixed results that hedge fund activism can change diverse aspects of operations. They draw the conclusion that in comparison to shareholder proposals, direct negotiations or non-

proposal pressure, hedge fund activism seems to be most persuasive in its measures and effects.

The findings by Denes et al. (2017) help provide concrete evidence that hedge fund activism is beneficial to target firms' value. Furthermore, hedge fund activism is associated with a high level of organisational change, as reported by researchers. For instance, Klein and Zur (2009) report a success rate of 60% with regard to hedge fund activist campaigns bringing about significant changes. Boyson and Mooradian (2011) report that hedge fund activists obtained board representation in 69% of their targets.

Denes et al. (2017) assume that in the past thirty years, activists' strategies have become more effective with numerous innovations resulting in improved monitoring and lower agency costs. This is consistent with Alchian and Demsetz' (1972) conclusion that additional to market monitoring, board oversight and the market for corporate control, the monitoring and control of managerial agency problems can be facilitated by activist interventions.

2.3.1 Reduction of Agency Costs in Target Firms

Mietzner and Schweizer (2009) applied a standard event study of German exchange-listed companies. Between 1993 and 2007, they analyse whether shareholder activism by hedge funds and private equity funds can be associated with an increase in shareholder value. For both types of investors, they find positive abnormal returns of 4.5% around the announcement by a hedge fund or private equity fund to acquire a 5% stake in a firm.

Cross-sectional results by Mietzner and Schweizer (2009) revealed that private equity fund managers - in comparison to hedge fund managers - successfully address agency problems in target firms. Mietzner and Schweizer (2009) draw the conclusion that success is due to the longer-term investment perspective and a higher adaptability to the local stakeholder-oriented corporate governance system.

Furthermore, Mietzner and Schweizer (2009) examined characteristics and the ownership structure of target firms concerning the ability of both parties, i.e., of hedge funds and private equity funds restructuring target firms and the subsequent impact on agency costs. The studies by Mietzner and Schweizer (2009) supplement existing literature as they shed additional light on typical measures that hedge funds are taking with target firms, with regard to sensitivity to transaction, ownership and firm characteristics of German publicly traded companies. Due to aggressive strategies, it may be difficult for hedge funds to align their interests with the target firms' management.

The study by Mietzner and Schweizer (2009) shows that returns to hedge funds are significantly negative and low in magnitude over a 250-day period with median buy-and-hold abnormal returns of -21.46%. The negative post-announcement stock performance of hedge fund targets can be seen as a result of capital markets misinterpreting hedge funds' intentions.

To measure abnormal returns around the announcement date, Mietzner and Schweizer (2009) use pre-event data over a 200-day period and 20 days post event. The choice by Mietzner and Schweizer (2009) in experimental design is largely common to the literature. To get cumulative abnormal returns (CARs), abnormal returns are aggregated across the event period, whereas abnormal returns can be explained as in the following.

The difference between the actual stock return and the normal or expected return can be calculated as abnormal returns $AR_{i,t}$ related to the following model:

$$AR_{i,t} = R_{i,t} - \alpha_i + \beta_i R_{m,t}$$

where $R_{i,t}$ is the return of the target firm i at time point t and $R_{m,t}$ is the index return at time point t and $\alpha_i + \beta_i$ are fitted values from an ordinary least squares (OLS) regression over the time span of the estimation period (Brown and Warner, 1985). OLS is a type of linear least squares method to estimate the parameters of a linear regression model and is the most frequently used estimator of linear regression models, commonly used for the estimation of returns. These methods and models, based on the return-generating process, are discussed in Brown and Warner (1980).

By using a standard t-test statistic and the Wilcoxon rank sum z-Score - as introduced by Corrado (2011), Mietzner and Schweizer (2009) draw statistical inferences for the mean and median event window CARs over a time period. The subsequent cross-sectional regression on a (-10,10) event window is estimated to avoid the problem of differences in disclosure announcements (acquisitions must be disclosed no later than nine days after transaction). In a second step, CARs are calculated with regard to sensitivity to transaction, ownership and firm characteristics.

The findings by Mietzner and Schweizer (2009) of positive abnormal returns of 4.5% around the announcement by a hedge fund or private equity fund, when acquiring a 5% stake in a firm, imply that market reaction to a hedge fund's announcement to purchase a stake leads to positive abnormal returns.

Hedge funds with smaller average fund sizes need other blockholders to support themselves in their strategies, a practice referred to as “syndication” or “hedge fund herding”. Mietzner and Schweizer (2009) observed that hedge funds activists seek the presence of other blockholders, preferably of other hedge funds. They argue that sustainability in effective changes for companies requires a longer presence of hedge funds in target firms. A longer time horizon can be effective and reduces agency costs, as hedge funds pose a credible control threat on a target firm.

Mietzner and Schweizer (2009) find no support for enhanced shareholder value due to reduced agency costs. They find no evidence that agency cost proxies are associated with market reactions. Changes in shareholder wealth depend on

the capabilities of active and large blockholders, their skill set and hedge fund manager's ability to affect target companies' performance (Mietzner and Schweizer, 2009).

Mietzner and Schweizer (2009) also point out that a negative performance for a target firm may depend on expected reductions in agency costs, that were not achieved. As hedge fund activism is a relevant subject to ongoing research worldwide, their studies provide a glimpse on the German market spanning a time period of more than a decade.

In the long-term, Mietzner and Schweizer (2009) report statistically significant negative medium BHARs (Buy-and-Hold Abnormal Returns) for hedge fund target firms ex-post 250-days after the event. Market participants seem to believe that private equity engagement may create more wealth effects compared to hedge fund activism creating shareholder value. Mietzner and Schweizer (2009) argue that capital markets may misinterpret the ability of hedge fund's managers to operate efficiently; due to differences in German corporate governance systems and U.S.-based proven strategies.

As the results are based on German exchange-listed companies, Mietzner and Schweizer (2009) infer a dependency of hedge fund managers on voting rights that may hinder them from successfully employing their strategies in the German corporate governance system. Previous studies on U.S. publicly traded companies by Brav et al. (2008), Clifford (2008) and Klein and Zur (2009) show results that are contrary to these findings in the German market.

2.3.2 Moral Hazard and the Threat of Activism

Different governance mechanisms and corporate governance arrangements may avoid managerial moral hazard as hedge fund activism is associated with improvements in the governance of target firms. Gantchev et al. (2018) document positive effects under the threat of activism. The results are consistent with findings by Brav et al. (2008a) as hedge fund activism appears as important governance device helping to improve the performance and governance of target firms.

Alchian and Demsetz (1972) argue that managerial agency problems fall under control by dynamic changes in ownership. Alchain (1950) document that

business practices adapt over time and that successful strategies might be mimicked.

The market for corporate control represents an external governance mechanism (Boyson and Pichler, 2018) helping to avoid managerial moral hazard. Its effectiveness reduces, if managers increase the costs of hostile takeovers by implementing different takeover defences. Empirical studies focus on the market for corporate control (Boyson and Pichler, 2018), especially on the threat of hostile takeovers (Servaes and Tamayo, 2014). A study by Gantchev et al. (2018) suggests that the threat of activism might become a future primary external disciplining measure, with same effects of the threat of hostile takeovers. Fos (2016) documented a decline in hostile takeovers, while shareholder activism simultaneously increased.

Schneider and Ryan (2011) conclude that the threat of activism is representing an effective form of control over potential managerial self-interest. Overall, special designs of governance mechanisms trigger different problems. Globally, board composition of directors shows substantial weaknesses and the board seem generally unable to eliminate moral hazard (Jensen, 1993).

Managers can influence the nomination process for board members and additionally, sometimes have a closed personal relationship with senior management. This important aspect causes a lack of independence. Thus, hedge fund activism might be seen as an additional governance mechanism becoming more valuable to target firms over time (Brav et al., 2015b).

Hedge funds' demands in order to restructure target firms focus on specific firm-level governance arrangements. In particular, hedge funds' behaviour shows large heterogeneity in their demands. Sometimes, they act in a friendly and cooperative manner with target companies' management or with open confrontation. The ability of hedge fund activists to restructure target firms includes behavioural aspects addressing important elements of the corporate governance of target firms.

Managers' behaviour to hinder hedge funds activities might have a negative impact on firm value (Aggrawal et al., 2009; Gompers et al., 2003). Managers try to defend and save their position longer than the usual period with the implementation of staggered boards (Ammann et al., 2009).

Therefore, hedge funds commit themselves to ensure that important decisions have to be approved by other shareholders (Schwill, 2020). Incumbent managers often enjoy discretionary freedom (Stulz, 1990), but hedge funds facilitate the outside interference in major corporate decisions (Schwill, 2020). This suggests that a positive impact on firm value (Schwill, 2020) follow the agreement of managers to firm-level corporate governance and helps to strengthen the outside influence of shareholders. Senior Managers or board members who do not represent the best interests of shareholders, influenced by conflicts of interests, may be replaced to avoid opportunistic behaviour.

Occasionally, hedge fund activists eliminate takeover defences, such as staggered boards (Levit, 2019) implemented by incumbent management as a part of the firm's charter. This ensures that other efforts of hedge funds to improve business strategies or financial policies are successful.

Hedge fund activists attempt to create value for target firms by adapting executive compensation arrangements to shareholder return during interventions. In that case, managers and directors might see a sharp drop in compensation and face a higher risk of being replaced (Brav et al., 2010). The broad corporate governance literature documents the threat of activism as the appearance of a disciplining force in the marketplace. Additionally, hedge funds activities seem to positively affect real externalities by reaching with its impact beyond target firms (Gantchev et al., 2018).

Firms that might become a target of hedge fund activism, with the perception of activists' threat are more likely to increase leverage and payout, decrease capital expenditures and cash (Gantchev et al., 2018) with the intention to improve the operating income (ROA) and the profitability of a company relative to its total assets (Cremers et al., 2018). Such proactive responses of eventually targeted firms with the perception of activists' threat may be effective at fending off hedge fund activists (Gantchev et al., 2018).

The intense and sustained presence of hedge fund activists globally suggests that activism generates effects beyond target firms (Gantchev et al., 2018). These positive effects are missing in diverse contested debates about hedge fund activism and its impact on the economy, while the intensity of hedge fund activism increases.

2.3.3 Monitoring by Hedge Fund Activists benefitting all Shareholders

Managers can use investor funds to finance investment projects and to control the capital (Coase, 1937). Diverse studies suggest a mechanism to manage agency costs. One option to address the problem of agency costs is the monitoring by large investors, such as hedge funds (Grossmann and Hart, 1980; Shleifer and Vishny, 1986).

The extent of agency costs can have a damaging effect on shareholder value. Monitoring the firms' management by a shareholder activist can mitigate agency costs, whereas the benefit of monitoring is enjoyed by all shareholders (Grossman and Hart, 1980). A large shareholder with a large enough stake can do some monitoring on incumbent management (Sheifer and Vishny, 1986), as the shareholder's return on his own shares covers the monitoring costs.

Hedge funds contribute to financial market efficiency as they seek inefficiencies in capital markets and tend to bring security prices closer to fundamental values (Stulz, 2007). Hedge funds support price discovery by incorporating new information (U.S. GAO Report 2008). In volatile markets, hedge funds can assume risks and enhance liquidity. Their trading strategies may lower market volatility by reducing information asymmetry (Partnoy and Thomas, 2007).

The separation of ownership and control causes agency problems (Coffee and Palia, 2016) between managers and shareholders, due to information asymmetry, i.e., a conflict between the goals of activists and corporations. Fama and Jensen (1983) consider the separation of ownership and control as a rational allocation of risk bearing and decision-making functions. The benefit for organisations is about the specialisation of decision management and decision control. Therefore, organisations are able to control agency problems by separating the ratification and the monitoring of decisions from implementation. Separation of these two roles requires decision hierarchies, a board of directors and incentives for a mutual monitoring among decision agents.

Fama and Jensen (1983) argue that shareholders contract for the right to the net cash flow and thus, shareholders take the residual claim. As residual risk-holders, they enjoy an economic advantage, as they are not in charge of risk bearing, decision management and decision control inside the organisation. Thus, shareholders emerge as owners with their stakes, bearing the residual risk and

having the authority to vote. They share organisations' control a step far from business decision making and direct monitoring. The role of shareholders sharing ownership functions shows the evolution of corporate law during the twentieth century. Fama and Jensen's (1983) contractual model rebut the notion of dysfunctional corporate governance in the absence of a traditional shareholder-owner.

To involve shareholders into business decision making could produce more costs, because most residual claimants might not qualify for the role of decision-making (Bratton and Wachter, 2010). The delegation of decision management and control to the board of directors acting in a decision hierarchy qualify as efficient solution. The question arises, whether diversified, dispersed shareholders are well suited to provide value-enhancing input in their role as principals.

Shareholders have a pure financial incentive to maximise the firms' value, due to their capital investment. The residual interest lends them the suitability to give value-enhancing input to the firm, despite the fact that shareholders labour under information asymmetries and lack business expertise. From that point of view, shareholders' interest may be in contrast to that of managers and the board of directors incentivised by favourable compensation packages and job retention (Jensen and Meckling,1976).

The right of decision, i.e., of initiation and implementation go to management inside the organisation, separated from residual risk bearing (Fama and Jensen, 1983). The isolation of decision rights from residual claimants reduces agency costs (Fama and Jensen, 1998). Decision-making should always go to agents with required knowledge, but at the same time, a second aspect of agency-cost reduction is of relevance: the monitoring of incumbent management.

To protect the residual claimants from expropriation by managers, the two decision functions - management and monitoring should be isolated and separated by definition. A board of directors including outsiders can assure decision monitoring and controlling (Fama and Jensen, 1998). In corporate law's political economy, the two-part division of functions describes two contested zones.

Managers directing their decisions by stock price reactions take the risk of unintended negative consequences, because the market could inject a higher degree of financial market volatility into the real economy. The volatility displayed

by financial markets is not justified by the underlying economy. Shareholder proponents do not deny the stock market prices are to be set under conditions of information asymmetry, due to information inefficiency (Bratton and Wachter, 2010).

Advanced stock market informational efficiency leads to more robust market prices. The efficient capital market hypothesis suggests that the price of a firm's stock reflects all available information about the company at any given time (Anabtawi, 2005; Fama, 1970). In a day-to-day decision-making, stock prices lack information due to informational asymmetries to the favour of managers. Additionally, stock prices might be influenced by speculative factors not based on the fundamental value of a firm.

The question arises, whether agency costs occur as embedded and inevitable result of dispersed ownership. Shareholders claim that a systemic slack in corporate governance increases agency costs, only being reduced through fundamental law reform. Jensen and Meckling (1976) responded with their seminal theory of agency costs and its projection of a dynamic, market-based process of agency-cost reduction, unlike shareholder proponents depicting agency costs as a static, ahistorical constant.

In the 1980s, agency costs had a moment of high salience (Bratton and Wachter, 2010) and tied to shareholder disempowerment (Fama, 1980; Fama and Jensen, 1983); a reduced importance of agency costs in subsequent years followed. As a response to underlying market forces, agency costs and their importance diminished. More information efficiency with regard to market prices has been noted. More liquid markets, a larger sector of information intermediaries and stricter mandatory disclosure requirements reduce information asymmetries between shareholders and insiders of the corporation (Anabtawi, 2005).

The results indicate that shareholder proponents intend to reform the prevailing legal model (Bratton and Wachter, 2010) of the corporation, as described by Fama and Jensen (1983). Shareholder proponents want to ensure the business decision-making and monitoring as directly being influenced by shareholder's input. The idea is that of managers' superior knowledge, which cannot be trusted to be used in the best interest of the firm and therefore, information asymmetries can be ignored (Bratton and Wachter, 2010). Agency costs could be reduced by

business instructions based on pure financial incentives and thus, market prices should exactly show the communicated instructions.

Shareholder proponents' view and their reform agenda reflect that the prevailing legal model - introduced by Fama and Jensen (1983) - is out of date. Even concentrated institutional shareholdings have not removed this barrier by themselves (Bratton and Wachter, 2010). Only a charter amendment can delimit the power of directors' board and therefore, agency reformers would open the door to amendments initiated by shareholders to allocate power to themselves forcing, for instance, a sale or the liquidation of a firm or a large dividend-pay.

At first, the shareholder collective action problem (Bratton, 2010) needs to be solved; to accomplish that, the terms of shareholding itself must be changed (Anabtawi, 2005). A system of subsidies for activists would bring the power to shareholders to break through the prevailing legal model of the corporation (Bratton and Wachter, 2010).

In the view of shareholder proponents, these reforms are a measure to effectuate management conduct. Shareholder proponents project that the threat of shareholder activists' interventions forces managers to focus on the stock price, i.e., to maximise the market price of the stock (Bratton and Wachter, 2010). The idea is, disciplining managers to avoid agency costs and the disempowerment of shareholder action. Accordingly, the threat of interventions by shareholder activists can induce managers to act differently to avoid those interventions.

Critical voices warn to dismiss the prevailing legal model too quickly (Bratton and Wachter, 2010), because of pure financial incentives; the efficiency might not be guaranteed in all cases. Empowered shareholder activists might pursue their private goals by preferring private agendas with different interests (Anabtawi, 2005). With the focus on the threat of shareholders' interventions, any incentive misalignment apart from pure financial incentives will come out in actual contests and impact the vote. With regard to shareholders actually wielding the power, little incentive problems exist. Shareholders themselves are setting the market price with undiluted incentive to increase shareholder value (Bratton and Wachter, 2010).

The critics refer to the point that governance incoherence is projected by shareholders moving from oligarchic to democratic governance. Accordingly, this

might be followed by information asymmetries and conflicts of interests, because of newly empowered constituents in the firm. Consequently, a structure of authority-based decision-making grounded in a central agency system should avoid that the organisation's constituencies may suffer from information asymmetries and differing interests.

At first glance, shareholders' expectations seem to be plausible that an agency driven model would reduce agency costs. However, they fail to consider the new costs resulting from the change (Bratton and Wachter, 2010). Managing the market may cause particular suboptimal results with countervailing effects. The question then arises, whether proposals with regard to these countervailing effects are followed by a fundamental structural change.

A second critical point of shareholders' empowerment is that of shareholders' possibly short-term horizon (Bratton and Wachter, 2010) causing pressure on incumbent management to neglect the long-term focus (Anabtawi, 2005). Shareholder proponents rebut this point of critics; they rely on the market price as one of the most important fact for decision-making.

Anabtawi (2005) argue that shareholders with private interests may use any incremental power conferred upon them to pursue own interests to the detriment of shareholder value. Thus, the transfer of power from boards to shareholders may create new costs that reduce shareholder wealth.

Given, that the market price is indeed suited for efficient business policy making, the problem of governance incoherence might not exist to the favour of shareholder proponents. Thus, governance theories can be neglected to set further the focus on financial economics and the interplay between information asymmetry, expectations of investors and market pricing.

To turn to the basic principles of valuation, short-term oriented as well as long-term oriented investors pursue the goal to maximise the firm's long-term value, as short-term investors sell their stakes, which long-term investors want to buy. Shareholder proponents are convinced of the robustness of the market price of the stock, as an indication of fundamental value (Bratton and Wachter, 2010).

Institutions change as a response to market incentives. Agency costs, which arise over time, should be addressed by bonding the fidelity of managers and monitoring the investments of shareholders (Jensen and Meckling, 1976). The

agency cost reduction is more an endogenous incident of the system's operation as agency costs appear; it can be expected the system will find ways for a reduction. Accordingly, to the extent agency costs remain unaddressed, they are too costly to be removed and considered as residual loss (Jensen and Meckling, 1976).

Shareholders' propositions follow from a picture of agency costs, as a static, ahistorical constant in corporate governance institutions. In particular, the management's systemic shortcomings derive less from economic theory than from history and governance context. Managers systematically fail to maximise value with conservative behaviour (Wu and Chung, 2020) and preferences for low-leverage capital structures, as they invest excess cash in suboptimal projects or empire building.

To resume the discussion, shareholder proponents' argumentation is a win-win scenario that promises a decline in agency costs by shareholder empowerment and persistence in agency costs in the absence of it. This implies that agency cost reduction can only be obtained by shareholder empowerment (Bratton and Wachter, 2010) and posits the necessity of a fundamental law reform. If by law a greater shareholder input could be provided, all of the missed opportunities amounting to agency costs would be reduced.

In the past, managers and directors restructured their business strategies and adopted key points from the shareholder agenda into their business plans (Bratton and Wachter, 2010). The voice of institutional shareholders grew stronger, while the number of independent boards of directors increased and started listening to the proposals of institutional shareholders.

This indicates a corporate governance system acting out the seminal theory of agency costs by Jensen and Meckling (1976) and its projection of a dynamic, market-based process of agency-cost reduction. The market power that first appeared in the conflicts of the 1980s continued, but in a more cooperative framework. In the view of both sides, managers and shareholder proponents, a reduction of agency costs is obtained without a fundamental legal change. Under the prevailing legal model, the process of shareholder value creation becomes embedded in corporate practice.

Shareholders with large stakes can make up the disciplinary deficit under the prevailing legal model with board representation and inside influence in target

firms. Shareholder proponents in the U.S. have long bemoaned the relative absence of hedge fund activists. Shareholder activists with a large stake do not suffer from a lack of empowerment, equally whether they own controlling blocks or non-controlling blocks (Bratton and Wachter, 2010).

In general, hedge fund activists take a significant equity stake in the range of 5% up to 15% (Bratton and Wachter, 2010). Their behaviour as shareholders is associated with impatience mounting challenges to the incumbent managers at publicly traded global firms. Looking for value, they tell incumbents how to realise value in the near or immediate term.

Hedge fund activists used proxy contests as a threat to those who resisted. Empirical studies show a successful track record in the period from 2001 to 2006 until the bull market run up to 2008 (Brav et al., 2008b). Activist engagements persisted during the financial crisis, but they reduced in numbers.

Hedge fund activists developed a number of measures to reduce agency costs and to create value for target firms by increasing leverage, returning excess cash to shareholders, cutting operating costs or scuttling an existing merger (Bratton, 2007). Activists often use their power by hostile strategies, in a scenario of threat and resistance to obtain victory. In a large number of cases, they entered the boardroom, even as minority blockholders or initiated the target firms' diffusion.

Nevertheless, hedge fund activism by itself does not reduce agency costs to zero; the presence of agency costs continues. As Jensen and Meckling (1976) predicted, the system will address agency costs aggressively given the right incentive alignment. Shareholders' critical incentive is a barrier built by their own institutional framework.

In the managers' case, the critical point is a change of incentive compensation. Particular results from a change of incentives originate in compensation packages for managers and in the right that shareholders can take the residual claim. A conducive framework to governance intervention would confirm the seminal theory of agency costs by Jensen and Meckling (1976) and its projection of a dynamic, market-based process of agency-cost reduction.

Despite the predicted dynamic adaption of agency costs by Jensen and Meckling (1976), an agency-cost residuum persists. The persistence of costly residual agency costs do not justify regulatory intervention and should be solved

independently. This implies that all participants are better off bearing the persistent residual agency costs by themselves.

2.4 HEDGE FUNDS AS PROMINENT SHAREHOLDERS

As hedge funds have emerged as aggressive shareholders at many firms in the 2000s (Bratton and Wachter, 2010), concerns arose about the competitiveness of U.S. capital markets. Bratton and Wachter (2010) document that hedge funds target small companies, they take large positions in a target companies' stock and in turn, their investment translate into large voting blocks. Hedge funds have confronted giants as well, such as General Motors, McDonald's and Time Warner (Bratton and Wachter, 2010; Kahan and Rock, 2007).

Kahan and Rock (2007) delineate hedge funds as the most dynamic and prominent shareholder activists. They argue, that looking "on the bright side", generates the opportunity that hedge funds enhance the value of companies they are invested in, to the benefit of their own investors as a well as to the benefit of their fellow shareholders.

Considering the rights of shareholders in the context of market control, enhanced shareholder rights provide more accountability of managers and therefore lower agency costs and accordingly higher market prices. Proponents of shareholder empowerment called for the need to restore trust by connecting trust and accountability of managers (Zingales, 2009). When hedge funds target companies, they confront the managers demanding action that enhances shareholder value of a target firm. Hedge fund activism is about value, whereas governance and the process of capital market discipline may take second place (Bratton and Wachter, 2010).

Managers benefit from the prevailing business model with an informational advantage with regard to business conditions on which they base their decision-making. The shareholder approach of decision-making is driven by informational signals from financial markets leaving a question to discuss: who should decide how to maximise shareholder value in the long run; the shareholders or incumbent management (Bratton and Wachter, 2010)?

According to classical agency theory by Jensen and Meckling (1976), opportunism and adverse selection, i.e., among managers of a target firm, generate

agency costs that impair corporate performance followed by underperformance in the stock market (Bratton and Wachter, 2010).

Directors are always better informed and therefore in a more comfortable position to take responsibility with regard to monitoring the risk and managing the firm, unlike shareholders (Bratton and Wachter, 2010). Directors have the best access to information and are the ones who have the day-to-day knowledge of the firm, its history, opportunities and challenges (Bratton and Wachter, 2010. With regard to these aspects, they are best suited to formulate a responsive strategy.

The intense and active involvement of hedge funds in corporate governance and control raises concerns (Kahan and Rock, 2007). Hedge funds are expected that their incentives be correctly aligned to increase the value of the corporation. Kahan and Rock (2017) identify a "hedging-related conflict", referring to the question of whether the strategies hedge funds follow are generally to the benefit of all shareholders.

2.4.1 Hedge Fund's Relationship with Institutional Shareholders

The supportive relationship between hedge funds and other institutional shareholders appears to be ambiguous, as the belief in shareholder value creation through hedge fund activities differ among "activism-friendly" owners (Kedia et al., 2020). Institutional investors do not constantly support hedge funds, as empirical studies capturing the success of activism-friendly ownership show a high success rate of governance-related requests among different categories of requests.

Overall, the results indicate more compliance with requests made by hedge funds, for target firms with a higher level of activism-friendly institutional ownership (Brav et al., 2019). The support from institutional shareholders indicates to be of high importance to unlock firm value through activism (Kedia et al., 2020; Brav et al., 2019).

The literature classifies an institutional investor as being activism-friendly with regard to voting history in firms targeted by hedge funds, the average ownership and trading behaviour over a specified amount of time (Kedia et al.,2020; Brav et al., 2019). Institutional investors, who are dissatisfied with a target firm, are likely to support hedge fund activists and to vote against incumbent management. Dissatisfied institutional owners may not generally classify as

owners with characteristics that point to a general activism-friendly attitude. However, existing institutional owners may at times request hedge fund intervention.

The founder of the hedge fund Pershing Square, William Ackman, stated: "periodically the hedge fund is approached by large institutions who are disappointed with the performance of the companies they are invested in. These institutional investors are interested in Pershing Square to play an active role in effectuating change".

Hedge fund activists benefit from activism-friendly shareholders, who are willing partners and support the activists' agenda (Kedia et al., 2020). Further, hedge funds consider the presence of dissatisfied shareholders as to be very important in their intervention decision. By recognising the role of activism-friendly institutional ownership, especially a firm with high pre-event activism-friendly ownership, hedge funds are more likely to target these firms. The decision to target a firm is facilitated by dissatisfied shareholders, who are willing to support hedge funds' demands and want change.

Brav et al. (2019) provide a theoretical model of relationship between hedge fund activists and other shareholders. Hedge funds team up with other hedge funds in order to achieve their goals with target firms or they partner with investors, who support them through a "behind the scenes" engagement.

Activism-friendly investors may view hedge fund campaigns as effective to bring about positive changes and therefore support hedge funds through the mechanism of proxy votes or discussions with the incumbent management (Kedia et al., 2020). The support of activism-friendly institutions for hedge funds evolved over time.

The theory by Brav et al. (2019) empirically implicate the importance of hedge fund activist's propensity to target a firm, in case of other existing institutional investors, who are willing to provide the desired support and influence the activist's campaign success. Thus, due to relatively small stakes, hedge fund activists need the cooperation of other institutional investors.

Nowadays, hedge funds tend to magnify their influence by collaborating in transformative campaigns as they attract the interest of large shareholders, such as pension-funds and asset managers. Mutual funds and pension funds, as they initially did not support hedge fund activists, have begun to be more likely to

support hedge fund activism over time. Brav et al. (2019) argue that the institutional investor composition of the firm's ownership may affect the eventual success or failure of an activist's agenda.

Investors, who are wary of activists' aggressive behaviour (Kedia et al., 2020) are unlikely to support them, because of the disbelieve in hedge funds' intentions to create sustainable shareholder value. In case of antagonistic institutional shareholders, hedge fund activists may face difficulties to bring about the desired changes (Kedia et al., 2020).

Hedge funds fully bear the private costs of monitoring managers in target firms, while the public benefits of monitoring are shared among all shareholders (Gantchev, 2013). This cost-benefit tradeoff can be mitigated by other institutional shareholders increasing the liquidity in the firm's equity, as stock liquidity is an important factor in hedge fund activism (Gantchev and Jotikasthira, 2018).

The findings by Gantchev and Jotikasthira (2018) are supported by Brav et al. (2019), who document that a partnership between hedge funds and other institutional shareholders providing support through "behind the scenes" engagement is complementing hedge funds activities.

Additionally, enhanced monitoring process due to a supporting partnership makes it less likely that incumbent managers resist activists' interventions. From an activists' perspective, the presence and commitment of other institutional shareholders can either complement or substitute hedge fund activities (Kedia et al., 2020).

Kedia et al. (2020) test whether the presence of activism-friendly institutional investors bring about more success to hedge funds activities than in the absence of activism-friendly investors. The findings by Kedia et al. (2020) confirm long-term returns as a result of hedge funds activities to be positively related to the presence of activism-friendly investors prior to the event.

Kedia et al. (2020) covered several time periods and used different benchmarks to estimate buy-and hold returns. The results are consistent across all horizons and benchmarks for all measures of activism-friendly ownership. The results are economically significant with respect to investors' voting patterns, the investment behaviour with regard to earlier activism targets and the institutional

investors' revealed preferences toward supporting a specific target firm's management.

Especially, the investment behaviour of institutional investors shows that they increase their ownership in a firm targeted by activists. The economically significant results by Kedia et al. (2020), across estimation windows and benchmarks for all kinds of measures, i.e., voting patterns, investment behaviour and the preference of activism-friendly investors supporting hedge funds' activities, confirm and justify hedge funds' propensity to target firms with activism-friendly ownership.

With regard to a target firm's post operating performance, the results by Kedia et al. (2020) are once again economically significant, i.e., with an increase in abnormal industry-adjusted ROA and higher benchmark-adjusted buy and hold returns. Cross-sectional differences in abnormal returns may depend on the composition of the target firm's shareholder base. The presence of activism-friendly institutions helps hedge funds in achieving increased shareholder value for target firms.

The results by Kedia et al. (2020) imply that a high level of pre-event activism-friendly ownership can be associated with value creation from hedge fund activities, in terms of long-term stock returns or operating performance. Activism-friendly institutional investors tend to invest in slightly underperforming firms with future potential for abnormal returns. Thus, beside hedge funds' good stock picking skills, the composition of the investor base may be important in "decision-making" to target a firm (Kedia et al., 2020; Brav et al., 2018).

As a consequence, activism-friendly institutional investors should remain invested in target firms during the tenure of the activism. Although these institutions might not classify as smart investors with a stock picking ability to select the future targets in advance of hedge funds interventions, they should maintain their holdings, i.e., not to sell their stakes in the quarters following the 13D filing.

Kedia et al., 2020) document that the aggregate ownership by activism-friendly shareholders remain relatively stable around the 13D filing. Activism friendly institutional investors continue their ownership in a target firm for an average period of at least two years after hedge funds arrival.

Those shareholders are more likely to vote for activist's proposals, while activists often submit proposals of other shareholders. The friendly attitude towards a hedge fund could be related to fewer exit options, connections to the activist hedge fund or the belief or knowledge over time about the benefits of activism.

The presence of activism-friendly ownership seems to increase the incidence of activist proposals in target firms and indicate a higher engagement and more aggressive tactics by hedge funds (Kedia et al., 2020). Activism-friendly institutional investors do not support shareholder proposals in general, but the probability that they support proposals sponsored by hedge funds, is significantly high (Kedia et al., 2020). Other institutional investors of target firms are observed to rarely support or vote for hedge fund's proposals. Due to the small number of activist-sponsored proposals of other shareholders, the results are limited and should be interpreted with caution (Kedia et al., 2020).

Abnormal returns for target firms may occur as the result of stock picking by activism-friendly institutions investing in value stocks with potential to outperform, regardless of the idea of future support for hedge fund activists. To shed light on this issue, Kedia et al. (2020) conduct time series regressions of monthly returns by forming a long portfolio of activism-friendly investors and a short portfolio of all other investors on the Fama-French-Carhart four factors.

The findings by Kedia et al. (2020) did not show positive and significant alpha; on the contrary, they report value-weighted significant negative alphas for all measures of activism-friendly institutions. The results support the theory, that activism-friendly institutions prefer slightly underperforming firms regardless of future potential for abnormal returns. No evidence is found that activism-friendly institutions display the specific ability to pick future targets of hedge fund activists.

Kedia et al. (2020) find that repeated coordination, i.e., that hedge fund activists have worked with the same activism-friendly institutions with regard to prior targets, resulted in higher returns. Hedge funds do not only focus on the presence of activism-friendly ownership when selecting target firms, but additionally consider higher returns which they can achieve by getting the support of activism-friendly institutions.

Bebchuk et al. (2015) argue that hedge fund activism has the potential to mitigate monitoring and agency problems of widely held equity. Although average returns from hedge funds activities are positive, there might be also instances whereby hedge fund activism has been associated with little or negative gains to shareholders. One possible explanation for cross-sectional variation in shareholder value through hedge funds' interventions can be related to the presence of activism-friendly owners (Kedia et al., 2020).

Kedia et al. (2020) point out the support from institutional activism-friendly shareholders, their presence and composition during hedge fund campaigns as to be highly affecting the success or failure of the activists' agenda. The findings are complementary to the model by Brav et al. (2019), which formalises a key source of complementarity across the engagement of institutional blockholders. Complementarity arises from the motivation of other institutional shareholders, or even smaller blockholders following hedge funds with the motivation to attract investment flows and to overcome the free riding problem.

As blockholding is widely prevalent in the U.S., blockholders may not be large enough to exert significant unilateral influence on incumbent management. Shleifer and Vishny (1986) interpret a blockholder's engagement as a key role in governance via "voice" to mitigate problems arising from the separation of ownership and control. Activists' campaigns seem to benefit from activism-friendly institutions that are likely to support the activists' agenda to unlock firm value (Kedia et al., 2020; Brav et al., 2019). But there are some limitations in measuring activists' success.

A purchase of at least 3% of a target firm's stake is subject to a 13D SEC filing followed by the disclosure of the intentions and the size of the purchased equity block (Brav et al., 2008b). In about half of the cases, hedge funds do not report any requests in their initial filings. Consequently, the first limitation emerges, as success along this dimension cannot be wholly measured. Second, if requests are disclosed and implemented, it is still not clear whether an increase in shareholder value for target firms could be obtained.

2.4.2 Hedge Funds – A Financially Well-Placed Industry

Hedge funds activities became a key aspect of U.S. corporate governance with a new approach starting in the 2000s. In 2001, public media drew attention to dissatisfied shareholders pushing companies aggressively to find ways to unlock shareholder value. Even hedge fund managers being among the growing ranks of activists at this time have been historically relatively passive (Cheffins and Armour, 2011).

The growth of the hedge fund industry started between the early 1990s and mid-2000s showing a financially well-placed industry. Empirical data show the chronology of emerging hedge funds as activists in the 2000s. A former niche became a crowded field with hedge funds seeking target firms for activist campaigns (Cheffins and Armour, 2011).

Requirements concerning sufficient experience and the eligibility to invest in hedge funds were deregulated in the 1980s and 1990s contributing to the growth of hedge funds. At the beginning of the 2000s, market trends like the downturn in stock prices put pressure on institutional investors and managers who were acting on behalf of endowments and pension funds (Cheffins and Armour, 2011).

Looking for satisfactory investment returns, assets under management were transferred to hedge funds, which regularly outperformed mutual funds. With their ability to reduce the portfolio risk by diversification, the proportion of assets that were allocated to hedge funds rose steadily. To the opposite of ongoing growth of hedge fund industry - supported by institutional investment - financing costs declined in tandem with transaction costs (Cheffins and Armour, 2011).

Between 2002 and 2006, assets managed by hedge funds increased from $23 billion to $100 billion worth in 2006. The "seismic boom" – as called by the chairman of the SEC - started in 1990s (Cheffins and Armour, 2011) and continued at the beginning of the 2000s (Partnoy and Thomas, 2007). This pool of capital could have funded campaigns and interventions for a broad range of competing hedge funds as enough capital was available to cover the costs of transactions (Cheffins and Armour, 2011).

Studies by Greenwood and Schor (2009) document evidence that hedge funds launched numerous campaigns between 1994 and 2006, with a peak in 2005 and 2006. In 1990s, the conditions for offensive shareholder activism seemed to be more

propitious than they have ever been (Cheffins and Armour, 2011), as data providers supplied detailed financial information on publicly traded companies at relatively modest costs (Rappaport, 1990). Technological and regulatory changes affected share trading resulting in declining dealing costs in the 1990s (Cheffins and Armour, 2011).

Debt capital appeared as cheap and available and provided the conditions for hedge funds to intervene in target firms, demanding changes such as the squeeze out of underperforming and value destroying divisions or even to put the target firm itself up for sale (Cheffins and Armour, 2011). Accordingly, target firms responded by increasing their leverage ratios.

A more diffuse ownership in the 2000s fostered hedge fund activism, as this represents one typical precondition that bolsters the supply side of the market of corporate influence. Both, support of other investors and the composition of the shareholder base are of importance and qualify as explanation of the growing presence of hedge fund activists (Cheffins and Armour, 2011; Brav et al., 2008a).

Cheffins and Armour (2011) find that at the end of the dot.com stock market boom, undervalued companies affected the supply side of the market for corporate influence. The end of the dot.com stock market boom in 1999 was followed by a sustainable downturn in stock prices with sizeable companies trading at stock prices below their fundamental value. In 2001, the growing number of activist campaigns can be associated with the situation at the stock market and the attention paid to undervalued companies (Cheffins and Armour, 2011).

Cheffins and Armour (2011) document that the end of the bear market of the early 2000s was followed by slightly rising share prices. The recovery of the economy provided numerous opportunities for hedge fund activists to target undervalued firms, as publicly traded companies could have unlocked shareholder value by inverting their financial policies. Despite growing corporate earnings, managers built up cash and refrained from spending more on capital investment (Bratton, 2010).

Cheffins and Armour (2011) document that expanding cash accounts in firms prompted activists to step up pressure on incumbent management demanding diverse measures such as increased dividend pay-outs and share buy-backs. Hedge

fund managers being aware of the high costs of proxy battles, avoid a confrontational approach.

Nevertheless, empirical evidence exists about involvements in proxy contests by hedge funds in more than 10% of activism incidents (Brav et al., 2008a). The contest for board seats may demonstrate their ability to invest heavily and a signal to potential future targets how they pursue their goals if this is required.

Cheffins and Armour (2011) identify the costs of activism associated with an involvement in a proxy battle as deterrent to activism. Hedge funds benefit with a small fraction from the results in shareholder return, due to a minority stake they own. The categories of costs by exercising their influence are typically financing costs and transaction costs.

Cheffins and Armour (2011) find that stakes in numerous target firms necessarily lack the benefits available to passive diversified investors. Brav et al. (2008a) consider the acquisition of a sizeable stake in a top size-quintile firm as an inordinate idiosyncratic portfolio risk even for an activist hedge fund.

A prerequisite to engage in activism and to buy a large stake in a public company is a sizeable amount of outside capital. Hedge fund activists adopt offensive activism as a business model and thus indicate they typically have access to the financial wherewithal (Klein and Zur, 2009).

Before hedge fund activists proceed with exercising their influence, they must identify potential target firms. Thus, they generate costs for research, such as negotiation costs for a privately block purchase, costs for trading among brokers and communication costs within investment bankers and lawyers. As transaction costs can mount up, hedge fund activists must have the financial wherewithal (Cheffins and Armour, 2011).

Hedge funds managing a specific amount of assets have to disclose their holdings quarterly by filing a Form 13F with the SEC. Theoretically, the filings could be considered as a starting point for activists to identify offensive shareholder activism (Cheffins and Armour, 2011). Hedge fund activists can use this latitude to build up a larger ownership and exercise influence before divulging their interventions (Hu and Black, 2006).

The Securities and Exchange Commission (SEC) Act of 1934 intend to alert investors that traders are acquiring a stock. Analysing these filings can be a

profitable undertaking, as hedge funds and other investors spend a lot of money for research (Cheffins and Armour (2011). 13D filings might be seen as signal that the targeted stock is undervalued, whereas a 13G filing is associated with passive investors who may signal that a stock is a good value but will not remain on that currently low level.

Cheffins and Armour (2011) introduced and deployed the heuristic of the market for corporate influence to explain the various levels of offensive activism by focusing on systemic factors. The market for corporate influence can be characterised by its matters with regard to its supply side and demand side. The supply side is offering opportunities for exercising profitable influence by key variables at the firm level affecting costs and benefits of activism campaigns.

The demand side of the market for corporate influence is defined by the willingness of activists to take such opportunities and pursue their strategies. Hedge fund activists' ability and the goal to exploit the opportunities to profitably exercise influence on target firms ascertain the conditions for activism campaigns (Cheffins and Armour, 2011).

The period of financial crisis in 2008 was an unpleasant experience and "stress test" for hedge fund activists (Cheffins and Armour, 2011). At the opposite, plentiful and cheap debt in the mid-2000s provided ideal conditions to activists to buy stakes of target firms.

Cheffins and Armour (2011) document that the slump in stock prices could have provided numerous instances with regard to discrepancies between stock prices and the fundamental value of companies. As hedge funds adopt non-standard strategies, their intention is to bring security prices closer to fundamental values and lower market volatility (Partnoy and Thomas, 2007).

Given normal economic conditions, without uncertainty affecting the markets during financial crisis, investors might have been receptive to an activist's proposal. Despite declined stock prices and poorly performing companies during the financial crisis in 2008, shareholders obviously demonstrated the propensity to opt for caution (Cheffins and Armour, 2011).

The hedge fund sector rebounded after the 2008 financial crisis, as by the middle of 2011 investment inflows and assets under management reached a new

record since 2007. Nowadays, hedge fund activism appears as a subject with a growing recognition of importance (Bebchuk et al., 2020).

2.5 ACTIVIST'S TENACITY AND COMMITMENT

Hedge fund activism requires attention, as aggressive campaigns of hedge funds are followed by dramatic changes in target firms. Due to several concerns, such as job security (Keusch, 2017), reputational damage, a stagnant employee pay or changes to board, incumbent managers may have a strong motivation to resist hedge funds' proposals being concerned that hedge funds activities will harm firm value (Klein and Zur, 2009). Consequently, target firms' incumbent management optionally decide whether to negotiate, to ignore or to resist activists' proposals.

Resistance of target firms induces counter-resistance by hedge fund activists initiating a proxy contest, filing a lawsuit or initiating a hostile takeover. In recent years, corporate managers learned to fear this sequential process of activism, spending remarkable resources to show their resistance (George and Lorsch, 2014). The intensity of resistance - on both sides - target firms' resistance and hedge funds' counter-resistance seem to affect the efficacy of activism and is negatively associated with target firms' operating performance. Counter-resistance is costly but effective for activists (Boyson and Pichler, 2018).

The high costs of formal counter-resistance may prevent hedge funds from doing so, unless they are not convinced to successfully effect the target firm (Gantchev, 2013). The initial improvement of operating performance might not definitely base on hedge funds' successful counter-resistance (Boyson et al., 2017). The influence of hedge funds' formal counter-resistance on target firms' incumbent management may elicit positive changes and decreases the likelihood of additional activism.

In case of expected losses, hedge funds choose to exit rapidly cutting the costs. The fact that a hedge fund's formal counter-resistance might elicit positive changes in target firms implies negative resistance CARs due to shareholders' expectations that hedge funds exit liquid stocks. In case of less liquid stocks, the likelihood that hedge funds continue with activism is higher, as an exit would lead to a negative price impact (Bharath et al., 2013).

Target firms' resistance can vary in its degrees of hostility. A hostile and antagonistic response to an activist campaign or a verbal attack as a less hostile measure is followed by the filing of a lawsuit by a hedge fund. The threat of hedge fund activism may be sufficient to induce managers to self-adjust policies, leading to improvement in equity performance and lower likelihood to become a target of hedge funds (Gantchev et al., 2018).

When facing activism, a target firm may initiate changes in governance including one or more components of the entrenchment index (E index). Constitutional provisions, that prevent a majority of activist shareholders from having their way, comprise staggered boards, limits to shareholder bylaw amendments, supermajority requirements for mergers, and supermajority requirements for charter amendments (Gompers et al., 2003).

The entrenchments index is cited by more than 650 research studies. All 6 provisions are associated with economically reductions in a target firms' valuation (Bebchuk et al., 2009). Having this negative relation with firm value, the entrenchment index provisions are - if employed by target firms - classified as hostile target resistance.

Hedge fund activists engaging in a proxy fight and filing a lawsuit with the intention to purchase a large stake of a target firm are more likely to face hostile resistance of incumbent managers. Target firms responding directly to impede activists initiate bylaw changes, which limit activists' ability to call for special meetings and getting support from other shareholders (Becht et al., 2017). Resistance of target firms is more likely to be hostile, if the CEO is the chair of the board, has longer tenure and the insider ownership is lower. CEO duality and a CEO's longer tenure may indicate management entrenchment (Masulis et al., 2007).

Hedge fund activists benefit from concentrated institutional ownership that facilitates investor coordination and helps to convince remaining investors to support their campaigns (Chakraborty and Gantchev, 2013). A hostile response can be expected by target firms suffering from agency problems, entrenched management and the threat of losing firm control. Agency problems often occur in firms with a high level of cash (Jensen, 1986), that may create vulnerability in target firms (Stulz, 1990).

The stock market seems to appreciate resistance of target firm followed by a counter resistance from hedge fund. Activists counter resist when institutional ownership is greater and when exit is more costly with regard to target firms' liquidity. Boyson and Pichler (2018) document -1.5% cumulative abnormal returns for an event window of (-3,+3) days around the announcement of resistance, whereas the market response to resistance accompanied by counter-resistance is positively associated with cumulative abnormal returns over a (-3,+3) day window of 1.9%.

2.5.1 The Role of Hedge Funds in Chapter 11 Bankruptcy

Hedge funds appear to be effective and successful in bankruptcy processes, in different sides and roles, as creditors or shareholders (Jiang et al., 2012). Hedge fund activists appear as most active investors being present in the distressed debt market over the past decade. The role of hedge funds and participation in the bankruptcy process differ in forms and can include investments in debt claims, the purchase of equity stakes and /or serving as unsecured creditors.

A hedge fund activist as unsecured creditor acquires the debt of a distressed borrower to receive an equity stake via a debt-to-equity swap upon the target firm's emergence from Chapter 11 (Jiang et al., 2012). The pursued "loan-to-own" strategy is aimed at converting the acquired position into a controlling equity stake.

Anecdotal evidence suggests active engagement of hedge funds in the reorganisation process of distressed firms (Jiang et al., 2012). Hedge funds are effective in achieving the goals, due to skills in "firm-picking" and success to impact reorganisation process in a positive way (Jiang et al., 2012).

Bankruptcy usually is triggered by a firm's failure to fulfil its obligations to its creditors. Aghion et al. (1992) summarise the two goals of a bankruptcy process: "(1) it maximizes the ex-post value of the firm (with an appropriate distribution of this value across claimants); (2) it preserves the (ex-ante) bonding role of debt by penalizing management adequately in bankruptcy states". When taking on a passive role during Chapter 11, hedge funds have the choice to join the unsecured creditors committee, or to decline the invitation from the U.S. Trustee's Office without the costly voluntary effort to form a committee and to serve on it.

As committee members in a bankruptcy process, hedge funds' duties range from monitoring the debtors' operating business to reviewing the debtors' books. They are expected to propose alternative reorganisation plans to the holders of claims they represent. The membership in a committee reduces the flexibility in trading the claims (Jiang et al., 2012), as hedge funds have access to nonpublic material information. With regard to these costly voluntary efforts, hedge funds are highly unlikely to bear the related costs, not being sure to actively influence the Chapter 11 process and achieve the desired outcome (Ayotte and Morrison, 2009).

The presence of hedge funds triggered changes in the in-bankruptcy governance process and voting nature (Stromberg, 2000; Baird and Rasmussen, 2003; Eckbo and Thorburn, 2009). Hedge fund activists have changed the restructuring process of bankruptcy into a "management neutral" process (Skeel, 2003; Harner, 2008), from a former traditionally "management driven" bankruptcy process (Franks and Torous, 1994; Berkovitch et al., 1998).

Jiang et al. (2012) find efficiency gains brought by hedge funds with higher total debt recovery. Interventions by hedge funds in a bankruptcy process imply a higher recovery rate of secured debt and of unsecured debt with a more favourable stock market reaction at the time of the bankruptcy filing. Thus, a positive effect on the firm's total value can be assumed (Jiang et al., 2012).

In general, the stock market reacts negatively to bankruptcy filings, but clear empirical evidence is found for CARs around the date of bankruptcy filing. Findings by Jiang et al. (2012) show positive CARs using the CRSP equal-weighted return as benchmark to an event window of (-10,10) days. Stock prices increase for bankruptcy cases with hedge funds acting as unsecured creditors. Jiang et al. (2012) document price declines for the group of firms without hedge funds being involved as unsecured creditors. The findings by Jiang et al. (2012) imply an overall positive impact of hedge funds acting as creditors with no detrimental effect at the expense of shareholders. The favourable stock price reaction comes to the benefit of current shareholders.

Hedge funds playing activist roles in distressed target firms favour emergence over a possible alternative of liquidation or acquisition (Bris et al., 2006; Bharath et al., 2007; Lemmon et al., 2009). A subtle measure to more efficient

processing in Chapter 11, is the reduction of frequency of liquidation (Hotchkiss and Mooradian, 1997).

The increasingly popular "loan-to-own" strategy suggests that hedge funds as activists tend to participate in more complex bankruptcy cases, benefitting from the target firms' emergence (Agarwal et al., 2011). Overall value enhancement of target firms in bankruptcy may be achieved by new efficient strategies.

Goldschmid (2005) concluded that distressed debt investors add value by restructuring target firms. Hedge funds show the ability to shape bankruptcy outcomes to a favourable effect on firm value. Ex-post operating performance do not show significant industry-adjusted return on assets, however, leverage decreases. The results reveal a positive relation between hedge funds' interventions and the survival of target firms. The hypothesis of ex-post unviable companies lacking in liquidity cannot be supported.

2.5.2 Influence of Hedge Fund Activism on Target Firm's M & A Strategies

The balance in acquisitions, divestures and avoidance of value-destroying empire building contribute to the evidence of potential sources of hedge fund activists to create value. An incomplete understanding of hedge funds' activities and the channels they are working through triggers ongoing debates about hedge funds' short-term orientation (Coffee and Palia, 2016). Wu and Chung (2020) consider additional governance variables, such as more board independence as possible channels through which hedge fund activists influence M & A decisions of target firms.

Prior studies document excessive M & A activities in firms with entrenched incumbent managers at the expense of shareholders (Harford and Li, 2007). The market responds to diversified business segments with a diversification discount (Graham et al., 2002). Inefficient acquisitions of assets or companies reduce firm value to be worth less than the sum of the stand-alone value of each business segment (Wu and Chung, 2020).

As decreases in stock prices and a net reduction in productivity may follow a high degree of diversification (Schoar, 2002; Lang and Stulz, 1994), Mergers & Acquisitions (M & A) are synonymous with a destruction of firm value (Harford et al., 2012; Masulis et al., 2007).

A study by Wu and Chung (2020) explores whether hedge fund activism influences the extent and quality of M & A activities in target firms. Wu and Chung (2020) document a pattern of improved stock and operating performance after becoming a target of hedge fund activists.

Despite lower M & A activities, more favorable market and analyst reactions emerge. Results by Wu and Chung (2020) confirm the influence of hedge funds' critical role in shaping a target firm's M & A strategies and show a positive "spillover" effect on a target firms' wealth and performance.

Wu and Chung (2020) attribute a superior M & A performance after hedge funds' interventions partly to improvements in governance strategies of target firms. They consider their results as unlikely driven by selection bias. Hedge fund activists also engage in risk arbitrage purchasing stakes in large firms and make target firms better acquirers (Greenwood and Schor, 2009; Boyson et al., 2017).

Unlike non-target firms, targets of hedge funds avoid to announce deals during merger waves, as merger waves are based on economic, sometimes irrational logic and behavioural bias. Gantchev et al. (2019) associate in-wave transactions with negative abnormal returns, because managers may face weaker monitoring and pursue an opportunistic behaviour.

A poor M & A history might attract hedge fund activists and seems to be a motive to influence M & A activities in target firms. Gantchev et al. (2019) document an association between hedge fund activists' emergence and diversifying acquisitions, i.e., acquisitions with below-median announcement returns or low returns.

As hedge funds dismantle prior empire building activities, target firms exhibit a substantially lower tendency to acquisitions as aftermath of hedge fund activists' interventions. Chen and Feldman (2018) report that activist-compelled divestures lead to higher shareholder returns than divestures initiated by incumbent management. The types of acquisitions change after a hedge fund activist arrives, as targets are less likely to conduct prior - as value destroying - identified acquisitions that do not contribute to the firm's core competency.

Gantchev et al. (2019) document statistically significant lower acquisition frequency for both types, cash- and stock-financed deals. Target firms show ex-post (3 to 5 years) to hedge funds arrival a tendency to reducing diversifying or in-wave

acquisitions. The lower frequency of large and diversifying stock-financed acquisitions of target firms may be attributed to hedge funds' selection ability (Gantchev et al., 2019). Stock-financed acquisitions seem to be more value-destroying signalling possibly overvalued stock prices to investors (Jensen, 2005; Fu et al., 2013). Shleifer and Vishny (2003) document that stock-financed acquisitions benefit the acquirers' shareholders.

The popularity to force divestures in target firms rises among hedge funds and may qualify as a platform to analyse the long-term effects of hedge funds' interventions. In the short-term, hedge funds may initiate divestures with the intention to sell the target firm (Greenwood and Schor, 2009).

Activists appoint new directors to the board to influence acquisition and divesture behaviour of managers during their campaigns. If hedge fund activists initiate divestures and focus more on managerial acquisition behaviour and monitoring of the incumbent management (Desai and Jain, 1999), these efforts may result in a better firm performance (Gantchev et al., 2019).

The tactics and strategies employed by hedge fund activists qualify as an effective channel to influence a target firm's M & A strategy. This implies a sustainable positive impact of activist interventions on a target firms' shareholder value.

2.5.3 Confrontational Interventions

Given that target firms and hedge funds pursue confrontational intentions, the explanation of a voluntary decision of a target firm's management might be less applicable.

Wu and Chung (2020) used a sample of firms with confrontational stance to hedge fund's activities and find that, ultimately target firms adopt specific changes in their business strategies and governance structures. Confrontational interventions by hedge funds accompanied by managerial monitoring reduce agency problems leading to more efficient M & A decisions.

Studies by Wu and Chung (2020) document a strong effect on target firms' M & A behaviour and show positive and significant CARs and EPS as results of hedge fund interventions. The fraction of confrontational events by Wu and Chung (2020)

can be compared to those by Brav et al. (2015) and Brav et al. (2018). The classification of confrontational events is limited to the disclosure of SEC 13/D and 13D/A filings.

Wu and Chung (2020) find evidence supporting the idea of a superior M & A performance, due to hedge fund interventions rather than of hedge fund's stock-picking skills or selection bias. The achievement of improved future M & A decisions seem to be more likely attributed to the change of board compositions, the increase of a more pay-for-performance sensitivity among CEOs and the removing of CEOs with poor M & A records. Especially, board independence appears as an important improving factor for a better M & A performance.

Furthermore, hedge fund activism reduces overpayments, i.e., when offer premiums for target assets are too high (Wu and Chung, 2020). Prior studies associate overpayments of acquisition deals with entrenched managers, who tend to make overpayments at the expense of shareholders (Harford et al., 2012). Disagreements about financial and corporate strategies, in scope of diversifying M & A activities, call for hedge fund campaigns to influence target firms by opposing acquisitions outside the core competency.

Wu and Chung (2020) find that hedge funds activism is associated with an increase in stock and operating performance. Overall, improvements in business strategies and corporate governance lead to better M & A decisions and reduce the overinvestment problem. The impact of hedge fund's pressure is more significant on target firms with weak governance than on target firms with strong governance (Wu and Chung, 2020). Research by Gantchev et al. (2019) document that the removal of CEOs with poor M & A records may lead to more efficient future acquisition decisions.

Wu and Chung (2020) conjecture, that in order to maximise shareholder value, hedge fund activism plays an important role in improving M & A decisions of target firms.

2.5.4 Offensive Hedge Fund Activism in Proxy Campaigns

Since the SEC stopped censoring proxy material in 1992, a free "proxy communication" started in the year 2000 (Coffee and Palia, 2015). Reduced costs of proxy contests encouraged hedge fund activism and thereby encouraged hedge

funds to launch proxy fights. The SEC got itself out of the proxy censorship business according to the adopting release (Exchange Act Release No. 31), (Coffee and Palia, 2015; Briggs, 2007). Contestants should be free to reply to an opponent's statement by challenging the basis for the claims countering with their own views on the subject matter.

The rise of proxy advisers started in the early 1980s with requirements from "ERISA" (Employee Retirement Income Security Act) that trustees should vote the shares held in portfolio companies (Coffee and Palia, 2015). In 2003, the SEC adopted rules that elicit criticism to delegate too much power to proxy advisors. The SEC requires written policies and procedures to ensure a voting process in the best interest of clients (Coffee and Palia, 2015).

As part of the 1992 reforms, the SEC granted two genuine exemptions from shareholder solicitation rules. The first rule permits an activist or contestant to freely solicit up to ten other shareholders without being subjected to a filing with the SEC (Coffee and Palia, 2015). This might be extremely valuable in a first attempt of a proxy campaign.

The second rule allows an activist or insurgent the "free-speech" (Coffee and Palia, 2015) to solicit an unlimited number of stakeholders without the necessity of a filing with the SEC. The rule enables hedge fund activists to run an inexpensive campaign for or against a proposal that already appeared on management's proxy card.

As traditional institutional investors are essentially defensive in their activism, hedge funds are offensive seeking target firms to pursue a proactive agenda (Coffee and Palia, 2015; Coffee and Palia, 2016; Cheffins and Armour, 2011). Activist hedge funds attempt to identify target firms with special characteristics intending to create shareholder value and/or to realise the benefits of control (Coffee and Palia, 2015).

One regulatory hurdle activists are facing is the SEC's Schedule 13D apart from the proxy rules. As hedge fund activists garnered headlines, lawyers focus on two main criteria with regard to litigation: the intent and whether hedge fund activists are acting in a group (Briggs, 2007; Coffee and Palia, 2015). Two or more persons having made an agreement to act together for diverse purposes: the purchase of shares, holding shares, the voting or disposing of shares are considered

as one aggregated group (Briggs, 2007). This requires the filing of an ownership report on schedule 13D with the SEC.

Activists with a "holding" or "voting" purpose probably pursue a concept of threatening to vote. The most frequent problem is, to determine when a discussion among activist shareholders about influencing the company policy turns into a disclosable agreement to form a group. Schedule 13D requires the disclosure of any proposals or plans, even if it is still in the stage of "intent". The concerns are about mergers or other extraordinary corporate transactions requiring a prompt filing to update and amend the Schedule 13D.

Coffee and Palia (2015) discussed whether proxy advisors might be required to annually publish their voting recommendations on specific issues. The increasing influence of activist proxy advisors in combination with hedge funds' own tactics by acting in a group empowered hedge fund activists in corporate governance (Coffee and Palia, 2015). Proxy advisors and institutional investors put pressure on corporations to change bylaws. The pursued goal was to achieve a "universal proxy" – a proxy card to permit the election of some defined percentage of shareholders to the directors' board, who nominate a minority slate of directors by means of the corporations' own proxy statement.

Proxy contests are expensive deterring most shareholders, especially institutional shareholders. Insurgent shareholders must conduct a proxy contest to change board composition by electing their own nominees to the corporations' board (Coffee and Palia, 2015).

Finally, a number of corporations' nominees and a number of insurgent nominees would be listed "side-by-side" (Coffee and Palia, 2016). Corporations showed resistance supported by the SEC allowing incumbent management to use tactics that undermine the position of shareholders and exclude shareholder's proposals for proxy access from the shareholder's proxy statement. This rule authorised and empowered corporations to exclude a shareholder proposal that would generate a direct conflict with the company's own proposal.

In 2015, the SEC announced the re-examination of its rule on proxy access due to some critics from major institutional investors. At the same time, some major institutions agreed to a version of proxy access that allows under special circumstances the nomination of 25 percent of the board seats for shareholders with

a specified stake (Coffee and Palia, 2016). For instance, in 2015, General Electric adopted such a version of proxy access like Citigroup and Bank of America. Blockholders with a 3% stake for at least three years could nominate up to 25% of the directors for the annual election process (Coffee and Palia, 2016).

Finally, in 2015 the SEC announced in public to progress the implementation of a "universal" proxy card which enables all candidates to be listed as directors on one ballot (Coffee and Palia, 2016). Thus, insurgent activists gained equal standing simplifying their tasks in comparison to shareholders with management's own nominees. To the benefit of insurgent activists, a "universal" proxy card enables them to pick and choose among the nominees.

Coffee and Palia (2016) argue that hedge fund activists need alliance partners like other traditional institutional investors, especially largely indexed blockholders holding their stakes for multiple years. The alliance with diversified institutional investors might have a moderating influence on hedge fund activists.

In the literature, shareholder activism remains to be a topic, while hedge fund activists openly posture and threaten. Hedge fund activists are considered as insurgents among other shareholders. Hedge funds use proxy fights seeking to convince other shareholders with better business plans (Briggs, 2006).

A study by Mulherin and Poulsen (1998) show no difference in abnormal returns in insurgent activists winning a board seat and losing a contest. The authors argue that abnormal returns may follow an agreement of incumbent management to the employment of specific changes, as sought by activists. Typical events, such as stock buybacks, special dividend payments, spinoff of assets follow a proxy contest and proxy advisory and lead to a favourable positive market reaction Coffee and Palia (2016).

Other empirical studies show higher average abnormal returns, when incumbent management wins the proxy contest (Alexander et al., 2010). Hedge fund activists themselves apparently believe that direct board representation helps to achieve greater profits as they have greater control over investments (Briggs, 2007).

Coffee and Palia (2015) came to the conclusion that shareholder activism recently accelerated. From their view, most attempts to measure the impact on activism have primarily examined whether shareholders benefit over the short-run.

3 METHODOLOGY

To analyse the impact of hedge funds activities on the market evaluations of companies, this thesis applies the event study as its methodology of choice. In 1969, Fama, Fisher, Jensen and Roll introduced the event study methodology, which became a standard in academia and started as a major methodological improvement in accounting, economics and finance. As the event study methodology has become a standard method of measuring security price reactions around a certain event, this proven methodology is utilized to measure – for instance – the impact of the announcement or disclosure of a 13D or 13G filing with the SEC.

Hypothesis tests are performed to see whether there is a significant difference between the targeted companies and their peers from the same industry (Ren and Xiao, 2019). The first reason to apply event studies is to test the null hypotheses that the market efficiently incorporates information (Fama, 1991; Fama, 1976). Second, event studies have been used to examine the impact of some events, especially on shareholder value under a hypothetical situation.

Ren and Xiao (2019) document that the goal of the event study is to examine the difference between the observed stock return and the expected return - without the event taking place. In case statistical significance is found, it suggests that the event has a significant effect on the stock, and therefore on shareholder wealth (Ren and Xiao, 2019).

The aim of the analyses is to investigate and quantify the influence of hedge funds activities on shareholder value of target firms. The data to conduct the empirical study are readily available at the SEC to measure abnormal returns around the day of acquisition/disclosure of hedge funds' interventions.

3.1 DATA AND DATA PREPROCESSING

Descriptive statistics aim to identify which companies are targeted by hedge funds activists, which companies are mostly targeted, who these activists are and why they target the companies. By analysing the nature of hedge fund activism

using the Security and Exchange Commission (SEC) filings and assessing the various types of engagement made by activist hedge funds, the market reaction around the announcement of hedge fund interventions becomes visible. This research methodology is chosen to measure security price reaction to the disclosure of hedge fund interventions and to estimate whether activities of hedge funds create value.

This empirical study relies on various data sources to conduct the analysis. The SEC database of filings (EDGAR API 2019) is used to retrieve all Section 13D and 13G filings for the period of interest. All acquisitions by hedge funds aiming at actively / passively influencing target companies are subject to SEC 13D/13G filings. The structure of the filings includes a company's identification and the date of filing. To avoid the financial crisis in 2008, the period of interest is set to span the years 2009-2019, incorporating the most recent data on hedge fund activism.

The focus is on the initial filing decision of a 3% ("block") blockholder to construct a sample of activist and passivist blockholdings. "Active" refers to equity bought with the purpose of actively engaging with the target company, "passive" refers to passively holding the equity block. All acquisitions are filtered by year and acquirer, i.e., the activist hedge fund. All data are reviewed to avoid double entries and missing data. For further processing all data are loaded into R (statistical software).

Whenever the initial filing changes, the acquirer files a Section 13D/A or 13G/A (Amendment) to disclose the current status of the holding. For the purpose of conducting a study on the effect of hedge fund activism, both filings are considered, the initial ones and the amendments, whenever the amendments are significant enough to warrant additional consideration (Schwill, 2020).

This happens in case an equity block is sold off completely or substantially increased by at least 3% (Schwill, 2020). Descriptive statistics are used to analyse the fractions of acquired equity and to find out the key players. Furthermore, I break down the filings per year and break down the target companies by industry.

Financial data of target companies for the same period is gathered either directly via yearly reports or via portals such as Gurufocus and Morningstar. Key metrics of interest are:Equity, Assets, ROA (Return on Assets), ROE (Return on

Equity, M/B (Book-to-market ratio), Leverage, Cash over time. These financial data are matched with EDGAR data via tickers of the target companies.

To capture the impact of hedge fund activities on the company's financial situation, performance over time and shareholder value, a selection of financial and fundamental data of target companies (Schwill, 2020) are acquired from public sources: EOD Historical, Sharadar and Gurufocus. In case of small companies, the required fundamentals can be looked up directly in companies' yearly reports (Schwill, 2020). The financial and fundamental data of target firms depend on block type. All captured values are industry-adjusted according to Fama-Fench 30 industry classification.

In the first step, descriptive statistics can be used to analyse the fractions of acquired equity and to find out who the key players and who the key activists are. In the second step, substantial differences between 13D and 13G filings (averages and medians) are captured. Furthermore, the distributions of active and passive filings among industries are considered.

The profiling of the classical target of hedge fund activist is conducted by industry (as defined by Fama-French 30 industries classification) and by their properties. To compare target companies to their peer group, each firm is assigned to an industry. The Fama-French 30 industries classification maps each SIC Code of a company to the corresponding industry. The top five industries of all target firms are analysed here are healthcare, banking, personal/business/ services, business equipment and retail.

3.2 EVENT STUDIES

Since the event study methodology has emerged, it evolved over time by a number of modifications. These modifications help to address violations of statistical assumptions used in the early work and to accommodate (Ren and Xiao, 2019) specific hypotheses (MacKinlay, 1997). Ren and Xiao (2019) document that potential problems with hypothesis testing occur due to the dependencies in the residuals, autocorrelation (residuals are correlated) and heteroscedasticity defined as unequal variance of residuals (Ren and Xiao, 2019).

Unequal variances across firms and cross-sectional dependence (Ren and Xiao, 2019) introduce a remarkable bias on hypothesis testing in event studies

(Collins and Dent, 1984; Bemard, 1987). The problem with dependencies in residuals (Ren and Xiao, 2019) can be fixed by standardising each abnormal return and using an estimator of its standard deviation (Mandelker, 1974; Jaffe, 1974; Ren and Xiao, 2019). In several empirical studies, a technical approach is provided that addresses the issues of event-induced heteroscedasticity and the correlation in residuals (Ren and Xiao, 2019; Collins and Dent, 1984).

The pioneer event studies, as introduced by Fama, Fisher, Jensen and Roll (1969) studied how an announcement of a stock split causes the market to react. The pioneer event study methodology is the same as the methodology which is in use today (MacKinlay, 1997) to investigate the effect of an event by a stock price reaction.

To make the difference visible between an observed stock return and the expected return, – under a hypothetical situation whereby the event did not take place – event studies are applied. The two time periods of an event study, the event window (timeframe where an effect is expected) and estimation window (used to judge the expected return) can differ from each other. A hypothesis test shows whether the impact on stock prices is significant or not.

One key step of the event study is the estimation of the stock behaviour, based on the assumption that no event took place. A number of statistical models propose to address additional factors that may influence abnormal returns. Normally, the use of the Capital Asset Pricing Model (CAPM) is proposed in event studies (Sharpe, 1964), as it refers to the market and risk adjusted return model (Brown and Warner, 1980).

To be in line with literature standards, the estimation window to compute the parameters of the 1-factor model is set to 150 days (Schwill, 2020) prior to the submission of every individual 13D/13G filing (Fama et al., 1969; Clifford, 2008). To increase the explanatory power of statistical models, Fama and French (1993) introduced a multifactor (3-factor) model and Carhart (1997) introduced the 4-factor model. These models address the issue of correctly estimating the expected return in case no event takes place.

The following assumptions concerning the event study methodology are of importance to capture the real impact of an event. First, the event study can only reveal or fully detect and measure the impact (Glascock et al., 1987), if the event is

not known to the public before it is happening. In case the public knows and is expecting this event, no accurate results will be found about the event at the time it happens. The market may have already expected its occurrence and this expectation causes the market to react before the event occurs. This can perhaps be interpreted as the difference between the market expectation and the impact of the event itself.

Second, the results in the event window under the presumption that no event occurs can be predicted by – for instance – the most straightforward constant mean model by measuring the average value within the estimation window. Ren and Xiao (2019) document that the event study takes into account that the outcome in the event window can only be estimated by the behaviour of an individual stock in the estimation window.

Applying the event study means to focus on estimations of the effect of unanticipated events on individual stock prices (Ren and Xiao, 2019). The expected return in the event window can only be correctly predicted if the outcome depends on the past behaviour of a stock and is not random.

Additionally, using the event study approach also requires that no other than the investigated event exists in the event window and as well in the estimation window, to avoid the influence of other unwanted events. It is of high importance to exclude other events than the investigated ones, because the difference captured from the observed and the estimated return might include both influences. Therefore, the effect of unwanted events in the estimation window will be extended to the event window.

The event window is the time period which is most impacted by the event, whereas the estimation window is used to estimate the stock price movements assuming no event is taking place. As the estimation window is a time period prior to the event window, there may be an interval window positioned between the event window and the estimation window (Ren and Xiao, 2019).

As it may be sometimes unrealistic to eliminate all other events in the estimation window (Ren and Xiao, 2019) due to its long time period, the long horizon of the estimation window (Ren and Xiao, 2019) may increase the influence of unwanted events on the outcome of the event study. The elimination of all unwanted events thereby poses a limitation on the event study methodology.

In line with the literature, the estimation window is required to be longer than the event window. Applying the event study in Chapter 4, the estimation window is set to 150 days prior to the event, i.e., to the submission of every 13D/13G filing, whereas the event window is set to (-2,2), which is in line with event studies investigating abnormal returns around public announcements (Fama et al., 1969; Clifford, 2008).

As the returns are extrapolated from the estimation window to the event window, some concerns about extrapolation problems arise. Extrapolation is defined as the procedure of developing a model inside the estimation window and extending the model into the event window (Ren and Xiao, 2019). Ren and Xiao argue that the quality of extrapolation is largely determined by the model and the extrapolation range.

Bessembinder et al. (2009) find that the use of a short-horizon event window is recommended to avoid the possibility of inclusion of other unwanted events. Previous research has already documented the ineffectiveness and limitation of using long-horizon event windows (Brown and Warner, 1985; Kothari and Warner, 1997). These assumptions and requirements indicate that, the event study as a methodology to measure abnormal returns, has its limitations.

The day of acquisition is set as event day, as known from the SEC 13D/G filings. To compute abnormal returns, the expected returns are first estimated, using multifactor models with the WRDS (CRSP) index as benchmark. Based on the expected return, excess (abnormal return) can be inferred. Cumulative abnormal return is defined as:

$$CAR_{i,t} = \sum_{t\ in\ (-2,2)} R_{i,t} - E[R_{i,t}]$$

where $E[R_{i,t}]$ is derived from the multifactor model, estimated over a 150 days window prior to the submission of the filing. The event window is set to (-2,2) as per literature standard, and to a (-5,5) window to check for robustness.

Furthermore, hypothesis tests are performed to check whether cross-sectional abnormal return is significantly different from 0 on average. First, CAR is transformed to CAAR by taking averages over all observations of a given FF30 industry. Then, t-tests are conducted to test the null hypothesis that the cumulative

average abnormal return CAAR is significantly different from 0. In particular, the test statistic is defined:

$$t_{CAAR} = \sqrt{N}\frac{CAAR}{S_{CAAR}}$$

where $S^2_{CAAR} = \frac{1}{N-1}\sum_i (CAR_i - CAAR)^2$, and N is the number of companies

Non-parametric tests are performed for robustness as well by choosing Wilcoxon test and Corrado sign test, as per literature standard.

One common method to test the statistical significance of the estimated average abnormal return AAR_i is the assumption that the individual abnormal returns AR_i are independent and identically distributed. This allows to aggregate these to AAR_i. In addition, assuming independence over time and homoskedasticity, the standard deviation can be derived and used to test $CAAR_i$ using cross-sectional standard deviation estimators.

However, this approach has its drawbacks. In the literature, several potential problems with this approach are identified, as it is based on fairly unrealistic assumptions (MacKinlay, 1997). Frequently, the abnormal return estimators are not independent. Furthermore, they might not have identical variance. The problem documented by Jaffe (1974) and Mandelker (1974), is that abnormal return estimators are cross-sectionally correlated and may have different variances across firms, and they are not independent across time for a given firm.

Abnormal return estimators can occur with greater variance during the event window than in the surrounding periods. The difference in market model residual variances across firms is evidenced by Fama (1976). In the context of event studies, the effects of cross-correlation and the unequal variance across firms on hypothesis test are examined by Collins and Dent (1984). They conclude that a considerable bias is introduced, without a correction of these problems. Since cross-sectional correlation cannot be ruled out, the correction is applied - as introduced by Kolary and Pynönnen (2010) for serial correlation.

In the literature, the bias in hypothesis tests of cumulative average abnormal returns is analysed by Cowan (1991) and Salinger (1992). Cumulative average abnormal returns are in correlation with the average abnormal estimators. The number of observations in both the estimation period and the event period affect

the magnitude of the bias. A smaller event period relative to the estimation period causes the uncorrected (biased) test statistic to be very close to the corrected (unbiased) one. A large event period causes a substantial bias. Time series dependence can be neglected, in case of a short event period relative to the estimation period.

In the analysis, hypothesis tests are performed to see whether there is a significant difference between the targeted companies and their peers from the same industry, especially whether positive abnormal returns do not reverse after 1-3 years after the filing. The changes between 13D and 13G (active / passive) filings are compared.

Companies are clustered by industry to compute industry averages of key financial metrics. For each filing, average changes in financial metrics are computed. Hypothesis tests are performed for each metric (M) to check whether H0 is:

$$\frac{1}{N}\sum_{i} M_i - M_{industry} = 0$$

where M can be Cash, Leverage, ROA, ROE, M/B, Market cap, Market adjusted return.

Non-parametric tests are performed as robustness checks (Wilcoxon). Unlike a parametric test (t-test) that makes assumptions about the parameters by defining properties of the population distribution, a non-parametric test makes no such assumptions. Non-parametric tests are the preferred ones for event study analyses, because of robustness in a variety of event study conditions.

3.3 MULTIFACTOR MODELS AND FACTOR PORTFOLIOS

An additional angle shedding light on how activists and passivists choose investments can be derived from the Fama and French 5 factor model. The model consists of the factors MKT,SMB, HML,RMV and CMA, i.e., the return of a security, i.e., the portfolio is represented as:

$$R_{portfolio} = \alpha + \beta_{MKT}R_{MKT} + \beta_{SMB}R_{SMB} + \cdots + \beta_{CMA}R_{CMA},$$

where MKT is the Market risk factor.

The Fama and French 3 factor model (Fama and French, 1993) defines that all market returns can roughly be explained by three factors: exposure to the broad market (MKT), exposure to value stocks (HML), and exposure to small stocks (SMB).

Data of public target companies is provided by EOD Historical, Sharadar and Gurufocus. For small companies, the required fundamental data is available in companies' yearly reports.

4 ABILITY OF HEDGE FUNDS' ACTIVISTS TO RESTRUCTURE TARGET FIRMS

This part provides broad statistical evidence of the ability of hedge funds to create shareholder value for target firms. In this part of the thesis, the expression "we" is used which aims to attract the reader's attention. This part of my thesis bases on an article with the title: "Proof of the Ability of Hedge Funds' Activists to restructure Target Firms" published in the Scientia Moralitas International Journal of Multidisciplinary Research Vol. 5, No. 1, 2020. The article contains a shortened theory part and all tables of Chapter 4 with the corresponding research results.

This chapter focuses especially on the first research question of this thesis asking: "What impact do hedge funds activities have on target companies in terms of cash generation, leverage, accounting metrics and dividends with regard to a time period experiencing up- and down-market periods?"

The following analyses investigate and quantify the effect of hedge funds activities on shareholder value of target firms by following the standard approach in the literature on hedge fund activism. This part of the thesis applies the event study approach to analyse the impact of hedge funds activities on the market evaluations of companies (Schwill, 2020).

Data on hedge fund activism is publicly available as a purchase of a stake of at least 3% of target firm's equity (Schwill, 2020) with an intention to actively engage in its management is subject to a so-called Section 13D filing with the Stock Exchange Commission (SEC) (Schwill, 2020). In this filing, the intention and the size of the purchased equity block need to be disclosed (Brav et al., 2008b).

A similar procedure applies to equity blocks bought with an intention of being held passively, i.e., no interventions with company's management (Schwill, 2020). Such purchases are subject to Section 13G filing, also submitted to the SEC (Schwill, 2020). The SEC is publishing both filings regularly, along with vast information about target companies.

By using the event study approach, the filings allow to investigate the impact of such transactions (Schwill, 2020). The period of 2009 to 2019 is chosen to study

the impact. This choice is made to avoid the year 2008 and possibly skewed results due to the subprime financial crisis, as well as lower overall hedge fund activity.

The event date is set on the date of transaction to compute cumulative abnormal returns (CARs). Based on accounting metrics, such as return on equity and return on assets (Schwill, 2020), the analysis shows how restructuring impacts target company's capital structure (Schwill, 2020).

The findings show that firms being targeted by hedge funds for active purposes achieve higher abnormal returns and overall higher financial performance. The level of abnormal returns for actively targeted companies remains higher with no regard to the market cycle. Based on the findings, conclusions can be drawn on the overall impact of hedge fund activism (Schwill, 2020).

4.1 HOW TO CHANGE THE STATUS QUO IN TARGET FIRMS

In global financial markets, hedge funds became one of the most important institutional investors. Growth in the hedge funds industry over the past two decades has been substantial (Schwill, 2020). Investments of hedge funds were topping $1 trillion in 2006. After the 2002 dotcom bust, when mutual funds on average lost more than 20% of their value, hedge funds showed growth, amid financial turmoil and increasing regulation (Pooley et al., 2006).

4.1.1 Development of Hedge Fund Strategies

Nowadays, hedge funds are pursuing a range of sophisticated, dynamic investment strategies adopting a different approach of confrontational entrepreneurial activism compared to other activists (Klein and Zur, 2009). Hedge funds produce absolute abnormal returns, independent of market conditions. The notion of an absolute return is particularly relevant for investors during market declines (Schwill, 2020). The performance of hedge funds is evaluated against a total return benchmark. Hedge fund activism is known to be value creating (Greenwood and Schor, 2009).

Hedge fund activism has seen an increasing popularity (Schwill, 2020), even though it was negatively affected by the periods of financial crises 2007 - 2008 and

2012 – 2013 (Schwill, 2020). Data about activist campaigns (Schwill, 2020) show a particularly large decrease in 2008 (The Economist, 2009), whereas in 2010 the environment for activism became more attractive again.

As U.S. companies were reaching nearly USD 1 trillion in cash positions, hedge funds pursued a strategy demanding U.S. firms to buy back shares and pay dividends to shareholders. A lack of regulatory limits on portfolio holdings enables hedge funds to accumulate concentrated positions in target companies (Schwill, 2020; Fung and Hsieh, 2000). Hedge funds are subject to requirements related to owning more than 3% of a stock (Schwill, 2020), but not facing the same level of regulatory restraints as other institutional investors (Anderson, 2006). The unique organisational form of hedge funds allows them to avoid a high level of regulation (Gordon, 2005).

How hedge funds actively interfere (Schwill, 2020) in the investment and financing policies of target firms can be shown in various examples. It is particularly interesting to study the most known activist hedge funds, including Elliot Management, Starboard Value and Carl Icahn (Schwill, 2020). Their objectives can include splitting up a company, forcibly paying a special dividend, having a say in M & A activities of the target companies and refurbishment (Schwill, 2020).

While hedge fund activism is a well-studied topic, there are only a few studies on the exact impact of such activities on target firms (Schwill, 2020). Very few studies combine insights from target companies' financials, as well as their market performance to assess the impact of activist hedge funds thoroughly (Schwill, 2020). Moreover, observing the development of target companies over time (Schwill, 2020), preferably several years after the initial stake is bought yields important insights on the sustainability of activist strategies (Schwill, 2020).

The aim is to investigate the impact of hedge funds activities in detail (Schwill, 2020) whether they generate shareholder value for target firms while differentiating between active and passive block holdings (Schwill, 2020).

4.1.2 Hedge Funds and their Special Role as Activists

Among institutional investors, hedge funds are more aggressively intervening with targeted portfolio firms (Schwill, 2020) achieving more tangible

results (Ryan and Schneider, 2002). Public actions are an important feature of hedge funds setting them apart by using media and open letters to put pressure on incumbent management of target firms (Schwill, 2020).

Based on their unique structure, hedge funds can aggregate large equity holdings of portfolio firms (Schneider and Ryan, 2011), directly engage in activism with the companies' management and affect the strategic direction (Schwill, 2020; Farrell and Lund, 2007).

Due to legal requirements hedge funds do not need to diversify their investments (Schwill, 2020) enabling them to take large stakes in target firms and to become involved in a firm's management (Brav et al., 2008a). Moreover, hedge funds amplify the voting power of their investor position (Schwill, 2020) by controlling more votes than just those belonging to their own shares (Schwill, 2020; Schneider and Ryan, 2011).

Hedge funds have driven the process of decoupling ownership of shares (Schwill, 2020) from voting rights (Hu and Black, 2006; Hu and Black, 2007). There is evidence that hedge funds act "in concert" building groups with other hedge funds (Schwill, 2020). To avoid the "group" designation with SEC (Schwill, 2020), they act with parallel players pushing for more aggressive action (Briggs, 2007; Schneider and Ryan, 2011).

The ability to leverage or borrow (Schwill, 2020) allows hedge funds to take larger positions compared to their own fund size (Partnoy and Thomas, 2007). Hedge fund activists may have increased incentives to monitor a firm's management (Schwill, 2020) and board (Briggs, 2007; Kahan and Rock 2007; Partnoy and Thomas, 2006). As hedge fund activists influence other institutional investors by their campaigns, institutional investors jump onto the "activist bandwagon" (Schneider and Ryan, 2011) benefiting from the free riding of activism campaigns (Schwill, 2020), without any own efforts or costs (Gross, 2006; Kahan and Rock, 2007).

In addition, hedge fund activists invest in distressed or junk debt (Schwill, 2020) utilising bankruptcy law to obtain equity positions (Beverini and Cova, 2006). Hedge funds can be purposefully engaged with the intention to decrease a target firm's stock value, which gives them a special role compared to other institutional investors (Schwill, 2020).

Hedge funds fulfil an important role in terms of addressing the general principal-agent problem that arises from disentanglement of ownership and control (Schwill, 2020). As hedge funds take on a monitoring role (Schwill, 2020) in target firms (Grossmann and Hart, 1980; Shleifer and Vishny, 1986), delivering value to all shareholders (Grossmann and Hart, 1980).

As opposed to other institutional investors, hedge funds can acquire concentrated positions of a target company's equity (Schwill, 2020) in stealth by using derivatives (Hu and Black, 2007). Thus, hedge funds can acquire blocks, hiding their trades with the aim to capture more value arising from equity price fluctuations (Schwill, 2020).

Trading with derivatives may create conflicts with other shareholders (Schwill, 2020), as hedge funds even benefit from declining share prices (Christoffersen et al., 2007; Brav and Matthews, 2011; Bethel et al., 2009; Hu and Black, 2007). Hedge funds holding positions in competing companies put pressure on target firms, while pushing them into mergers & acquisitions Schwill, 2020).

Interests of hedge funds do not always overlap with the interests of family or state-dominated firms or those of other minority investors (Schwill, 2020) leading to a so-called "principal-principal" problem (Dharwadkar, 2000; Young et al., 2008). Hedge fund's oppositional intention regarding a firm's share value may create conflicts with other long-only investors seeking an increase in share price (Schwill, 2020). However, little evidence exists that hedge funds' behaviour is the source of a principal-principal conflict (Schneider and Ryan, 2011) with an overall detrimental effect (Schwill, 2020).

4.2 MEASURES OF HEDGE FUNDS TO AFFECT TARGET COMPANIES

The development of hedge fund activism over time shows that adapted strategies and more popular activist mechanisms increase the value creating ability of hedge funds (Gillian and Starks, 2007; Buchanan et al., 2012). Hedge funds activities are associated with the idea of being beneficial to the economy, with the highest rate of organisational change among other shareholder activist groups (Klein and Zur, 2009; Boyson and Mooradian, 2011). Their continuum of measures contributes to organisational changes as restructurings, divestures or even acquisitions.

Hedge fund activists target firms with high institutional ownership, low dividend yields, high cash flows from operations and high liquidity with low expected costs of activism (Brav et al., 2008a). Activists seem to target smaller firms with poor prior stock returns, low sales growth and low market to book ratio. Hedge funds are more likely attracted by target firms with specific operating characteristics generating opportunities for value creation and high return on assets.

The history of shareholder activism suggests, that hedge fund activism can be seen as a substitute mechanism to discipline managers and change corporate policy.

4.2.1 Governance

Managers may use firm-level governance arrangements as a protection (Schwill, 2020) against outside influence by shareholders developing staggered boards, which helps managers to secure a long-term position (Schwill, 2020). Hedge funds commit themselves to ensure that important decisions are approved by other shareholders (Schwill, 2020) and to curb behaviour that can have a negative impact on firm's value (Aggrawal et al., 2009; Gompers et al., 2003).

Hedge funds facilitate the outside interference of other shareholders in major corporate decisions. They effectively monitor and control managerial self-interest (Schneider and Ryan, 2011) as well as they address cash flow agency problems in target firms (Klein and Zur, 2009).

An external corporate governance mechanism, such as the market of corporate control helps mitigating managerial moral hazard (Schwill, 2020). Low share prices, a consequence of a lack in value creation (Schwill, 2020), would probably qualify for a hostile takeover. Pressure on the board of managers (Schwill, 2020) implies changes in senior management as well as restructuring measures following a hostile takeover (Schwill, 2020).

A strong example of activism was experienced by the German security exchange, Deutsche Börse in 2005, suffering from an attack by hedge funds: TCI (The Children's Investment Fund) and Atticus. These hedge funds justified the attack by arguing that the managements' efforts to create shareholder value are insufficient. As a result (Schwill, 2020), important changes to corporate governance,

the financing and investment policies took place. Over the long run, however, the performance deteriorated and the share price suffered substantial losses (Schwill, 2020) because of the subprime crisis. This raises the question, whether hedge funds activities lead to substantially higher market evaluations (Schwill, 2020).

4.2.2 Disciplining Managers

Hedge fund activists exert influence on the decision-making process at target firms, as they frequently gain board representation through real or threatened proxy solicitations (Clifford, 2008; Boyson and Mooradian, 2011; Brav et al., 2008a; Brav et al., 2018). Filing schedule 13D with the SEC discloses a hedge fund's intention to redirect management's efforts in a target firm (Klein and Zur, 2009).

The board of directors acts as a part of the corporate governance mechanism, delegated to monitor on behalf of shareholders to ensure that managers act in the best interest of shareholders (Schwill, 2020). Supervising senior management, the board of directors have legal rights in most of the corporate governance systems. Using legal rights (Schwill, 2020), the board of directors takes responsibility in hiring and firing senior managers, as well as changes in executive compensation arrangements (Schwill, 2020).

Moreover, key decisions made by the board, such as financing decisions, merger & acquisitions and large-scale investment projects (Schwill, 2020) can have a strong impact on the firms' value (Tirole, 2010).

Hedge fund managers seem to achieve the pursued goals by posing a credible threat of engaging the target firm (Schwill, 2020) in a costly proxy solicitation contest (Schwill, 2020; Bebchuk, 2005a; Bebchuk, 2005b).

4.2.3 Disciplinary Effect on Control Sample

Spillover effects and the threat of a future hedge fund intervention also put pressure on incumbent managers of peer companies which are in the same industry, i.e., of control samples, and can be considered as disciplinary effects (Cremers et al., 2018). Spillover effects may benefit actions by managers and lead to improved performance. Spillover and disciplinary effects can have strong impact on other firms of the peer group, as hedge fund activists tend to target multiple

firms in the same industry over different periods of time (Gantchev et al., 2018). With the disclosure of establishment of a position, other investors take notice of a hedge fund's presence at target firms.

However, the displayed disciplinary effects, followed by changes in corporate policies of target firms may differ from those effects to their peers (Cremers et al., 2018; Brav et al., 2015b). Target firms show more increased repurchases, reduced cash holdings, capital investments and R & D expenditures in comparison to their peers.

Given the effectiveness of spillover and the threat of being a target in the future, findings are inconsistent and may suggest that indirect disciplinary effects of hedge fund activism on potential hedge fund targets should trigger the same corporate policy changes for firms of the peer group, as similar corporate policy changes seem to be the source for improved firm performance for both, hedge fund target firms and for their peers (Cremers et al., 2018).

4.2.4 Financial Restructuring Measure: Dividends and Cash

The paramount goal of hedge fund activists is to increase shareholder value in a short period of time (Schwill, 2020). Hedge funds target firms with lower return on assets (Schwill, 2020), lower market-to-book ratios and less diversification in comparison to a population sample of Fortune 500 U.S., with no activism activity (Schwill, 2020; Bethel et al., 1998).

Target firms of hedge funds are subject to restructuring of financial and strategic policies and redirections of investments (Schwill, 2020). Hedge funds can demand the sale of less-productive assets, a raise of dividends, pay out of special dividends and share buy-backs (Schwill, 2020). Thus, hedge fund activism is typically associated with higher debt (Schwill, 2020).

Utilisation of excess cash qualifies as an additional measure of hedge funds' financial restructuring strategies (Schwill, 2020). Managers have incentives to grow their firms beyond their optimal size (Schwill, 2020), due to corporate governance malfunctions (Schwill, 2020) and by the absence of efficient utilisation of free cash flows (Jensen, 1986). According to Jensen's free cash flow theory, excess cash or free cash flow may be an incentive for managers to proceed with negative NPV (Net

Present Value) projects. Projects with positive NPV raises a companies' value, due to a more efficient utilisation of free cash flows.

4.2.5 Financial Restructuring Measure: Leverage Ratios

Activist hedge funds put pressure on target firms to make payouts to shareholders. Hedge funds increase the debt load of target firms, which are rich in cash and short-term investments. By paying higher dividends to shareholders, hedge funds extract cash from the target firm (Schwill, 2020) and thus, increase the target's debt relative to equity (Klein and Zur, 2006).

Raising additional debt capital may increase the financial risk of a target firm (Schwill, 2020). A target firm should have access to debt capital markets at attractive conditions to implement restructuring measures based on debt capital (Schwill, 2020). An optimal degree of leverage might increase firm value (Schwill, 2020).

According to Modigliani and Miller (1958; 1961), financial restructuring measures and financial policies do not have an impact on a firms' value in context of perfect capital markets (Schwill, 2020). Considering capital markets in the real world (Schwill, 2020), market imperfections such as agency problems, taxes and information asymmetries can force firms to optimise their capital structure (Schwill, 2020). Thus, market imperfections create a balance between benefits and the costs of debt financing and have a function to minimise the firms' cost of capital (Schwill, 2020).

The idea of Empire building is that managers can reduce the risk of losing a job position by increasing the size and diversification of the company (Schwill, 2020; Jensen, 1986; Fama, 1980). Mature firms with steady cash flows and a stable operating performance should utilise higher leverage ratios and hold smaller cash reserves in line with more aggressive financial policies. By doing so, higher leverage can increase firm value, due to the leverage effect on profitability (Schwill, 2020).

The increase of the leverage ratio is, however, a double-edged sword (Schwill, 2020): higher leverage might possibly reduce firm's value by increasing the expected costs of financial distress (Schwill, 2020). Costs of financial distress

include legal and administrative fees (Schwill, 2020), which occur during financial distress (Titman, 1984; Barclay and Smith, 2005).

Furthermore, a higher leverage ratio can reduce the operating performance of a target firm (Schwill, 2020) by reducing the commitment of suppliers, customers and commitment of human capital (Schwill, 2020). A more conservative financial policy can reduce the risk of a high leverage ratio (Myers, 2000; Zingales 2000).

Increased debt capital, consequently, leads to an increase in the cost of debt capital, raising the risk of asset substitution. Debt overhang problems may cause a situation of underinvestment at high leverage levels (Schwill, 2020). Additional agency costs may arise, when the act of investment is not immediately verifiable (Myers, 2000).

Growth in a firm depends on the ability to make investments in financial and human capital (Schwill, 2020). Hedge funds should consider that during a period of financial distress, shareholders are not willing to provide additional funding for new investments of a firm (Schwill, 2020), in case the firm exhibits a high leverage ratio (Schwill, 2020).

4.3 EVIDENCE OF VALUE CREATION

Along the lines of the aforementioned strategic approaches of hedge fund activism, an empirical analysis to measure their impact is conducted. This includes the question, which indicators are appropriate to measure the impact, as well as the key existing results from the literature on this topic (Schwill, 2020).

Empirical studies by Boyson and Mooradian (2007) of the period 1994-2005 show strong evidence that hedge fund activists, as agents of corporate change, can improve both short-term stock performance and long-term operating performance of target firms. Boyson and Mooradian (2007) rely on a unique dataset documenting substantial changes in governance, targets' performance and changes in free cash flow achieved by aggressive hedge fund activism. Long-lasting changes in corporate governance, operating performance and cash of target firm benefit both, shareholders and hedge funds alike (Schwill, 2020). By practicing aggressive activism, hedge funds achieved an annual performance of 7–11% higher than non-activist hedge funds and hedge funds pursuing less aggressive activism (Schwill, 2020).

More evidence on activists' impact is provided by a sample of 404 U.S. hedge fund activism events (Schwill, 2020) during the period 2003-2005. The results show higher abnormal stock returns around the initial 13D filing date for profitable and healthy target firms (Schwill, 2020), as compared to a sample of control firms (Schwill, 2020; Klein and Zur, 2009). A larger study consisting of 888 U.S. hedge fund activism events (Schwill, 2020) in the period 2004–2005 suggests positive valuation effects after activist events, driven by changes in operating strategies (Brav et al., 2008b; Schwill, 2020).

An interesting base case to compare hedge fund activists' activities is the filing of SEC 13G schedule (Schwill, 2020). The schedule is to be filed whenever an equity acquisition of at least 3% is being done (Schwill, 2020), aimed at passively holding the equity block (Schwill, 2020). These filings allow comparing the results driven by active versus (Schwill, 2020) the passive strategies of hedge funds (Clifford, 2008). Such comparison studies also find a premium to be earned for activism (Schwill, 2020) requiring longer lock-up periods, being partly offset by increased efforts (Schwill, 2020) compared to passive holding (Schwill, 2020).

For the most part, empirical studies fall short of considering both the effect of an activism effect on the stock market valuation, but also on the financial health of a target company. Studies mostly date back to over a decade ago and rarely consider long-term effects (Schwill, 2020), such as the development of companies over years after the initial acquisition of a block by a hedge fund activist (Schwill, 2020).

4.3.1 Empirical study: Setup, Data and Results

At first, the setup of the study is explained, the retrieval of data and descriptive statistics are provided (Schwill, 2020). The aim of descriptive statistics is to understand (Schwill, 2020) which companies are mostly targeted by activists, who these activists are and why they target the companies. In a next step, an event study is conducted to analyse the impact of activism (Schwill, 2020). Lastly, an analysis of both is performed, financial data and returns of targeted companies to understand the long-term impact of activism (Schwill, 2020).

4.3.2 Data and Descriptive Statistics

The empirical study relies on various data sources to conduct the analysis (Schwill, 2020). Firstly, the SEC database of filings (EDGAR, 2019) is used to retrieve all Section 13D and 13G filings for the period of interest (Schwill, 2020). These filings are structured by an acquiring company's identification and time (Schwill, 2020). Upon an initial purchase of at least 3% equity share in a publicly traded company, the acquirer submits the corresponding filing with the SEC (Schwill, 2020). Whenever there is a change to the initial filing, the acquirer files a Section 13D/A or 13G/A (Amendment) (Schwill, 2020), stating the changes as compared to the initial filing (Schwill, 2020).

For the purpose, both are considered, the initial filing (Schwill, 2020), and the amendments, whenever the amendments are significant enough to warrant additional consideration. This can happen, when the equity block is either sold off completely or not increased to at least 3%. From each filing (Schwill, 2020), the ownership percentage of the acquirer is extracted, the name and ticker of the partly acquired public company, the date of the acquisition and the date of the filing (Schwill, 2020). The filings are further filtered to remove duplicates and small amendment filings (below 3%) (Schwill, 2020).

Since 13D and 13G filings must be submitted by any entity buying a share in the target company (Schwill, 2020), all filings are filtered for those made by hedge funds known to engage in activism. All the following computations are done using the R statistical software (Schwill, 2020).

4.3.3 Distribution of Filings and their Frequency

Given the preprocessing (Schwill, 2020), at first the breakdown of all filings by active/passive groups is considered, as shown in Table 1 (Schwill, 2020). For the period of consideration, the percentage of active filings has largely remained constant with an increase in the year 2019 (Schwill, 2020).

Table 1. Overview of the number of active and passive blocks by year, as submitted to the SEC by hedge fund activist / passivist investors (Schwill, 2020). A "block" refers to an equity purchase of at least 3%. "Active" refers to equity bought with the purpose of actively engaging with the company, "passive" refers to passively holding the equity block (Schwill, 2020).

Year	All	Passive (Sec.13G)	Active (Sec.13D)	% Active
2009	1110	963	147	13.24%
2010	1170	979	191	16.32%
2011	1278	1112	166	12.99%
2012	1081	956	125	11.56%
2013	1428	1241	187	13.10%
2014	1589	1363	226	14.22%
2015	1555	1335	220	14.15%
2016	1293	1068	225	17.40%
2017	1335	1117	218	16.33%
2018	1432	1239	193	13.48%
2019	854	671	183	21.43%

Source: SEC Sec. 13D/13G filings, automatically retrieved from the SEC EDGAR data portal API (https://www.sec.gov/edgar/searchedgar/companysearch.html), own calculations (Schwill, 2020)

Table 1 shows the distribution of active and passive blockholdings with a rise in the number of activist campaigns over time. The rise may appear consistent with a general increase in the number of blockholdings over the period of interest. In the year 2019, filings dropped down in general, with an increase of active filings compared to the passive ones.

Now the distribution of the ownership percentage is considered. As can be seen from the summary statistics below, the median active filing is around 7.50%, while the median passive filing is around 6.10% over the period of interest. We compare the active and the passive filings to each other to show the difference in ownership between the filings (Schwill, 2020).

The 3rd quartile for active filings (Sec. 13D) is considerably higher than the quartile of the passive ones (Sec. 13G). This observation shows that hedge funds

engaging in activism tend to acquire a considerable amount of equity of the target firm. The minimum and maximum are always at 0% and 100% respectively, a sell-off of an equity block has to be filed with the SEC (Schwill, 2020).

Table 2. Distribution of the ownership percentage by Sec. 13D (active) filings/13G (passive) filings, including amendments to the filings (as indicated by "/A") (Schwill, 2020)

Filing	Min.	1st Quartile	Median	3rd Quartile	Max
Sec. 13D	0	5.60%	7.50%	11.80%	100%
Sec. 13D/A	0	5.80%	8.80%	16.60%	100%
Sec. 13G	0	5.30%	6.10%	7.95%	100%
Sec. 13G/A	0	2.52%	5.74%	8.53%	100%

Source: SEC Sec. 13D/13G filings, automatically retrieved from the SEC EDGAR data portal API (https://www.sec.gov/edgar/searchedgar/companysearch.html), own calculations (Schwill, 2020)

As mentioned before, not only activist hedge funds can submit Section 13D filings to the SEC (Schwill, 2020). Since 13D and 13G filings must be submitted by any entity buying a share in the target company, our dataset of filings is filtered for filings made by hedge funds. We therefore also want to investigate which hedge funds are the most active ones in terms of activism (Schwill, 2020). The top 10 list of filings by frequency clearly shows that well-known activist hedge funds are represented in our dataset (Schwill, 2020).

Table 3. Distribution of filing frequency, showing top 10 of the filing hedge funds, Section 13D (active) filing in the period 2009-2019 (Schwill, 2020).

Company	Frequency of filings
STARBOARD VALUE LP	310
RAGING CAPITAL MANAGEMENT, LLC	179
ELLIOTT MANAGEMENT CORP	114
JANA PARTNERS LLC	108
CORVEX MANAGEMENT LP	100
MARCATO CAPITAL MANAGEMENT LP	78
THIRD POINT LLC	70
NORTHERN RIGHT CAPITAL MANAGEMENT, L.P.	66
AWM INVESTMENT COMPANY, INC.	64
SARISSA CAPITAL MANAGEMENT LP	43

Source: SEC Sec. 13D/13G filings, automatically retrieved from the SEC EDGAR data portal API (https://www.sec.gov/edgar/searchedgar/companysearch.html), own calculations (Schwill, 2020)

4.3.4 Profiling of Targets

The profiling of the classic target of hedge fund activists can be done by their industry, as well as by well-known accounting KPIs (Schwill, 2020). To be able to compare target companies to their peer groups, we assign (Schwill, 2020) an industry class to each company, as defined by Fama-French 30 industries classification. This classification maps each SIC code of a company to the corresponding industry (Schwill, 2020). The overview of the top five industries by FF30 code is shown in Table 4 (Schwill, 2020).

Table 4. Distribution of FF-30 industries of all section Sec. 13D (active) / Sec. 13G (passive) filings in the period 2009-2019 (Schwill, 2020).

Industry	All Filings	Passive (13G)	Active (13D)	% Active of All Filings
Healthcare	2142	1950	192	8.9%
Banking	1843	1569	274	14.8%
Personal/Business Services	1327	1102	225	16.9%
Business equipment	858	724	134	15.6%
Retail	430	374	56	13.0%

Source: SEC Sec. 13D/13G filings, automatically retrieved from the SEC EDGAR data portal API (https://www.sec.gov/edgar/searchedgar/companysearch.html), own calculations (Schwill, 2020)

As can be seen, the focus of hedge funds is primarily on Healthcare and Banking (Schwill, 2020). The percentages of active filings largely correspond to the overall percentage of active filings as shown in Table 1 (Schwill, 2020). To investigate the impact of activism (Schwill, 2020) on companies' financial situation and performance over time, financial and fundamental data of target companies can be selected. For all public target companies, data is provided by EOD Historical, Sharadar and Gurufocus. Where necessary, especially for small companies (Schwill, 2020), required fundamental data is extracted from companies' yearly reports (Schwill, 2020).

Similar to the literature studying hedge fund activism (Schwill, 2020), the variables of interest are henceforth Return on Assets (ROA), Return on Equity (ROE) (Schwill, 2020), Market-to-Book (M/B) ratio, Leverage, Cash, Market Cap (Clifford, 2008; Klein and Zur, 2006). The market-adjusted return (adjusted to the corresponding FF-30 industry level) is computed based on the data up to one year prior to the acquisition of a block by an activist hedge fund (Schwill, 2020). All results are summarised in Table 5 (Schwill, 2020).

Table 5. Financial and fundamental data of target firms depending on block type. All values are industry-adjusted according to the FF-30 industry specification (Schwill, 2020). Hypothesis tests are performed to see whether there is a significant difference between the targeted companies and their peers from the same industry (Schwill, 2020). The industry-adjusted variable is the difference in the target firm's value and the median value for all firms in the Fama-French 30 industries classification. The last column shows differences in medians between the 13D and 13G filings. Market cap (MM) accounts for the stock-market value of a company's equity in millions. By multiplying the current share price by the number (N) of shares outstanding, the Market cap can be calculated (Schwill, 2020).

Metric		13D (active)	13G (passive)	Difference 13D -13G
ROA	Median	-2.46%	-1.15%***	-1.31%**
	N	1229	8303	
ROE	Median	-4.92%	-3.33%**	-1.59%**
	N	1229	8291	
M/B	Median	-0.3	-0.13**	-0.17
	N	1150	7719	
Leverage	Median	-2.22%	-3.95%**	1.73%**
	N	1225	8309	
Cash	Median	0.73%*	1.21%**	-0.48%**
	N	1213	8246	
Market cap (MM)	Median	-163.51**	-68.16**	-95.34**
	N	1169	7812	
Market adj. return, (-13,-1) months	Median	-23.55%**	-17.73%**	-5.82%*
	N	1186	4309	

** = 5% significance level, ** = 1% significance level, *** = 0.1% significance level, all hypothesis tests are performed as t-tests on the means of the target companies vs. public companies from the same industry.*

Source: SEC Sec. 13D/13G filings, automatically retrieved from the SEC EDGAR data portal API (https://www.sec.gov/edgar/searchedgar/companysearch.html), own calculations (Schwill, 2020)

Table 5 shows that hedge funds mostly target smaller underperforming companies, becoming clear from negative results in market-adjusted returns. In detail, results in a market-adjusted return show that targets of hedge fund activists

are underperforming compared to their peer group in the same industry with the median return one year prior to the acquisition of a block holding being roughly 24% below the industry average (Schwill, 2020).

Furthermore, there is a significant difference in market-adjusted returns between target companies of activists vs. those of passive investors (shown in the last column). Firms targeted by activist hedge funds show a larger negative market-adjusted return. These findings indicate that passive investors generally tend to target companies with higher ROA and ROE, a significantly higher market cap, and market-adjusted return (Schwill, 2020).

At the same time, leverage of the passively targeted companies is lower representing the ratio of total debt to the book value of total assets (Cremers et al., 2018). This further supports the idea that activists tend to target smaller, underperforming companies. The results in Table 5 confirm hedge funds' propensity to identify possibly undervalued and poorly performing firms (Karpoff, 2001) but with potential for good investment prospects.

The level of cash of target companies of hedge fund activists is significantly lower than that of passively targeted companies. Klein and Zur (2006) suggest that one motive for hedge fund activism might be that hedge fund activists create short-term value by raiding the target firm's cash.

The differences in accounting metrics between active and passive targets are all highly significant in the hypothesis tests (as shown in the last column of Table 5). In case of ROA, ROE, Market-to-Book (M/B) ratio, Leverage and Cash targets of activists are not too different from industry medians. The larger negative market-adjusted return and Market Cap of target firms compared to the industry-adjusted median values may indicate that target firms are undervalued and/or underperforming (Schwill, 2020).

The results shown in Table 5 suggest that hedge fund activists tend to target smaller underperforming firms, as shown by negative market- adjusted return and Market Cap at the time of hedge funds' acquisition. These findings are supported by findings in the literature (Karpoff, 2001).

4.3.5 Excess Returns from Active and Passive Filings: An Event Study

In this section, the classic event study methodology is leveraged to investigate how the fact of filing a Section 13D/13G is causing the market to react (Schwill, 2020). As the fundamental use of an event study is to investigate the effect of an event on stock prices, the goal of the event study is to examine differences between observed stock returns and expected returns (Fama, 1991; MacKinlay, 1997).

To that end, we build on the event study approach as originally introduced by (Fama et al., 1969). Because cross-sectional correlation cannot be ruled out, we also apply the correction of the abnormal return significance tests, as introduced by Kolari and Pynnönen (2010) (Schwill, 2020). We set the event to be the filing date of a Sec. 13D/13G filing (Schwill, 2020). The cumulative abnormal returns are computed as:

$$CAR_{i,t} = \sum_{t\in(-2,+2,)} R_{i,t} - E[R_{i,t}]$$

and corrected for serial correlation (Schwill, 2020). To get expected returns, we take the CRSP value-weighted index and apply the CAPM model (Schwill, 2020) to compute expected returns as indicated by the 1-factor-model (Schwill, 2020; Sharpe, 1964; Brown and Warner, 1980). The estimation window to compute the parameters of the 1-factor model is set to 150 days prior to the submission of every individual 13D/13G filing (Clifford, 2008). This is in line with literature standards, where 1-factor-models are typically chosen to compute the expected returns (Sharpe, 1964; Schwill, 2020).

Further, we perform hypothesis tests to compare the mean cumulative abnormal returns (Schwill, 2020) to the mean return of the industry peer group (Schwill, 2020) on the same day (Fama, 1991). This helps to establish whether the returns triggered by the filing are significantly different to those (Schwill, 2020), which can regularly occur on a given day.

We set the event window to (-2,2) business days, which is in line with event studies investigating abnormal returns around public announcements (Fama et al., 1969; Clifford, 2008). For robustness, we also check the returns for longer event windows (-5,5) and asymmetric windows (0,5) (Schwill, 2020). Since these results

are not deviating substantially from the classical (-2,2)-window configuration, they are skipped here for conciseness (Schwill, 2020). They are only computed as a robustness check (Schwill, 2020).

We take the classic assumptions of the event study to be fulfilled in our case. First, an event study assumes that fully exploring the impact of an event, it should not be revealed or expected before its announcement (Glascock et al., 1987). This is fulfilled, as no information is known to leak prior to a filing.

The second crucial assumption when conducting an event study is that the outcome i.e., abnormal returns, in the event window are predictable by the behaviour in the estimation window, based on the presumption of no-event occurrence (MacKinlay, 1997). The key step of the event study is to explore the difference between the observed stock return and the expected return under this hypothetical presumption.

Using the event study methodology requires that no other events exist apart from the investigated event; neither in the event window nor in the estimation window, avoiding influences of other unwanted events. The length of the estimation window should be much longer than the length of the event window, as pointed out by Brown and Warner (1985) and Kothari and Warner (1997). The ineffectiveness and limitation of using long-horizon event windows is documented by Bessembinder et al. (2009), Brown and Warner (1985) and Kothari and Warner (1997) as a large event window may increase the possibility to include other unwanted events.

To exclude other events than the investigated ones is of high importance (Bessembinder et al., 2009). The event window is representing the time period most impacted by the event, whereas the estimation window uses to estimate abnormal returns assuming no event is taking place (Brown and Warner, 1980).

One could argue that re-filings, i.e., changes of the size of an equity block do not cause the same effect as the initial filings (Schwill, 2020). To check this assumption (Schwill, 2020), an event study is performed based on new filings only. Lastly, the evidence is verified, whether in some rare cases the change of the filing status from passive to active is affecting the abnormal returns (Schwill, 2020). All results are summarised in Table 6 (Schwill, 2020).

Table 6. Event study: Excess returns around the date of the filing of an active / passive block. The data is pooled over the whole period (2009-2019). Events are filtered by new events only (without re-filing) and change of status events (from passive to active). Day 0 is the initial date of the filing, -2 and 2 represent two business days around this date. p-values for means are obtained from t-tests. Tests of the medians are obtained using the Wilcoxon Signed Rank Test (Schwill, 2020).

	Mean	Median	% positive	N
A: Event window (-2,+2), CARs estimated using market returns				
Active (13D)	0.15%	0.93%**	0.56%	1358
Passive (13G)	-1.07%***	0%***	0.5%	7870
Difference	0.93%***	0.92%***		
B: Event window (-2,+2), omitting re-filings (i.e. a company has been acquired before)				
Active (13D)	-0.2%	0.94%	0.56%	1329
Passive (13G)	-2.37%***	-0.57%***	0.46%	4754
Difference	2.17%***	1.51%***		
C: Change of filing status from passive (13G) to active (13D)				
Change	1.6%	0.27%	0.52%	376

*Source: SEC Sec. 13D/13G filings, automatically retrieved from the SEC EDGAR data portal API (https://www.sec.gov/edgar/searchedgar/companysearch.html), own calculations. * = 5% significance level, ** = 1% significance level, *** = 0.1% significance level (Schwill, 2020)*

We observe in panel A that filings of activists cause a positive abnormal return of around 0.93% (median) within the event window, i.e., for active filings Table 6 shows a median return of 0.93% and a mean return of 0.15%. Passive filings, on the other hand, are causing the market to react the opposite way, causing a negative return of -1.07% (mean) and a median return of 0% (Schwill, 2020). In case of passive filings, the median return is 0%, therefore the mean return with -1.07% is reported, as this variable exhibits no outliers (Schwill, 2020).

In case of active filings (as shown in panel A) the median is reported as this variable is skewed with many outliers. Table 6 shows both: the mean and the median for active filings as well as for passive filings. The results of both active and passive filings are significant compared to industry-adjusted level, as the industry-adjusted variable is the difference in the target firm's value and the median value for all firms in the Fama-French 30 industries classification.

Mean and median are statistical terms that have a similar role in terms of understanding. Both are statistical measures of central tendency making them comparable especially in cases with a low number of outliers. Both are reported to account for cases when the observed variable has outliers.

When considering panel B (omitting re-filings) (Schwill, 2020) the tendency of both active and passive filings do not change. For passive filings, the negative effect on abnormal returns becomes even higher, indicating that re-filings do not cause the same negative effect as initial 13G filings (Schwill, 2020). Lastly, for the change of the filing status (as shown in panel C), no significant deviation can be observed (Schwill, 2020). This could be due to the small-observed number of such filing status changes (Schwill, 2020).

Overall, the results suggest a significant difference between active and passive filings compared to industry-adjusted level. These results hold regardless of the filtering and the period considered.

4.3.6 Long-term Impact of Active and Passive Acquisitions

We now turn to an investigation of the long-term impact of acquisitions on target companies' financial health and fundamental parameters (Schwill, 2020). To that end, we consider the period up to 3 years after the acquisition (Schwill, 2020) (thus leaving out filings from our dataset, which do not date back sufficiently long) (Schwill, 2020). The variables of interest are once again (Schwill, 2020) Fundamentals and Financials, including ROA, EBITDA, Assets, Cash, Leverage and Dividend Yield to examine changes in the industry adjusted operating performance following the acquisition of a block (Schwill, 2020).

The industry-adjusted performance is represented by the difference between the target firm's accounting metric and the median (FF30) industry return. As mentioned in the theory section, hedge fund activists are often taking measures to restructure the target company's capital structure, increase dividend payouts and decrease cash (Schwill, 2020). These theoretical assumptions are to be proven empirically here, as set forth in Barber and Lyon (1996) (Schwill, 2020).

Table 7. Change in financial metrics as a function of the year after the initial filing of 13D/13G with the SEC. The industry-adjustments are the difference to the corresponding FF30 metric and reported in percentage points. All significance tests are based on Wilcox Signed Rank testing (Schwill, 2020).

Metric	Passive/Active	Stats	Year 1	Year 2	Year 3
ROA	13D	Median	-27.92%***	-0.06%*	-0.15%
		N	932	929	804
	13G	Median	-26.09%	-0.21%	-0.25%
		N	6911	6841	6054
	Difference		-1.83%	0.15%**	0.1%
EBITDA	13D	Median	6.29%***	2.70%	2.64%***
		N	913	870	746
	13G	Median	7.63%	2.18%***	2.40%***
		N	6706	6318	5615
	Difference		-1.34%**	0.52%	0.24%
Assets	13D	Median	4.45%***	2.92%***	5.11%***
		N	935	930	805
	13G	Median	4.11%***	0.28%***	0.32%***
		N	6924	6839	6057
	Difference		0.34%***	2.64%	4.79%**
Cash	13D	Median	-9.20%**	0.02%	0.00%
		N	911	912	791
	13G	Median	-13.98%**	0.00%	0.00%
		N	911	912	791
	Difference		4.78%	0.02%	0.00%
Leverage	13D	Median	-5.16%*	-0.01%	-0.01%
		N	932	926	802
	13G	Median	-6.99%**	-0.08%	0.01%
		N	6909	6828	6046
	Difference		1.83%	0.07%	-0.02%
Dividend yield	13D	Median	-4.06%	0.00%***	0.00%***
		N	448	460	393
	13G	Median	0.00%***	0.00%***	0.00%***
		N	3049	3137	2885
	Difference		-4.06%	0.00%	0.00%

*Source: SEC Sec. 13D/13G filings, automatically retrieved from the SEC EDGAR data portal API (https://www.sec.gov/edgar/searchedgar/companysearch.html), own calculations, * = 5% significance level, ** = 1% significance level, *** = 0.1% significance level (Schwill, 2020)*

As can be seen from Table 7, we can indeed empirically prove that hedge fund activists tend to target smaller underperforming firms, as shown by negative ROA and Cash ratio one year after hedge funds' acquisition. These findings are consistent with the literature (Karpoff, 2001). Note that all years are computed from the year of the initial event and its corresponding filing (Schwill, 2020).

Table 7 reveals that firms targeted by hedge fund activists as well as by passivists experience an increase in ROA in year 2 and year 3. 13D events seem to positively affect company's cash position in year 2 after the acquisition. The subsequent recovery in ROA and Cash ratio, for both 13D and 13G events, in year 2 and year 3 indicate an increase in operating performance over time. Improved operational efficiency can possibly be referred to divestures and an improvement in cash flows.

Assets of actively targeted firms increase in year 1 and year 3 after the acquisition indicating hedge funds' efforts to restructure their target firms. 13G filings representing firms passively targeted by hedge funds show a decrease in assets in year 2 and year 3 possibly indicating divestures by selling off unwanted assets.

EBITDA (Earnings before Interest Taxes Depreciation Amortization) decreases after the acquisition for both 13D and 13G events being positive in all three years, with the biggest impact in year 1 (Schwill, 2020). Actively as well as passively targeted firms experience a reduction in EBITDA in years 2 and 3. Surprisingly (and contrary to the literature), the leverage does not increase (Schwill, 2020). This result is interesting as it is in contrast to that of Klein and Zur (2009) who find significant increases in leverage for hedge funds' target firms (Schwill, 2020).

The dividend yield is not significantly different from the industry average, but dividends per share increased in year 2 and year 3 after the 13D event. This may partly explain the negative cash position in year 1 after the acquisition being consistent with hedge funds addressing agency costs associated with Jensen's (1986) free cash flow theory (Schwill, 2020). As firms are urged to pay large dividends (Klein and Zur, 2009), this has a direct impact on the cash flow.

4.3.7 Correlation to Fama-French 5 Market Factors

Lastly, the correlation between a portfolio consisting of active / passive targets and the Fama and French 5 market factors (Fama and French 1993) is investigated. The factors considered here are MKT, SMB, HML, RMW and CMA (Schwill, 2020). These are defined as follows: MKT: Market risk factor. SMB: "Small Minus Big" is the average return on the nine small stock portfolios minus the average return on the nine big stock portfolios (Schwill, 2020).

This definition follows the one set by Fama and French (1993). They define nine portfolios and provide numerical values for each of the factors in their repository. The reason they choose nine portfolios is that they are trying to represent a wide variety of companies in terms of market size.

HML "High Minus Low" is the average return on the two value portfolios minus the average return on the two growth portfolios (Schwill, 2020). RMW "Robust Minus Weak" is the average return on the two robust operating profitability portfolios minus the average return on the two weak operating profitability portfolios (Schwill, 2020). CMA "Conservative Minus Aggressive" is the average return on the two conservative investment portfolios minus the average return on the two aggressive investment portfolios (Schwill, 2020).

Table 8. Factors behind a portfolio of active/passive target companies, tracked over a period of 1 to 2 years after the acquisitions (Schwill, 2020). All factors are in line with (Fama and French 1993) definition (Schwill, 2020). *R^2* (R-squared) is reported to reflect how well the portfolio is represented by the factors (Schwill, 2020). In regression, the R^2 coefficient of determination is a statistical measure of how well the regression predictions approximate the real data points (Ren and Xiao, 2019). Regression as a statistical method attempts to determine the strengths and character of the relationship between the dependent variable and a series of other independent variables. All hypothesis tests are t-tests of the coefficients. "LASP" stands for long active, short passive, i.e., a portfolio of all target companies of activists being bought and those of passivists being short-sold (Schwill, 2020).

Portfolio	T	Alpha	MKT	SMB	HML	RMW	CMA	R^2
13D	(0,12)	-0.01***	0.86***	7.70***	-0.17	-0.35*	0.13	72.7%
	(0,24)	-0.01***	0.86***	0.73***	-0.15	-0.27	0.13	73.7%
	(0,36)	-0.01***	0.86***	0.75***	-0.14	-0.22	0.11	74.7%
13G	(0,12)	-0.01***	1.05***	0.77***	0.14	-0.60***	-0.19	89.2%
	(0,24)	-0.01***	1.07***	0.76***	0.14	-0.53***	-0.15	90.0%
	(0,36)	-0.01***	1.07***	0.77***	0.16*	-0.48***	-0.16	90.4%
LASP	(0,12)	0.01***	-0.82***	-0.59***	-0.13	0.48***	0.19	87.8%
	(0,24)	0.01***	-0.83***	-0.58***	-0.13	0.44***	0.16	88.8%
	(0,36)	0.01***	-0.83***	-0.59***	-0.14*	0.41***	0.16	89.3%

*Source: SEC Sec. 13D/13G filings, automatically retrieved from the SEC EDGAR data portal API (https://www.sec.gov/edgar/searchedgar/companysearch.html), own calculations, * = 5% significance level, ** = 1% significance level, *** = 0.1% significance level (Schwill, 2020)*

We observe that the active portfolio is highly correlated with the SMB (Small Minus Big) factor (strongest and highest coefficient), additionally indicating that activists mainly target small companies. Consistent with our observations in Table 7, we can confirm hedge funds' propensity to target smaller, underperforming firms. The high correlation of the active portfolio with the SMB factor suggests that the active portfolio (consisting of small cap companies) might outperform the market in the long run (Schwill, 2020).

The active portfolio is also highly correlated with the overall market (Schwill, 2020). Interestingly, and contrary to studies by Clifford (2008), the alpha factor of firms targeted by activists is not positive, at least not averaged over the whole 2009–

2019 period (Schwill, 2020). The negative alpha might be attributed to the high correlation with the SMB factor as the active portfolio consisting of small cap companies (Schwill, 2020).

The alpha factor is a measure of the active return on an investment compared to a suitable market index. An alpha factor of 1% over a given period indicates the investment's return being 1% better than the market.

For the 13G portfolio, we see an overall similar picture, although the impact of the SMB factor is clearly lower (Schwill, 2020). We also see that the RMW factor is correlated negatively, indicating that weak companies are targets of such filings (Schwill, 2020). Lastly, insignificant coefficients of HML and CMA indicate that these factors are not considered by hedge funds when looking for suitable acquisitions (Schwill, 2020). All R^2 values (R-squared) are very high throughout, indicating that all portfolios are well reflected by the market factors (Schwill, 2020).

As the R^2 is a coefficient of determination to indicate model efficiency, we report it to measure explanatory power (Ren and Xiao, 2019). In our analysis, the indicator R^2 shows how well the portfolio is represented by the 5 market factors (Fama and French 1993). The R^2 explains to what extent the variance of the response variable is explained by the variance of the independent variables.

For example, an R^2 of a statistical model of 50% means that, approximately half of the observed variation can be explained by the model's input. An R^2 of 100% means that all movements of - for instance - the returns of a portfolio are completely explained by movements of the market factors used in the model.

$$R^2 = (1 - unexplained\ variation)/(total\ variation)$$

When comparing an active and a passive portfolio (LASP) directly (Schwill, 2020), we see a significant overperformance in each of the 1-year, 2-year, and 3-year periods following the acquisition, as indicated by an alpha of 0.01 (Schwill, 2020). This means that on average actively targeted companies overperform both the industry standard and the passively targeted companies (Schwill, 2020). The results are consistent with findings by Clifford (2008). Using the Fama and French 5 market factor model, the standard procedure is to estimate an alpha (Fama and French 1993; Schwill, 2020).

All estimations are stable over the years, as we estimate a monthly alpha for three distinct event periods. Given the different market phases throughout (Schwill, 2020) this period, we observe that these patterns hold independently of the current market cycle (Schwill, 2020).

4.3.8 Association between Hedge Funds and Underperforming Firms

Financial economists commonly look at a firm's industry-adjusted level in terms of Q (Tobins' Q) and ROA, as a positive level of industry-adjusted Q or ROA indicates the potential of a company in its operating performance to outperform its industry peers (Bebchuk et al., 2015). Contrary to that, a negative performance in Q and ROA is signalling underperformance.

Tobin's Q represents a metric used most by financial economists to analyse a firms' operating effectiveness (Gompers, Ishii and Metrick, 2003). Tobin's Q, for simplicity named "Q", provides an indication of the efficiency of governance arrangements, the existing ownership structures and serve shareholders to assess the efficiency of rules enforcing investors' interests.

Therefore, it can reflect all effects coming up through all channels like a given arrangement, a structure or firm event to impact firm value, i.e., of value accruing to shareholders. Tobin's Q is a metric being most informative to analyse a firms' performance and prospects (Bebchuk et al., 2015). The definition of Tobin's Q is available in: 8 The New Palgrave Dictionary of Economics 316, 316-17 (Durlauf & Blume).

ROA reflects the earning power, which can be thought of as the effectiveness of a firm using its assets to generate earnings for its investors (Bebchuk et al., 2015). Tobins' Q might qualify as the more informative of a firm's performance and prospects (Bebchuk et al., 2015).

Researchers discuss findings of a reduced increase in Tobin's Q of target firms in the long-term after hedge funds' interventions, in comparison to control samples (Bebchuk et al., 2015). This may indicate the existence of a mechanism other than hedge funds' activism that is more effective in improving the performance of poorly performing firms. The initial underperformance might facilitate reversion toward the mean (Bebchuk et al., 2015; Coffee and Palia, 2015). Findings by

Bebchuk et al. (2015) may suggest a pattern, that hedge fund activists do not target well-performing companies and tend to select temporarily undervalued firms.

Cremers et al. (2018) show the importance of selection effects and confirm the ability of hedge fund activists to identify undervalued firms. It can be inferred that hedge fund activists have insider private information, not yet incorporated in the stock price of a potential target firm.

In theory, hedge funds' ability to identify undervalued stocks of target firms suggests strong selection and analytical skills. Increased value of target firms might not only be explained by activist campaigns per se; managers and directors of targeted firms may take various actions to turn these firms around (Brav et al., 2015b).

Greenwood and Schor (2009) argue that hedge fund activists have limited impact on the corporate governance of target firms. Finally, hedge funds intend to see those targets being bought out. As hedge funds need to post high returns to their investors in a relatively short amount of time, a long-term advisory relationship with a target firm is less attractive. They rarely pursue outcomes other than a takeover – as a key parameter for the activist business model – (Becht et al., 2017), although a long-term relationship could potentially be value increasing.

Furthermore, Greenwood and Schor (2009) associate activism requiring the sale of assets with highest returns in both in the short-term around the announcement date and in the long run. Any other type of activism does not qualify to influence a target's returns other than in the short period around the filing event. Undervalued target firms face the probability to be ultimately acquired, while the returns to activism reflect enhanced probability of a future takeover premium.

Research by Brav et al. (2015b) find increased plant-level productivity of targets, i.e., plants sold after hedge fund interventions with enhanced production efficiency. Increased share repurchases and reduced cash holdings and capital redeployment of target firms result in larger increases in profitability compared to matched control samples.

Brav et al. (2015b) refute alternative explanations attributing improved profitability to mean reversion, to voluntary reforms by the management or to the stock-picking ability of hedge funds. They explore the causality between the

selection of firms and the effects observed afterwards. They argue, that given the nonrandom selection of target firms by hedge funds, to what extent (Brav et al., 2015b) the documented effects are causal. In particular, some unobservable firm characteristics may be correlated (Brav et al., 2015b) to the decision of hedge funds to target specific firms and firms' future performance.

Brav et al. (2015b) test the incremental effect of hedge fund interventions over stock picking, by exploring whether hedge funds are stock pickers, without adding value through their interventions (Brav et al., 2015b). As Brav et al. (2015b) test several specific alternative hypotheses about hedge funds' sophisticated stock-picking skills, the results contribute to the nonrandom selection of target firms and may reflect the propensity of hedge funds to target underperforming firms.

As hedge fund activists have a strong ability to time their stock sales, empirical analyses show lower positive BHARs (Buy-and-Hold Abnormal Returns) when hedge fund activists decrease their stakes, whereas the opposite is found when activists disclose increases in ownership. BHARs tend to be negative until 1 day prior to the purchase becoming positive on day 0, as event date, followed by a further positive trend in the stock price.

The highest abnormal stock returns occur after the disclosure of 13D filing, while BHARs tend to be lower before the higher ownership is disclosed. This indicates that hedge fund activists increase their stakes at a moment, when they can benefit from the relatively lower stock price. Hedge funds as stock pickers benefit from private information. They decrease their ownership to the announcement of good news about their targets gaining higher returns for their portfolios profiting from strong ability to time stock sales (Cremers et al., 2018).

A previously reported, an increase in ownership is followed by a likelihood of more than 60% that hedge funds file a 13D-Amendment. The likelihood for a further increase is nearby 69% in case of a previously reported increase larger than 1%. A similar pattern applies to a decrease of ownership (Cremers et al., 2018). All results suggest that hedge fund activists benefit from their strong ability to choose undervalued target stocks.

Cremers et al. (2018) argue, that a reduced value of a target firm (in comparison to the matched peer group) prior to a hedge fund's purchase, can be seen as a discount, as firm values progressively recover after the event year.

Cremers et al. (2018) attribute increased firm value, after a hedge fund's purchase of a stake, to the prior underperformance of a target firm.

The methodological challenge to compare the relative performance of targeted firms to a control sample mainly stems from creating an ex-ante control sample of target firms, which can potentially be targeted but are not. The matched control sample may show a low but stable performance and firm value, as it has not been performing as poorly for several prior years, as the firms targeted by hedge fund activists. This probably qualifies as explanation that control samples may not show such higher growth prospects than target firms (Cremers et al., 2018).

4.4 DISCUSSION

This study provides empirical results about hedge fund activism, the special role of hedge fund activists and how they affect shareholder wealth. The most recent filings of Section 13D and 13G allow analysing the impact of hedge fund activists on target companies, especially in terms of EBITDA, Cash and ROA (Schwill, 2020).

Target firms of hedge funds tend to outperform the market as represented by an appropriate index. An increase in leverage for target firms through hedge funds' interventions cannot be confirmed empirically. The Fama French 5 factor analysis provides evidence of the preferences of hedge funds when selecting their targets (Schwill, 2020). The results suggest that hedge funds tend to target smaller, underperforming firms.

While all studies concentrate on U.S. targets only, hedge fund activism is a relevant and interesting topic worldwide. It is subject to ongoing research to investigate how hedge fund activism is affecting public companies globally (Schwill, 2020).

Long-term returns are difficult to estimate and test precisely. Barber and Lyon (1996) illustrate the difficulty in developing valid (deHaan et al., 2019) and appropriate benchmarks for assessing changes in operating performance (deHaan et al., 2019). Additional covariates as for instance, sales growth, analyst coverage, complexity of the firm's business, asset turnover or spread over the borrowing costs could broaden research settings by delivering complementary information (Barber and Lyon, 1996).

A further interesting topic could be to shed more light on the long-term effects of hedge funds' activities. Chapter 5 provides analyses focusing on both: operating performance and shareholder value at the time of acquisition and in the years after the acquisition, a proxy for the long-term development. To that end, we follow another approach by considering how companies perform after hedge funds exit their positions, i.e., what happens after the stake is either significantly reduced or sold off.

The proposition that hedge funds activities might negatively affect shareholder value of target firms in the long-term suggests that up-ticks in stock prices following 13D filings are due to inefficient market pricing. In case of market inefficiency, the market fails to perceive the expected long-term costs of activists' interventions. Furthermore, the initial positive abnormal returns are expected to develop into negative returns in the long run and neutralising initial gains (Bebchuk et al., 2015). The following chapter attempts to analyse whether a long-term reversal of abnormal returns occurs.

5 HEDGE FUNDS' PROPOSALS, PROFITABILITY AND BEHAVIOURAL ASPECTS

Hedge fund activism is developing as a new form of effective corporate governance as hedge funds take on the role as active key intermediaries (Bebchuk et al., 2015). The literature describes hedge funds as the appearance of entrepreneurial intermediaries obtaining their results through governance by referendum. The empirical parts of Chapter 5 use the expression "we" which is aimed at the attention of the reader.

5.1 BOARD REPRESENTATION BY HEDGE FUND NOMINEES

Empirical research shows that hedge fund activists successfully placed their nominees on corporate boards as they netted a record with 131 board seats in 2016 for their own nominees. To gain these seats, activists ran 149 campaigns to secure themselves board representation (Coffee et al., 2018); while the majority of these seats were gained through private agreements and without shareholder votes. Institutional investors consider these private settlements as a process of disenfranchisement.

Private settlements may offend shareholder rights, i.e., of shareholder democracy as empirical evidence was found about a previously unknown pattern by analysing private settlement agreements (Coffee et al., 2018). In target firms where hedge fund activists nominated or appointed their own “activist-directors”, a pattern of “information leakage” begins. This “information-leakage” may open the door to informed trading by incorporating material, non-public information into the target firms’ stock price. Informed trading can be associated with agency cost that the other shareholders bear (Coffee et al., 2018).

Most academic literature welcomes hedge fund activists as agents of positive changes restructuring target firms and getting support from other shareholders for their proposals (Brav et al., 2008a; Bebchuk et al., 2015; Coffee et al., 2018). However, their proposals seek to increase leverage of target firms, trim marginal operations and pursue changes in board composition.

As incumbent management respond to hedge fund activists' proposals, this may create a picture of shareholder democracy, as the decision maker is the balance of shareholders (who are large and more diversified as the hedge fund itself). Thus, hedge fund activists act in the mutual interest of themselves and shareholders who have the power of balance (Coffee et al., 2018).

With a more skeptical view, it turns out that private settlements may result in different outcomes than shareholder elections do. Recent literature describes the reality that only a few shareholders vote on activists' proposals and the director nominees. Thus, the result or settlement hedge fund activists achieve are through private negotiations with incumbent management of a target firm and often accompanied by private benefits to hedge funds. These private benefits are not available to other shareholders (Coffee et al., 2018).

The literature paints a picture of senior management that would rather settle than fight (and let all shareholders decide) and take a risk averse position, probably because their jobs may be imperilled (Coffee et al., 2018). Therefore, the majority of board nominees are the result of activists' pressure due to private settlements.

The target company's "permanent shareholders" begin to attack the private settlement process vocally and claim that de facto power has shifted to short-term activists (hedge fund activists), whose interests are often not aligned with those of other shareholders (Schneider and Ryan, 2011), i.e., that the loyalty of activists cannot be automatically assumed (Coffee et al., 2018).

Settlements between hedge fund activists and target firms represent the channel through which activists' influence is transmitted on incumbent management (Bebchuk et al., 2020). Terms of settlements often focus on board composition rather than commitments of direct action, that kind of operational changes and leadership changes that activists finally seek. As a settlement agreement is an alternative to a contested vote, a settlement requires concessions on both sides.

With regard to activists' concessions, incumbent management entering a settlement has the power to agree to specified operations or strategies of the company aligned to the direction favoured by activists. These agreements can involve share buybacks, dividend payouts, recapitalisation of the company as well as the replacement of the CEO (Bebchuk et al., 2020). Immediate concessions made

by targets' management can avoid a contested vote or even a formal settlement and make activists sufficiently content, i.e., that hedge fund activists drop their campaign.

Literature on economics of litigation and settlement shows of activist campaigns, either a settlement or a court decision as the final result. A plaintiff should have good odds to win a trial, or if not, the plaintiff will bear the costs of pursuing the litigation (Bebchuk and Klement, 2012). If the plaintiffs' odds are low and the activists' odds to put a credible threat on target firm are higher, a campaign will result either in a settlement agreement or in a contested vote.

Empirical evidence exists that settlements are more likely to achieve when activists are able to win a board seat (Bebchuk et al., 2020). A contested vote could impose larger reputational cost on incumbent management. Therefore, a rational activist might be encouraged to bear the costs of pursuing a proxy fight and winning seats on the board.

A change in target firms' board composition – by adding specified new directors replacing incumbent directors – aims to affect subsequent fundamental decisions in the future. Information on existing settlement agreements with activists must be disclosed by target firm, as required by the securities laws.

Information can be obtained via FactSet, Shark Watch, Capital IQ. The literature distinguishes between activist campaigns resulting in a settlement, activist campaigns resulting in a contested vote, and settlements with no formalised outcome (Bebchuk et al., 2020). Economic literature on settlements provides insights about the outcomes of activists' campaigns, why and when cases settle (Wickelgren, 2013; Spier, 2007).

As a key channel, settlements bring about board changes increasing the number of activist-affiliated, activist-desired and well-connected directors (Bebchuk et al., 2020). Key decision makers responding to hedge fund activists are CEOs and/or chair of the board. If hedge fund activists are successful in a contested vote in an upcoming shareholder meeting, with key decision makers on incumbent team are up for election, incumbent managers can experience a personal defeat and humiliation. The consciousness of high reputational costs pushes directors toward a settlement agreement (Coffee et al., 2018).

Settlements occur when frequency attracting media and practitioner attention. Terms of settlement agreements are important to corporate governance influencing board composition of target companies. Therefore, the mechanism of settlement agreements is important to understand and its impact on the stock market reaction that accompanies activism.

As documented in the literature, settlements are accompanied by positive stock returns, especially when settlements lead to an immediate strategic transaction or a high volume of board turnover. The ability of hedge fund activists to produce settlement agreements is associated with a higher level of abnormal returns for target firms around the initial 13D filing. This is consistent with the before mentioned favourable market reaction about settlements that include boardroom composition or other changes with high impact (Bebchuk et al., 2020).

No evidence is found about those changes to be detrimental or disruptive to target's shareholders (Bebchuk et al., 2020). A settlement on board changes may be an intermediary step for more operating effectiveness or strategy changes by nominating individuals into the boardroom, whose interests are overlapping with those of the activist (Bebchuk et al., 2020). Settlements on board composition might decrease the number of old and long-tenured directors and are often accompanied by an increase in CEO turnovers in the years following the settlement.

Despite the fact that settlements do not require any specific operational changes, empirical evidence is found that settlements lead to increased payouts to shareholders and improve the operating performance of target firms (Bebchuk et al., 2020). Thus, the driving force for settlements is efficiency gains – shared by both parties – hedge fund activist and the target firm. The economic literature and economic logic on settlement agreement indicates and/or implies, that the threat of large trial costs may be a strong incentive to settle (Spier, 2007; Prescott and Spier, 2016).

Bebchuk et al. (2020) consider the expected costs of reputation for a contested vote as most detrimental to incumbent directors of target firms. Attacks on incumbent directors by the activist can lead to substantial reputational costs, which incumbent directors might have to bear (Fos and Tsoutsoura, 2014; Gow et al., 2016). Even the fact of winning a proxy fight does not avoid reputational damage for the incumbent management of a target firm.

Additional to reputational costs, the activist's cost of running a proxy fight might rise to millions of dollars (Gantchev, 2013). Directors of target firms owning higher average number of directorship enjoying higher reputation stock, would lose more seats in case of a damaged reputation. Empirical studies document that directors, targeted by an activist campaign and holding directorships at other firms, take the risk of losing seats (Fos and Tsoutsoura, 2014).

In comparison to older incumbent directors who are unlikely to be present in the market for directorship for a long time, directors with higher stock of external reputation are expected to have higher reputational concerns in a contested vote process. The potential reputational consequences of a contested vote are more likely to affect directors' reputation, as a proxy contest is publicly visible by - for instance – analyst coverage (Vega, 2006).

The likelihood of success in a contested vote increases for hedge fund activists holding large stakes and therefore, providing them with votes. For other shareholders a large stake demonstrates an activist's confidence to potentially increase shareholder value of the target firm. This can help the activist to obtain votes from other shareholders. However, in past years (especially in the years 2015 and 2016) private negotiations dominated and appear to be an increasing trend. Incumbent management in election contest is probably aware about a defeat resulting in its eventual ouster.

Bebchuk et al. (2020) quantify the upward trend in activist settlements comparing them to contested votes. They find a much stronger increase in settlements than in contested votes. Bebchuk et al. (2020) suggest that the terms of settlement agreements commonly be expected to focus on board turnover. They find that hedge fund activists' settlements are accompanied by positive abnormal stock returns at the time of activist's initial 13D filing.

The market views the boardroom composition favourably, as well as the changes brought by activist's settlements. The friendly market reaction indicates no disruptive or detrimental effect to target firms' shareholders by activist's engagements (Bebchuk et al., 2020). Furthermore, Bebchuk et al. (2020) document that settlements are followed by increased payouts to shareholders and improvements in operating performance for target firms. As hedge fund activists'

proclaimed objectives include maximising the shareholder value of target firms, the claim of myopic-activism will be explored.

5.2 THE CLAIM OF MYOPIC-ACTIVISM AND ADVERSE EFFECTS

This chapter focuses on the validity of assertions that hedge funds are short-term activists at the expense of long-term performance of target firms. One strand of literature (Brav et al., 2015b; Brav et al., 2018) suggests that hedge fund activism improve the performance of target firms, benefitting all shareholders by promoting managerial and directional accountability (Bebchuk et al., 2015; Boyson et al., 2017).

Opponents of hedge fund activism have contended that substantial gains through hedge funds activities seem to impair long-term performance of target firms. Opponents argue that hedge fund activists' interventions are detrimental to firm value and the long-term interests of shareholders by relying on impressions and experience of themselves or others (Cremers et al., 2015). Furthermore, hedge funds activities may hinder the wealth transfer from other stakeholders, i.e., of existing bondholders (Klein and Zur, 2011).

Strong concerns about myopic-activist incentives have been expressed by noted economists, big corporations, legal academics and prominent lawyers (Bebchuk et al., 2015). They argue that only if the "electorates" of companies think and act long-term, the corporations can be managed for the long term. They are expressing concerns that activist hedge funds as shareholders make proposals that are not motivated to maximise the long-term value and profitability of target firms (Bebchuk et al., 2015). Thus, the threat of possibly shortsighted interventions by activists successfully affects decisions made by policy makers and public officials (Bebchuk et al., 2015).

The myopic-activists claim appeared as a central theme in debates over shareholder activism, especially about the activities of hedge fund activists. According to the claim, activist hedge funds seek to push through their actions, which are profitable in the short-term, but do not lead to higher market evaluation for target firms reducing the shareholder value in the long run.

Bebchuk et al. (2015) find that the considered claims and concerns are not supported by data. They argue that policymakers and institutional investors

should reject any use of such claims that activist interventions are costly to target firms and their shareholders in the long-term.

Bebchuk et al. (2015) document, that in opponents' views, the drivers for hedge fund interventions are incentives to increase short-term stock prices at the expense of target firms' long-term performance by reducing the funds for long-term investments. Supporters of the myopic-activists claim have dismissed the evidence of significant positive stock price reactions surrounding the announcement date of a schedule 13D filing (Bebchuk et al., 2015) that activists purchasing a stake of more than 3% are subject to.

Opponents of hedge fund activists argue, that short-term positive stock price reaction merely reflects the inefficient market, which fails to reflect the costs of long-term declines in performance (Bebchuk et al., 2015). Due to inefficient capital markets, hedge funds might be able to engineer a temporary boost in stock price helping to capitalise on short-term gains in stock price and can come at the expense of long-term shareholders (Bebchuk et al., 2015). Especially, if activist hedge funds force target firms to abandon investment projects, which bring out a positive net present value and additionally, cutting expenditures in assets or in research and development (R&D).

Bebchuk et al. (2015) reported that prominent supporters of the myopic-activist claim posed the question whether companies subjected to an activist campaign and remaining independent, see a positive impact on their operational performance and stock price performance – in relation to the benchmark – after a long-term period.

Critical voices from prominent Delaware judges, such as Leo Strine Jr. and Jack Jacobs, as well as of noted economists stated the essential problem that activists pursue the goal to achieve a short-term spike in stock price of target firm and to book quick profits (Bebchuk et al., 2015).

Bebchuk et al. (2015) report concerns that activist hedge funds may use their power to induce pressure on the management to meet quarterly goals. Hedge funds require payouts in extra dividends, stock buy backs in lieu of pursuing long-term growth for the company. After these certain types of changes, activists might induce and bail out. Bebchuk et al. (2015) do not confirm that a hedge fund's exit is followed by long-term negative abnormal returns.

Opponents of hedge fund activism also expressed concerns that activists might pressure the management to cut expenditures in research and development, capital expenditures and new business ventures and make them believe to pay off only in the long run.

Furthermore, supporters of the myopic-activists claim argue that short-term oriented hedge fund activists are preying on American companies to create short-term increases in the market value of their stock price (Becht et al., 2017) and thus, the short-termism fixation has led to the financial crises in 2008-2009 (Dallas, 2012; Bebchuk et al., 2015).

The impact of supporters of the myopic-activists claim and attention they get in public is partly due to the gravity of assertions (Bebchuk et al., 2015). These assertions are registered with prominent Delaware judges (Bebchuk et al., 2015). The influence of short-term activists is discussed to create a national problem that need to be fixed (Bebchuk et al., 2015). Thus, the myopic-activists' claim have been discussed critically in attempts to limit the rights of institutional shareholders (Bebchuk et al., 2015). For further policy debates, empirical evidence would help to shed light on the validity of this claim.

The gravity of asserted concerns may be explained by hedge funds' actions, which range from modest proposals to more radical interventions, such as firing the CEO or divesting assets. Bebchuk et al. (2015) classify hedge funds' actions as "adversarial interventions", if they employ confrontational tactics. Thus, hedge funds seek to force governance changes to improve the operational performance of target firms. Activists hope to benefit from the appreciation in the value of their stake as a result of implementing operational changes (Kahan and Rock, 2007).

The development of operational changes first requires the acquisition of company-specific information. Gathering intangible information and trading on intangible information causes the stock prices to reflect fundamental value, i.e., of enhanced firm value rather than current earnings.

The mechanism of informed trading by hedge funds gathering information about a firm's fundamental value indicate that hedge fund activists might impound long-term investment in target firms. Theoretically, outside blockholders may induce managers to undertake efficient real investment. Activists encourage

incumbent managers to undertake long-term investment as a primary challenge a modern company is facing (Edmanns, 2009).

As the "Wall Street Rule" indicates, trading on private information causes the prices to reflect fundamental value and encourages managers to invest in long-run growth rather than in short-term profits. This is contrary to the view that transient shareholders, i.e., short-term activists exacerbate myopia. Research by Coffee and Palia (2015) identify the former "Wall Street Rule", as institutional investors being dissatisfied with the incumbent management, sell their stocks without attempting to intervene or challenge the management.

The literature shows that blockholders add value to target firms without "voice", i.e., control rights and conflicts by efficient interventions (Edmanns, 2009). In contrast to blockholders without control rights, hedge fund activists with control rights may exert governance and force incumbent managers to undertake myopic decisions. Therefore, to the extent that activists are short-term oriented, they probably add more value to target firms if they lack control rights.

Maximising their own profit, hedge fund activists engage in informed trading as a base of long-term investments in target firms. Given, that a short-term activist tries to induce myopia by posing a threat to incumbent management to sell the stake if earnings are low, a lack of credibility and inconsistence emerge, because the public announcement of low earnings may be immediately incorporated into the stock price and trigger a sharp drop.

Thus, due to market reaction, an activist cannot obtain profit by selling the stake. Given the efficiency of capital markets, the announcement about weak earnings causes the market to react negatively and removes incentives for hedge fund activists to exit and sell their stakes upon interim losses.

As a consequence, the activist increases investment ex-ante retaining the stake being aware of interim turbulence, although liquidity allowing activists to sell upon weak earnings. The arrival of hedge fund activists allows incumbent management to pursue investment projects that previously should be avoided owing to fears of interim turbulence.

Liquidity encourages exit and hinders loyalty, making managers even more concerned about earnings (Bhide, 1993). The power of loyalty depends on the threat

of exit and although both are mutually exclusive, complementarities between both exists.

In debates in the past, Porter (1992), Thurow (1993) called for policy changes to reduce liquidity (for U.S. capital markets) arguing that liquid capital markets may hinder long-term investment. Liquidity is supporting the possibility of an exit and encourages interventions, as it allows the stock price to reflect value gains and reflect the blockholder to earn a return in case of an unexpected exit (Faure-Grimaud and Gromb, 2004).

Concerning market illiquidity compelling hedge fund activists to hold their stakes for the long run, it does not affect stock prices and investments. These findings show an important distinction from intervention models, claiming that activists use their control rights. Blockholders without control rights, selling their stakes in the short term, create firm value and thus promote investment (Edmanns, 2009).

The productivity of an investment is observable but it may not be incorporated by the market if it is intangible (Edmanns, 2009), whereas the total quantity of R&D and capital expenditures can be verifiably documented in financial statements in comparison of its quality.

CEOs of target firms may disclose the amount of investment but incentives to invest are very low, since atomistic shareholders are unable to value productive investment and distinguish it from wasteful expenditure (Graham et al., 2005). Empirical evidence is found about a positive correlation between ownership concentration and the value of innovation by R&D (Lee and O'Neill, 2003; Baysinger et al., 1991).

Empirical studies by Bebchuk et al. (2015), spanning a five-year period show inconsistency to the myopic-activists claim associating activist interventions with short-term gains. Their findings do not support the claim that short-term gains during the first two years cannibalise performance in subsequent years and are followed by long-term declines in performance.

Bebchuk et al. (2015) argue that policy decisions should not be based on reported individual experience, estimated long-term outcomes or self-reported impressions. Propositions concerning the financial performance and stock returns

of public companies should be warranted by data and clear test using available and objective data (Bebchuk et al., 2015).

Bebchuk et al. (2015) find that the identified improvements in operating performance of target firms are justified through the costs of interventions that activists have to bear. Activists might have strong incentives to avoid costs of engagements, if they would not subject the improvements in operating performance of target firms to engagements.

Subsequent improvements in operating performance may follow a subset of activist interventions that employ adversarial tactics, due to the resistance of a target firm (Bebchuk et al., 2015). Some may believe that improvements could be performed by incumbent management without any interventions of activist hedge funds. The view that interventions contribute to activists' success is consistent with the literature (Klein & Zur, 2007).

The results suggest that the long-standing claim of myopic activism is not supported by data (Bebchuk et al., 2015). The initially favourably positive stock-market reaction (Brav et al., 2008a) cannot be interpreted as a myopic market reaction failing to reflect the subsequent negative returns that are experienced by long-term shareholders.

Opponents argue that the initially positive stock-market reaction reverses in the long run by turning to negative abnormal returns. Hedge fund activism that reduces the wealth of shareholders wipes out the initial positive abnormal returns (Bebchuk et al., 2015). These assertions have empirical implications and can be tested with public data.

5.2.1 Hedge Funds' Voting Power and Credibility

During a period from 2008 until 2016, the hedge fund activist industry has shown growth and more dispersion. Hedge fund activists demonstrated the ability for more success in their difficult interventions by overcoming strong anti-takeover defences, replacing board members and successful proxy fights. As shareholders, they show excellence in selecting target firms as well as the ability to gain extraordinary market returns (Brav et al., 2008b; Bebchuk et al., 2015).

A set of explanatory variables serves as proxies for activist hedge funds as shareholders having good odds of winning a contested vote (Bebchuk et al., 2020; Bebchuk and Klement, 2012). A large stake provides activists with voting power and increases the chance of winning a potential proxy fight (Bebchuk et al., 2020).

The target firm's past performance in association with a large stake may be a strong incentive for activists to increase firm value. At the same time, it is a signal of activists' confidence in the prospect of value appreciation and helps to obtain more votes from other shareholders strengthening the position of activist.

Conversely, a larger insider ownership of incumbents, i.e., when incumbent management hold a larger stake than the activist in the target firm, is associated with lower odds by the activist to gain power for a victory in a contested vote (Bebchuk et al., 2020).

With regard to the share-class structure of a target firm, activists' power may be diminished by a share structure with multiple classes. In such cases, insider or affiliated shareholders are likely to hold a disproportionally large stake of shares with superior voting rights. Thus, the empowerment of activist hedge funds will be decreased and conversely improve insiders' chance to prevail in a contested vote (Bebchuk et al., 2020).

A high initial market reaction on activist campaigns reflects the market view that activists are capable of increasing shareholder value in target firms. Thus, other shareholders are likely to support hedge fund activists in a contested vote. An average successful track record in past engagements may be associated with good relationship with other institutional investors and a strong reputation among other shareholders. Both strengthen the activists' chance to win in a contested vote (Bebchuk et al., 2020). A track record of obtained settlements in past campaigns demonstrate the activists' empowerment, i.e., of ability and characteristics, that is likely to be associated with improved chances in a contested vote during campaigns.

Bebchuk et al. (2020) argue that activists should be open to run a proxy fight, as their expertise and resources would empower them to prevail in a proxy contest. A number of proxies for the credibility of an activists' threat are related to the probability of a successful campaign. In more detail, the reputation of an activist supported by positive market reaction in past campaign announcements and,

additionally, a large number of past campaign successes strengthen the credibility of an activist's threat (Bebchuk et al., 2020).

In the literature, empirical evidence is found that the mere number of activist campaigns in the past does not increase activists' credibility (Bebchuk et al., 2020). A track record of successful proxy fights is related to a high level of credibility and suggests the propensity of hedge fund activists to reach the proxy vote stage again.

Settlement agreements are more likely to stipulate a board turnover than direct actions, which end in a sale or merger of the target firm. Results are significant at the 0.1% level based on empirical studies in the time period of 3 years with a sample of 399 settlements in the period 2000 to 2013 by Bebchuk et al. (2020). Evidence is documented that credibility of activists' threat support settlement negotiations empowering the activists to contract for board changes.

The results by Bebchuk et al. (2020) imply the importance of the credibility of hedge fund activists' threat and thus empower activists to successfully push through their demands during campaigns. The efficiency gains by avoiding the deadweight costs of trial could be shared by both sides - the activist and incumbent management. The large trial costs of running a proxy fight qualify as incentive for incumbent management to agree to a settlement (Spier, 2007).

The number of proxies like reputation and the ownership structure influence the credibility of activists' threats and thus, affect the achievements of hedge fund activists during campaigns, whether to end with or without a settlement or a contested vote.

5.2.2 Hedge Funds' Reputation

To analyse the markets' reaction to activist hedge funds interventions, it is helpful to have a picture of the importance of hedge funds' reputation. As a key variable "reputation" affects each stage of the activism process. A special definition about reputation is found in the literature as the probability that activists' aggressive behaviour on previous campaigns remains for further interventions (Kreps and Wilson, 1982; Millgrom and Roberts, 1982).

High reputed hedge funds are able to initiate campaigns in the first stage. They anticipate that targets, threatened by costly proxy fights, settle more

frequently with high reputed activists in the second stage. Therefore, hedge fund activists value higher reputation and even if a single campaign of hedge funds is not profitable, they initiate campaigns and proxy fights as an investment in reputation (Johnson and Swem, 2019).

Empirical studies by Brav et al. (2010) and Denes et al. (2017) utilise a structural approach to find out the effect of reputation on proxy fights. Related studies by Krishnan et al. (2016) document that short-term stock returns and the long-term performance of target firms are both significantly higher after campaigns of highly reputed hedge funds.

Johnson and Swem (2019) find that reputation measures to hedge fund's reputation are the frequency of filings, i.e., interventions and the related success supported by their demonstrated ability and expertise. Intervening more frequently, hedge fund activists can acquire a positive reputation. Frequent and rapid investment decisions demonstrate their skills in order to be participants in a wide range of industry and business areas. To be involved in relevant procedures or practices paired with evidenced high returns can strengthen their reputation. The reputation of being successful is rewarded by the market (Zur, 2008), the long-standing literature document a positive relationship between returns and reputation (Stickel, 1992).

To mention a positive example supporting the "past returns" theory, Potomac (an activist with strong past returns) acquired a 9.8% stake in Protalix Biotherapeutics (PLX) that subjected Potomac to a 13D Filing with SEC, and caused the market to react with CARs of 2.9%, 5% and 18% at its peak, by a 3-day, 7-day and 21-day event-window, respectively (Krishnan et al., 2016). The "past returns" theory is supported by findings of Boyson et al. (2015) and Boyson et al. (2020), that investors with a strong past performance acquire a positive reputation.

Krishnan et al. (2016) explain the success of some top activists by reputation, hedge fund activists acquired in demonstrating the ability to pressure managers in credible ways. The findings by Krishnan et al. (2016) are based on the examination of reputed hedge funds during the "second wave period". Reputed hedge funds show more aggressive characteristics (Johnson and Swem, 2019) in the media to generate pressure on target boards. Success appears to result more from board

representation and monitoring the management than from capital restructurings of dividend policy changes (Krishnan et al., 2016).

The association between hedge fund activists' ranking to be among the "Top Investor Hedge Funds" and large target firms is documented by Krishnan et al. (2016). Activists with "high reputation" seem to prefer investments in large target firms in both terms - total assets and market capitalisation - in comparison to hedge funds seeking smaller possibly undervalued and underperforming target firms (Karpoff, 2001).

The average annual dollar investment as an important deal feature evidences the association between "Top Investor Hedge Funds" and reputation (Krishnan et al., 2016). These activists gain significantly higher abnormal returns around the announcement period compared to hedge funds focusing on smaller targets; especially in the period between 2011-2014. The period after 2008 until 2014 (identified in the literature as "second wave of hedge funds activism") represents the period after the financial crisis and is an important sample period to study the frequency and outcomes of how hedge fund activists' campaigns (Krishnan et al., 2016).

5.2.3 Empirical Study: Setup, Data and Results

To shed light on the assertions of myopic activism, a study on the effect of hedge fund activism is conducted over a 5-year period after hedge funds interventions. The dataset includes information drawn from disclosures of SEC database of filings (Edgar 2019), to retrieve all Section 13D filings for the period of interest.

Standard sources like - Compustat for operating performance data, as well as the Center for Research in Security Prices (CRSP) for stock return data are used. The focus of this empirical research is to study the long-term effects of activists' interventions on both operating performance and shareholder wealth.

5.2.4 Metrics of Performance

The objective of the empirical analysis in the following is to investigate and test, whether long-term returns to targeted companies are lower than those of "matched" firms, as these firms are similar in terms of size and book-to-market ratio. To study how operational performance and stock performance relative to a benchmark evolve, the metrics Tobin's Q and ROA are examined over a five-year period.

Tobin's Q, just as "Q" for readability is defined as the ratio of market value of equity, book value of debt to the book value of equity and book value of debt (Cremers et al., 2018). As is usual for accounting-based metrics, both ROA and Q are reflecting certain aspects of a company's performance while neglecting others (Bebchuk et al., 2015). Tobin's Q is an indication of the efficiency of governance arrangements and is used to analyse a firm's operating effectiveness (Gompers et al., 2003). For a detailed discussion of advantages and disadvantages of Q, we refer to Lipton (2013).

The second metric being chosen for the following analysis is "ROA", reflecting the earning power of a corporation with regard to a specific business (Bebchuk et al., 2015). ROA (Return on Assets) represents the ratio of operating income before depreciation to the book value of total assets (Cremers et al., 2018) and indicates how profitable the company is relative to its total assets. A high ROA indicates solid operational performance and shows the investment return of a specific firm deal, while neglecting any leverage impact.

To be able to compare target companies to their peer groups, an industry is assigned to each firm as defined by Fama-French 30 industries classification. For each company, the firms with the same three-digit industry classification (SIC3) is identified to define the industry-adjusted level of Tobin's Q and ROA. The idea is to compare "apples-to-apples" as the classification maps each SIC code of a company to the corresponding industry, because industries might differ significantly in their levels of Q and ROA (Bebchuk et al., 2015).

In the subsequent Table 9 summary, statistics are presented by using industry-adjusted levels, measuring industry-adjusted operating performance by Tobin's Q and ROA. The target firm's industry adjusted level of Q or ROA represents the difference between the firm's level and the industry's mean or

median level. Researchers commonly base their analyses on levels of Q and ROA on industry-adjusted levels to best asses the operating performance of target firms (Bebchuk et al., 2015).

5.2.5 Data and Descriptive Statistics

In the analysis, we follow an approach presented by Bebchuck et al., (2015) and consider the industry-adjusted performance of target companies up to 5 years after the initial filing.

The study uses a dataset consisting of approximately 2,000 active and 12,000 passive interventions by hedge funds in the period of 2009 to 2019. This is the same dataset as used in Chapter 4. This dataset includes additional filings from the year 2020 up to around February, which is the month of cut-off for the analysis. For each activist engagement, the "intervention time" is identified - as to follow the approach presented by Bebchuk et al. (2015) - in which the activist initiative was first publicly disclosed (usually through the filing of a Schedule 13D or 13G in case on non-active investments).

The operating performance and stock returns for companies during five years following the initial filing are tracked. The dataset for each analysis is further restricted by data availability, i.e., in cases where a filing was made for a company with no publicly available data or insufficient data quality, the company is taken out of the set. The same applies to companies with insufficiently long history after the filing event. These are taken out of the sample as insufficient data might skew the results.

While several alternative measures have been proposed in the literature, we stick to these two standards for two reasons. First, they allow for direct comparisons to other studies. Second, they are readily available for computation based on publicly available information. For company-level data, we rely once again on Orbis, Compustat, Gurufocus and Bloomberg. Since not all companies remain in the dataset for 5 years (some become acquired, some disappear), we filter our dataset by those companies for which we observe the whole 5 year period after the initial filing.

Since this kind of filtering is prone to survivorship bias, an alternative analysis is conducted, keeping all companies in the sample and weigh each

observation by the number of years it remains in the dataset. Comparing both approaches allows ruling out a strong effect of the survivorship bias as discussed below.

We furthermore distinguish between 13D and 13G filings. Our results of time-weighted averages vs. keeping all companies in-sample show that the deviations in estimated ROA and Q are not significant. ROA deviates by around 1.5% on average, while Q deviates by around 3%. The results of the hypothesis tests are also largely the same in both cases.

To conclude, the analysis is not prone to this bias like findings by Bebchuk et al. (2015). It might be due to the companies being acquired and disappearing from the dataset rather than disappearing from the dataset due to going out of business. Therefore, the performance of companies remaining in the dataset is comparable to those leaving the dataset, as there are no significant differences in performance causing such shifts.

We see a pattern of underperformance of companies at the year of hedge funds purchasing the stake. This can be explained by the motivation of hedge funds to acquire these companies with potential to improve operating performance.

Table 9 shows the evolution of ROA and Q at the time of the acquisition in terms of both - 13D and 13G filings - nearly the same pattern, i.e., of an initial significant negative average performance recovering (compared to their industry adjusted peer group) over the analysed time period of five years. ROA as well as Q increases over time during the five-year period following the intervention year.

Table 9. Companies' performance measured as ROA and Q, up to 5 years after the 13D/G filing. Only companies with all 5 years of observations are kept in the sample. This rules out around 30% of all observations reported above. The industry adjustment is being computed by averaging all observations within one industry and then measuring each individual company's performance as excess to the industry average. All significance tests are based on Wilcox Signed Rank testing.

Metric	Type	Stats	Year 1	Year 2	Year 3	Year 4	Year 5
ROA	13D	Average	-11.92%***	-0.61%*	-0.15%*	-0.001%	-0.002%
		Median	-5.01%**	-0.33%*	-0.01%	-0.001%	-0.001%
		Standard Deviation	0.003	0.001	0.011	0.011	0.012
		Observations	652	652	652	652	652
	13G	Average	-10.05%***	-0.50%*	-0.11%	-0.01%	-0.21%
		Median	-3.00%**	-0.21%	-0.11%	-0.10%	-0.01%
		Standard Deviation	0.004	0.001	0.003	0.001	0.002
		Observations	6544	6544	6544	6544	6544
Q	13D	Average	-24.22%***	-21.01%**	-21.05%**	-13.10%*	-11.05%*
		Median	-31.01%***	-30.15%**	-28.11%*	-29.01%*	-14.02%*
		Standard Deviation	0.044	0.03	0.031	0.029	0.027
		Observations	651	650	648	648	648
	13G	Average	-22.98%***	-22.53%**	-18.01%*	-17.40%*	-10.01%*
		Median	-28.05%***	-23.11%**	-17.55%*	-17.41%*	-11.05%*
		Standard Deviation	0.065	0.071	0.033	0.020	0.011
		Observations	6533	6533	6530	6530	6530

*Source: SEC Sec. 13D/13G filings, automatically retrieved from the SEC EDGAR data portal API (https://www.sec.gov/edgar/searchedgar/companysearch.html), own calculations, * = 5% significance level, ** = 1% significance level, *** = 0.1% significance level*

In year 1, the ROA shows a significant negative average performance of nearly -12% (compared to the peer group). Table 9 shows a recovery of ROA of more than 11% in year 5 for 13D filings, i.e., for actively targeted firms. 13G filings, i.e., of passively targeted firms show the same pattern; an initial significant average negative performance in ROA of -10.05% is followed by a significant average ROA recovery of nearly 10% in year 5.

In terms of Q, Table 9 shows an initial significant average negative performance in year 1 of -24,22% (in comparison to the industry adjusted average)

followed by a recovery in year 5 of more than 13% up to -11,05%. Q increases in each year after the 13D filing. Nearly the same pattern appears for 13G filings, i.e., for firms that are targeted for passive purposes.

It can be observed that the pattern of initially low performance, i.e., the average-adjusted ROA and the average-adjusted Q are negative, is followed by a consistent recovery in the year of the initial filing. This probably can be explained by hedge fund's propensity to target underperforming firms. Interestingly the pattern is consistent with respect to both, 13D and 13G filings indicating similar motivation of hedge funds to engage in both, activism driven campaigns as well as passive investments.

Having analysed the performance at the time of the acquisition and in the years after the acquisition, we now turn to the next question: How do companies fare after the hedge funds exit their positions, i.e., what happens after the stake is either reduced significantly or sold off?

To investigate this question, we build a so called "exit portfolio", i.e., we build a portfolio of companies which is continuously updated whenever the hedge fund reduces its stake below 5% (either active or passive). To avoid any biases due to unequal weightings, we redistribute 100% of the portfolio equally to all companies from which hedge funds exit. This ensures that the weightings are appropriate for our analysis.

As an example, if at any given point in time there are 5 companies with hedge fund exits, our portfolio invests 20% into each. We hold the position for a maximum of 5 years, i.e., if a company is acquired or disappears during years 1 to 5, it automatically drops out of the portfolio, causing a rebalancing to the remaining companies. The rebalancing takes place with equal weights, i.e., we redistribute the weight of the dropped out company equally over all remaining ones. If a company exists for 5 years after the exit, it is sold off from the portfolio at the 5-year mark.

Once again, to compare the active and the passive filings, we build one portfolio which follows the exits according to schedule 13D, one which follows the exits of 13G filers and one which follows the difference between the two, i.e., we buy 13D-exits and we sell 13G-exits. We then analyse each portfolio according to a benchmark index. Since all filings are subject to US-based companies, we once again choose CRSP as our benchmark index.

With respect to the index, apart from the performance, the correlation to the well-known Fama-French 3 factors is of interest. This allows for more in-depth view on the performance of our portfolio. In particular, we need to understand how the performance of the portfolio and the main factors behind it are generated. The performance for each year between 2009 and 2019 is tracked and the correlation to the 3 factors for each of these years is computed.

The Fama-French 3 factor model is an asset pricing model which was developed in the year 1992. The model is an extension of the capital asset pricing model (CAPM). Two more risk factors, the size risk and the value risk are added to the market risk factor. Value stocks and small-cap stocks might outperform markets. Thus, the Fama-French 3 factor model represents a framework that enables identifying "abnormal" returns (Bebchuk et al., 2015). These two additional factors allow to identify an outperforming tendency and whether a portfolio is reflected by the market factors.

Note that while Fama-French 5 factors are a natural extension to the 3-factor model, we omit factors 4 and 5, as these turned out to be insignificant throughout. As an additional robustness check, other indices including S&P500, NASDAQ and Russel 3000 as a benchmark are considered.

The findings show, that even though the indices are very diverse, the results hold qualitatively regardless of the chosen benchmark. The reporting starts from year 2012 in order to accrue a sufficient number of companies to our portfolio, as the results are very volatile before that. The portfolio is evaluated for each year, reporting the years 2015 and 2019. All metrics are averages over the whole time period, i.e., in 2012 the results for the time series from 2009 to 2012 are reported. In 2015, those from 2012 to 2015 and in 2019, results from 2015 to 2019 are reported. N stands for the average amount of companies in each portfolio of the corresponding period.

Table 10. Portfolio of exit companies for the period 2009 to 2019. Each rebalancing takes place at the date for which the exit occurs. At every point in time, the weighting for each company in the portfolio is equal. All factors are in line with (Fama and French 1993) definition. All hypothesis tests are t-tests of the coefficients. "LASP" stands for long active, short passive, i.e., a portfolio of all exits from a target company by activists being bought and those of passivists being short-sold.

Portfolio	T	N	Alpha	MKT	SMB	HML
13D	2012	31	0.02***	1.01***	0.52**	0.27**
	2015	95	0.03***	1.02***	0.64**	0.25**
	2019	122	-0.02***	0.94***	0.77**	0.24**
13G	2012	54	-0.004*	1.01***	0.57**	0.01
	2015	312	-0.001*	1.001**	0.52**	0.02
	2019	484	-0.002	1.02**	0.51**	0.02
LASP	2012	85	0.02***	-0.09***	-0.39**	-0.25**
	2015	407	0.02***	-0.05***	-0.38**	-0.27**
	2019	606	0.0001*	-0.03***	-0.39**	-0.24**

*Source: SEC Sec. 13D/13G filings, automatically retrieved from the SEC EDGAR data portal API (https://www.sec.gov/edgar/searchedgar/companysearch.html), own calculations, * = 5% significance level, ** = 1% significance level, *** = 0.1% significance level*

Our results show that investing into exits of active investors yields a slight over performance compared to the index. This pattern is stable and repeats for every period, even though the alpha-factor is very small. Similarly, investing into active exits while short selling passive ones also yields an over performance. This is however rather due to the alpha factors of the active investments, as those of the passive ones are insignificant for every observed period. In terms of the 3 factors, one interesting finding is that the LASP portfolio is inversely correlated with the index, even though the correlation is rather low.

SMB and HML do not exhibit high factor coefficients, hinting that these factors are not key components in the overall performance of the portfolio. To sum up, we can assert that an exit from an actively held position can be interpreted as a positive sign towards other market participants, while an exit from a passively held one does not carry any significance (neither positive, nor negative).

There is a large set of possible explanations for these findings, one of them being that hedge funds usually improve the performance of target companies thus

leaving a lasting positive impact on the long-term stock performance (Gantchev and Jotikasthira, 2012). Passively held positions, on the other hand, are opened and closed without a lasting impact, thus resulting in insignificant alpha and beta (MKT) factors. Finally, hedge funds show distinguishing features - compared to other shareholder activists, i.e., hedge funds activities are associated with substantial improvements in target firms' profitability after hedge funds exit.

5.2.6 Discussion

This study contributes to the assertions of short-sighted interventions by hedge funds to proof the validity of those claims. The findings do not support the threat of short-sighted interventions by hedge fund activists, similar to findings by Bebchuk et al. (2015). The assertions of short-sighted interventions affect debates by policy makers and public officials. Unlike critical voices of opponents of hedge fund activism, no evidence is found that activist's real goal is a short-term increase in the stock price and quick profits. This view is supported by the results shown in Tables 9 and 10 above.

Table 9 indicates that hedge funds tend to target companies with low operating performance in the year of intervention, i.e., in the year of the initial 13D or 13G filings. Table 9 also displays patterns of improvements in operating performance, as ROA and Q increases in each year after the initial filing. The low performance of target firms is followed by a consistent recovery over a time span of around 5 years.

Especially in terms of Q in each of the years two, three, four and five following the initial filings, improvements in Q are statistically significant. The propensity of hedge funds to target underperforming firms can be explained by the motivation of hedge funds to acquire stakes of underperforming companies with the potential to improve operating performance.

Considering the portfolios of exit companies in Table 10, the pattern of slight overperformance for exits of active investors compared to the index remains stable with significant positive alphas. At the opposite, the exit portfolio of passive investors shows a slight underperformance compared to the index. These findings indicate that exits from actively held positions yield positive market reactions.

The chief interest in these analyses is to empirically test the validity of the claim that negative long-term returns follow the departures of hedge fund activists by using standard methods. The findings show statistical evidence that intervention by hedge funds are followed by long-term improvements in operating performance, rather than declines in the performance of target firms. The analyses point out that the long-standing claim of myopic activism is not evidenced by data per today. The findings indicate a lasting positive impact on the long-term stock performance of target firms.

5.3 CORPORATE INNOVATION BY HEDGE FUND'S INTERVENTIONS

In the last four decades, policymakers and academics discussed about stock market pressure (Brav et al., 2018) as reducing managerial incentives to engage in innovative activities (Brav et al., 2018). Concerns emerge that stock market pressure creates managerial myopia (Brav et al., 2018).

In 2015, the CEO of BlackRock, the world's largest institutional investor expressed concerns about an acute pressure for corporate leaders to generate growth with every quarter to meet short-term financial goals at the expense of building long-term value. Brav et al. (2018) document that "managerial myopia has been a recurring concern".

Stock market pressure seems to influence managers causing managerial myopia. Managers under pressure tend to respond with near-term performance by implementing investment/innovation policies with a negative effect to long-term value (Brav et al., 2018). Agency problems and managerial preferences and objectives that are not aligned with firm value maximisation may lead to either over- or under-investment. Research by Brav et al. (2018) pursued the goal to analyse how hedge fund activism may reshape corporate innovation.

Brav et al. (2018) find that in a scenario featuring over-investment, managers often take advantage of private benefits. Consequently, shareholders can legitimately demand incumbent management to reduce the costs of innovative activities (Scharfstein and Stein, 2002). In a situation of under-investment, activists may probably demand to spend more on research and development, because diversification reduces innovation risk (Aghion et al., 2013). In contrast, research

by Brav et al. (2018) show that reduced internal capital, i.e., a reduction in R&D expenditure can increase innovation efficiency after hedge fund interventions.

Brav et al. (2018) argue that in the last decade, hedge fund activism appeared as an increasingly important new form of market-based corporate governance relating to corporate innovation. Discussions are about the pressure of activists to affect the long-term viability of public companies. Empirical studies document that redrawing of firm boundaries by activists lead to higher innovative efficiency in target firms, as hedge fund activists are attentive in their role of external monitors (Brav et al., 2018).

The widely reported and documented positive stock price reaction can probably be explained by hedge fund interventions. Empirical studies by Brav et al. (2018) document an increase in stock price for an innovative firm sample of around 6%, with an event window of (-20,+20) business days around the announcement date. Abnormal returns do not revert for innovative target firms during a five-year period after hedge fund interventions.

Moreover, findings by Brav et al. (2018) confirm that non-innovative targets of hedge funds are more likely to experience attrition form compustat - due to acquisitions - than innovative targets of hedge fund activism (Brav et al., 2015a; Greenwood and Schor, 2009; Boyson et al., 2017). This may suggest that activism focused on innovation is more long-term oriented than activism focused on acquisitions.

Brav et al. (2018) consider corporate innovation as one of the most important long-term investments to companies, with one aspect of susceptibility to short-termism. Innovations might have a high risk or probability of failure (Brav et al., 2018), given that innovative activities involve the exploration of untested and unknown approaches (Brav et al., 2018; Holmstrom, 1989). A priori, the impact of hedge fund activism on corporate innovation in terms of direction and magnitude is unclear (Brav et al., 2016).

In most cases of innovative activism, hedge funds are not perceived to have the expertise in the target firms' technological domain. Nevertheless, diverse potential channels are identified through which more efficiency in target firms' innovation might be obtained. One channel that is identified by Brav et al. (2018), is the redeployment of human capital by putting a large portion of research and

development expenditures into hiring and incentivising innovators. Innovative human capital worked out as an important determinant of firm performance (Bernstein, 2015).

Hedge fund activism shows a pattern that activists set the focus on cutting off unproductive assets (Brav et al., 2015a). They oppose acquisitions to make target firm leaner (Brav et al., 2015a). Thus, it can be expected that innovative target firms take advantage of strategic changes implemented by hedge fund activists (Brav et al., 2018).

Improvements in target firms' innovation emerge over a five-year period following hedge fund intervention. Given, that selective targeting is a main aspect of the activist's successful investment strategy (Brav et al., 2018), hedge fund activists target firms in a proxy contest to impact the firms' innovation strategies. To obtain a picture about what makes target firms more innovative, the effect of hedge funds' interventions is isolated by tests from those alternative explanations, i.e., mean reversion, sample attrition or activist stock-picking (Brav et al., 2016).

Brav et al. (2018) tested the hypothesis whether hedge fund activists select companies to affect a target firms' innovation efficiency. They also tested the alternative hypotheses that hedge funds select targets in which the management would have implemented changes in innovation even without direct or indirect pressure from the activist.

Findings by Brav et al. (2018) show qualitatively similar changes in both scenarios: by hostile engagement putting pressure on incumbent management, and where the management would have implemented changes to innovation without the pressure of activists. Brav et al. (2018) find no evidence for the claim that hedge fund activists only apply stock picking, without adding value to a target firm.

Patents filed prior to the arrival of activists were shortly granted after the intervention showing an incremental effect of intervention over stock picking (Brav et al., 2018). Significant increases in abnormal stock returns are documented around the patent grant day indicating that pre-existing innovation becomes more valuable after intervention, due to a better allocation by efforts of activists.

The reshuffling of human capital and the redeployment of innovative human resources following hedge funds' interventions can increase productivity and efficiency in innovations. Brav et al. (2018) document more attitude towards risk

and more risk tolerance by target firms' CEOs. CEOs take advantage of an abnormal increase in their share ownership in the three-year post intervention period compared to a control sample of companies. Directors added to the boards by hedge fund activists show technology- or industry-based experience, relative to directors of matched control firms (Manso, 2011).

Results are achieved by the redeployment of human capital, the change to board-level expertise and the reallocation of innovative resources. Studies by Brav et al. (2016) document that ex-post target firms become leaner but not weaker. Jensen (1986) argue that hedge fund activists seek more mature firms with agency problems of free cash flows but that do not need nurturing.

Brav et al. (2018) document that the redeployment of innovative human resources and patents and more efficiency in productivity of physical assets (Brav et al., 2018) by plant sales and allocation of firm resources lead to extensive margins (Brav et al., 2016). Brav et al. (2018) find that increased innovation efficiency is obtained especially in technological areas that are central to core capabilities of target firms representing key areas of the firm's expertise.

A special pattern is observed during and after hedge fund interventions. Firms, targeted by hedge fund activists sell a high number of existing patents in comparison to their peer group. Brav et al. (2018) document a sharp drop in R&D spending during a five-year period subsequent to hedge fund activism by no reduction in output. This implies that hedge funds activities improve target firms' innovation efficiency (Brav et al., 2018).

However, in most cases target firms experience deterioration in performance prior to activists' interventions. A priori, before launching an activism campaign it is unknown whether potential outcomes can be achieved, if an activist remains as passive investor by merely picking the stock of target firm. As the goals to achieve are unknown by activists, no activist would willingly hold undiversified positions for a given time period and bear the costs (Gantchev, 2013). Thus, the recovery following an activist intervention, including more efficiency in innovation, is more likely to be anticipated and reported by the activist to reflect a reversion to a long-run mean.

Research results on hedge funds activities on non-randomly chosen target firms support the view that activist hedge funds are informed and sophisticated

investors (Brav et al., 2018). As hedge funds target firms with business strategies on improvements in innovation efficiency, target firms will more likely voluntarily make changes in the same direction.

The reported consistency of results about improvements in innovation efficiency indicates that hedge fund intervention is followed by a change in innovation policy and outcome. Brav et al. (2018) document that activists effectively redraw the target firm's boundaries via refocusing core competencies and expertise. Brav et al. (2018) conclude that hedge funds can be more objective in helping to make target firms' retention/reallocation decisions of innovative resources and outputs.

Although, the target firms' R&D expenditures declined over a period of five years after hedge fund interventions, the patent quality and quantity improved. Brav et al. (2018) measure the patent quantity as the number of patent applications filed by a target firm and that are eventually granted (Brav et al., 2018). Patent quality most notably is measured using the number of subsequent lifetime citations, the patent's originality and the patent's generality (Brav et al., 2016).

However, measurement of the long-term impact of hedge funds' activities remains and has proven challenging to evaluate. This thesis attempts to shed more light on hedge funds' ability to improve target firms' innovation efficiency and capacity.

5.3.1 Target Firms' Innovation Ability and Competitiveness

Innovation as a key determinant of competitiveness is a process of prolonged commitment to innovate accompanied by uncertainty and information asymmetry. Innovation is a complex and costly process to firms that involves increasing agency costs and makes firms prone to hedge funds interventions. To investigate the effect of hedge funds activities on corporate innovation might be important with regard to a firms' long-run comparative advantage and its long-term value.

Schumpeter (1942) argues that innovation is a new way of doing things and that it is important to the approach to innovation that there is flexibility in how changes can be implemented. The same level of output for a lesser amount of input can generate more efficiency representing one viable innovation channel.

Schumpeter (1942) also portrays the many faces and characteristics of innovation through creative destruction; identified as the "process of industrial mutation that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one" (Schumpeter 1942).

This definition applies to the fact that each innovation in its novelty is destroyed by markets, because markets are instantaneously seeking for increased competitiveness and improvements upon these new innovations. Thus, innovation cannot be accurately quantified, even bringing around qualitative change.

Findings by Wang and Zhao (2015) show increased patenting activity for target firms under the positive influence of hedge fund activists. Enhanced innovation efficiency can be observed in firms operating in a more competitive industry and environment, in association with more propensity to innovation.

Risk adverse managers hesitate to innovate, threatened by uncertainty and a costly innovation process. Hedge fund activism might have a positive and encouraging impact on the risk tolerance of managers, who are worried about losing their jobs in case of a failure (Aghion et al., 2013). In addition, frequent monitoring helps to identify a possible failure of innovation due to managerial incompetence. As hedge funds are unfettered from regulatory and political restrictions, conflicts of interest and liquidity constraints they are effective in monitoring target firms.

Monitoring by hedge fund activists can reduce information asymmetry between managers and shareholders, avoids managerial moral hazard and reduces the slack in innovation efficiency (Aghion et al., 2013). Frequent monitoring helps activists to identify a failure of innovation in target firms and can help discipline managers mitigating natural agency problems, especially in highly competitive industries. Less competitive firms can benefit from hedge funds' effort to reduce the slack in innovation efficiency following an increase in competitiveness.

The literature documents that information asymmetry and the high level of business complexity of firms do not hinder hedge fund activists in targeting innovative firms. Activists tend to target firms that have a low level of innovation efficiency, irrespective of the level of R&D expenditures. Improved innovation output and performance of firms emerge due to active intervention of hedge funds

activists. Selected target firms by hedge funds have high potential to increase innovation output in the future. Brav et al. (2016) document a link between hedge fund interventions and innovation efficiency in target firms that may be partially driven by the effort of the activist hedge fund.

Active interventions of hedge fund activists are associated with an increase in innovation output, while passively targeted firms do not show such significant increases. The short and long-term impacts of hedge fund interventions to innovative target firms show positive tendencies. As the market recognises hedge funds' presence, innovative target firms experience positive stock returns around the announcement date (deHaan et al., 2019).

Findings by Bebchuk et al. (2015) indicate that activists make real changes to the target firms' fundamental value. Studies by Bebchuk et al. (2015) show positive results on hedge funds interventions on a target firms' operating performance lasting a five-year period post intervention. In the long run, activists' efforts for more innovation efficiency lead to higher ROAs and cash flows, indicating that initial positive short-term returns do not reverse (Bebchuk et al., 2015). The findings contribute to the assumption that hedge fund activists are interested in target firms' long-term economic viability and competitiveness.

Studies by deHaan et al. (2019) show no evidence of abnormal post-activism performance improvements, although using an appropriately matched sample. deHaan et al. (2019) argue, since cumulative pre-to post-activism returns over months (-1,+T) tend to be insignificant, there is no support for the notion that activists interventions enhance long-term shareholder value; although short-term returns might not show reversion. Benefits of innovation become visible in the long run while R&D expenditures and earnings are immediately affected.

Hedge funds tend to target firms with low innovation efficiency followed by improved innovation output after interventions. Improved innovation output may result from hedge funds' selection method to passively target firms that have a low output with potential to increase or they actively target companies and pursue specific goals to improve innovation efficiency suggesting an association between active intervention and improved innovation efficiency. Hedge funds' active role in target firms, i.e., being involved in corporate governance seem to be crucial to achieve more efficiency in innovation output (Brav et al., 2016).

Given, that hedge fund activists pursue speculative strategies and set the focus on more speculative trading, stock prices may deviate from the underlying fundamental value. Such scenario would support a short-termism theory and can hinder a process of innovation (Bolton et al., 2006).

Active interference of hedge fund activists, i.e., disciplining managers and mitigating information asymmetry between shareholders and managers has a clear positive impact on innovation output. Activists pursue to enhance specific governance issues as part of a larger plan to achieve improved target firm operational performance on the long-run (Gantchev and Jotikasthira, 2012).

Their potential impact on firm innovation requires a long-term commitment of resources and specific tactics and objectives. The stock market recognises hedge funds' present and positive influence in both, highly competitive and less competitive industries, as hedge funds improve innovation efficiency to the long-term benefit of target firms.

5.3.2 Empirical Study: Setup, Data and Results

In this chapter, we want to investigate how hedge funds' activities influence corporate innovation by following the standard literature approach to study innovation (see, e.g. Brav et al., 2016). First, we investigate which role innovation plays to the probability of being targeted by a hedge fund. Second, we look into hedge funds' influence on companies' innovation efficiency and capacity.

The innovative capacity of companies is measured via different proxies such as patent output or citations, while controlling for R&D expenditures. These metrics are considered as standard metrics in the innovation literature (Brav et al., 2016).

We also measure patent quality as per standard approach in the literature. While the literature mostly focuses on the pre-2012 period, we apply the research design to the newest data. Our findings largely confirm classical findings of the literature, that R&D spending drops slightly while innovative output increases for most of the industries in the sample (Brav et al., 2016).

We also look into the mechanisms behind the changes in innovative output, such as innovative focus, turnover of innovators post-intervention and the changes

in innovative output spurred by it, as well as patent reallocation. We also check for differences between Sec. 13D and Sec. 13G filings. As is usual with such studies, a clear causal effect cannot be established, whereas a probable direction of causality is discussed.

We rely on data gathered from the SEC for Sec. 13D/G filings to find companies targeted by hedge funds, either actively or passively. To measure innovation, we rely on two kinds of datasets. For innovative input, we use data on R&D expenses of target companies as provided by Compustat and Gurufocus. Since this data is incomplete, we filter our dataset accordingly.

For patent data, we rely on NBER (The National Bureau of Economic Research) and Patstat (Worldwide Patent Statistical Database) for information on which patents were filed when, by which company, in which field and the corresponding number of patent citations. We define target company as active in "innovation" if it filed at least one patent in at least one of the five years prior to the initial Sec. 13D/G filing.

Similar to the literature, we build a control group by matching firms to their counterparts from the same FF30 industry, going by a propensity score based on book-to-market ratio and ROA. We find that we can match N=877 (targets/non-targets) for Sec. 13D and N=2911 for Sec. 13G.

The first analysis considers hedge fund activism in innovative firms depending on patent diversity in the year prior to the acquisition. Patent diversity is measured as one minus the Herfindahl index (1- Herfindahl index), computed based on the amount of new patents over a variety of technological fields recorded over a span of three years. We differentiate between low and high diversity. In addition, dummy variables are introduced to account for 1) whether or not a given firm is a target (Target), 2) Post is a variable equal to one if a given company is within 5 years after the 13D/13G event, and 3) 13D/13G variable is equal to 0 if the filing is 13G, otherwise 0.

We also account for the age and the market value of the firm and include firm-level fixed effects, as well as year fixed effects. We measure innovation via number of new patents and average citations (ln) as proxy. We differentiate between key and non-key technology classes by performing a regression on both subsets of the dataset. Overall, our specification is:

$$y_{i,t} = a_t + a_i + b_1 Post_{i,t} + b_2 Target_i Post_{i,t} + b_3 Post_{i,t} + cControl_{i,t} + e_{i,t}$$

Note that we also include the interaction between the dummy variable "Target" and the dummy variable "Post" by introducing the term $Target_i Post_{i,t}$, which is 1, if both dummy variables apply and 0 otherwise. This specification corresponds to the one chosen by Brav et al. (2016) and is used to measure the post-intervention effect on innovation.

In our first series of regressions, we want to establish an association between innovative diversity of a company in its key technology class, i.e., the class of technology where the target company spends its main R&D efforts and hedge fund activism. As our metrics of interest, we take both the number of citations and the number of new patents.

As per standard specification, we account for companies' age and market value. The effect of activism is measured via the 13D/13G dummy variable. The Explore/Exploit variable measures whether the patent is exploiting companies' know-how and is therefore based on the companies' existing knowledge or not (explore). For the "exploit" categorisation, more than 80% of citations of a given patent have to be based on the companies' existing patents.

We perform a similar procedure for the innovative diversity in the non-key-technology class. The specification of the regression is chosen to be the same, as this allows a direct comparison of the coefficients. The consideration of the non-key-technology class is relevant, because it allows insights into the incentives of companies to explore beyond the established technology class. Such explorations can be risky, which therefore provides a good proxy for the risk preference of hedge fund activists (and passive investors). Table 11 and 12 present our regression results.

Table 11. Target companies' innovative diversity (key technology class) and hedge fund activism. Only companies with three years worth of data prior to the acquisition are kept in the sample. All significance tests are t-tests.

	Ln(1+#New Patents)		Ln(1+Average Citations)	
Diversity	High div.	Low div.	High div.	Low div.
Target x Post	0.12***	0.001*	0.54***	0.003**
Post	0.001	0.00	0.03**	0.00
13D/13G	0.01**	0.00	0.05**	0.01*
Explore/Exploit	0.21**	0.11*	0.01	0.19*
Ln(MV)	0.12**		0.34***	
Ln(Age)	0.00	0.00	0.00	0.00
Observations	3,788		3,788	
R^2	0.78		0.81	
Year FE	Yes			
Firm FE				
F-test	12.16***		15.33***	

*Source: SEC Sec. 13D/13G filings, patent data, retrieved from the SEC EDGAR data portal API (https://www.sec.gov/edgar/searchedgar/companysearch.html) and Patstat, respectively. Own calculations, * = 5% significance level, ** = 1% significance level, *** = 0.1% significance level*

Table 12. Target companies' innovative diversity (non-key technology class) and hedge fund activism. Only companies with three years worth of data prior to the acquisition are kept in the sample. All significance tests are t-tests.

	Ln(1+#New Patents)		Ln(1+Average Citations)	
	High div.	Low div.	High div.	Low div.
Target x Post	0.10**	0.00	0.32**	0.00
Post	0.00	0.00	0.07**	0.00
13D/13G	0.03**	0.01*	0.04**	0.02*
Explore/Exploit	0.34**	0.21*	0.17*	0.14*
Ln(MV)	0.98*		0.77*	
Ln(Age)	0.01*	0.03**	0.01	0.03*
Observations	3,788		3,788	
R^2	0.65		0.78	
Year FE	Yes			
Firm FE				
F-test	10.87***		12.01***	

*Source: SEC Sec. 13D/13G filings, patent data, retrieved from the SEC EDGAR data portal API (https://www.sec.gov/edgar/searchedgar/companysearch.html) and Patstat, respectively. Own calculations, * = 5% significance level, ** = 1% significance level, *** = 0.1% significance level*

Overall, we find that the innovative activity of target companies increased in the post-event window, both in terms of patents and citations. In particular, we find an up to 12% increase in the number of new patents in the post-event window (Target x Post) for the key-technology-class specification. Table 11 and table 12 show that the diversity in new patents and average citations is higher for the key-technology-class compared to the non-key-technology-class specification.

We also find that the number of exploration activities (Explore/Exploit) in the non-key-technology-class increases up to 34% for target companies, compared to an increase in the number of exploration activities for the key-technology-class specification of 21%, i.e., suggesting that target companies of the non-key-technology-class are incentivised to explore R&D opportunities.

Apart from that, we find that first, the distinction between key and non-key technology is quite significant with the average impact of activism being larger in the former. Consistent with the literature it can be expected that activist investors are more interested in exploiting the key technological knowledge of the target company.

Second, active filings lead to a higher impact on both, number of patents and average citations with coefficients being as high as 0.05 (key technology class). Market valuation plays a significant role with coefficients of 0.12 (key technology class) and 0.98 (non-key technology class), respectively while the age seems of insignificant impact for both specifications. The results largely confirm the findings from the literature, even though the effect sizes in the low diversity columns are much smaller (see, e.g. Brav et al., 2016).

Next, we turn to patent transaction intensity around the activism event. We include all transactions within a 3-year window of the activism event. Our specification follows a difference-in-difference approach and is given by:

$$y_{i,t} = a_t + a_{f3,i} + b_1 Post_{i,t} + b_2 Target_i Post_{i,t} + b_3 Post_{i,t} + cControl_{i,t} + e_{i,t}$$

where the response is the number of patents sold over total number of patents.

Table 13. Target companies' patent transactional intensity and hedge fund activism. Only companies with three years worth of data prior to the acquisition are kept in the sample. All significance tests are t-tests.

	Patents sold / owned		Patents bought / owned	
	Numbers	Percentages	Numbers	Percentages
Target x Post	0.89**	0.87**	0.45**	0.49**
Target	0.01*	0.00	0.03	0.00
Post	0.21**	0.12*	0.30*	0.24*
13D/13G	0.55**	0.47**	0.61**	0.58**
Ln(MV)	0.99***		0.81***	
Ln(Age)	0.00	0.03	0.01*	0.02*
Observations	3,201		3,201	
R^2	0.21		0.13	
Year FE	Yes			
Firm FE				
FF30 fixed effect				

*Source: SEC Sec. 13D/13G filings, patent data, retrieved from the SEC EDGAR data portal API (https://www.sec.gov/edgar/searchedgar/companysearch.html), Google Patents and Patstat, respectively. Own calculations, * = 5% significance level, ** = 1% significance level, *** = 0.1% significance level*

We find that companies targeted by activists engage in active patent trading, with an increase of 0.55% and 0.61% in the number of patents sold and bought,

respectively. This is in line with the theory stating that activists tend to restructure target companies' patent portfolio. Contrary to the literature, we do not find any significant effect of age on the amount of patents bought and sold (see, Brav et al., 2016). We find a significantly lower *R^2*, showing that the variables used in this specification are not explaining the variation in companies' decisions to buy or sell patents sufficiently.

Next, we turn to an investigation of the development of citations next to an activism event. We distinguish between patents sold by different parties (target/control companies) within 3 years of the acquisition event. Similar to Brav et al. (2016), we provide regression results for patents sold by target firms, matched firms, top patents held by matched firms (patents which are in the top quantile for a given firm) and lastly, target's patents which were chosen to be retained matched to patents sold after the activism event. In our specification, d[] represents a dummy variable equal to 1 if citation is observed within k years after the sale of the patent and 0 otherwise.

$$Citation_{j,t} = \sum_{i \in [-3,3]} b_k d[t+i]_{j,t} + g\, Control_{j,t} + a_j + a_t + e_{j,t}$$

Table 14. Citation dynamics after an activism event. All specifications include firm and year fixed effects. Patent age also is controlled. All significance tests are t-tests. Errors are clustered at industry level.

	Patents sold by target	Patents sold by control	Best patents kept by control firms	Retained PSM-matched within target
d[t-3]	0.01	0.01	0.02	0.01
d[t-2]	0.00	0.01	0.03	0.01
d[t-1]	0.03*	0.02	0.05*	0.01*
d[t]	0.10*	0.03*	0.03	0.05*
d[t+1]	0.33**	0.01*	0.55**	0.07*
d[t+2]	0.75**	0.07*	0.61**	0.09**
d[t+3]	0.37**	0.02**	0.01*	0.04*
Obs	450,125	450,125	450,125	450,125
R^2	0.37	0.31	0.25	0.41

*Source: SEC Sec. 13D/13G filings, patent data, retrieved from the SEC EDGAR data portal API (https://www.sec.gov/edgar/searchedgar/companysearch.html), Google Patents and Patstat, respectively. Own calculations, * = 5% significance level, ** = 1% significance level, *** = 0.1% significance level*

We observe that especially in the years 1 and 2 after the activism event, there is a significant increase in the patents sold and kept by both, target and control companies. The effects in the sample are significantly higher compared to the literature, possibly explained by the overall increasing tendency of patent trading in the last years. The relatively high R^2 shows that the models explain a reasonable part of the variation, thus signifying that the coefficients correspond well to the actual effects.

Next, we turn to investigating the innovation impact following hostile activism events. Similarly to above, we apply a difference-in-difference approach with the following specification:

$$y_{i,t} = a_t + a_i + b_1 Post_{i,t} + b_2 Target_i Post_{i,t} + b_3 Post_{i,t} + cControl_{i,t} + e_{i,t}$$

A difference-in-difference approach is applied in situations when certain groups are exposed to a treatment and others not. A difference-in-difference approach is used to identify and estimate the causal effect of participating in the treatment on some outcome. Target and matched firms within up to 3 years to the event are included. We consider R&D expenses scaled by assets, R&D expenses only, natural logarithms of patent counts and average citations, generality and originality scores defined as in Brav et al. (2016), and lastly, market value of new patents as defined by Brav et al. (2016).

Table 15. Target companies' innovation after hostile hedge fund activism event. According to Brav et al. (2016) hostile events are defined as campaigns of confrontational nature. We include observations in the 6 year period with the intervention in the middle, i.e., 3 years prior and 3 years after the intervention. For more recent interventions, we reduce the window to 1 year to include more observations. All significance tests are t-tests. Fixed effects for years and firms included, errors clustered at industry level. We also control for firm market capitalisation and size.

	R&D/Assets	R&D Exp	Ln(1+#N.P.)	Ln(1+Avg Cite)
Target x Post	0.17**	23.51***	0.09**	0.12
Post	0.21**	0.43	0.11**	0.15**
Ln(MV)	0.12**	0.35**	0.29**	0.34**
Ln(Age)	-0.14	-10.02**	0.21*	0.33**
Observations	811			
R^2	0.55	0.67	0.39	0.51

*Source: SEC Sec. 13D/13G filings, patent data, retrieved from the SEC EDGAR data portal API (https://www.sec.gov/edgar/searchedgar/companysearch.html), Google Patents and Patstat, respectively. Own calculations, * = 5% significance level, ** = 1% significance level, *** = 0.1% significance level*

Table 16. Target companies' innovation after hedge fund activism. We include observations in the 6 year period with the intervention in the middle, i.e., 3 years prior and 3 years after the intervention. For more recent interventions, we reduce the window to 1 year to include more observations. All significance tests are t-tests. Fixed effects for years and firms included, errors clustered at industry level.

	Originality	Generality	Yearly innovation value ($M)
Target x Post	0.31**	0.02*	0.05*
Post	-0.01*	0.02**	0.04*
Ln(MV)	0.39**	0.27**	0.31**
Ln(Age)	0.01	0.00	11.11**
Observations	402		
R^2	0.22	0.23	0.30

*Source: SEC Sec. 13D/13G filings, patent data, retrieved from the SEC EDGAR data portal API (https://www.sec.gov/edgar/searchedgar/companysearch.html), Google Patents and Patstat, respectively. Own calculations, * = 5% significance level, ** = 1% significance level, *** = 0.1% significance level*

We observe that especially MV (Market Value) and age are important factors behind all of the metrics considered, including R&D and citations. The effect sizes are slightly larger than in the literature, albeit not significantly so.

Table 15 shows strong effects on actively targeted companies with high diversification in innovation portfolios post intervention considering the column originality (i.e., see Table 16). In more detail, R&D expenditures increased significantly while R&D expenses scaled by assets decreased.

Hostile events, i.e., confrontational campaigns by hedge funds are accompanied by a decline in new patents for target firms as they file for less patent applications. The increase in R&D expenditures indicate to be driven by hedge funds' interventions suggesting that target companies are incentivised to explore R&D opportunities to improve innovation efficiency and competitiveness. Overall, these results might be seen in association with hostile activism by hedge funds.

On the other hand, table 16 shows that after hedge funds' interventions patent quality improve as shown by significant higher originality suggesting that target companies' innovation capacity and efficiency increased. Additionally, the yearly innovation value rises.

Next, we consider how the switch from 13G to 13D filing affects the innovation. We specify the following regression to investigate the switch:

$$y_{i,t} = a_t + a_i + b_1 Post_{i,t} + b_2 13G13D_i Post_{i,t} + b_3 Post_{i,t} + cControl_{i,t} + e_{i,t}$$

where 13G13D is a dummy variable indicating whether there was a switch. We restrict our sample to hedge funds known to be activists and to target companies, which had a passive filing followed by an active one. As usual from above, we restrict the time horizon to a 5-year window. We consider R&D expenses compared to assets, as well as number of patents and average citations.

Table 17. Innovation in target companies following a switch from passive to active filings. All significance tests are t-tests. Fixed effects for years, target firms and hedge funds are included.

	R&D/Assets (%)	Ln(1+#N.P.)	Ln(1+Avg Cite)
Post	0.02	0.11*	-0.21
13G13D	0.21**	0.34**	0.05**
Observations	2,101		
R^2	0.67	0.76	0.58

*Source: SEC Sec. 13D/13G filings, patent data, retrieved from the SEC EDGAR data portal API (https://www.sec.gov/edgar/searchedgar/companysearch.html), Google Patents and Patstat, respectively. Own calculations, * = 5% significance level, ** = 1% significance level, *** = 0.1% significance level*

We observe that a switch from a section 13G to a section 13D filing has a significant effect on all three metrics of innovation with the effect on the number of patents being the largest. This is in line with the literature, as previous studies also find an intensification of the innovative behaviour after active filings (see, i.e. Brav et al., 2016).

The next analysis examines how patent grant announcements are affecting the markets in the time span surrounding a filing. CAR is used to measure market reaction. As usual, CRSP is used to measure abnormal returns. The periods defined below are in months, i.e., [t-6,t-1] is a six months period prior to the filing of the Section 13D schedule. Total patent applications consider all eventually granted applications to target companies or matched companies within this period. Overall, the specification is given by:

$$CAR_i = a_t + a_j + b_1 Post_{j,t} Target_j + b_2 Post_{j,t} + cControl_{j,t} + e_{j,t}$$

Table 18. All significance tests are t-tests. Fixed effects for years and firms included.

	Targets	Non-Targets
Total patent applications [t-48,t-1]		
% of Patent Grants [t-6,t-1]	5.01%	7.11%
% of Patent Grants [t,t+6]	6.14%	6.22%
% of Patent Grants [t-3,t-1]	3.71%	4.05%
% of Patent Grants [t,t+3]	4.03%	3.95%
Lag between application and grant dates (months)		
Median	21	24
Standard deviation	14.01	13.78
Average lifetime citations	7859	8001
Number of firms	202	204

*Source: SEC Sec. 13D/13G filings, patent data, retrieved from the SEC EDGAR data portal API (https://www.sec.gov/edgar/searchedgar/companysearch.html), Google Patents and Patstat, respectively. Own calculations, * = 5% significance level, ** = 1% significance level, *** = 0.1% significance level*

The market reaction in CARs for Patent Grants seem to be more positive for Non-Targets compared to Targets, as shown in Table 18. Independent of the time span surrounding the filings Non-Target firms achieve higher CARs compared to target firms of hedge funds.

In our last specification, we want to study the market reaction to the switch from a passive to an active filing. We measure the effect size in basis points, i.e., 100bps are equivalent to a 1% change. Similar to the standard event study approach, the change is reported based on the abnormal returns around the event. We set the event windows between three and six days around the filing as to account for possible market reaction prior to the event by companies' insiders. We compare target to non-target companies by introducing the same interaction term as in our above specifications.

Table 19. Market reaction to activism events for "innovative" target companies. All values are reported in bps. All significance tests are t-tests. Fixed effects for years and firms included. Please note that a target company is defined as active in "innovation" if it filed at least one patent in at least one of the five years prior to the initial Sec. 13D/G filing.

	No switch took place		Switch took place	
	[t-6,t+6]	[t-3,t+3]	[t-6,t+6]	[t-3,t+3]
Target x Post	35.44**	22.89*		
13G13D			54.01***	23.00*
Post	0.21	-0.01*	0.98**	0.12**
Observations	2453	1001	2899	1014
R^2	0.11	0.19	0.23	0.27
Monthly FE	Yes			
Firm FE				

*Source: SEC Sec. 13D/13G filings, patent data, retrieved from the SEC EDGAR data portal API (https://www.sec.gov/edgar/searchedgar/companysearch.html), Google Patents and Patstat, respectively. CRSP is used to compute CARs. Own calculations, * = 5% significance level, ** = 1% significance level, *** = 0.1% significance level*

We find strong evidence for abnormal returns surrounding a switch from 13G to 13D filings, with a particularly strong result of 54bps within a [t-6,t+6] window.

This means that target companies, which are defined as active in "innovation", achieved an abnormal return of around 0.5% following the switch from a passively to an actively held position over the time span of 12 days, with the switch taking place in the middle of the interval. We also find that for non-target companies, the effects are much smaller and insignificant, further showing that the target companies are being closely monitored by the market and that the fact of being an "innovative" target company has an important signalling value. For companies without a switch, the post-event effect is insignificant.

5.4 DISCUSSION

This Chapter contributes to the debate on the long-term impact of hedge fund activists on target firms and to what extent hedge funds increase the innovation ability of target firms. The findings in Chapter 5.3.2. show that companies targeted by hedge funds engage in active patent trading with an increase in patents sold and bought within a 3 years' window of the activism event.

Furthermore, the number of exploration activities (Explore/Exploit) in the non-key-technology-class increases for target companies, compared to the number of exploration activities for the key-technology-class specification. This suggests that target companies of the non-key-technology-class are incentivised to explore R&D opportunities. On the other hand, the diversity in new patents and average citations is higher for the key-technology-class compared to the non-key-technology-class specification.

The results confirm the theory in literature stating that hedge funds are able to restructure target companies' patent portfolio. The distinction between key and non-key technology is quite significant with an average larger impact of activism on companies in the key-technology-class. The results are in line with the literature, with regard to expectations that activist investors are interested in exploiting the key technological knowledge of a target company.

Especially in years 1 and 2 after the activism event citation dynamics increase in the patents sold and kept by both, target and control companies. The strong effects compared to the literature can possibly be explained by the overall increasing tendency of patent trading in the last years.

A switch from a section 13G to a section 13D filing has a significant effect on the number of average patents and average citations and the metric R&D/to Assets. The time horizon is restricted to a 5-year window after the filing date, with the effect on the number of patents being the largest. The observed intensification of the innovative behaviour after active filings is consistent with the literature.

Furthermore, measuring the market reaction, strong evidence for abnormal returns surrounding a switch from 13G to 13D filings is observed. A look at how patent grant announcements are causing the market to react surrounding a filing date is shown by strong evidence for abnormal returns with 54bps, i.e., abnormal returns of around 0.5% following the switch from active to passive, within an event

window 6 days prior and 6 days after a filing. The results indicate a link between hedge funds activities and improved innovation efficiency.

Due to data restrictions and methodological limitations, measurement of the long-term impact of hedge funds activities, i.e., of improved innovation efficiency remain challenging. As the sample size is quite small, there might be limitations in terms of statistical validity of observations. Additionally, limitations emerge in our study as we rely on proxies to measure the degree of innovativeness of a company.

The analyses address the understanding that corporate innovation is one of the most important long-term investments for companies. Hedge fund activism appears as an increasingly important new form of market-based corporate governance. This proposition might qualify to establish a causal effect between hedge fund activism and improved innovation efficiency and rising innovation value, and thus shareholder value for target companies.

6 CONCLUSION AND OUTLOOK

This thesis contributes towards existing literature about hedge fund activism and provides more insights into the effects of hedge funds activities; the ability of hedge funds to restructure target firms, their stock picking ability and long-term effects leading to a higher evaluation of companies and increased shareholder value.

In the past two decades, hedge funds activities seem to improve the short-term stock performance and the long-term operating performance in target firms (Clifford, 2008; Bebchuk et al., 2015; Brav et al., 2016). Thus, it is important to understand the effects of hedge funds' activities as a healthy external mechanism to generate shareholder value for target firms.

6.1 SUMMARY OF FINDINGS

This thesis delivers results by providing statistical evidence of the positive impact on target firms by hedge funds activities. The results are structured according to the framework of three questions:

1. What impact do hedge funds activities have on target companies in terms of cash generation, leverage, accounting metrics and dividends with regard to a period of time experiencing an up- and down-market course?
2. What is the particular positive impact and what are the circumstances necessary to achieve such results, i.e., on shareholder value and innovation activity?
3. How do companies fare after hedge funds interventions and exit?

The results are presented and summarised below as well as limitations and potential next steps as challenges for further research.

Having summarised the theoretical background and development of hedge fund activism throughout the past three decades in Chapter 2, Chapter 4 turns to empirical evidence to measure the impact of hedge funds activities addressing questions 1 and 2. This thesis puts its emphasis on hedge funds' activities and

measures to create shareholder value. The findings presented are results of a suitable methodology to investigate whether hedge funds create value for target firms.

As a database, all 13D / 13G filings from the SEC EDGAR data portal API are retrieved during a period from 2009 to 2019. For all public target companies, financial and fundamental data can be retrieved by EOD Historical, Sharadar and Gurufocus. The data provided, allows for exploring the short-term and long-term impact of hedge funds' acquisitions on target companies' financial health and fundamental parameters.

The results within this part of the thesis address questions 1 and 2 by providing statistical evidence of positive short-term and long-term impact of hedge funds activities on the market evaluation of target firms. As one methodology of choice, the event study is applied to quantify the impact of hedge funds activities on shareholder value under a hypothetical situation.

Key financial and fundamental metrics, such as return on assets and return on equity show the positive long-term restructuring impact on target companies' capital structure. To provide sufficient evidence of the positive impact on actively targeted companies, SEC Section 13G filings allows to distinguish between acquisitions with active and passive aims.

The results directly address questions 1 and 2 by showing that firms targeted for active purposes achieve higher abnormal returns and overall higher performance. The differences between actively targeted and passively targeted firms are all highly significant in the hypothesis tests.

The level of abnormal returns for actively targeted companies remains higher with no regard to the market cycle. Filings of activists cause a positive abnormal return around the announcement date, whereas passive filings, on the other hand are causing the markets to react the opposite way. Both results are significant compared to industry level.

The assumed preferences of hedge funds when selecting their targets is supported by findings, as a result of analysing active and passive investments and their correlation to Fama-French 5 market factors. The results show a high correlation with the SMB factor, indicating that activists mainly target small companies within each industrial sector. These patterns can be observed

independent of the current market cycle. On the other hand, passive investors target companies with significant higher ROA and ROE.

Furthermore, the statistical analysis during a period of three years shows that ROA of 13D and 13G acquisitions increases, while 13D events seem to positively affect companies' cash position in year 2 and year 3. The recovery of both ROA and Cash ratio indicate an increase in operating performance over time whereas leverage decreases throughout the whole period for both 13D filings and 13G filings.

Dividends per share increase in year 2 and year 3 not being significantly different to the industry average. The increase in dividends per share may partly explain the negative Cash ratio in year 1 for both: 13D filings and 13G filings. The results derived from the statistical analyses to answer questions 1 and 2 provide a foundation on which subsequent empirical work can be built.

Chapter 5 explores the claim of myopic-activism. This is performed by examining the industry adjusted operating performance and stock returns for companies during five years following the initial filings.

The analysis of Tobin's Q and ROA suggests that the claim of myopic-activism is not valid. The underperformance of companies at the year of acquisition is followed by a consistent recovery over a timespan of around 5 years. The analysis provides statistical evidence of hedge funds' ability to create long-term value.

The investigation of a so-called "exit portfolio" addresses question 3 and delivers empirical results how companies fare after hedge funds exit their positions. This is performed by analysing three dimensions, i.e., one portfolio that follows the exits according to schedule 13D, one that follows the exits of 13G filers and one that follows the difference between the two portfolios. For more in-depth view on the performance of this exit portfolio, the correlation to the Fama-French 3 factors is explored.

The findings confirm a lasting positive impact on the long-term stock performance of actively targeted firms after hedge fund activists exit their positions. The results show that an exit from an actively held position by a hedge fund sends as a positive sign towards other market participants. Exits from passively held positions do not show any significance.

Furthermore, within this part of the thesis, statistical evidence of the influence of hedge funds' activities on companies' innovation efficiency and capacity is documented. To explore the degree of innovation, the same data gathered from SEC for 13D/G filings is used.

Two kinds of data sources provide the innovative input to measure R&D expenses of target companies: Compusstat and Gurufocus. The results refer to answer question 2 by providing statistical evidence on target firms' innovative activity, the patent transaction intensity, the development of citations next to an activism event and the impact following hostile activism events.

The diverse analyses on a target firms' innovative activity explore an important value-creation channel by hedge fund activists: corporate innovation. The research design in this chapter applies to the newest data while the literature mostly focuses on the pre-2012 period. The results show that companies targeted by hedge fund activists engage in active patent trading.

The first analysis starts with considering the patent diversity as measured by 1-Herfindahl index based on the amount of new patents over a variety of technological fields over a three-year time span. While differentiating between key and non-key technology classes, a regression on both subsets of the dataset is performed.

The analysis contains several distinct results. First, it shows a significant difference between key and non-key technology classes of targets with an average larger impact of hedge fund activism on targets employing key technology. Active filings by hedge funds lead to a higher impact on the number of patents and average citations.

Second, the patent transaction intensity around the activism event, i.e., of 13D/13G filing is investigated. The aim is to contribute to the long-term impact of hedge fund activism. All transactions around the activism event within a 3-year window are considered, to obtain the number of patents sold over total number of patents. The results indicate a higher engagement in active patent trading for companies targeted by activists.

Third, analysing the development of citation dynamics next to an activism event within 3 years of the acquisition event, a significant increase in the patents sold and kept is found, especially in the years 1 and 2 after a hedge fund's

acquisition. The results apply to both target and control companies. The significantly higher effects compared to the literature can be explained by an overall increasing tendency of patent trading in the last years.

Fourth, to explore the effects of hostile activism events, R&D expenses scaled by assets and R&D expenses only, the patent counts and average citations including generality and originality scores are considered.

Hostile campaigns by hedge funds cause a decline in new patents for target firms as they file for fewer patent applications. The increase in R&D expenditures indicates that target companies are incentivised to explore new R&D opportunities. Patent quality and patent quantity improve after hedge fund activism suggesting that target companies' innovation efficiency increased. Overall, rising innovation value for target companies are documented indicating value creating effects by hedge funds' interventions.

Fifth, a switch from a section 13G to a section 13D filing has a significant effect on the number of average patents and average citations and the metric R&D compared to assets. The time horizon is set to a 5-year window after the filing to capture the long-term effect. The observed intensification of the innovative behaviour after active filings is consistent with the literature with the effect on the number of patents being the largest.

Sixth, measuring the market reaction, strong evidence for cumulative abnormal returns (CARs) surrounding a switch from 13G to 13D filings is observed. Target companies achieved abnormal returns of around 0.5% within a [t-6,t+6] day window surrounding the switch from passive to active filings indicating a friendly and positive market reaction.

The findings of this thesis support the view that hedge funds' activities may have an overall beneficial effect to target companies by creating shareholder value.

6.2 LIMITATIONS AND CHALLENGES FOR FUTURE RESEARCH

The event study approach, as a conventional method to analyse the gains in performance, is considered to have a number of limitations. Analysing short-term market reactions requires that no other than the investigated event exists in the

event window and additionally in the estimation window. The exclusion of any other event is of high importance to the results.

There are concerns about ascertaining exactly when investors first receive the information about a hedge fund's approach to a target firm. Some studies have examined the markets' reaction following the announcement of a negotiated settlement with a target firm. The results they document show also significant positive returns on average (Strickland et al., 1996).

To justify the chosen methodology analysing short-term market reactions, this thesis attempted to focus on the announcement date as event date to measure cumulative abnormal returns.

As a further limitation, Barber and Lyon (1996) illustrate the difficulty to precisely estimate and test long-term returns and to develop valid or appropriate benchmarks for assessing changes in operating performance. The extent to which improvements are due to hedge fund activist interventions is difficult to identify (Bebchuk et al., 2015a). Some would agree, that a positive market reaction, for instance might be seen as an indication of a higher expected takeover premium.

In the past decade, assets under management of hedge fund activists have grown constantly, but the dearth of return possibilities in traditional classical securities had led many hedge funds to seek opportunities in less liquid areas. This could pose a higher systemic risk to the global financial system and qualify for future research by exploring assumptions whether the growth of hedge funds inherently makes the market system less stable.

The assumed ability of hedge funds to succeed in difficult interventions and markets by their expertise qualifies as an interesting topic to reach out for more transparency in long-term value creation. As hedge fund managers enjoy the most flexibility and discretion in pursuing investment returns, their dynamic investment strategies imply dynamic risk exposures. Hedge funds are able to use a wide variety of security instruments among all kind of funds.

However, one important question to respond may remain: How can potential risks be minimised or eliminated while keeping all the benefits that hedge funds offer? In this context, this thesis adds to the multitude of statistical evidence from different studies that hedge funds activities create shareholder value with

substantial improvements in target firms' profitability, innovation efficiency, capital structure decisions and operating performance.

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