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Operational Due Diligence of Hedge Funds

Evaluating the Risk of Fraud

by

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Abstract

Title: Operational Due Diligence of Hedge Funds: Evaluating the Risk of Fraud

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Aim: The aim of the thesis is to examine whether the current operational due diligence process encapsulates the most significant factors to assess the risk of fraudulent behavior prior to investing in a hedge fund, and also to analyze how the due diligence should be performed if a hedge fund lack a long track-record.

Methodology: A qualitative multi-method approach was used. Discussions concerning the validity and the limitations of our choices and the collected data are held.

Framework: The conceptual framework entails background information concerning hedge funds and their strategies as well as a walk-through of the regulatory environment. Previous research regarding indicators of fraud in hedge funds and a section about investments in hedge funds with a short track-record, is also covered.

Data: The data was collected from five due diligence questionnaires, four interviews with investments and hedge fund professionals, and four case studies of hedge funds that have committed fraud.

Conclusion: A thorough operational due diligence has the potential to avoid significant losses. Focus should be shifted more towards the managers of the hedge fund rather than the fund itself, opening up for the possibility to invest in young hedge funds without necessarily exposing investor to a higher risk of fraud. Nevertheless, the risk of fraud will always be a factor to which an investor can never fully avoid.

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Table of Content

1 INTRODUCTION 1
1.1 BACKGROUND 1
1.2 PROBLEM STATEMENT 3
1.3 RESEARCH QUESTIONS 4
1.4 CONTRIBUTION 4
1.5 AIM AND OBJECTIVES 4
1.6 OUTLINE OF THE THESIS 4
2 CONCEPTUAL FRAMEWORK 7
2.1 HEDGE FUNDS 7
2.2 HEDGE FUND STRATEGIES 8
2.2.1 Equity Hedge Strategy 9
2.2.2 Event-Driven Strategy 10
2.2.3 Global Derivatives Strategy 11
2.2.4 Relative Value Strategy 12
2.2.5 Multistrategy 12
2.3 REGULATIONS OF HEDGE FUNDS 13
2.3.1 Alternative Investment Fund Managers Directive 13
2.3.2 UCITS V 14
2.3.3 The Dodd-Frank Act 17
2.4 FOUNDATIONS OF OPERATIONAL DUE DILIGENCE 17
2.4.1 A General Approach to Operational Due Diligence 18
2.4.1.1 The role of Due Diligence Questionnaires 19
2.4.2 The Due Diligence Process Conducted by Söderberg & Partners 19
2.5 INDICATORS OF FRAUD 21
2.5.1 Fund Specific Factors 22
2.5.2 Managerial Characteristics 24
2.5.3 Externalities 26
2.6 SHORT TRACK-RECORD 27
2.6.1 Opportunities with emerging hedge funds 27
2.6.2 Risks of Investing in a Fund with a Short Track-Record 28
2.6.3 Mitigation of Risks Related to Short Track-Record 28
2.6.4 Seeding 29
3 METHODOLOGY 30
3.1 RESEARCH APPROACH 30
3.2 RESEARCH DESIGN 31
3.2.1 Collection of Information 32
3.3 DATA COLLECTION 32
3.3.1 Due Diligence Questionnaires 32
3.3.2 Cases 33
3.3.3 Interviews 33
3.3.3.1 Choice of Interviewees 34
3.3.3.2 Interview Questions 36

3.4 Data Analysis 37
4 DUE DILIGENCE QUESTIONNAIRES 38
5 CASES 41
5.1 Bernard L. Madoff Investment Securities 41
5.2 Weavering Capital 42
5.3 Pequot Capital 43
5.4 Long-Term Capital Management 44
5.6 Assessment of The Cases 45
6 RESULTS 47
6.1 Due Diligence Questionnaires 47
6.2 Fund Specific Factors 50
6.3 Managerial Characteristics 51
6.4 External 52
6.5 Short Track-Record 55
7 DISCUSSION 59
7.1 Due Diligence Questionnaires 59
7.2 Funds Specific Factors 61
7.3 Managerial Characteristics 62
7.4 Externalities 62
7.5 Short Track-Record 64
7.6 Summary of Discussion 66
8 CONCLUSION 67
8.1 Practical Contribution 67
8.2 Theoretical Contribution 68
8.3 Future Research 68
REFERENCES 69
APPENDICES 79
Appendix 1: Indicators of Fraud 79
Appendix 2: Interview Protocol – Hedge Fund Manager 80
Appendix 3: Interview Protocol – Investment Manager 81
Appendix 4: Comparison of Due Diligence Questionnaires and Theory 82

List of Tables

Table 1. Alternative Investments Availability in UCITS (Luxhedge, n.d.) 16
Table 2. Brief Summary of Indicators 22
Table 3. Comparison of Due Diligence Questionnaires 40
Table 4. Indicators Found in the Case of Bernard L. Madoff Investment Securities 42
Table 5. Indicators Found in the Case of Weavering Capital 43
Table 6. Indicators Found in the Case of Pequot Capital 44
Table 7. Indicators Found in the Case of Long-Term Capital Management 45

List of Figures

Figure 1. Capital Inflow to Hedge Funds Globally (Statista, 2019) 1
Figure 2. Causes of Fund Failures (Capco, 2003) 2
Figure 3. Research Process 5
Figure 4. Typical Multistrategy Fund-of-Hedge Fund Structure 12
Figure 5. Venn Diagram of Alternative UCITS Characteristics (Luxhedge, n.d.). 16
Figure 6. Söderberg & Partners’ Due Diligence Process 21
Figure 7. Distribution of Fraud (Christory, Daul, and Giraud, 2007) 28
Figure 8. Research Questions and Corresponding Sub-Questions 31
Figure 9. Overview of Respondents 36
Figure 10. Summary of Discussion 66

1 Introduction

This section provides the reader with a background of the topic as well as a brief review of the literature that has been conducted in this area, leading down to two research questions. Furthermore, the aims and objectives as well as an outline of the following sections are included. Finally, the introduction is concluded with an illustration of the research process.

1.1 Background

The hedge fund industry has been experiencing significant growth in assets under management during the past years. Following the financial crisis, the inflow of capital to hedge funds globally have more than doubled the managed assets, from $1,164bn, in the first quarter of 2009, to $2,878bn, in the last quarter of 2018, as can be seen in Figure 1. Historically, individual investors made up a large proportion of the investor base in hedge funds (Mirabile, 2016). However, during recent years, hedge funds have managed to attract a larger proportion of institutional investors, and as of today, the majority of the provided capital are often contributed by insurance companies, charities, endowments, and pension funds (Ubide, 2006; Farrell, 2018; Baker & Filbeck, 2017). The increase in the proportion of institutional investors can be attributed to pension funds, foundations, and endowments, experiencing pressure to increase their investment returns to which absolute return investments are argued to be well suited to meet institutional return requirements (Waring & Siegel, 2006). In contrast to more traditional investment funds, hedge funds are looking to achieve absolute rather than relative returns (Ubide, 2006; Bollen & Pool, 2012). This theoretically makes them a more stable investment as the objective is to achieve positive returns to the investors, independent of the market conditions rather than measuring the returns relative to an index, such as S&P 500 or FTSE 100.

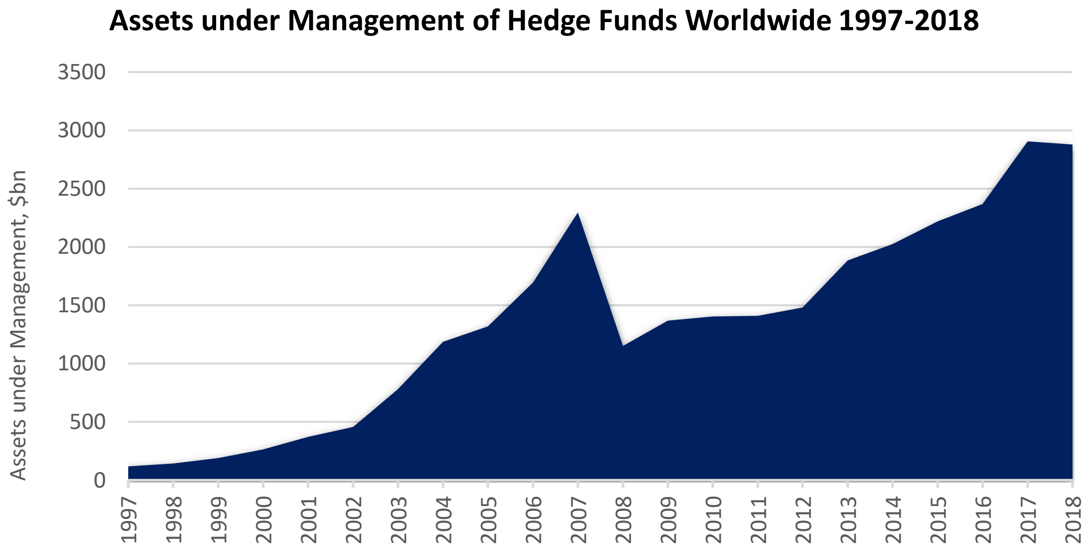

Figure 1. Capital Inflow to Hedge Funds Globally (Statista, 2019)

Furthermore, it has been found that the increased proportion of institutional investors could force managers of hedge funds to be less discretionary in order to satisfy their investors' fiduciary responsibilities (Stulz, 2007). On the other hand, it is also argued that hedge funds are structured to induce a necessary information asymmetry between the investors and the management of the hedge fund to preserve the hedge funds' competitive advantage (Donaldson, 2008). This information asymmetry is also due to hedge fund managers being able to enjoy more discretionary freedom in terms of what they are required to report, compared to mutual funds as there are significant differences in regulations (Baker & Filbeck, 2017; SEC, 2019). This lack of transparency can potentially increase the opportunity for hedge fund managers to commit fraudulent actions (Goltz & Schröder, 2010). It is also empirically known that potential losses due to fraudulent behavior in the hedge fund industry can be of significant amounts, not least displayed by the infamous scandal related to the Ponzi scheme[1] ran by Bernard Madoff, resulting in investor losses of over $50bn (SEC, 2008). This emphasizes the importance of investors conducting a thorough due diligence prior to making their potential investment in hedge funds.

A due diligence can be performed with different focal points, e.g., with an operational- or a financial focus, with the latter focusing more on the financials while operational due diligence covers the operational aspects, aiming to identify any potential operating risks in the organization (Scharfman, 2017). Interestingly, the operational risks have been noted to be responsible for half of the reported failures in hedge funds, as displayed by Figure 2. With this in mind, Brown et al. (2009) argues that investors should generally be more concerned about the operating, rather than the financial risk inherent in the potential investment in a hedge fund. Despite this notion, research has shown that investors tend to focus on the financial aspect when evaluating their investment decisions, looking specifically at the historical returns, rather than the exposure to operational performance (Brown et al., 2008; Brown et al., 2012). The irony in this, however, is that operational risks have been shown to not only be leading indicators of fund failure but also generally resulting in lower than expected returns. To further emphasize the importance of the non-financial aspects in a due diligence process, Grossman (2005) states that "an investment in a hedge fund is really an investment in a manager and the specialized talent he possesses to capture profits from a unique strategy" (n.p.).

Figure 2. Causes of Fund Failures (Capco, 2003)

[1] A Ponzi scheme are fraudulent investments where earlier investors' returns are paid from the contribution of later investors. (Wilkins, Acuff, & Hermanson, 2012)

1.2 Problem Statement

The Basel Committee (2011) defines operational risk as "[…] the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events". This definition is applied by a lot of key actors within the financial industry, including the European Banking Authority (2019) and the Bank for International Settlements (n.d.). This definition also encapsulates fraudulent actions which have been shown to be among the biggest sources of operational risk (Akkizidis & Bouchereau, 2005). Fraud, defined as "[…] all surprise, trick, cunning or dissembling, and any unfair way by which another is cheated" (Black, 1990, p. 660), has received much attention in the financial media in the last decade due to the repercussions of the financial crisis of 2008 (Boyle & Mahoney, 2015). During this period, a series of financial scandals and fraudulent behavior within the financial sector were revealed, which, according to Kishan (2018) changed the mentality and culture of hedge funds up until this day. The risen awareness of operational risks in general and fraudulent behavior in particular, has caused hedge fund investors to question how they approach their due diligence process (Scharfman, 2017). The need for an operational due diligence which effectively can evaluate the risk of fraudulent actions is therefore highly valuable from an investors' perspective.

Previous studies related to the operational due diligence of hedge funds have looked at ways to evaluate the operational risks using financial as well as non-financial indicators (Brown et al., 2008; Brown et al., 2009; Brown et al., 2012; Dimmock & Gerken, 2012; Bollen & Pool, 2012). The findings of these studies indicate that there are characteristics and indicators that could be used for assessing the operating risk profile of hedge funds, such as leverage (e.g., Brown et al., 2009), ownership structure (e.g., Dimmock & Gerken, 2012), independent pricing (e.g., Brown et al., 2012), to mention a few. However, some drawbacks of these studies from an investors' perspective are that the data used are seldom the kind of data that is readily available for the general public (e.g., Brown et al., 2012; Dimmock & Gerken, 2012), hence the practical contribution of these studies can be considered to be limited. Furthermore, detailed research on how an investment manager should perform a due diligence on a hedge fund with a shorter track-record is to our knowledge non-existent. This could, therefore, be particularly interesting to study as these funds could be very sought after for other reasons than their past performance, such as having a very niche and attractive exposure or having a fee-discount for early investors (Jurish, Brady, & Williams, 2012; Lack, 2012; Hedge Fund Research, 2005). There is even research indicating that emerging managers tend to outperform more established managers on average due to stronger incentive effects and being agile enough to capitalize on niche opportunities (e.g., Aggarwal & Jorion, 2010; Prequin, 2013; Boyson, 2003; Jones, 2007).

1.3 Research Questions

i. How can an investor assess the risk of fraud in hedge funds?
ii. How is this assessment affected by a short track-record?

1.4 Contribution

The contribution of this study is twofold. One being that it adds to the existing literature on the risk of fraud in hedge fund investments from the perspective of an institutional investor. More importantly, by embracing a qualitative approach, an often overlooked aspect concerning the understanding of the practical implications for investors is gained. Secondly, it sheds light on a theoretically unexplored question regarding how an investor could assess the risk of fraud in hedge funds that have a short track-record. Hence, the contributions of this master's thesis have implications for both scholars and practitioners.

1.5 Aim and Objectives

This thesis aims to examine how an investor should perform an operational due diligence process to assess the risk of fraudulent behavior prior to investing in a hedge fund, and also to analyze how the due diligence should be performed if a hedge fund lack a long track-record.

In order to achieve the aim of the thesis, we will:

- Conduct a review of the existing literature in order to identify the indicators of fraud that an investor can utilize to assess the risk of fraud in hedge funds.
- Compile and compare due diligence questionnaires, established by research and actors within the industry.
- Examine four real-life cases of operational failure in hedge funds in order to identify potential signs of fraud.
- Conduct four interviews with two hedge fund managers and two investment firms.
- Analyze and discuss our findings.

1.6 Outline of the Thesis

The thesis is structured into eight chapters where this introductory chapter provided the reader with a background of the subject followed by a problematization and our two research questions. **Chapter 2** – Introduces the conceptual framework which is divided into six sections: *Hedge Funds*, which provides a background of how hedge funds operate. *Hedge Fund Strategies,* which describes the different features and implications of hedge fund strategies and provides

classification into five different hedge fund strategies. *Regulations*, outlining the regulations that hedge funds have to comply with dependent on where and how they are setup. *Foundations of Operational Due Diligence*, entails the activities usually performed in an operational due diligence and a depiction of Söderberg & Partners due diligence process is given. *Indicators of Fraud*, covers the existing research on what indicators have been found to predict or assess the risk of fraud in hedge funds. *Short-Track Record*, describing what risks and opportunities that are related to investing in young hedge funds and how an investors should mitigate the risk of fraud in these hedge funds that lack a long track-record. **Chapter 3** – The methodology chapter is broken down into four sections. *Research Approach*, discusses our philosophical approach and some of its implications. *Research Design*, covers what steps that were taken to perform the study and how we collected our information. *Data Collection*, describes our data sources and how we collected them. The chapter is concluded with a section concerning how we analyzed the collected data, called *Data Analysis*. **Chapter 4** – *Due Diligence Questionnaires*, this chapter covers five collected questionnaires and their similarities and differences. **Chapter 5** – The chapter outlines four real-life cases of operational failure in hedge funds, which were studied in order to identify what the leading indicators were in these events, *Bernard L. Madoff Investment Securities, Weavering Capital, Pequot Capital*, and *Long-Term Capital Management*. **Chapter 6** – Here our results are presented and categorized into the five areas that were identified as common themes in the literature: *Due Diligence Questionnaires, Fund Specific Factors, Managerial Characteristics, Externalities,* and *Short Track-Record*, each having their own section. **Chapter 7** – Entails a chapter of how our results relates to the other data sources as well as towards previous research, and is divided into the same sections as the previous chapter, ultimately arriving at a summary of the main takeaways. **Chapter 8** – Concludes the thesis with our most important findings and what future research is needed in this field, hence, divided into two sections, *Contribution* and *Future Research*.

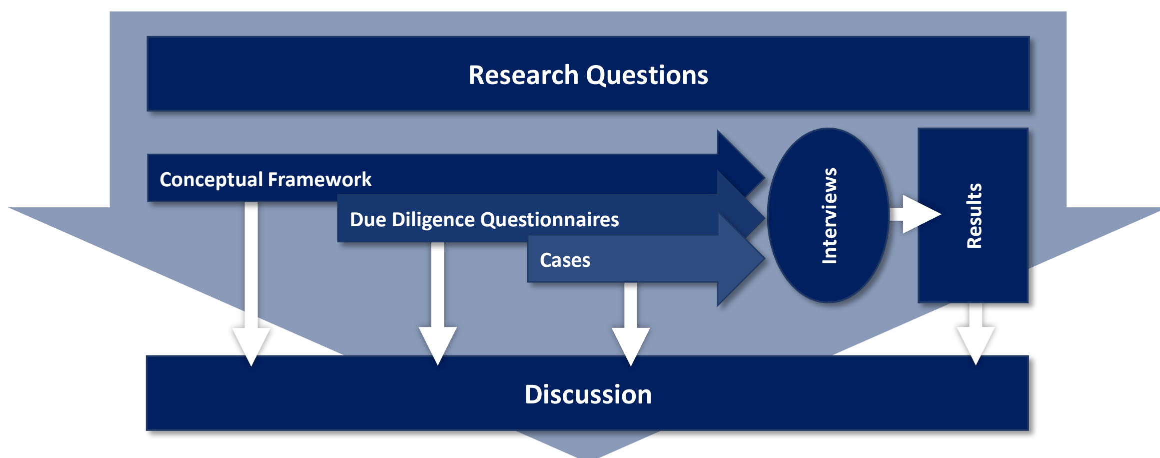

Figure 3. Research Process

Figure 3 illustrates the research process in order to provide the reader with an overview of the steps that have been taken and how these are linked together. The *Research Questions* are derived from

a problematization that highlighted the importance of studying how an operational due diligence should be conducted to minimize the risk of fraud. The insights gained from the *Conceptual Framework, Due Diligence Questionnaires*, and the *Cases*, enabled us to establish interview questions, grounded in both research and practice. Furthermore, these sources of information and data, respectively, in conjunction with the *Results* from our interviews, enabled us to create a *Discussion* that incorporates multiple point of views.

2 Conceptual Framework

This chapter encompasses a background of how hedge funds operate, and a description and a classification of different strategies is made. The primary regulatory environment, under which European and U.S. hedge funds are subject to is also covered. Adding to this are sections concerning how the operational due diligence is performed, what indicators previous research employed to assess operational risk, and finally, what needs to be considered when performing a due diligence of funds with a short track-record.

2.1 Hedge Funds

The term hedge fund commonly refers to a pooled investment vehicle that uses various strategies to invest in a variety of asset classes (Baker & Filbeck, 2017). Added to this can be the feature of hedge funds often being open only to a limited group of investors and measuring its performance in absolute, rather than relative, terms. The term "hedging" refers to actively trying to lower the overall risk by taking on a position that offsets the existing source of risk in their investments. An example of this could be an investor holding a significant position in foreign equities and hedging away the currency risk by shortening[2] currency futures (Connor & Woo, 2004). This possibility of "going short" along with derivatives trading and using leverage, are also examples of hedge funds having a broader set of investment techniques at their disposal (Baker & Filbeck, 2017). Another distinguishing feature of hedge funds is that they can invest in almost anything, including, but not limited to, stocks, land, real estate, and currencies.

As previously mentioned, hedge funds are generally not as easily accessible to the general public as mutual funds or ETFs[3] in the sense that they are only available for qualified investors (Baker & Filbeck, 2017). Examples of such are banks, insurance companies, employee benefit plans, and trusts, and accredited investors such as high net worth individuals or investors with proven experience, professional credentials, or individuals having passed an accredited investor examination. This restriction limits the potential investor base. Investors in hedge funds must also often be willing to tolerate a high degree of illiquidity since these funds typically have restrictions on how often their investors can make withdrawals from the fund. It should however also be mentioned that there are publicly traded hedge funds that are accessible to everyday investors, with Black Rock being one of the most well-known examples (Sun & Teo, 2019; Nasdaq, 2012). These will not be covered in detail, though, as this conceptual framework will focus on the more traditional privately operated hedge funds.

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[2] To "short" is to sell borrowed securities with the aim of capitalizing on declining prices of the security. Hence, an investor that goes short, is betting against the security (Cambridge Dictionary, 2019a).

[3] Exchange traded funds (ETFs) are investment funds that are traded on a stock exchange, tracking the performance of the corresponding index, hence, being passively managed (Ben-David, Franzoni, & Moussawi, 2018)

The fee structure of hedge funds is often twofold. The first part being similar to traditional pooled investments as a flat charge, also called a management fee, which is calculated as a percentage of total assets, and the second part being a performance fee, charging an additional percentage on the profits exceeding the pre-defined hurdle rate[4] (Baker & Filbeck, 2017; Connor & Woo, 2004). Furthermore, it is common for hedge funds to adopt a so-called high-water mark, which will require the fund to beat its last recorded maximum level before being entitled to charge performance fees (Baker & Filbeck, 2017; Panageas & Westerfield, 2009). A common structure is called "2 and 20", given as a two percent flat charge and a 20 percent performance fee.

In terms of regulation, hedge funds are operating with fewer restrictions than conventional investment funds (Baker & Filbeck, 2017). However, the trend has been moving towards tighter regulations in the aftermath of the financial crisis, illustrated by the implementation of the Dodd-Frank Act in the USA in 2010, requiring hedge funds with more than $150 million in assets under management to register with the Securities Exchange Commission (SEC). This trend of increased regulation is also apparent in Europe, portrayed by the implementation of the Alternative Investment Fund Managers Directive (AIFMD), for example. A more granular coverage of the regulation of hedge funds will be conducted in section 2.2. In this section, the main takeaway is the fact that despite the trend of increased regulations, hedge funds are still operating with some legal flexibility compared to mutual funds which could result in less transparency and greater information asymmetry towards investors (Baker & Filbeck, 2017).

2.2 Hedge Fund Strategies

The main purpose of hedge funds is to provide investors with absolute returns, allowing for positive returns independent of how the stock market is performing, i.e., having investment strategies with, a relative to other actively managed funds, low correlation to the market (Connor & Woo, 2004). There is, however, a variety of different strategies that a hedge fund can pursue and it is, therefore, a great dispersion in how they operate in achieving these returns (Connor & Woo, 2004; Baker & Filbeck, 2017). The strategies can be classified into two main types: *Market neutral* or *Directional*, with the difference being that a market neutral strategy is very weakly correlated to the market compared to the directional strategy where the fund is betting on a certain market movement by taking a net long or short position of the market. Managers of directional hedge funds are, in other words, maintaining some of the market exposure by not fully hedging their investment positions. Furthermore, the execution of the strategies may be discretionary (based on the manager) or systematic (based upon computer models) (Connor & Woo, 2004). Below follows a more detailed classification of different hedge fund strategies inspired by Hedge

[4] Hurdle rate is the return threshold, which must be exceeded in order for the managers to be able to collect any incentive fees. The hurdle rate could be given as a fixed percentage or benchmarked towards an index such as LIBOR (AIMA, n.d.)

Fund Research (2019) and the *Morningstar Category Classification for Hedge Funds*[5] (Morningstar, 2008). Caution should, however, be taken as it is difficult to pigeonhole hedge funds in these types of classifications and there is, according to Connor and Lasarte (2014), no clear consensus on how this should be done. Furthermore, any attempt to establish a formal system of classification for hedge fund strategies is limited by the fact that these strategies are continuously changing. As investment opportunities shift, hedge fund managers adapt their investment plans or design new ones to benefit from newly emerged profit opportunities.

2.2.1 Equity Hedge Strategy

This section covers the strategies of long/short and its extreme cases: short only, and market neutral. Hedge fund managers specializing in equity strategies build portfolios by combining long and short positions with the portfolio having a beta value relative to the underlying equity market that is either magnified or smoothed dependent on the manager's investment decisions (Auleta & Stefanini, 2017).

The long/short strategy is by far the most common investment strategy among hedge funds (Auleta & Stefanini, 2017). Managers utilizing this strategy try to identify equities that are misvalued in order to profit on the misvaluation by either assuming a long position if it is thought to be undervalued or by taking a short position if it is perceived to be overvalued. Short positions do not only allow for speculation of price reductions but also enables a reduction of the portfolio's market exposure by hedging the systematic risk. Since the long/short strategy does not aim to provide an equity portfolio that correlates to market performance, it rather bases its returns on the stock-picking skills of the managers'. This strategy does, however, allow for market exposures by deliberately holding a net long or net short bias dependent on their view of the market. Generally, the exposure tends to be long- rather than short biased[6], especially over a longer period.

The short only strategy is when managers are specializing in shortening stocks and acting at the extreme of the net exposure range (Auleta & Stefanini, 2017). These managers are looking for companies which they expect to face declining valuations. Examples include companies that are considered to be overvalued, having unstable margins, or are situated in an unfavorable market due to technology changes.

Equity market-neutral strategy is, on the other hand, characterized by funds that hold a market-neutral portfolio, meaning that its underlying performance is not correlated to the market movements. Hence, this strategy minimizes the systematic risk. It should, however, be mentioned

[5] Morningstar also states "Debt" as a separate strategy, which Hedge Fund Research does not. Fixed income arbitrage can however be considered to fall under the category of relative strategy in this categorisation.
[6] According to Barclay Hedge (2019), a manager is typically considered to be long-biased when the average net long exposure of their portfolio is greater than 35%.

that research have questioned the actual neutrality of these hedge funds, indicating that even though they are, on a general level, less correlated to the market, there is still a number of hedge funds that are incorrectly claiming to be market neutral when they are in fact exposed to market movements (Patton, 2009; Ribeiro & Machado-Santos, 2011). Furthermore, the exposures that a fund is facing are never static and needs therefore a continuous rebalancing of the portfolio in order to keep the net exposure market-neutral.

2.2.2 Event-Driven Strategy

This strategy attracts about a quarter of the capital invested in hedge funds and seeks to exploit pricing inefficiencies triggered by specific events (Farrelly & Lhabitant, 2017; Morningstar, 2008). An "event" can be almost anything that offsets the status quo of the company and may be divided into "hard events", such as M&As, restructurings, regulatory changes, stock buybacks and, leadership transitions, as well as "soft events", such as earnings surprises and dividend announcements (Farrelly & Lhabitant, 2017). This strategy can be divided into four subcategories.

Risk arbitrage, also known as merger arbitrage, is essentially the tactic of betting on the success or failure of M&As (Farrelly & Lhabitant, 2017). The logic and mechanics behind the strategy is fairly intuitive – once an offer is made public, it tends to increase the share price of the target but still trades at a discount at the offered price. This creates an arbitrage spread, which will disappear in the event of a complete merger or acquisition, but it can also widen substantially if the transaction fails.

The *Distressed securities* strategy focuses primarily on the purchase of debt securities of issuers that are facing financial distress or are in the process of reorganizations or liquidation (Farrelly & Lhabitant, 2017). These securities are often highly illiquid and ineffectively priced due to forced or emotional selling of investors, low coverage by analysts, or a high degree of risk aversion by the market. This opens up to deviations to the fundamental value which is often substantially higher than the prevailing market price. This strategy can be performed with different degrees of activity and control in terms of how actively they want to be a part of the restructuring process and if they want to assert control over the management or not. An essential feature of this strategy is also that hedge funds that are active in the process receive insider information concerning the company and are, thus, subject to trading restrictions, meaning that they cannot sell off their positions until the bankruptcy process is completed. As a natural consequence, the investors of these kinds of hedge funds are often locked in for several years.

Special situations refer to managers of hedge funds that try to exploit catalytic events (i.e., special corporate events excluding M&As) that have the potential to affect prices of securities (Farrelly & Lhabitant, 2017). A spin-off is an example of a special situation where the value of its securities

may be misvalued. Based on fundamental and technical analyses, hedge funds evaluate these events and take positions accordingly.

Activism is the strategy of hedge funds actively campaigning to maximize shareholder value by pressuring management or the board to take actions such as payout policies, divestitures, strategies, management performance (Farrelly & Lhabitant, 2017). It is not uncommon that hedge funds join forces in acquiring shares in a target company and jointly communicating or pressuring the board.

2.2.3 Global Derivatives Strategy

The global derivatives strategy, called global macro, uses derivatives bets on macro-related factors on an international basis (Barnes, Nikbakht, & Spieler, 2017; Morningstar, 2008). They have the mandate to invest with derivatives or leverage, in a variety of markets such as currencies, commodities, and interest rates. Their focus is typically on broad movements in the economy rather than the performance of specific companies and usually with a longer time horizon on their investments.

This investment strategy takes a top-down approach guided by an investment theme which is derived from assessing an extensive amount of data (Barnes, Nikbakht, & Spieler, 2017). This theme then affects how the fund managers allocate their assets. An example of how this top-down approach could play out is if an investment manager believes that the Chinese and European market will contract and U.S. interest rates will rise, which might indicate that the global market is heading for a slowdown. To capitalize on this view, the manager can then go short on the respective indices and commodities, and go long on precious metals which are known to be a good hedge against economic downturns. The manager would then consider how to implement this with the usage of equities, futures, options, or a combination of instruments can be used.

A systematic approach to the global macro strategy is also known as the managed future or commodity trading advisor (CTA) which has similar objectives as the global macro strategy but uses computer models (systematic trading) to determine how and which trades are executed, intended to remove the human biases associated with trading (Barnes, Nikbakht, & Spieler, 2017; Lamponi, 2013). Trend-following is the most common sub-category amongst CTAs which is focusing on price movements and taking positions based on trends, whether negative or positive.

Funds pursuing, global macro strategies or CTAs need to invest in relatively liquid assets to be able to construct a portfolio which can be adaptive to changes and events that affects the macro-economic outlooks and price movements (Barnes, Nikbakht, & Spieler, 2017). This has been increasingly so due to the increased globalization, making the impact of such events occur seemingly instantaneously around the world.

2.2.4 Relative Value Strategy

Also known as the arbitrage strategy, the relative strategy is trying to exploit mispricing in the financial markets by taking long or short positions in the same or related securities (Dikanarov, McBride, & Spieler, 2017; Morningstar, 2008). The portfolio is usually uncorrelated to the market, consisting of long and short positions that ultimately produce a beta close to zero. Since the transactions typically generate rather small profits on an individual basis compared to other strategies, the fund usually wants to make use of leverage to achieve return targets (Dikanarov, McBride, & Spieler, 2017; Jorion, 2000).

Even though the objective of the relative value strategy is to achieve high returns while minimizing risk, there is very seldom true arbitrage opportunities in the market, hence, there is a risk to this strategy as well (Dikanarov, McBride, & Spieler, 2017). Common risks are credit risk, liquidity risk, interest rate risk, model risk, call risk. Furthermore, the high amounts of leverage applied to generate sufficient profits also adds to the overall risk of this strategy. This was not least illustrated by the collapse of the hedge fund, LTCM in 2000, which used the relative value strategy in conjunction with extreme amounts of leverage (Jorion, 2000).

2.2.5 Multistrategy

Multistrategy hedge funds offer a diversified hedge fund exposure to investors either as a single fund employing a variety of different strategies within one single hedge fund or as a fund-of-hedge funds where the manager typically selects and invests in a variety of external hedge funds into one single fund (Morningstar, 2008; Bayart-De-Germont & Capocci, 2017), see Figure 3. In the prior version, each strategy is usually managed independently, even though they are acting under the same entity (Bayart-De-Germont & Capocci, 2017). In the fund-of-hedge funds version, it is all about building a diverse portfolio of hedge funds utilizing different strategies, asset managers, or liquidity profiles. This allows an investor in the fund-of-hedge fund to be able to indirectly invest in a number of hedge funds, which she may not have been able to do on her own, given the often high minimum investment required by many hedge funds.

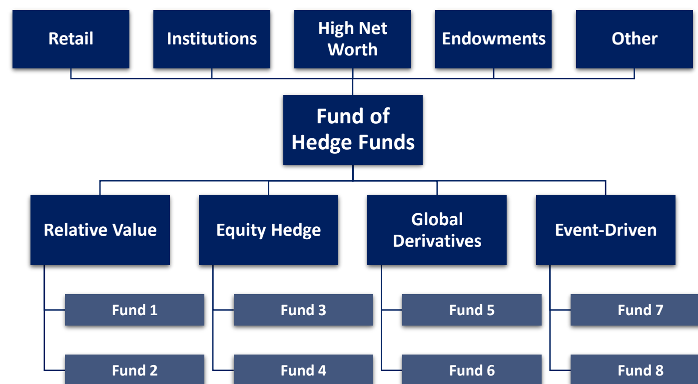

Figure 4. Typical Multistrategy Fund-of-Hedge Fund Structure

2.3 Regulations of Hedge Funds

It has been a common belief that hedge funds are entirely unregulated, but a more accurate description would be that they are structured to take advantage of exemptions in regulations that, otherwise, could limit their operational freedom (Connor & Woo, 2004; Cumming, Dai & Johan, 2013). The financial crisis in 2008 and the increased investor demand from institutional actors has, however, called for more legal restrictions of hedge funds (Baker & Filbeck, 2017; Fairchild, 2018). This is illustrated by the implementations of new legal frameworks for hedge funds in the U.S. as well as in Europe, which will be covered in the following sub-sections.

2.3.1 Alternative Investment Fund Managers Directive

The Alternative Investment Fund Managers Directive (AIFMD) is an EU legislation aimed to increase investor protection and reduce the systematic risk by establishing a harmonized framework for regulating Alternative Investment Fund (AIF) managers within the EU (PwC, 2013). An AIF is a collective investment undertaking that is not subject to the UCITS regime[7] and includes hedge funds, private equity funds, retail investment funds, investment companies, and real estate funds, among others (Financial Conduct Authority, 2018). It is, however, not required for the member states to impose this legislation on smaller funds, i.e., levered funds with <€100m asset under management or unlevered funds with <€500m asset under management. The directive was finalized on 11 November 2010 and implemented into the member states legislation 22 July 2013, at the latest (London Stock Exchange Group, 2013).

The law requires fund managers to obtain authorization from the competent authority of their home member state if they wish to operate or market their fund within the EU (Directive 2011/61/EU). To obtain this authorization, the AIF has to hold a minimum level of capital in the form of liquid or short-term assets, enough to cover professional liability risks resulting from the fund's operations or hold professional indemnity insurance against liability arising from professional negligence which is appropriate to the risks covered. Furthermore, at least €300k is required to be invested by the manager as initial capital if the fund is internally managed, but less (€125k) if the fund has appointed an external manager. The law also specifies that the managers of the fund shall provide additional amounts of own capital equal to 0.02% of the amount by which the value of the portfolios of the fund exceeds €250m. Under this Directive (2011/61/EU) AIF managers are also required to ensure that the funds they manage appoint an independent depositary (e.g., a bank or investment firm) that is responsible for overseeing the fund's activities and ensuring that the fund's assets are appropriately protected. Included in these responsibilities is also to ensure that the AIF's cash flows are properly monitored.

[7] Undertakings of Collective Investment in Transferable Securities (UCITS). The details of UCITS will be covered in the following section.

The information disclosure requirements in AIFMD may, to an extent, already have been contained in an AIF's prospectus[8] or similar investor reports before it became a legal requirement (Matheson, 2016a). However, AIFMD introduces increased disclosure requirements in certain areas, especially those regarding liquidity management and leverage. The Directive (2011/61/EU) also highlights the reporting obligations of the fund and entails, among other things, disclosures concerning the funds percentage of assets of illiquid nature, the current risk profile of the AIF, and the risk management systems employed to manage market risk, liquidity risk, counterparty risks, and operational risk, information on the main categories of assets in which the AIF invested, and the results of the stress tests[9] performed in accordance to the AIFMD. Furthermore, information regarding the main trading instruments used by the AIF, on which markets it actively trades, its principal exposures and, most important, concentrations of each of the AIFs it manages, should also be reported to the competent authority of its home member state. Additionally, an annual report for each financial year has to be made available to investors on request.

Another important aspect of the AIFMD is that the AIF manager has to demonstrate that their leverage limits set for each fund are reasonable and in compliance with those limits at all times (Directive 2011/61/EU). This limit shall be assessed in the light of the risk inherent with these limits and, if necessary, impose limits to the level of leverage that an AIF manager is entitled to employ in order to ensure the stability and integrity of the financial system and to limit the buildup of systematic risk.

2.3.2 UCITS V

Undertaking for Collective Investment in Transferable Securities (UCITS) is the regulatory framework for collective investment vehicles (e.g., mutual funds and ETFs) in Europe, first enacted by the European Economic Community in 1985 (Johannsen, 2011; Fondbolagensförening, 2019). Funds that are compliant with UCITS have the opportunity to market their investment vehicle across the member states without having to worry about which country it is domiciled in (European Fund and Asset Management Association, 2019). Its purpose is to enhance the single market without compromising the high levels of investor protection. Even though it is primarily targeting the member states of the European Economic Area (EEA), it has also become attractive in other regions such as Asia and Latin America because of investors perceiving it to assure that certain requirements have been met. AIFs (e.g., hedge funds) are not required to comply with UCITS as they are not considered marketed to the general public and they have different investment schemes, allowing them to invest in commodities outside of the scope of this Directive (Financial Conduct Authority, 2019). A UCITS compliant fund is restricted to invest in (i) transferable securities; (ii) approved money-market instruments; (iii) deposits; (iv) derivatives and

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[8] A prospectus is a legal document that describes the fund and entails information that might be valuable to an investor (European Commission, 2019).
[9] To perform stress testing is also a requirement under AIFMD (Directive 2011/61/EU).

forwards; and (v) units in other collective investment schemes. There are also more detailed specifications outlined regarding the portfolio proportion of these investments, e.g., "no more than 5% may be invested in Over-The-Counter (OTC) derivative[10] exposure to one counterparty, or 10% where the counterparty is an approved bank" (Financial Conduct Authority, 2019, p. 12). Furthermore, a UCITS-fund is not allowed to have a global exposure greater than its net asset value and the total risk exposure shall not exceed 200% of its net asset value on a permanent basis, meaning that the global exposure may, at most, be doubled through the usage of financial derivatives (Committee of European Securities Regulators, 2010).

The fifth, and latest, version of UCITS (UCITS V) was established in 2014 and required the member states of the EEA to adopt regulations necessary to comply with this Directive 18 March 2016, at the latest (Directive 2014/91/EU). This version focused on increasing investor protection for UCITS-funds making it more aligned with AIFMD on rules concerning asset manager remuneration and the duties and liabilities of depositaries (BNP Paribas, 2018; Matheson, 2016b). UCITS V does, however, impose a stricter depositary regime and also introduces a harmonized sanctions regime. The main difference to AIFMD is, however, that AIFMD allows for far greater flexibility regarding what they can invest in (Financial Conduct Authority, 2019; HSBC, 2018). Funds that are compliant with UCITS are therefore considered to be more "vanilla" in its nature, being subject to more regulatory oversight and scrutiny (HSBC, 2018).

Hedge fund managers have despite the stricter regulation of UCITS, increasingly adopted compliance with these regulations, creating what is commonly referred to as "alternative UCITS" (Luxhedge, n.d.; HSBC, 2018). Alternative UCITS emerged as a consequence of UCITS III, allowing an expansion on what type and range of instruments that these funds could hold. This enabled managers to increase their leverage in their positions and to use Exchange Traded Derivatives[11] (ETD) and OTC derivative instruments to synthetically replicate the action of shortening markets which is otherwise forbidden under the UCITS regulation. Even though AIFs have appeared to outperform alternative UCITS, there has been an increased attractiveness of the latter due to the perception of these funds being more regulated and more liquid, and showcasing an increasingly strong brand name (HSBC, 2018). Figure 4 illustrates how alternative UCITS are designed to offer the absolute returns and low correlation characteristics of an a non-UCITS compliant hedge fund, while at the same time be more regulated and transparent.

[10] OTCs are financial instruments traded via private contracts between two counterparties (broker-dealer) as opposed to ETDs which are financial instruments, traded on a regulated exchange with standardized terms and specifications. Both of them are priced based on the underlying asset (Gupta, 2017).
[11] See footnote 10

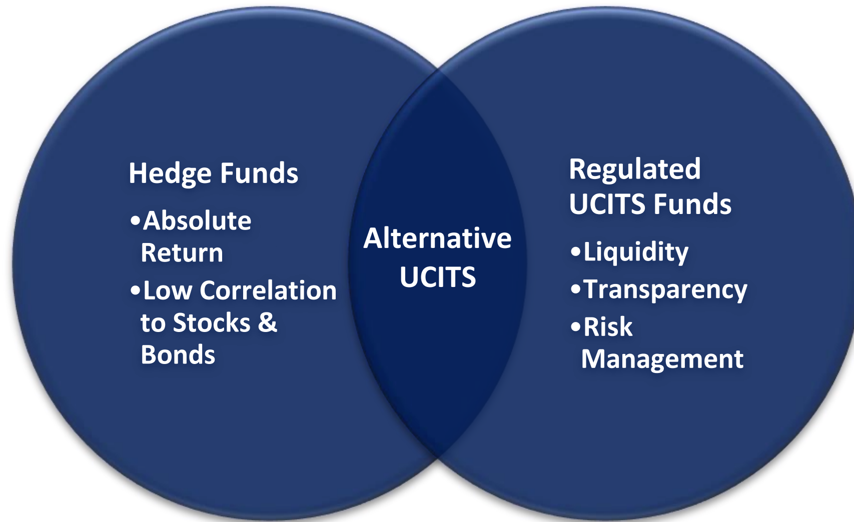

Figure 5. Venn Diagram of Alternative UCITS Characteristics (Luxhedge, n.d.).

The most significant constraint for AIFs complying with UCITS is the liquidity aspect, restricting the usage of illiquid strategies, as illustrated by Table 1 below (Luxhedge, n.d.). This is, however, also the biggest reason why investors are willing to invest in alternative UCITS according to a survey done by Deutsche Bank in 2018 (Deutsche Bank, 2018). Looking at the different profiles of regular hedge funds and alternative UCITS, Busack, Drobetz, and Tille (2014) found that they produce similar returns but with alternative UCITS generating lower volatility, indicating slightly higher risk-adjusted returns. However, by regressing the monthly excess returns of the alternative UCITS on the excess returns of the matched Hedge Fund Research indices, they found no strong correlation amongst the corresponding strategies between alternative UCITS and offshore hedge funds. This indicates that alternative UCITS are not able to provide an adequate exposure against hedge fund strategies. These findings are, to a large extent coherent with what Tuchschmid and Wallerstein (2013) found during a similar study of hedge funds and alternative UCITS, looking at almost 800 alternative UCITS between 2006 and 2012. They also argue that the liquidity constraint on alternative UCITS could inhibit investors, in times of good liquidity conditions, to benefit from the exposure to the risk and rewards of holding illiquid investments.

Alternative Investment	Available in UCITS format?
Hedge Funds - Liquid Strategies	Yes
Hedge Funds - Illiquid Strategies	No
Private Equity	No
Real Estate	No

Table 1. Alternative Investments Availability in UCITS (Luxhedge, n.d.)

2.3.3 The Dodd-Frank Act

“Because of this reform, the American people will never again be asked to foot the bill for Wall Street's mistakes" - B. Obama, 2010

The Dodd-Frank act was implemented in American law in 2010 as a consequence of the financial crisis in 2008 (Dodd-Frank Act, 2018; Managed Funds Association, 2019a; Merkley & Levin, 2011). It served as an act to promote financial stability in the U.S. by improving accountability and transparency in the financial system. One of the components in this act was the “Title IV-Regulations of Advisers to Hedge Funds and Others”, in which requirements of registration and record-keeping for investment advisers of private funds, including hedge funds, were outlined.

The Dodd-Frank Act amended the Investment advisers act of 1940, requiring all hedge fund advisers with $150m or more in assets under management to register with the SEC (Dodd-Frank Act, 2018). This forced many previously unregistered advisers to private funds to comply with all of the applicable provisions of the Investment advisers act of 1940 and the related rules that have been adopted by the SEC (SEC, 2016). Among other things, these investment advisers’ need to report, on a non-public basis, information regarding the funds they manage, what types of funds they are advisers of (e.g., hedge funds or private equity), each fund’s size, leverage, liquidity, and types of investors. The form, called Form PF, is 31 pages long (counting only the ones related to hedge funds) and is filed in its completeness on an annual basis, but also updated quarterly for the larger advisers that have assets under management of more than $1.5bn[12].

Furthermore, records must be kept concerning information necessary to the public interest, for the protection of investors, or for the assessment of the systematic risk of the fund (Dodd-Frank Act, 2018). The information included should contain, among other things:

- The amount of assets under management and use of leverage, including off-balance-sheet leverage
- Counterparty credit risk exposure
- Trading and investment positions
- Valuation policies and practices of the fund
- Types of assets held by the fund

2.4 Foundations of Operational Due Diligence

A walk-through of the due diligence process is necessary in order to understand what tasks are included and why they are important. Furthermore, the role of the due diligence questionnaires is covered as well as an example of how a real-life due diligence process could be conducted.

[12] The quarterly updates do not cover the entire Form PF but rather the questions specifically related to the hedge funds that is advised on (SEC, 2016).

2.4.1 A General Approach to Operational Due Diligence

Broken down, due diligence can be divided into different areas, one of which is operational due diligence. This could be broadly defined as "[...] the process of reviewing and monitoring the operation and management of hedge fund managers" (Brown, Fraser, & Liang, 2008, p. 3) with the purpose of examining the risk assignable to trade flow analysis and cash management, information technology, business continuity and disaster recovery, board of directors and conflict management, legal, compliance and regulatory, valuation, and service provider reviews (Scharfman, 2017). The objective of the due diligence is to identify and continuously evaluate managers with whom to invest, and to conduct a thorough understanding of the potential operational and financial risks accompanied a specific manager. According to IOSCO (2008), which is the global standard setter for securities markets regulation, this is not a process legally required to be carried out by, for instance, professional managers or advisors, however, it is said to be the single most important part of the investment process. This activity is typically done by a potential investor prior to investing (McDonald, 2016).

SkyBridge Capital states a proposed due diligence process in ten steps (McDonald, 2016). As one of the major funds-of-hedge funds with roughly $9.4bn assets under management, SkyBridge Captial is a well-established actor in the hedge fund industry (SkyBridge Capital, 2019) and they have outlined a ten-step recommendation of how to perform an operational due diligence (McDonald, 2016).

1. Have the investment manager complete a significant due diligence questionnaire, for example, the one provided by AIMA[13], which is industry standard.
2. Collect additional information from the managers, including, for example, the fund's legal documents for onshore and offshore vehicles, information on key personnel, operational policy and procedures manual, and managers internal due diligence questionnaire for the fund and firm.
3. Conduct on-site due diligence visit to interview the firm's principals, get a demonstration of front, middle and back office systems, inspect the firm's server room and evaluate its security, and tour the office to determine how functions are segregated.
4. Investigate the background of the management firm, the owners, and key persons.
5. Confirm and verify relationship status, cash controls, and past issues with prime- or clearing brokers and custodians.
6. Confirm and verify previously cited information and material with the fund administrator.
7. Conduct due diligence and background investigations on unknown service providers, for example, auditors, clearing brokers, and back office service provider.
8. Complete a written analysis of the non-investment risks in order to assess them.
9. Weigh non-investment risks and investment risks against expected return, and determine the investors risk tolerance.

[13] Alternative Investment Management Association (AIMA, 2019b).

10. After the investment: Conduct regular monitoring and due diligence, including continuous communication with the manager regarding portfolio and general fund changes, formal risk reporting, and an annual formal due diligence to reassess the risks.

2.4.1.1 The role of Due Diligence Questionnaires

Due diligence questionnaires are tools used in a due diligence process to help investors assess the target fund before making an investment (AIMA, 2019a). It is typically an early step in the due diligence process in which they can use the information gained from the responses to develop areas of focus for further questions and discussions with the managers when they follow up, usually by visiting the fund at their offices.

AIMA provides templates for due diligence questionnaire, which have become a standard in the hedge fund industry (AIMA, 2019a). It is, however, common for institutional investors to have their own due diligence questionnaire (AIMA, 2019a; Scharfman, 2008). It is also common for hedge fund managers to establish their own set of due diligence questionnaires, often guided by the structure of established questionnaires, such as AIMA's (Scharfman, 2008).

Scharfman (2008) provides two different ways to perceive the due diligence questionnaires that are generated by the hedge fund managers themselves from an investor perspective. One is that it puts an unnecessary burden on hedge fund managers to complete different questionnaires from the investors and that sending out unique questionnaires every time essentially forces the hedge fund to merely copy and paste a lot of information from one questionnaire to the other. On the other hand, there are those who argue that sending out customized questionnaires to the hedge fund is beneficial because the hedge fund's own due diligence questionnaire is prepared and packaged in a way that is more focused on marketing than providing essential information. Furthermore, it is stated as highly unlikely for managers to disclose information that could be harmful to them voluntarily. Another argument for the investor to create her own questionnaire is also that it serves a purpose for investors to prepare the fund managers on what kind of information they want, as they are not trying to put the manager on the spot and some information might also require research to be provided by the hedge fund's personnel.

2.4.2 The Due Diligence Process Conducted by Söderberg & Partners

Söderberg & Partners is one of Sweden's leading advisors and intermediaries of insurance and financial products (Söderberg & Partners, n.d.). They have approximately 1,800 employees in seven countries and an industry leading analysis department. All of the information stated in this following section is obtained by personal communication with Johanna Påhlson, who is an analyst at the firm, and this part has been corrected and modified throughout in order to accurately depict the process. It is stated that in order to be comfortable with the investment that they advise to their

clients, they have to conduct a due diligence to secure the quality of the investment vehicle, thus, it is of great importance that the performed due diligence is done in a thorough manner (J. Påhlson, personal communication, 16 April 2019).

The due diligence process conducted by Söderberg & Partners is most often initiated either by request from their clients or from the discretionary advisory department within the company (J. Påhlson, personal communication, 16 April 2019). Since it is not efficient to conduct a due diligence of all hedge funds available in the market, the funds that are demanded internally or by clients are prioritized. This demand usually arises due to a particular hedge fund's superior return. When a hedge fund is targeted for a potential investment, the fund is contacted, and the process and its potential outcomes are explained. There are three possible outcomes: Pass, pass with restrictions[14], or fail. At this point, the due diligence process takes two different routes depending on whether the hedge fund is UCITS compliant or not. A fund that is not UCITS compliant will have to answer the questionnaires produced by Söderberg & Partners regarding, for instance, ethics, environment, fees, capacity, and strategy. For hedge funds that are compliant with UCITS, on the other hand, Söderberg & Partners will get access to their standardized and pre-prepared due diligence documents wherein the information demanded will be found. Once the necessary material is gathered, the assessment process can begin.

In order to assess the hedge fund, the gathered information will be compared to the internal requirements, which, for example, is whether the auditor of the fund is one of the Big Four and whether the fund has a track-record that is three years or more (J. Påhlson, personal communication, 16 April 2019). During this process, further questions usually arise. After this, a meeting with the fund manager is set where the manager gets an opportunity to present their hedge fund, in case Söderberg & Partners missed something in their review of the material, and where the questions that arose during the review could be asked. This meeting enables Söderberg & Partners to get a better overview of the hedge fund in addition to the detailed view given in the gathered information. Lastly, Söderberg & Partners usually visit the fund, allowing them to get a feel for the fund regarding, for instance, the size of the fund, which can be hard to estimate through solely numbers. Once the due diligence is completed, the due diligence is reviewed by another employee of Söderberg & Partners in order to ensure that everything is done correctly and that nothing of importance has been neglected. If the due diligence is approved, the fund will receive its grading and this grading will be valid until a new due diligence is conducted in the same manner, again, driven by the demand from clients or internal functions.

[14] This could, for example, be given a hedge fund where all criteria are fulfilled, yet, the track-record is shorter than three years (J. Påhlson, personal communication, 16 April 2019).

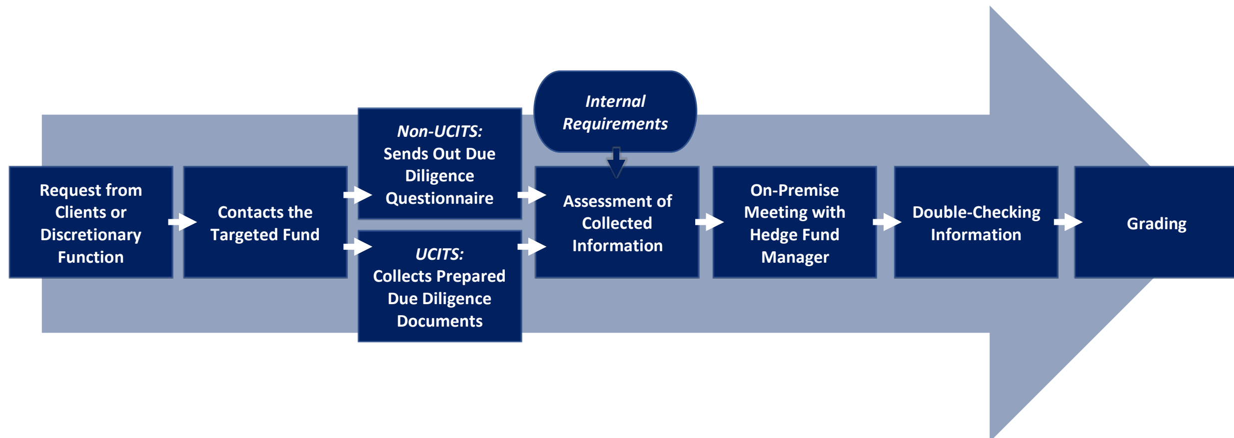

Figure 6. Söderberg & Partners' Due Diligence Process

There are certain characteristics of a hedge fund that changes the questions asked in the due diligence (J. Påhlson, personal communication, 16 April 2019). For instance, questions for smaller funds will be more focused on relationships within the management and their ability to be objective, while questions for larger funds might be more focused on whether the strategy is sustainable in the long-run. That is, large funds pursuing a small cap-strategy might have a limited number of feasible investment opportunities. A large inflow of capital might, therefore, dilute these, leaving the fund with more capital than it can invest.

2.5 Indicators of Fraud

This section is divided into three parts, each covering a specific area of interest. These areas were identified in the studied literature as common themes. The Fund Specific Factors encompasses indicators related to the hedge fund and its organizational structure and also entails information regarding its performance. The indicators found in the area classified as Managerial Characteristics covers indicators directly related to the managers of the hedge fund and also covers indicators on a more personal level. The Externalities area covers the hedge fund's relations to third parties and how they share and communicate information. A brief summary can be found in Table 3, providing the reader with an oversight of what will be covered more in detail. A more exhaustive list of these indicators can be found in Appendix 1.

Category	Phenomena	Example of Indicator
Fund Specific Factors	General information	Age, assets under management, average return
	External conflicts of interest	Relation with broker/advisor
	Internal conflicts of interest	Client transaction with hedge fund manager on the other end
	Service providers	Failing to empoly a well-known auditing firm
Managerial Characteristics	Personal traits	Narcissistic and psycopathic characteristics
	Education	Higher SAT undergraduate institutions
	Background	Legal and criminal violations, work experience
Externalities	Transparency	Reporting to a commercial database, monitoring
	Realiability	Verification of recieved information

Table 2. Brief Summary of Indicators

There are a few different studies that examine the risk of fraud in hedge funds. The common denominator among many of these studies is the aim to identify specific parameters that could indicate and predict fraudulent behavior (see, e.g. Brown et al., 2009; Dimmock & Gerken, 2012; Brown et al., 2012; Li, Zhang, & Zhao, 2011; Muhtaseb & Yang, 2008). By having a set of indicators proven to detect fraud, investors could beneficially utilize these in order to assess the management of a hedge fund, thus, avoid future losses caused by fraud. However, it should be noted that most of these studies are limited by the actual detection of frauds. That is, only the frauds that have been detected are examined in the studies while committed frauds that are yet to be detected are not recognized, which might induce a slight bias to the results (Brown et al., 2009; Dimmock & Gerken, 2012; Brown et al., 2012).

2.5.1 Fund Specific Factors

The approach applied by Brown et al. (2009) aims to develop a score similar to the Altman Z-score[15] in order to evaluate the operational risk of hedge funds. The authors studied the filed Form ADVs[16] of hedge funds domiciled in the U.S. in order to identify which funds that may impose a higher operational risk. The authors categorized funds whose management answered yes to any of the questions in Item 11, regarding the managers as well as all the advisory affiliates disciplinary history, as "problem funds", while funds whose management did not, was categorized as a "non-problem fund". They found that managers of problem funds, to a larger extent, were related to the broker or dealer employed, thus, facing more significant conflicts-of-interest issues. Problem funds did also, to a higher degree, allow their personnel to privately buy securities owned by the fund, an act that is prohibited in any public fund since it further exacerbates the conflict-of-interest issue. Furthermore, both Brown et al. (2009) and Dimmock and Gerken (2012) found that when investment managers take the opposite side of a transaction from their clients, a conflict-of-interest issue arose and that the occurrence of this act was positively related with fraudulent behavior.

[15] A score used to measure risk of default (Altman, 1968).
[16] A filing required by the SEC on information about the investment adviser (SEC, 2011).

A similar issue is found by Muhtaseb and Yang (2008) in a study examining five hedge fund fraud cases as an attempt to identify indicators that could have detected the fraud if they were sufficiently investigated beforehand and, thus, have avoided signification losses. They found that a conflict of interest may appear in the managers' incentive structure, which emphasizes the importance of a managers' integrity (Muhtaseb & Yang, 2008). This is due to the fee structure of hedge funds, where management pay is dependent both on the assets under management through the base fee, as well as on the performance of the fund through the incentive fee. Ultimately, this can be seen as a call option on the fund, where management has an incentive to increase the risk because of their limited liability, especially following times of losses (Panageas & Westerfield, 2009). Low incentive fees and high water-mark provision are also more commonly found among problem funds and is thereby interpreted as an indicator of low-quality funds (Brown et al. 2009). This is contradicted by Liang and Park (2010) who on the other hand, found funds with high water-mark provisions to be less likely to fail.

Brown et al. (2012) are using a sample of 444 due diligence reports in order to assess the operational risk in hedge funds. In this study, they found no evidence proving that investors view operational risk as a material matter, even though it could destroy investor value (Brown et al., 2012). It is therefore argued that investors are chasing returns and primarily focusing on financial figures, such as historical returns. As a potential consequence of this return-chasing behavior, some hedge fund managers are found to manipulate the valuation of illiquid assets, thus shaping their returns, in order to appear more appealing to investors (Bollen & Pool, 2012). Other stakeholders have, however, been found to take more than just the financial aspect of the fund into consideration (Brown et al., 2008). This was found in a study of 879 hedge funds derived from the TASS Database[17] where lenders and prime brokers were observed to take operational risk into consideration when evaluating a hedge fund. Hedge funds with significant exposure to operational risks find it harder to raise leverage due to lenders and brokers being more reluctant towards granting these hedge funds additional capital. This indicates that operational risk is taken into consideration by lenders of capital before providing hedge funds with external capital, thus making low leverage an indicator of high operational risk. Furthermore, the same study also found hedge fund performance to be negatively correlated with operational risk (Brown et al., 2009).

The managerial discretion evident in the hedge funds nature creates a chance for hedge fund managers to strategically adjust their returns to stay positive but will, if utilized, cause a discontinuity in the reported returns around zero (Cici, Kempf, & Puetz, 2016). This discontinuity, called "the Kink", is found by Bollen and Pool (2012) to be the most significant indicator of fraudulent behavior in hedge funds and is suggested to prove that managers smooth their returns. Nevertheless, alternative explanations to the identified discontinuity are provided by Jorion and Schwarz (2014) as they found three plausible non-manipulation explanations to the discontinuities:

[17] The Lipper TASS database compiles information on hedge funds based on surveys of the managers (Li, Zhang & Zhao, 2011).

the incentive fee accrual process, the boundary at zero for fixed income yields, and the impact of asset illiquidity[18]. Hence, Jorion and Schwarz acknowledge that the Kink rarely is caused by manipulation and instead have more natural explanations.

Regarding service providers, Muhtaseb & Yang (2008) argue that even though well-known and well-reputed auditing and brokerage firms are employed, this cannot be seen as a safety measure in the eyes of the investor. This can be illustrated in the case of Beacon Hill Asset Management (BHAM), which committed fraud despite having well-reputed service providers. This can be contrasted by the findings of Brown et al. (2012), who in their sample found that non-problematic funds, i.e., a fund who did not have a previous lawsuit or regulatory issue, to a larger extent employed a Big Four auditor. They further conclude that failing to use a well-known auditing firm is a leading indicator of operational problems.

Among problem funds, certain characteristics regarding the capital and ownership structure were commonly found (Brown et al. 2009). The ownership of problem funds was, for instance, found to be more concentrated compared to non-problem funds. On average, 8.28 percent of the owners of problem funds had a controlling interest, 2.31 percentage points more than non-problem funds. Furthermore, Dimmock and Gerken (2012) found that funds with more client agents, e.g., pension fund managers, potentially brings an increased risk of fraud due to the additional layer of agency and that they are less incentivized to monitor the investment advisor. However, Stulz (2007) state that an increase in institutional investors also will increase the transparency of the hedge fund in order to satisfy the fiduciary responsibility of institutional investors.

In an attempt to estimate operational risk by examining financial figures, Brown et al. (2009) found eleven proxies derived from the TASS database and were able to achieve a correlation of 0.42, at the 1% significance level, with indicators found in the Form ADVs. They found previous returns, standard deviation, fund age, incentive fee, margin, audited, personal capital, onshore, and acceptance of managed accounts[19], to be negatively correlated with operational risk. All of which is in line with the argumentation in previous outlined. This finding indicates an ability to estimate some of the operational risks through financial figures.

2.5.2 Managerial Characteristics

Much of the focus of the operational due diligence is related to the managers, which emphasizes the importance of choosing an appropriate manager with whom to invest (McDonald, 2016).

[18] A further reasoning on these explanations is out of the scope of this study. Interested readers can find an extensive argumentation on this in Jorion and Schwarz's (2014) study, "Are hedge fund managers systematically misreporting? Or not?".

[19] Managed account is an arrangement where the portfolio manager trades securities on behalf of a client who owns the account herself (Chen, Chen, Johnson, & Sardarli, 2017).

Certain managerial characteristics are also found to have an impact on hedge fund management (Li, Zhang, & Zhao, 2011). It is shown that managers from higher SAT-institutions tend to achieve higher returns, have more capital inflow, and take less risk. It should, however, also be taken into consideration that individuals are influenced by coworkers, which potentially could affect the financial advisor's propensity to commit misconduct and, thus, investors could benefit from being provided with information regarding the coworkers as well (Dimmock, Gerken, & Graham, 2018).

There are additional personality traits possessed by managers that may impact the fund's probability to behave unethically according to Brinke, Kish, & Keltner (2018). They used a psychological test to code nonverbal behavior based on signals that have previously been found to be reliable when assessing personality traits. This was done by analyzing videos of hedge fund managers between the year 2005-2015. In the study, it was found that hedge funds whose managers displayed psychopathic or narcissistic personality traits, performed worse than the funds with whose managers were less psychopathic or narcissistic. More specifically, managers who displayed more narcissistic behavior, such as flirtatious lip puckers or excessive use of first-person pronouns, produced lower risk-adjusted returns in the observed period. That is, a more narcissistic manager would have produced the same return as a less narcissistic manager; however, the more narcissistic manager would have taken on more risk in order to achieve it. Managers that displayed more psychopathic behavior, on the other hand, such as lack of appropriate emotional expression and reactive anger, was shown to predict a faster diminishing pace of annual returns compared to less psychopathic managers.

Muhtaseb & Yang (2008) found no evidence that a hedge fund manager's prior work experience includes an adequate use of her accumulated knowledge. This is also discussed by Li, Zhang, and Zhao (2011), who, in addition to this, found less established managers to work harder and take more risks, and that they tend to achieve better returns than more established managers. This is said to be due to less established managers striving to get established, thus, being more incentivized and more motivated to perform better. However, hedge fund managers with more working experience was also found to be less willing to take on risk in terms of volatility, which according to Baker and Filbeck (2017) is associated with less risk of hedge fund failures.

Brown et al. (2012) also found an unwillingness to be forthcoming regarding past regulatory and legal violations to be one of the leading indicators of operational problems. This finding is supported by Muhtaseb and Yang (2008) and Dimmock and Gerken (2012) who found managers with past criminal violations to indicate a higher risk of fraudulent behavior. However, this risk could be mitigated by managers having more personal capital invested in the fund, as this is found to be negatively correlated with fraud (Brown et al., 2009). They also noted that problem fund managers, on average, have 1.36 percent less personal capital invested in the fund they manage compared to non-problem funds.

2.5.3 Externalities

Dimmock and Gerken (2012) studied historical form ADVs, in which they acknowledged that there is a need for improved accessibility of historical disclosures to the public since this is argued to potentially reduce the marginal benefit by increasing the risk of detection. However, it should be noted that the historical Form ADVs studied, is not readily available for the general public. Further discussing the information asymmetry evident in hedge funds, Aiken, Clifford, and Ellis (2012) found hedge funds that are voluntarily reporting to commercial databases to be performing better than the funds that are not. That is, due to the voluntarily reporting, hedge funds that have an inferior performance can choose to either delay their reporting or completely delist from the database. The authors, therefore, suggest investors to solely invest in funds that are reporting to commercial databases as this can be interpreted as a certification mechanism and that it incentivizes the manager to satisfy an implicit commitment of continuous disclosure to investors.

Brown et al. (2012) found that 16% of the funds in the sample, intentionally or unintentionally, misstated material facts to the company performing the due diligence, despite the knowledge that a due diligence firm was hired to verify the given information. This emphasizes the importance of information verification by the investor, especially in lightly regulated service providers like hedge funds. However, Muhtaseb and Yang (2008), found that despite a lot of the received information is easy to verify, it is an often neglected activity.

As mentioned earlier, hedge funds are in many aspects unregulated, although they still have to comply with accounting laws and standards (Haskin, Davis, & Flynn, 2009). This prohibits them from exerting full discretion regarding asset valuation. It is also noted that standards for hedge fund valuation are evolving due to heightened regulatory scrutiny. Regarding valuation of assets, Muhtaseb and Yang (2008) argue that due to the illiquidity of some assets held by a hedge fund, the valuation of such assets will be hard to assess by investors, emphasizing the importance of a well-constructed valuation procedure and sufficient monitoring by third parties (Muhtaseb & Yang, 2008). That is, some strategies involve more or less liquid assets which can be hard to value, although this action is necessary to understand the perceived risk of the investment. Third-party professionals are therefore needed in order to sufficiently evaluate the risk-return profile of hedge funds pursuing strategies that involves illiquid assets. A real-life depiction of this valuation issue was when Bear Stearns, the brokerage firm of BHAM, discovered a growing valuation gap between their valuation and their clients, as an attempt of BHAM to cover losses induced by losing positions. The difference in valuation between the two reached roughly 31% before Bear Stearn decided to contact the SEC (Muhtaseb, 2010).

2.6 Short Track-Record

Many investors are hesitant towards making investments in young hedge funds that lack a sufficiently long track-record (Kat & Menexe, 2002). For example, Söderberg & Partners currently require a track-record of at least three years prior to investing in a hedge fund (J. Påhlson, personal communication 16 April 2019). The logic for this is intuitive as emerging hedge funds usually suffer from greater information asymmetry towards the investor (Aragon & Qian, 2010). In other words, they have a lot more to prove to potential investors. Furthermore, it has been shown that younger funds face a higher risk of liquidation, which, of course, contributes to the reluctance of being one of the early investors in a newly established hedge fund (Hedge Fund Research, 2005; Brown, Goetzmann, & Park, 2001).

2.6.1 Opportunities with emerging hedge funds

Despite the heightened risk of investing in a young fund, there are multiple studies showing that these funds tend to outperform mature hedge funds (Prequin, 2013; Boyson, 2003; Boyson 2008; Jones, 2007; Hedge Fund Research, 2005) even when survivorship-[20] and backfill biases[21] are taken into account (Aggarwal & Jorion, 2010). Aggarwal and Jorion (2010) demonstrate that emerging funds and managers[22] generate annual excess returns (compared to mature funds) of 1.57 percentage points during the first four years and that this tendency holds across various organization types, i.e., single-fund and multi-fund (fund-of-hedge fund) managed companies. They also find that, for single funds, these abnormal returns are persistent to up to five years, thereafter fading away. Hedge Fund Research (2005) also supports the notion of newly established funds outperforming their peers. They created four indices dependent on the age of the hedge fund, ranging annually from 0-12 months, to four years or older. They concluded that for all periods between 1995 to 2004, funds performed better in their first two years, with the first year being significantly better, with similar volatility. This highlights that even if adjusted for financial risk, the outperformance is consistent in the first year of the hedge funds. Aggarwal and Jorion (2010) hypothesize that these effects are partially due to stronger incentive effects for managers that are less experienced as they are believed to have a smaller initial wealth than experienced managers, thus having a greater marginal benefit of additional income provided by the incentive fee. They also suggest that size is an important factor, with younger funds usually being smaller and more agile. Being smaller could be beneficial in making off-the-radar-investments that are simply too small for multi-billion-dollar managers to invest in, such as attractive small-cap companies (Jurish, Brady, & Williams, 2012). The study made by Hedge Fund Research (2005) argues in a similar

[20] Survivorship biases occurs when the data excludes funds that have closed down. Aggarwal and Jorion (2010) includes so "graveyard funds" to mitigate this bias.

[21] Backfill biases occur when data is reported voluntarily (Aggarwal & Jorion, 2010). Prior to 2010, hedge fund managers reported mostly on a voluntary basis, see section 2.2 for regulation

[22] Emerging funds and managers are in their study defined as the first two years of a hedge fund's life.

fashion as to why emerging managers outperform their elders, stating stronger incentives, nimble nature, and specific expertise to niche exposures as potential explanations.

2.6.2 Risks of Investing in a Fund with a Short Track-Record

Despite the empirical findings, outlined in the previous section, of newly established hedge funds outperforming their mature peers, there has also been research concerning the risks of such investments. Hedge Fund Research (2005) highlights the previous stated increased risk of mortality of the younger hedge funds, showing that during the examined period, the mortality rate was increasing up until, and peaking at, 14.5%, the third year of existence. Caution should be given to the explanation of these liquidations as they are not specified per voluntary or non-voluntary in the study. However, other studies with similar conclusions have shown that the majority of the liquidations are explained by poor performance (Baquero, Horst, & Verbeek, 2005; Brooks & Cat, 2001). Christory, Daul, and Giraud (2007) also found funds with lower assets under management, to be more likely to default as a consequence of fraudulent behavior, as illustrated by Figure 6. This could indicate that newly established hedge funds are not only at higher risk of default but also suffer a higher risk of committing fraud.

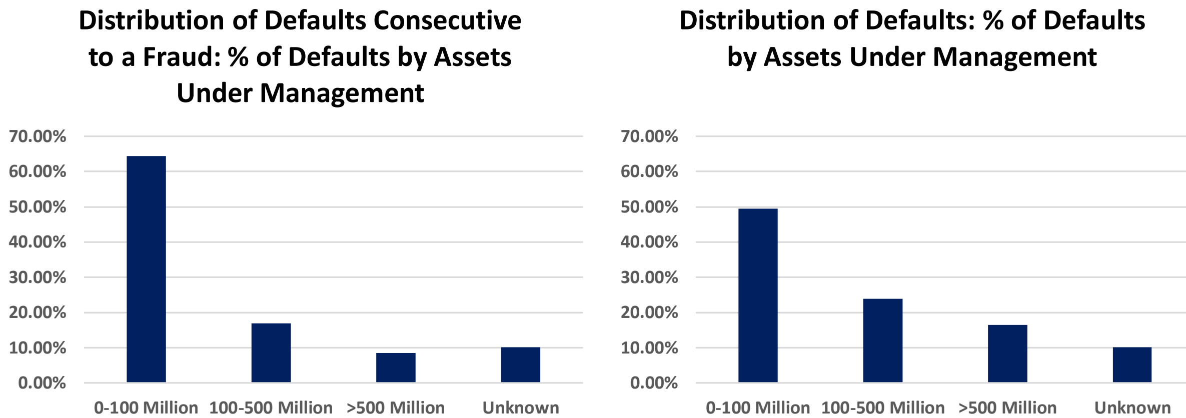

Figure 7. Distribution of Fraud (Christory, Daul, and Giraud, 2007)

2.6.3 Mitigation of Risks Related to Short Track-Record

Even though young hedge funds may lack the same operational standards as the more mature funds, the minimum acceptable standard has risen for hedge funds as a whole, making even the funds with, relative to other funds, weaker operational standards more resilient to operational risks than before (Jurish, Brady, & Williams, 2012). Adding to this notion is the increased regulatory oversight, which has been a clear trend since the financial crisis of 2008.

The financial due diligence of hedge funds that lack a longer track-record is more challenging since it makes quantitative analysis difficult, if not impossible (Jurish, Brady, & Williams, 2012; IOSCO, 2008). The focus must, therefore, be shifted towards the skills and quality of the management team. More specifically, the experience, investment strategy, business management skills, execution process, risk management process, and trading capabilities should be scrutinized. Furthermore, taking references and doing thorough background checks of the manager of the fund becomes even more important. In other words, the operational due diligence becomes crucial.

Aggarwal and Jorion (2009) use data from the Lipper TASS database from 1996 to 2006, covering both active and inactive funds, to study the risk, given as the volatility, of new hedge funds. Conclusions from this study were that investors looking to decrease the volatility of their investments in emerging hedge funds while still keeping the abnormal returns present in emerging funds should invest in large funds, funds from multi-fund management companies, and funds run by managers who have previous experience in running other hedge funds. They also recommend investors to monitor the performance of the emerging hedge fund more closely. Since they lack a longer track-record, volatility needs to be monitored on a monthly basis and consider exiting hedge funds displaying abnormally high volatility.

2.6.4 Seeding

Seeding is an alternative for institutional investors that enables the investors to provide capital in exchange for an equity stake in the company (Lack, 2012). This investment could act as a “rubber stamp”, proving the viability of the hedge fund and as such, being able to attract new investors (Jurish, Brady, & Williams, 2012). In this relationship, the initial investor also typically provides support and expertise in areas such as marketing, risk management, and governance. Hence, being able to influence and gain great insight into the fund’s operations.

This initial contribution of capital typically allows seeders to gain a share of the hedge fund’s revenue which can prove to be highly profitable, as it grows with the hedge fund’s asset growth (Jurish, Brady, & Williams, 2012; Lack, 2012). Other benefits could be early exposure to emerging managers, rights to future capacity, and operational insights. The seeders participation can range from a simple fee discount to a majority stake in the manager’s firm and it typically involves a lockup period of, for instance, three or four years (Jurish, Brady, & Williams, 2012; Ewald & Zhang, 2016).

Looking at the risk and return profile of this kind of investment it can be said to fall between that of a fund-of-hedge funds and private equity funds. Thus, if the investor is willing to lengthen its investment horizon it can prove to be very lucrative and potentially provide added diversification benefits (Fiera Capital, 2017).

3 Methodology

This chapter outlines the methods that were employed to carry out the study. The research approach covers the philosophical discussion, the nature of abductive reasoning as well as what methods were used. The research design entails the steps taken to perform the study and an overview of how the information was collected. The method used to collect the data, and how this was analyzed, is explained in further detail as well. Furthermore, discussions concerning the choices and its implications on the validity as well as its limitations are covered throughout the section.

3.1 Research Approach

The philosophical approach inherent in this study is closely related to what is known as *The Pragmatic Worldview*. This paradigm focuses on the solution to the problem and focus is shifted from the applied method to rather make use of all approaches available to understand the problem at hand (Creswell, 2014). It is, therefore, commonly used when applying multi-methods and appealing in the sense that it speaks to both the discipline and the practice (Shields, 2004). Feilzer (2010) argues for the practical relevance of pragmatism as a research paradigm and supports the use of different research methods, "[…] as well as modes of analysis and a continuous cycle of abductive reasoning while being guided primarily by the researcher's desire to produce socially useful knowledge" (Feilzer, 2010. p. 1).

Initially, the limited literature on how the UCITS regulation affects operational due diligence of hedge funds, sparked our interest to study due diligence of hedge funds further. With guidance from theoretical concepts, we developed a deepened understanding of the landscape related to the research questions. These were explored and studied with respect to the collected data, as well as in regards to the open-ended communication with investment professionals at Söderberg & Partners, enabling a constant critical reflection and reasoning towards the theory as well as the collected data. This approach is commonly referred to as abductive reasoning as the research process starts with a surprising or puzzling fact which cannot be fully explained with existing theories. The researcher then seeks to choose the best answer among many alternatives in order to explain this identified phenomenon (Mitchell, 2018). This reasoning can mitigate some of the weaknesses generally inherent in deductive and inductive reasoning (Saunders, Lewis & Thornhill, 2012 cited in Mitchell 2018), where the prior has been criticized for lack of clarity in how to select the theory to be tested via formulating hypotheses. Inductive reasoning, on the other hand, has been criticized because "no amount of empirical data will necessarily enable theory-building" (Dudovkiy, 2016 cited in Mitchell, 2018).

Personal values and biases are prevalent in all research and to achieve total objectivity in a study is not feasible (Bryman & Bell, 2015). However, in this thesis, steps have been taken to minimize such biases. First, being more than one author allows for an added perception when collecting and

processing information. Second, both investment professionals, such as Söderberg & Partners, and scholars, in the form of a thesis tutor, have provided criticism and insights which have enabled us to see this research topic through multiple lenses. It should, however, be clarified that the perspective from which this phenomena is studied is from that of the institutional investor. The reason is that retail investors rarely perform a comprehensive operational due diligence on potential investments since they, generally, do not have the needed resources to perform such tasks.

3.2 Research Design

Qualitative methods allow for a deeper understanding of the research area and is an appropriate choice of method when the richness and complexity of the data need to be obtained, as is the case in this study (Atieno, 2009; Queirós, Faria, & Almeida, 2017). The detailed understanding concerning the cultural and contextual influences would also be neglected, would we have applied a quantitative research design (Rahman, 2016).

The data was collected through multiple methods. Existing due diligence questionnaires were collected in order to provide an indication of what is currently being assessed in an operational due diligence. Real-life cases were studied to get a sense of what indicators that could have foreseen the fraudulent behavior in these events. Ultimately, interviews were conducted with professionals from both the investor and the hedge fund management perspective to get a deeper understanding of how operational due diligence is being performed today and what might be of more or less importance in this process. This methodological approach is referred to as a multi-method and is commonly used when trying to answer several sub-questions related to the overall research questions (Tashakkori & Teddlie, 2003). See Figure 7 below for an illustration of our sub- and overall research question. This method is particularly useful in its ability to provide different perspectives on the same phenomena that are being studied and obtain different levels of data.

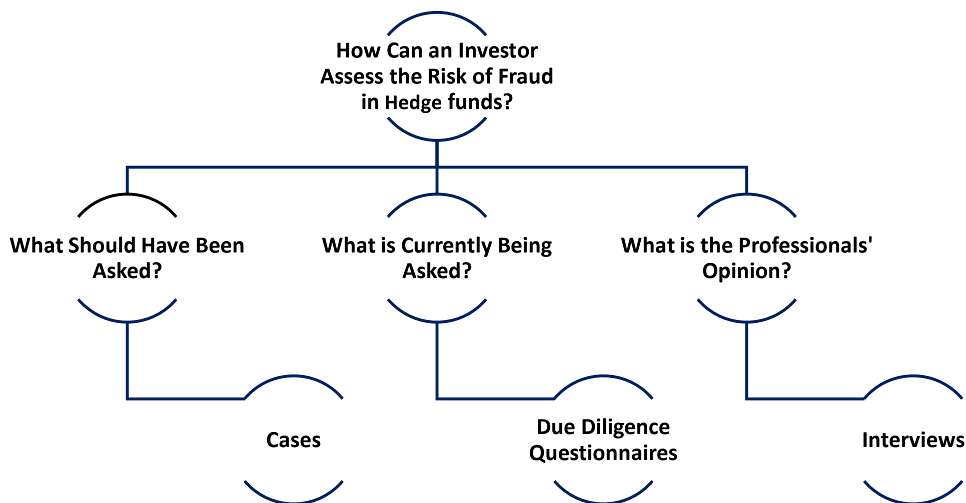

Figure 8. Research Questions and Corresponding Sub-Questions

3.2.1 Collection of Information

The literature review was done by searching through mainly two online databases, LUB Search, which is the online library available for students and staff at Lund University, and Google Scholar. The latter was often used to find material which was later accessed through LUB Search, as it was considered to be more convenient for our purpose.

The different sections of the conceptual framework required different sources of information to be considered. The understanding of the regulatory environment was derived from official sources such as the European Commission, SEC, and Financial Conduct Authority, but was also nuanced in a more practical manner by using well-known sources such as PwC and BNP Paribas. The section concerning Söderberg & Partners' due diligence process was explained by J. Påhlson, who is responsible for the fund and the unit linked analysis at Söderberg & Partners. Furthermore, books and articles were used as extensively as possible in the areas where this type of research was available. Considerations were always given to the scientific reputation of the source in terms of number of citations and journal recognition. However, the limitation of the breadth of published articles[23] in this field of research imposed certain restrictions. The occasional limitations of available research and the sporadic usage of corporate information further highlighted the importance of keeping a critical mindset and as far as possible, try to triangulate the information provided.

3.3 Data Collection

The data was derived from a collection of due diligence questionnaires from the investment perspective. Additionally, we analyzed four real-life cases of fraud in hedge funds, and also interviewed four respondents from both the hedge fund and the investment perspective.

3.3.1 Due Diligence Questionnaires

By looking at due diligence questionnaires of five different actors we were able to answer the question *What is currently asked?* We also achieved a more holistic picture of what kind of questions that are perceived to be most relevant to ask different hedge funds and which parts that were missing when compared to theory. Söderberg & Partners sent us their due diligence questionnaire, while the remaining four were collected from publicly available sources online. Out of these four, the credibility of the three private actors were studied by looking at the composition of their board of directors (ILPA, 2019; Managed Funds Association, 2019b; AIMA, 2019b), where positions were found to be held by well-known organizations and pension funds such as

[23] By searching Google Scholar for the phrase: "Operational due diligence hedge funds" (with "operational due diligence" as exact phrase) we got 241 hits, with a minority of these hits being articles published by reputable journals.

PwC, Citadel, JP Morgan Chase, Credit Suisse, and AP2 Fonden. Furthermore, both Managed Funds Association (henceforth MFA) and AIMA have been invited to provide consultation to the European Commission on several occasions (e.g., European Commission, 2017), strengthening the perception of them being highly regarded in this field. The fourth due diligence questionnaire was collected from Stavetski (2009), adding a more theoretical point of view to our sample of otherwise practical due diligence questionnaires.

3.3.2 Cases

Four different real-life cases were studied in order to identify potential indicators which could have predicted the fraudulent actions and answer the questions *What should have been asked?* The cases were chosen based on information availability and their financial and reputational impact on investors and the hedge fund industry, respectively. Given these prerequisites, most identified cases were U.S. based. Weavering Capital was therefore added to the population as well, as it did not only, fulfill the above-stated criteria, but also added a Scandinavian and European dimension as well. The case of LTCM was also added despite it not being a case of outright fraud. The logic behind this was twofold. One being that it was still caused by operational failure which might be the hotbed for fraudulent activities, and the other reason being that it was thought of as having a significant impact on how the regulatory environment has evolved over the years, given its high-profile case.

3.3.3 Interviews

In order to successfully answer *What is the professionals' opinion?*, four semi-structured interviews were conducted. Interviews are said to be optimal when trying to understand the interviewees' perception of a phenomenon as well as trying to develop usefulness from their experiences (Kvale & Brinkmann, 2009). Using a semi-structured interview methodology does also provide more flexibility than a strictly structured methodology by enabling the interviewer to get deeper and more evolving answers due to the interviewee's interests and the interviewer's follow-up questions (Bell, 2005; Bryman & Bell, 2015). A semi-structured interview setting also allows the interviewee to introduce new topics that were not obvious beforehand and that is still of importance for the objective of the thesis (Mason, 2002) and encourages the interviewee to tell her story in a way which she feels comfortable (David & Sutton, 2011).

All of the interviews were recorded and transcribed. It should be noted that due to the fact the all of the interviews were conducted in Swedish, some misconceptions could have occurred in the transcription and translation process. To mitigate this, the transcriptions were translated back to Swedish and compared to the original version of the recorded interview to ensure that no nuances were lost in the process (Bryman & Bell, 2015). Afterward, they were sent back to the interviewees' in English, allowing them to ensure the accurateness of their statements and also

raising the opportunity for further clarifications. This further minimized the risk of misunderstandings and wrongful information that might emerge during the transcription, translation, and interpretation of the collected data (Kvale & Brinkmann, 2009).

3.3.3.1 Choice of Interviewees

Our interview sample consisted of four respondents – two of which were interviewed as hedge fund managers, the Systematic Hedge Fund and Catella, and two who were interviewed from the investment perspective[24], IAM and RPM. The reason for this was to get a holistic depiction of the research topic from both parties. In order to create a more purposive set of data, it is also recommended to hand-pick key actors in the area (Denscombe, 2005; Bryman & Bell, 2015). This method also allowed us to create a more heterogeneous sample as we could choose respondents with different characteristics, enabling a more diverse set of data (Denscombe, 2005). The interviewees were recommended by Söderberg & Partners who also helped us to get in contact with the interviewees, all of whom were currently working with either investment management or hedge fund management. The collaboration with Söderberg & Partners also provided us with an advantage as they were able to put us in contact with highly influential hedge fund managers and investment managers, which otherwise might not have been possible.

According to Denscombe (2005), there are "[…] no hard and fast rule on [choice of informants]" (p. 181). However, it is recommended to interview as many as needed to provide sufficient data. With that in mind when compiling the interviews, it was possible to identify common opinions and attitudes, suggesting that the study was achieving a sufficient number of interviews, thus, implying that data saturation was reached (Kvale & Brinkmann, 2009). It should although be noted that the small number of subjects limits the generalizability of the study, as generally is the case with qualitative methodology and specifically interview studies. However, since the aim is to develop an understanding of the operational due diligence, generalizability is of minor importance.

The interviewees consisted of two respondents from the hedge fund perspective, being Catella and a hedge fund that wanted to be stated anonymously, hence, hereafter referred to as the "Systematic Hedge Fund", and two respondents from the investment perspective, International Asset Management and RPM Risk & Portfolio Management.

[24] The term "investment managers" is somewhat arbitrarily used for these respondents since they are operating under a kind of fund-of-hedge fund strategy that are pursuing investments in other hedge funds or hedge fund managers through managed accounts.

Hedge fund perspective

Catella

The interviewees' at Catella were a senior sales manager and a sales manager, both of whom worked with their alternative funds, Catella Nordic L/S Equity and Catella Hedgefond. Catella is a financial advisor with approximately 600 employees in 14 countries, out of which 29 is working within their fund department. They are also listed on Nasdaq Stockholm in the MidCap segment. Catella's hedge funds are primarily marketed towards retail investors and they have a retail-to-institutional investor base of approximately five-to-one.

The Systematic Hedge Fund

The Systematic Hedge Fund is one of the world's largest trend-following CTAs. They have approximately 75 employees and $5bn of assets under management. Founded in Stockholm, Sweden, in 1999, their investor base is made up of approximately 95% global institutional investors such as pension funds and sovereign wealth funds. The interviewees' at the Systematic Hedge Fund worked with business development. One of which was a senior sales representative with prior experience in screening and analyzing hedge funds from an investment perspective.

Investment Perspective

Both of these respondents from the investment perspective are, among other things, managing funds that are investing in other hedge funds, thus they are experienced in performing due diligence on other hedge funds and managers. The term *investment manager* is therefore used when the data is analyzed under the findings-section to avoid confusion.

International Asset Management

International Asset Management (henceforth IAM) is an English corporation that has approximately 35 employees throughout the three countries in which they operate, being Sweden, U.S., and the UK. The main focus and specialization of the corporation are hedge fund analysis and active management of hedge fund portfolios. They also provide services within operational due diligence to investors. The interviewee at IAM was the managing director of the Swedish branch.

RPM Risk & Portfolio Management

The interviewees' were a senior investment analyst and the senior vice president of RPM. RPM is a Swedish corporation with 12 employees specialized in CTAs. RPM manages two multi-CTA funds, RPM Evolving CTA Fund and Galaxy fund. The prior is investing in young CTAs that are smaller and more innovative. The latter is investing in bigger and more well-known CTAs with a trend-following strategy.

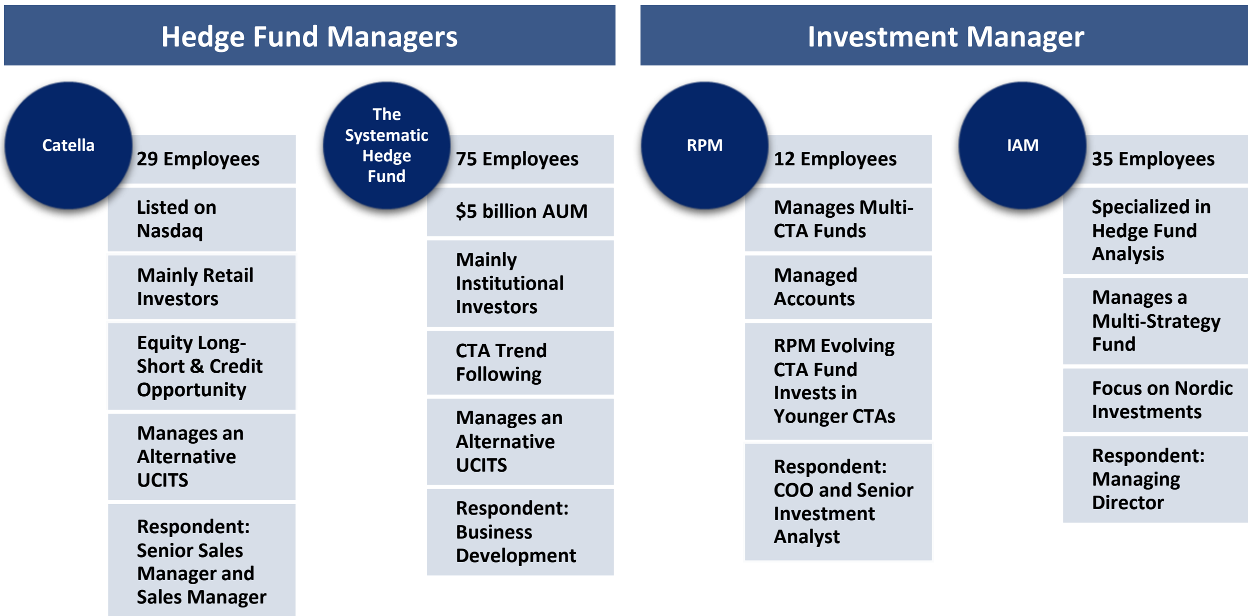

Figure 9. Overview of Respondents

3.3.3.2 Interview Questions

The interview was divided into four different parts: Due Diligence Questionnaires, Regulation, General Due Diligence, and Short Track-Record (see Appendix 2 and 3 for the full interview protocol). All questions asked were developed from the collected due diligence questionnaires and the cases of hedge fund frauds, as well as from the conceptual framework, and aimed to answer questions that still is yet to be answered, as recommended by Jacob and Furgerson (2012). Furthermore, all the questions are specific and open-ended, which is said to facilitate the gathering of meaningful and exhaustive data. By asking open-ended questions, we also got information that closed-end questions would have neglected, due to the subject's interpretation of the question and her prior personal experiences (Jacob & Furgerson, 2012), while also letting the interviewee elaborate on what she finds of most interest (Denscombe, 2005). The topics do not change between the two different types of interviewees'. However, the questions asked are slightly reformulated in order to better capture the essence of the considered issues as the perceptions may be different between the two groups.

The introductory topic of the interviews concerned the interviewee's background and perception of due diligence questionnaires. This part provided us with useful background information that was used to put the answers provided by the interviewees in its context to properly be able to interpret the data (Bryman & Bell, 2015). Furthermore, the objective of this part is to achieve an overview of the practitioner's perception of the due diligence questionnaires in the area of usefulness and reliability. The second part of the interviews concerned the general aspect of operational due diligence. This part aimed to get a better understanding of what was considered to be more or less important when carrying out an operational due diligence of a hedge fund. To be

able to ask hedge fund managers this, the objective was to identify to what extent the hedge fund manager performed the same tasks as the investment manager would do in a due diligence process. For instance, to what routines and policies the company has regarding background checks of new employees. Thirdly, the topic of regulation was covered. This part was slightly less structured in order to facilitate an exhaustive discussion on the impact that regulation brings on hedge funds and whether or not this has an impact on the due diligence process and in what way. The fourth and last part of the questions concerned the perception of newly established hedge funds. For example, investment managers were questioned what they consider to be too young in regards to hedge fund investments and how the risks inherent in these investments are mitigated, and on the other hand, what the hedge fund managers do to overcome the issue of raising capital and signaling credibility in the funds early years.

3.4 Data Analysis

The analysis applied is based on the proposal outlined by Creswell (2014). The initial part of the analysis was to prepare and organize the data by transcribing the interviews to facilitate further analysis. After this, we listened through the recordings as well as read through the transcripts to get a general sense of the collected data and to assure its accurateness. In these transcripts, key sentences and paragraphs related to topics derived from the conceptual framework were highlighted and segmented. These codes were compared across the interviews to establish a first sense of how the data differed or related to each source. This codification also enabled a data reduction, making it more manageable and relevant to the research questions, also allowing us to structure it into themes that naturally emerged after comparisons of the codes. From these themes, a holistic understanding of how the empirical data relates to previous research and how the data could contribute to the theoretical framework emerged.

4 Due Diligence Questionnaires

➢ *What is currently being asked?*

In this section, five due diligence questionnaires are compared in order to identify similarities and differences. Three of the gathered questionnaires are produced by global institutions, one is produced on a theoretical basis, and one is produced by an investment advisor. An illustrative summary of this section can be found in Table 3.

The first due diligence questionnaire is produced by the Institutional Limited Partners Association (ILPA), which is a global organization dedicated exclusively to advancing the interests of limited partnerships and their beneficiaries (ILPA, 2019). The second is derived from MFA, who "represents the global alternative investment industry and its investors by advocating for sound industry practices and public policies that foster efficient, transparent, and fair capital markets" (Managed Funds Association, 2019b, n.p.). The third due diligence questionnaire is developed by the global representative of the alternative investment industry, AIMA (AIMA, 2019b). The fourth questionnaire is, apart from the others, a theoretically based questionnaire by Stavetski (2009), and lastly, the due diligence questionnaire produced by the investment advisor and financial intermediary of Söderberg & Partners. A summarizing compilation of the comparison between the due diligence questionnaires can be found in Table 3. In this table, the headings identified in the due diligence questionnaires are sorted by the covered area. That is, the headings found on the same line in the appendix covers the same area.

Common among all of the observed due diligence questionnaires is the introductory section, covering the area of general information, background, organizational, and ownership structure, among others, regarding both the fund and its firm. However, the differences found in this area were the depth of the actual section. Furthermore, some actors, for instance MFA, chose to spread their questions which the others thought of as "general" throughout the questionnaire, keeping their introductory part much smaller, although the same area was covered on an overall basis. Also, we found that in some of the questionnaires, there was no separate section dedicated to the fund and the firm. The headings and categorizing differed between the questionnaires as well as the granularity, although the same areas were covered most of the time.

In the continuation of the due diligence questionnaires, the majority of the content was similar. In all of the questionnaires, questions regarding the investment strategy and market environment, personnel, conflicts of interest, fund terms and fees, firm governance, risk and compliance, performance history, accounting, valuation and reporting, and legal compliance, was covered throughout the sample. However, as should be noted, since the length of the questionnaires varies widely, the depth of these sections does as well. For instance, the questionnaire by ILPA is 29

pages in total, while Stavetski's (2009) questionnaire is only nine pages, making it challenging for Stavetski's questionnaire to be equally as thorough as ILPA's.

What, on the other hand, differed between the due diligence questionnaires were the specific areas of the investment process, ESG, diversity/inclusion, manager selection and research, taxes, personal capital invested by the manager, and fund investors. Regarding the investment process, questions related to this were found in all of the questionnaires but the one produced by MFA. This section covered detailed questions on the process leading up to an investment and the internal decision-making process. Usually, the questionnaires require a flow chart or similar to visualize the investment process.

Only ILPA and Söderberg & Partners included a section dedicated solely to ESG-questions. That is, specific questions about the environment, social, and governance in the firm and the firm's portfolio companies. However, it should be mentioned that AIMA did decide to publish a separate due diligence questionnaire, specifically for these questions in 2017 (AIMA, 2017). That questionnaire incorporates questions derived from The United Nations-supported Principles for Responsible Investment, which is the world's leading proponent of responsible investment (PRI, 2019a). Furthermore, there were also a couple of areas that were specific for the different questionnaires. For instance, ILPA's questionnaire was the only one that included a separate section for detailed questions on diversity and inclusion. Furthermore, the theoretical due diligence questionnaire produced by Stavetski (2009) was the only one to include a separate section for the manager selection and research process as well as a separate section on tax management. The same can be said about the questionnaire of Söderberg & Partners which was the only one including questions regarding the fund's investors and the managers' personal capital invested in the fund.

ILPA	MFA	Wiley	AIMA	Söderberg & Partners
General Information, Firm	General Information Firm Description Other Businesses Organizational/Ownership Structure Investor Base	Background Business Plans	Investment Manager Information	General Organizational/Ownership Structure
General Information, Fund	Fund Overview and Investment Approach Fund Capital	Background	Fund Information	General Fund Capacity
Investment Strategy Market Environment	Vehicles Managed	Investment Strategy Business Plans	Investment Strategy	Investment Strategy
Investment Process		Investment Process & Philosophy	Investment Research	Investment Strategy
Team	Personnel	Personnel	Investment Manager Information	Key Personnel
Alignment of Interests	Conflicts of Interest	Investment Process & Philosophy	Compliance	Investment Manager
Fund Terms	Fund Terms	Performance & Fees Operations & Administration	Fund Information	Fees & Terms
Firm Governance/Risk/Compliance	Risk Management Compliance Systems & Registrations Internal Controls	Manager Monitoring & Risk Management Compliance	Risk Execution & Trading Compliance Anti-Money Laundering Policy Insurance Business Continuity	Risk Management Transactions
Environmental, Social & Governance				Ethics & Environmental
Track Record	Performance History	Performance	Data Overview	General Fund Result
Accounting/Valuation/Reporting	Valuation Service Providers Fund Service Providers Investor Communication	Performance & Fees Operations & Administration	Investor Service/Reporting	Fees & Terms Fund Result Reporting & Investor Communication Service Providers
Legal/Administration	Legal Proceedings	Compliance	Legal	Investment Manager
Diversity/Inclusion				
		Manager Selection & Research		
		Taxes		
				Investment Manager*
				Fund Investors

*Personal capital invested in fund
†Some titles might occur more than once due to differences in categorizing

Table 3. Comparison of Due Diligence Questionnaires

5 Cases

- *What should have been asked?*

This section provides the reader with information about some of the most notable cases of fraud or operational failure in the history of hedge funds. The main warning signs in these tables are illustrated by a table below each subsection. These warning signs will also be analyzed towards the due diligence questionnaires in the previous chapter. The story behind the cases are obtained from academic literature, regulatory bodies, as well as from well-known alternative sources in order to establish an interpretation of the cases from multiple angles.

5.1 Bernard L. Madoff Investment Securities

In December 2008, Bernard Madoff (henceforth referred to as Madoff) was arrested by the FBI and charged with, among other offenses, security fraud, ultimately resulting in a 150-year long prison sentence (Maglich, 2013; Rhee, 2009). Madoff was the hedge fund manager of Bernard L. Madoff Investment Securities LLC (BMIS) who pulled of the biggest Ponzi scheme in the history, amounting to losses estimated at $65bn (Benner, 2018; Larson & Cannon, 2018; Cohn, 2018). Madoff, who held an undergraduate degree in political science from Hofstra University, began his career in the securities industry in 1960 when he founded BMIS, a securities brokerage firm (Creswell & Thomas, 2009; Nichols, 2011). Initially, Madoff built his client base through friends and family, and even in the very beginning, his clients were allegedly earning returns of 18-19% (Nichols, 2011). During the years that followed, Madoff built up a good reputation and obtained top-level positions in the securities industry such as being a member of the Financial Industry Regulatory Authority (FINRA) board of governors, holding a seat at the SEC's Advisory Committee on Market Information, and being chairman of Nasdaq (Nichols, 2011).

The Madoff scandal revealed major flaws in the regulations of hedge funds in general but also generated massive criticism towards the SEC as they failed to discover the fraud that had been going on for several years (Nichols, 2011; Rhee, 2009). However, it is always easier to be aware of the red flags ex-ante, even though some of the warning signs were of the magnitude that they should have raised serious concerns from the investors and regulators.

According to Knapp (2010), the fund was audited by an obscure accounting firm, called Friehling and Horowitz, which only employed one active accountant and was operating out of a small office in the outskirts of New York. To think that a single auditor would be able to complete an audit of a company the size of BMIS by himself is "preposterous" according to experts (NBC News, 2008). Furthermore, Mr. Friehling and his family members, as well as the accounting firm, had nearly $15m invested in funds managed by Madoff, which questions the independence of the relationship (Knapp, 2010).

According to their regulatory filings, the firm employed only between one and five people who performed investment advisory or research functions (Knapp, 2010). It is not realistic to assume that so few professionals could effectively manage 5.000 clients with funds of almost $65bn (Azim & Azam, 2016). Moreover, essentially all the key positions within the firm were held by members of the Madoff family, jeopardizing the independence of these functions (Knapp, 2010). Adding to these issues related to conflict of interest was also the fact that the brokerage services, net asset value valuations, and the custodian-function were all performed in-house. These services and functions should, according to Knapp (2010), typically be performed independent of each other and are usually outsourced to create a separation of duties.

Another red flag could be highlighted by Madoff choosing not to register with the SEC until 2006 (Knapp, 2010). A regulatory loophole allowed him to avoid registration because he had fewer than 15 feeders, at the time counted as one client each. The rules changed in 2006 when SEC required advisors to count each final investor as a client rather than counting one fund as a single client. Even then, Madoff did not register until the SEC did an investigation where he admitted to having more than 15 clients, hence, being forced to register.

The lack of transparency and communication was also something that should have been seen as alarming to investors as Madoff refused to answer questions related to his business and investment strategy (Knapp, 2010). This, in conjunction with the fact that his track-record was far superior to other managers using a similar strategy, should probably have raised concerns as no one was able to explain why he was able to enjoy such abnormal returns.

Madoff
• Family and friends holding high positions in the fund
• No independent service providers
• Obscure auditor
• Lack of staff (1-5 employees)
• Lack of SEC registration
• Extreme secrecy (no transparency)
• Too good track record

Table 4. Indicators Found in the Case of Bernard L. Madoff Investment Securities

5.2 Weavering Capital

In 1998, the former Swedish interest rate derivatives trader, Magnus Peterson, established Weavering Capital UK Limited (WCUK) in the U.K. and Weavering Capital Fund Limited (WCF) in the British Virgin Islands (Binham, 2015). The first fund launched by Peterson had a rough first year, and after facing heavy losses in the autumn of 1998, the fund ceased to carry on any

significant trading (Weavering Capital (UK) Ltd & Anor v Peterson & Ors, 2012). After this, Peterson launched another fund with the same name in 2000. This time, the fund achieved incredible returns of 140% in the first ten months. However, the fortune was short-lived, and as Peterson took on more risk to recover his losses, a critical downward spiral was created. Despite the two unsuccessful funds, Peterson launched a third, called Weavering Macro Fixed Income Fund Limited, set to pursue a low-risk strategy. Again, in 2009, the fund collapsed, resulting in £530m in losses, this time due to the increased redemption requests caused by the 2008 credit crunch[25], and the lack of actual liquid assets (Dakers, 2015).

The collapse was due to frequent trading of OTC interest rate swap contracts and forward rate agreements with WCF which enabled Peterson to create artificial profits (Weavering Capital (UK) Ltd (In Liquidation) v ULF Magnus Michael Peterson & 9 Ors, 2012). The application of this value-inflating method allowed Peterson to turn, for instance, a 19% loss into profit. However, the fund administrator, PNC Global Investment Servicing, noticed a growing exposure towards WCF in 2004, at the time adding up to almost 40% of the fund's net asset value, and asked for an explanation (Weavering Capital (UK) Ltd & Anor v Peterson & Ors, 2012). It should be noted that WCF had no auditor or independent accounts, nor did it have any assets, and the directors were Peterson's brother and stepfather, who also were directors of the macro fund (Bowers, 2015). Peterson answered that he intended to reduce the exposure drastically. Nevertheless, as the redemption requests piled up and accountants were called in, it was found that WCF had OTC swaps corresponding to about 125% of the value of the fund on its balance sheet (Binham, 2014). Peterson got sentenced to 13 years in prison (Binham, 2015).

Weavering Capital
• Family relations among executives
• Transactions with an unaudited and related company
• High exposure towards a single counterparty

Table 5. Indicators Found in the Case of Weavering Capital

5.3 Pequot Capital

Pequot Capital was a hedge fund with $15bn assets under management that closed as a consequence of incidents related to insider trading (Vardi, 2010). In 2001, the Chairman and CEO of the company, Arthur Samberg, allegedly reached out to a Microsoft employee named David Zilkha in order to attain information that was not publicly available regarding Microsoft's earnings (SEC, 2010). Zilkha, who at the time had accepted an offer to come work at Pequot, contacted his colleagues at Microsoft, who sent him an email containing insider information regarding the

[25] Credit crunches are economic conditions that make financial organizations less willing to lend capital (Cambridge Dictionary, 2019b)

company's financial performance. This information was then, according to the SEC's complaint at Pequot Capital Management (2010), forwarded to Samberg and enabled him to trade in Microsoft on behalf of funds managed by Pequot, resulting in a $14m profit as a result of the stock rally when the news became public.

According to the SEC (2010), Zilkha did not disclose the existence of the above-mentioned emails despite subpoenas and direct questions that required him to do so. Not until 2009, did they receive direct evidence of the e-mails' existence, consequently also being able to prove that Zilkha was in possession of this information. In 2010, a settlement was reached between the SEC and Samberg, where Samberg agreed to pay nearly $28m but without having to plead guilty to the charges.

Pequot had been under scrutiny from the SEC for several years, concerning allegations of insider trading, before their liquidation (Gangahar, Farrell, & Sender, 2009). They were also involved in another potential fraudulent act of insider trading related to General Electric's acquisition of Heller Financials (Heller), in 2001. Pequot started to buy large amounts of shares in Heller and simultaneously taking short positions in GE, in the weeks leading up to the announcement of the transaction (Congressional Record-Senate, 2007; Miller & Whitford, 2016). After the announcement, they sold their shares in Heller and covered its shorts, resulting in profits of $18m. Despite the case receiving a lot of public attention, it failed to result in any regulatory sanctions (Oppold, 2008).

Pequot Capital
• Watched by the SEC for several years
• Insider trading
• Reputation of insider trading

Table 6. Indicators Found in the Case of Pequot Capital

5.4 Long-Term Capital Management

The case of Long-Term Capital Management (LTCM) is studied even though their liquidation was not caused by any fraud per se. It was, however, caused by operational failure, raising awareness regarding some important topics that are, otherwise, commonly related to the risk of fraudulent behavior.

Long-Term Capital Management was founded in 1994 by the vice-chairman and star bond arbitrage trader, John Meriwether (Stonham, 1999). Initially, the hedge fund was relatively small with an equity base of $1.3bn, mainly provided by high-wealth individuals and financial institutions (Allington, McCombie, & Pike, 2012), and was marketed to be "[...] an investment company that would deliver big returns at low risk and achieve equity-like returns independent of

market swings" (Evans, Atkinson, & Cho, 2005, p. 55). However, due to the significant annual returns of 19.9%, 42.8%, 40.8% and 17.1% achieved by the fund in the period 1994-1997, the equity increased to $7bn by late 1997 (Edwards, 1999). The strategy pursued to achieve these superior returns was the market neutral arbitrage strategy, that is, long positions in bonds that they considered to be undervalued, and short positions in bonds they considered to be overvalued. The strategy had its origins in the Black-Scholes option pricing model (Allington, McCombie, & Pike, 2012) and its developers, who also got awarded the Nobel Prize for their model, were even found in the funds payroll together with highly-regarded Salomon traders and the ex-vice-chairman of the Federal Reserve System (Stonham, 1999). Furthermore, the fund required a minimum investment of $10m with a lockup-period of three years.

The fund was highly secretive and never disclosed any information about their positions, even to their own investors (Edwards, 1999). However, it was evident that in order for LTCM to achieve returns of this magnitude, high leverage was a requirement (Edwards, 1999; Jorion, 2000). By their high amounts of leverage, LTCM was able to get large profits even on small yield-spread changes. Due to this, the fund had a leverage ratio of 25-to-1 at the beginning of 1998 (Allington, McCombie, & Pike, 2012). Nevertheless, as LTCM's strategy became less feasible in 1998 due to changes in the economic environment, the fund started to incur losses (Stonham, 1999). The leverage that had been raised to lever profits was now instead levering the losses, quickly eroding the fund's equity base, and by September 1998, the leverage ratio had reached an extraordinary level of 250-to-1.

The fund was in possession of some illiquid financial instruments with no ready market, which further exacerbated the situation (Edwards, 1999). Due to the large holdings of LTCM and the closing-in margin calls, it would be forced to sell its financial instruments at any price, potentially collapsing the value of the instruments. Thus, 16 banks jointly lent another $3.625bn in exchange for 90% of the remaining equity. The fund was later liquidated.

Long-Term Capital Management
• Extreme Leverage
• False sense of security - Nobel Laureates
• Marketed as "big returns at low risk"
• Illiquidity in normally liquid assets due to enormous stakes

Table 7. Indicators Found in the Case of Long-Term Capital Management

5.6 Assessment of The Cases

By applying the information derived from the due diligence questionnaires in previous chapter, an assessment of the cases can be made. As we have seen in the compilation of the due diligence

questionnaires, some of these indicators could have been detected by asking certain questions related to the specific issues. Questions regarding conflicts of interest, number of employees, leverage, and authority registration are asked by all questionnaires, as previously studied. Thus, an investor could have been aware of these warning signs fairly early in the due diligence process. For instance, the family relations apparent in the case of Weavering Capital and BMIS could have been identified in the questions concerning conflicts of interest. In the case of LTCM, an investor could easily have asked questions regarding the fund's leverage and if they had any internal limits of such in place. However, even if these questions are specifically asked to the hedge fund, there is always a possibility of the hedge fund managers misstating or outright lying on these questionnaires.

There are also indicators that could either be challenging or impossible to state on a due diligence questionnaire. Aspects concerning counterparty policies, transparency, service providers, abnormal returns, and liquidity issues may to an extent be possible to ask on a questionnaire but may require some other inputs as well. As an example, in the case of BMIS an investor would have to assess whether the returns are reasonable or not by comparing it to hedge funds that are using the same strategy. In the case of BMIS it would be fairly easy for an investor to use the questionnaire to assess whether they employed a reputable service provider, e.g., auditing firm. However, the fact that this auditor also had significant amounts of money invested in the fund he supposedly audited would probably be more challenging to unveil based only on the information stated in a questionnaire. Thus, the independence of the service providers may require further investigation. Furthermore, as previously seen, questions concerning the hedge fund's investments strategy and different trading exposures can be stated on the due diligence questionnaires. However, nothing in these questionnaires indicate that an investor easily could indicate problems concerning liquidity issues. The operational failure in LTCM might therefore be challenging to detect in a due diligence questionnaire.

The case of Pequot also highlights the complexity in detecting fraudulent behavior. This case illustrates that even if an investor performs a comprehensive operational due diligence with an exhaustive questionnaire, some frauds will most likely not be detected. There is nothing in the due diligence process that indicates that fraud related to insider trading will be identified by the investor. However, in the case of Pequot, it is evident that the fraudulent behavior had been an issue for a couple of years, illustrated by the scrutiny from authorities and multiple cases of questionable trades. Thus, an investor might benefit from paying attention to the general perception and rumors surrounding a hedge fund.

6 Results

- ➢ *What is the professionals' opinion?*

In this section, the data from all the interviews are presented and compared to identify common themes and contradictions. Quotes are generously stated in order to preserve the richness and the nuances of the respondents' statements. All of the interviews were conducted and analyzed as described in the methodology section. The Systematic Hedge Fund and Catella were interviewed and analyzed from the perspective of a hedge fund manager, while RPM and IAM were interviewed and analyzed from an investment perspective. Hence, they are also mentioned as hedge fund managers and investment managers, respectively, in this section.

6.1 Due Diligence Questionnaires

The respondent from IAM stated that the operational due diligence is of crucial importance in their investment process, not least indicated by the fact that their operational due diligence team has the power of veto in the investment decision.

"The investment due diligence team can have arguments for a very strong fund, but the operational due diligence team can identify reasons from a setup or an administrative angle to why this fund is not passing their critical eye, and therefore using their veto to not approve it." - IAM

However, in the case of Madoff, the fund did not even pass IAM's investment due diligence, thus, the operational due diligence was never initiated. Their investment team met with Madoff several times but due to them not receiving the transparency they demanded, the fund did not pass into further research. Therefore, the fund was not even close to being approved, despite the interest from existing investors to invest in the fund caused by the fund's outstanding performance.

"The investment analysts did not get access to the portfolio managers or the portfolio, that is, they did not get the necessary transparency to make a first judgment of the fund." - IAM

IAM also states that there were examples of other larger fund-of-hedge funds who either did not conduct a full operational due diligence research, or over-ruled their own research team's negative sentiment of the analysis and invested in Madoff regardless, leading to catastrophic outcomes.

"The in-depth research on both investment- and operational due diligence is a prerequisite for investing in hedge funds." - IAM

The general perception of the due diligence questionnaires does not differ a lot between the respondents. From the investment perspective it is considered a useful tool in the initial part of the

due diligence as it enables them to assess whether or not it is worth proceeding with an on-site operational due diligence. The hedge fund managers also acknowledge the need for a due diligence questionnaire, even though it might be thought of as time-consuming and not necessarily the most fun task to perform.

"I mean, it's not as if I'm cheering when I receive an E-mail with 'Due diligence questionnaire' as subject" - Catella

The consensus for both perspectives on this question is, however, that the due diligence questionnaire serves a purpose in checking the most basic criteria in the investment process.

IAM also mention that their due diligence process is formalized, stressing that possible relations between the parties should not have any impact on the outcomes when asked about the risk of personal biases between the investor and the hedge fund. IAM does, however, highlight that some subjectivity still might be required in order to assess the answers from the due diligence questionnaires.

"The gut feeling is considered when interpreting the answers. It's not until you receive the answers from the due diligence questionnaire that you get a feel [for the fund] and can determine whether to proceed or not." - IAM

Furthermore, IAM state that different questions are easier to check than others and that the answers to the more complex questions are the ones that require experience when assessing.

Both hedge funds have prepared their own documents with fund-specific information, much like a due diligence questionnaire with corresponding answers, which they can hand out to potential investors. These documents have been developed to streamline the process and provide investors who lack their own due diligence questionnaire with well-needed information. The Systematic Hedge Fund and Catella do, however, mention that many investors are not satisfied with solely receiving the hedge funds' own questionnaire, but still require them to answer investor-unique questionnaires or complementing questions as well. The Systematic Hedge Fund also mention that they usually attach their own document even when they answer a questionnaire that has been sent to them in order to answer any general inquiries that are not incorporated in the received questionnaire.

Regarding due diligence questionnaires, The Systematic Hedge Fund and RPM explicitly mention AIMA as being the industry-standard and that it has been used as a foundation when compiling their own set of questions. Despite this notion, both the Systematic Hedge Fund and RPM have adjusted their questionnaires to fit their strategy and purpose, respectively.

"Since we've been around for a while and experienced a few things, we have a couple questions of our own that we'd like to look closer at." - RPM

Both hedge funds stress the importance of adjusting the due diligence questionnaires to fit their strategy as many of the questions otherwise becomes difficult to answer or irrelevant. This is highlighted by them both mentioning that they tend to receive questionnaires that are not applicable to hedge funds, but rather regular long-only funds. The Systematic Hedge Fund also mention that even when the questionnaire is adjusted to fit hedge funds, some questions might still be irrelevant to certain strategies. For instance, as the Systematic Hedge Fund only invest in derivatives, not equities, they cannot answer a question similar to "how do you screen companies?"

Regardless of the comprehensiveness of the due diligence questionnaires, both of the investment managers stress the importance of an on-site meeting, stating that a meeting with the hedge fund manager and its administrator is the single most important part in the operational due diligence process. They mention that it is possible to depict the fund in a more flattering way in writing, and it is, therefore, essential to verify this information by an on-site due diligence. RPM mention that the essence of the due diligence is to verify if the information that the fund managers provide. Thus, making sure that the return and exposure are in line with what they have claimed, i.e., double-check if the numbers add up and if the people can be trusted. This requires a physical visit to the premises. According to the Systematic Hedge Fund, these on-site meetings can go on for an entire day, where they go through the trading flows, look into the systems, examine compliance limits, which systems that are in place, and look through policy documents. This notion is also confirmed by both investment managers, stating that these meetings tend to go on for as long as four to eight hours. Furthermore, IAM state that if a hedge fund has large parts of its back-office services outsourced, they also make visits to these parties in the due diligence process. None of the respondents did, however, employ a third party to verify the answers stated in the due diligence questionnaire.

Regarding the question concerning whether the information stated in the due diligence questionnaires were subject to errors or manipulations, all respondents were unanimous in that the misstated information that could potentially be found in questionnaires were unintentional, due to information not being up to date, or simply because the investor and the fund manager had different perceptions on a matter that contain some degree of subjectivity. Both hedge funds also mention that they often run the questionnaires by the compliance department before sending them back to investors, especially if they are answering questions that are complex or have not been asked before. From the investment perspective, IAM state that if they receive answers, which they do not approve of or that is missing, it is possible to have a dialogue with the hedge fund on how these things should be solved so that the fund can obtain a higher standard, potentially making them more attractive for other investors as well. He also adds that the hedge funds tend to be fairly open-minded to this.

"If you are interested, you often find a solution" - IAM

There are, however, also cases where the hedge funds are not interested in fixing these issues due to various reasons. On this subject, Catella state that certain questions are a bit sensitive to answer as a hedge fund. Asking what they think about the outlook of a specific company is given as an example of such a question.

"[...] this is what makes us attractive from an investment perspective, and then you don't want to share that information." - Catella

6.2 Fund Specific Factors

Regarding the fee structure of hedge funds, the Systematic Hedge Fund state that there has been a trend of fee-pressure from investors during the last couple of years. From the investors' perspective, both RPM and IAM acknowledges that an investor has the ability to reduce fees, often by investing a larger amount of capital. This is also mentioned from the hedge funds' perspective as they offer discounts on the base fee dependent on how much capital an investor is willing to invest. On the other hand, the Systematic Hedge Fund also states that their alternative UCITS-fund has a higher management fee as it subject to different costs related to other administrators and charges related to regulatory compliance. This is also something that has been acknowledged from the investment perspective.

"[...] UCITS is often more expensive since the bank charges for some of these things, and that is something you should keep in mind." - IAM

Another thing that IAM state as an important aspect in assessing the risk of the fund is in terms of their leverage. According to IAM, an increase in leverage, all else equal, is always an increase in the fund's risk profile. However, he says that the risk assessment should be based on what the underlying investments are in the fund, i.e., "what are they leveraging on?" Thus, the leverage itself does not necessarily induce more risk than the underlying asset.

An investor should also consider whether the hedge fund is actually closing down their fund when they cannot effectively execute their strategy due to their capital base getting too big. This happens a lot according to RPM, who states that it might require the fund to shift strategy to more liquid markets. A similar notion was given from IAM as well.

"One important parameter in the due diligence is that they [the fund] are closing down and not just building capital, or becoming 'fat cats'[26] that are more concerned with raising a lot of capital rather than focusing on their performance." - IAM

6.3 Managerial Characteristics

The respondent from the Systematic Hedge Fund stated that she in her previous job at Länsförsäkringar used to assess hedge fund managers and that the personal questions are highly valuable to an investor, as it allows them to gain deeper insight into what is actually motivating the manager of the fund.

"What is your [hedge fund manager] objective with capital management? Because that speaks a lot about what kind of risk appetite you have. If it's just money that is your motivator, you might be inclined to take on too much risk, because you want high returns." – The Systematic Hedge Fund

IAM also confirms the importance of a manager's eagerness to manage the fund's assets and to create a better return for their investors. The assessment of the manager's objectives and incentives is therefore said to be one of the reasons why repeated personal meetings with the fund manager are of importance to be able to feel the commitment and the strive to find profitable investments for the fund.

"Most of the successful fund managers has a very solid personal economic status. Despite this, you still want to see a strong will to perform and not invest with managers becoming so-called 'fat cats'." - IAM

Nevertheless, the respondent from the Systematic Hedge Fund also says that these questions are typically not included in a due diligence questionnaire as they are better addressed during the physical meeting with the hedge fund managers. Catella also confirms that these personal questions are rarely given in the due diligence questionnaires that they receive.

It is in the interest of the investment manager, IAM, to take personal capital invested in the fund into consideration when conducting a due diligence, as this will act as an incentive for the hedge fund manager to perform better.

"Most of the serious investors have the majority of their wealth invested in the fund they manage themselves. Those things are very, very important." - IAM

[26] Fat cats are in this context a derogatory term for individuals who because of their wealth are not motivated to perform better than expected.

He also mentioned that it could be a deal-breaker if the fund manager is personally invested in the same asset as the hedge fund since this will cause her not to be objective. That is, if the price of the asset suddenly begins to fall, she might be reluctant to sell the asset held by the fund, as this would further drive down the price, ultimately affecting her personal wealth.

IAM also stresses the importance of monitoring the hedge fund manager and what she does, even outside the office.

"We had, for instance, a hedge fund manager that suddenly got hospitalized. We, therefore, had to evaluate the circumstances since this type of organizational changes could be a trigger for us to redeem from the fund." - IAM

He also mentioned other personal information that could be relevant for an investment manager, such as if the hedge fund manager is going through a divorce, which also could act as a distraction. The other investment manager, RPM, contrasts this by stating that since they only invest in systematic funds, this becomes less of an issue since these strategies are more reliant on the investment models rather than the actual managers. They do, however, acknowledge that this is of more importance when investing in a discretionary strategy where the execution is made by a manager.

When it comes to doing background checks on hedge fund managers, one of the investment managers, IAM, state that they even, at times, hired private investigators in countries where it is difficult to find enough information regarding the portfolio manager of a hedge fund. This is, however, only needed when she has been working in a bank, or similar, without the investor being able to access her track-record, but only getting recommendations on the fact that she is a skillful manager. The occasional usage of a private investigator is something that RPM also confirms has happened in an investment process.

6.4 External

Regarding the ESG-aspect, three of the four respondents are PRI Signatory[27], which illustrates the importance of these questions within the hedge fund industry.

"Sustainability is the biggest trend you can spot right now." - The Systematic Hedge Fund

The consensus among all respondents is that the ESG-aspect is a lot more important in Sweden and the Nordic region, compared to other parts of the world.

[27] Being a signatory demonstrates an organizations commitment to responsible investment (PRI, 2019b).

"So far it is very focused on Sweden. Sweden has been in the front fields and now Europe is starting to catch up. The U.S. does not care at all." - RPM

Similar statements are given from the Systematic Hedge Fund as well, as they state that the U.S. is more focused on questions related to diversity and equality but less concerned about questions related to social- (e.g., child labor and working conditions) and environmental aspects. The demand for these ESG questions from investors seemed to be independent of the investor base of the hedge funds, as both the Systematic Hedge Fund and Catella shared similar experiences. However, IAM and Catella both mentioned difficulties with being strictly ESG compliant. They argue that it is hard to make a distinction of hedge funds that is ESG compliant and one that is not.

"You should not invest in a company that produces cluster bombs, but what about the bank that provides financing to them? It is a very difficult question that has to be remembered. It is hard to make a clear distinction." - IAM

Catella also emphasizes this challenge by stating that they, for instance, do not invest in XXL that sells hunting weapons and handguns, but they are willing to invest in ICA, which is a grocery store that is also selling tobacco products. This distinction, despite being challenging to make, might be motivated by the different usage and purpose of the products.

The respondents had different approaches towards companies that were flagged by, for instance, The United Nations. The investment manager, IAM, could accept hedge funds that they invest in to short these kinds of corporations. The approach of RPM is similar, arguing that since the hedge funds they invest in solely trade future contracts and not equities, they are not able to influence the company per se. The Systematic Hedge Fund also argues in a similar fashion, as they do not have the ability to influence a company directly without being a shareholder since they, as well, are trading derivatives and not equities. She also explains that in her previous experience in assessing hedge funds at Länsförsäkringar, they had a "hands-off" policy, where they neither took a long, nor a short, position in what was considered to be unethical companies. This is contrasted by Catella and IAM who said that being able to short these companies are somewhat of an edge that hedge funds have over mutual funds.

"What they [the general public] don't understand is that when you go short, you are negative towards the company." - IAM

Despite the increased focus on ESG questions in a due diligence process, Catella mentioned that performance is from their point of view still perceived to be the most important aspect among investors.

Regarding the regulatory aspects, the investment managers do not necessarily take much comfort in the increased regulations.

"If you want to commit fraud, you can always find a way. If you're a criminal, then there's no regulation that can stop you. Just look at the Falcon Funds. That was a case of pure fraud, despite the fact that it was a UCITS-fund" - RPM

Both RPM and IAM indicate that the due diligence has to be performed in detail regardless of whether the target hedge fund is compliant with UCITS or not.

"A lot of people invest in UCITS because they perceive them to be safe. Ask our operational due diligence staff and they will tell you 'it doesn't matter'. Nevertheless, there are regulations that you have to comply with, making it easier to perform the operational due diligence analysis. It'll be quicker, but there's no guarantee for lack of errors." - IAM

This notion is also supported by the Systematic Hedge Fund, which states that due to increased regulations, there is no difference in terms of risk between alternative UCITS and offshore hedge funds nowadays. Furthermore, she also mentioned that despite tight regulations it is still the big institutional investors which impose the most stringent requirements in many areas, implying that scrutiny and lower requirements are not avoided, independent of whether the fund is UCITS-compliant or not.

In terms of how restrictive the UCITS regulation is on hedge funds, there was a consensus on that it is dependent on what strategy is being pursued.

"The importance here is what strategy they run. I can tell you that if it's a long-short equity, then the UCITS can more or less exactly replicate that strategy. [....] If we take an extreme at the other end of the spectrum, Event or Credit funds, for instance. There you can seldom find a UCITS long-short credit fund with a daily net asset value, not even weekly. If you find a UCITS that is pursuing an event-driven strategy, it is important to examine their portfolio to see how they deal with it." - IAM

The respondent further explains that in a scenario much like the financial crisis in 2008-2009 where a lot of the liquidity might disappear, it is a significant risk of liquidity issues if the hedge fund has invested in assets that are not priced on a daily basis and have guaranteed to calculate the net asset value on a daily basis. In that case, they might be forced to gate the fund[28], which probably is one of the last things a hedge fund wants to do. Thus, making sure that the hedge fund is closing down when needed, is one of the most important factors to examine according to IAM.

[28] A limitation to the percentage of fund capital that can be redeemed by investors at any time (Teo, 2011).

"What do they have in their portfolio, and what liquidity guarantees do they provide their customers?" - IAM

The Systematic Hedge Fund state that their UCITS-fund is supposed to replicate the master fund which is a trend-following CTA and the only apparent restriction to this is that the UCITS are not allowed to invest directly in commodities, neither short nor long. They do, however, state that they are able to circumvent this restriction and offer the same exposure as in the master fund.

On the question related to whether regulation was compromising the flexibility of hedge fund operations and returns, there were slightly different perceptions amongst the respondents. From the hedge fund perspective, the Systematic Hedge Fund state that the barriers to entry are a lot higher these days as funds are forced to comply with stricter regulations and required to carry out more administrative tasks.

"You see, we are 75 people here on one strategy, we have an entire legal department and we hire external lawyers and auditors in the domiciles in which we invest. That is not cheap." – The Systematic Hedge Fund

She does also state that in terms of the tradeoff between returns and regulations, there might be constraining limits on how much exposure they are allowed to have towards certain commodities for instance, but that they also have internal limits that are in place for such exposures, which she on an overall basis believes to be healthy. Catella which has a more retail-concentrated investor-base believe that the stricter laws on how to trade and own shares, and what kind of holdings that is allowed to have in a portfolio is merely positive.

"I started in 2008, and back then there was a lot of family and friends investments that were made and fewer regulations and controls in place. At the time, illiquid stocks could often increase drastically at the end of the day. Things like that are much more controlled today." - Catella.

6.5 Short Track-Record

Both investment managers had low or no requirements in terms of fund age as a prerequisite of a potential investment. RPM said that they require a track-record of at least one year of the hedge fund because they did not want to take the startup-risk, regardless of the hedge fund manager's prior track-record. Furthermore, they also wanted the fund to have a minimum of $10m of assets under management. Additionally, the fund should have everything in place and be up and running.

"We don't have any requirements where we request a minimum of three years [fund age] or similar. We do, however, need to be able to follow their track, what they [the manager] have done before." - IAM

IAM emphasizes the importance of looking at the manager's track-record rather than the fund itself.

"The important thing is that you can track where the manager is coming from, and they often have the possibility to buy out their track when they have been on a larger bank or hedge fund. If they get to do that, and they are going to do the same thing and putting up a similar team, then we have no issues with investing from day one." - IAM

However, IAM also mention that they are cautious as they state that it is a bit messy at the very start because of the portfolio manager often having to be out and market the fund at the very beginning, thus, potentially not putting all of her time and focus on managing the fund's portfolio. Similar thoughts were noted from the hedge fund perspective as well, where the Systematic Hedge Fund stated that it is challenging to raise capital without a good track-record.

"The ones that are doing this today [starting a hedge fund] are big capital owners. Sure, there might be some traders that have left Goldman Sachs [to start a hedge fund], but then they have a solid track-record and can go to clients to raise capital, but that's the only way I can see it happening." - The Systematic Hedge Fund

IAM states that the track-record of the manager or its team is of more importance than the track-record of the actual fund.

"You might look at a fund that's been around for ten years but has changed their [investment] team four times. Then it's not the same management in place. [...] and often we redeem our capital immediately if the team is being replaced." - IAM

There is a consensus among the respondents, irrespectively of their perspective, on the fact that it is more challenging than before to start a new hedge fund, not least due to the increased legal requirements. Both hedge funds, the Systematic Hedge Fund and Catella, state that it is "almost impossible" to start a new hedge fund today, which is also supported by the investment perspective as well.

"Back in the days you could launch a good idea and people would give you money without many restrictions, nowadays it's a lot tougher." - RPM

In Catella's case, being more retail-oriented, they also acknowledge difficulties in getting access to distribution platforms and third-party distributors. Despite it being a lot more challenging to launch a new hedge fund today, there is, according to RPM, nothing that indicates that this would reduce the risk profile of young hedge funds per se. However, RPM, which has a fund that is

specifically targeting young CTAs to invest in, state that there is a big potential in investing in young and innovative CTAs. Even if the research on this topic, generally, does not make a distinction between what factor is causing the above-average returns, if it is the size or the age of the fund.

"There has to be some innovation. Most of them [managers] are from large trustees and wants to launch their own fund since they couldn't drive their ideas in their former workplace. The idea is to find the ones that you think will be big in ten years due to their success. All of the major ones [funds] have delivered their above-average returns when they were young and now when they have become larger, they instead perform average returns. That's the first thing [reason to invest in young hedge funds]. Secondly, they do things a little bit different, which makes the correlation of a portfolio less correlated than if you put together three big names. The third thing is that smaller managers' are hungrier, need to raise capital, and they tend to be more flexible in terms of fees." - RPM

Regarding the question if it has happened that a young hedge fund that they have invested in has been liquidated, RPM state that it has happened four times since 2013 that a fund manager has called and told them that they will liquidate all their positions and close the fund. This has, however, not caused any major problems since they only invest via managed accounts. They do also state that it becomes extra important to monitor young hedge fund managers more frequently, e.g., on a daily basis.

"We follow our fund managers regularly, what they do, what they report, we follow tracking errors, we follow their asset under management development, and if a manager suddenly experiences a 50% drawdown of their assets, then there's something going on. Then we'll send an email or schedule a phone call to ask how they estimate their asset growth going forward. Will the fund manager shut down or is it just a temporary bump? You have to continuously stay updated." - RPM

Furthermore, RPM also states that it is important to choose reputable counterparties from day one because it makes the fund more attractive from the investor's perspective.

"If you choose obscure counterparties from day one, then we become a bit skeptical and will require a longer track-record." - RPM

Lastly, RPM state that there are more relaxed requirements in terms of compliance functions in the U.S. as compared to Europe.

"It's not nearly the same requirements regarding compliance in the U.S. No requirements on, for instance, independent compliance for the small managers we invest in, which makes the U.S. an easier domicile to start a new hedge fund in, [...]. However, it's very difficult in Europe." - RPM

7 Discussion

Reflections derived from the different sources of data are in this section discussed toward the conceptual framework. This creates a discussion that provides multiple angles with the objective to establish answers to our research questions. The section is divided into the five categories that have been prevalent throughout the thesis. Furthermore, reflections derived from the analyzed cases and the collected due diligence questionnaires are also incorporated in the discussion.

7.1 Due Diligence Questionnaires

In order to assess the risk of fraud in hedge funds, there are many factors that have to be considered as an investor. Research has provided numerous indicators that an investor can use to assess the risk of fraud in hedge funds (e.g., Brown et al., 2009; Dimmock & Gerken, 2012; Brown et al., 2012), however, as we have found, there are still relevant factors that might be neglected in the operational due diligence process. This was partially discovered by studying what kind of questions investors currently ask hedge funds and by contrasting these questions towards what have been empirically found to be important indicators of fraud. A compilation of this can be seen in Appendix 5.

A large part of the indicators found in theory was either implicitly or explicitly stated in the analyzed due diligence questionnaires. Furthermore, some indicators that were left out could potentially be explained by the simplicity in collecting the data without having to ask for it, as in the case of Sharpe ratio, Standard deviation, and Fund age. These are often provided publicly or are easily calculated. Other missing indicators are probably challenging to articulate in writing, as indicated by the interviewees as well. Such questions could be what motivates the manager and questions concerning her personal life and character. These questions might be considered insensitive to ask, and even if asked, the reliability in the answers will likely be questioned. A few indicators that might be of importance in assessing the risk of fraud in hedge funds were, however, missing from most of the due diligence questionnaires without any apparent reasons to why. For instance, only Söderberg & Partners' questionnaire contained a question related to how much personal capital the manager had invested in the fund. This was surprising considering that both theory (Brown et al., 2009) and the interviewees stated this as a highly important factor to consider in an investment process, with the prior, specifically displaying that a higher stake in the fund is correlated with a lower risk of fraud. This factor is to some extent regulated by AIFMD as the legislation require managers to invest a certain amount of personal capital in the fund. It might, however, be valuable for an investor to know if the manager has invested more capital than the minimum requirement stipulates.

Another question that was only covered by Söderberg & Partners' questionnaire was concerning the hedge funds percentage of institutional- and retail investors. Research states that a larger part of institutional investors increases the risk of fraud in a hedge fund (Dimmock & Gerken, 2012),

although it has also been argued to increase the transparency of the fund (Stulz, 2007). The latter is supported by our data as an interviewee explicitly stated that the big institutional investors impose stringent requirements on the hedge fund, hence, are likely to demand a higher degree of transparency. Intuitively, the increased disclosure of information might offset some of the risks inherent in hedge funds caused by the information asymmetry. Thus, potentially lower the overall risk of fraud since a lack of transparency increase the opportunity for hedge fund managers to act fraudulent (Goltz & Schröder, 2010). Therefore, the proportion of institutional investors should be considered when assessing the risk of fraud. It is, however, important to acknowledge that even though information disclosure is an essential factor in mitigating the risk of fraud in hedge funds, there are limitations to what kind of information that investors can demand. This is highlighted by both Donaldson (2008) and Catella, stating that some information asymmetry towards the investors is needed in order to preserve the competitive advantage of hedge funds. A closely related question to this, which all of the due diligence questionnaires had incorporated, was the question regarding the ownership concentration. This has been shown to have a positive relation with operational risk, thus should potentially be taken into consideration prior to investing in a hedge fund (Brown et al. 2009).

Altogether, it is acknowledged that the due diligence questionnaires provide a good first impression of the fund and that it is a useful tool in the initial part of the due diligence process. However, both respondents from the investment perspective mention that the questionnaires should be considered a means to an end in providing a good enough assessment of the hedge fund's risk profile. According to them, the most important activity in the due diligence process is the physical meeting where an investor can get a feel for the organization and the managers. This also provides an opportunity for the investor to ask questions that might have been too personal to ask in a questionnaire. Furthermore, it is currently seen by the hedge fund respondents that there are questions included in the questionnaires that are not applicable to their strategy. Hence, to increase the usefulness of the due diligence questionnaires, an investor should tailor the questions to fit the targeted hedge fund as it will produce more purposive information.

Furthermore, even if hedge funds themselves provide questionnaires with information to potential investors, Scharfman (2008) stipulates that it is highly unlikely for hedge funds to disclose information that might be sensitive for them, but potentially important for the investor. Both respondents from the investment perspective also mention that these questionnaires have the potential to depict the fund in a more flattering way. This further adds to the notion that an investor should tailor the stated questions with respect to the strategy and structure of the hedge fund. This would also reduce the likelihood of hedge funds having to answer unnecessary and irrelevant questions, which according to Catella is often the case.

7.2 Funds Specific Factors

Another factor that should be considered when assessing the risk of fraud in hedge funds is leverage, which is also acknowledged in theory (Brown et al., 2009; Dimmock & Gerken, 2012). According to Dimmock and Gerken (2012) and Brown et al. (2009), leverage should be interpreted as an indicator that signals a lower risk of fraud in a hedge fund, due to the fact that lenders take operational risk into consideration when assessing whether or not to grant the fund capital. However, as one of the respondents note, it does increase the financial risk of the fund, thus, it is important for the investor to examine what assets are being levered on. The case of LTCM also shows that leverage alone may not be a good indicator of reduced risk as it was their high leverage that in fact triggered their liquidation. This case also illustrates the importance of assessing what is being levered on as LTCM's large holdings caused liquidity constraints. Ultimately, it can be argued that leverage is a factor that should be considered from both a financial- as well as an operational risk point of view. This might, however, be less of a concern today as AIFMD imposes some restrictions on the usage on leverage, and an alternative UCITS would have an even stricter regulation regarding leverage. Another financial figure which often are considered from an investors are the returns of the fund. Looking at the case of Madoff, the abnormal returns was one of the indicators that could have signaled to an investor that something fraudulent might be happening within the hedge fund. Thus, an investor should assess returns not only from a financial point of view, but also from an operational risk perspective by benchmarking the returns of a hedge fund toward its peers, pursuing similar strategies.

Investors, on the other hand, have been found to not perceive operational risk as a material matter, which could act as a suboptimal incentive from a risk standpoint (Brown et al., 2009). Since the investors mainly focus on the financial figures when assessing whether or not to invest in a hedge fund, this could imply that hedge funds with abnormal returns will have a larger increase in assets under management than its worse performing peers. Due to the nature of the management fee, this could create an incentive for the managers to manipulate or shape their returns in order to increase its assets under management, and thereby the fund's revenues. Thus, it becomes important for the investor to ensure that the valuation routines are acceptable and assess the independence of the surrounding service providers such as the fund's administrator who is overseeing the valuation of the fund's assets. This is also confirmed by Brown et al. (2012) in conjunction with Söderberg & Partners, who stresses the importance of having a Big Four auditor as this has been shown to be negatively correlated with the risk of fraud in hedge funds. Third-party providers in itself should, however, not be considered to be a guarantee for independence between functions, as it has been shown in theory (Muhtaseb & Yang, 2008) and in the case of both Madoff and Weavering, that functions that seemed to be independent, in fact, was tainted by conflicts of interest. To mitigate this, an investor should, as mentioned by one of the respondents, therefore also assess the service provider as they are doing their due diligence.

7.3 Managerial Characteristics

Interviewees from both perspectives specifically emphasize the importance of looking at what motivates the hedge fund manager. A respondent from the hedge fund perspective, stated that if the motivation is solely derived from financial success, it might lead to more risk-taking since the manager is chasing high returns. The importance of this aspect is highlighted by the fact that high volatility has been shown to be positively correlated with hedge fund failures (Baker & Filbeck, 2017). A respondent from the investment perspective also noted that it is important to ensure that the hedge fund manager is still motivated to perform well despite having a potentially significant personal wealth. This argument is supported by research as well (Li, Zhang, & Zhao, 2011).

Other managerial characteristics have been identified to have an impact on the managers' propensity to commit fraud as well. For instance, research has shown that some personal characteristics are more related to unethical behavior and that this might be a factor to include as an investor when determining the risk of fraud in hedge funds (Brinke, Kish, & Keltner, 2018). However, it might be challenging for an investor to assess the hedge fund manager on these issues as they are most likely difficult to gauge and also challenging to ask on a due diligence questionnaire. The hedge fund respondents confirm that the more personal questions are rarely asked on a questionnaire and that these questions, if ever raised, are covered in a physical meeting. This further emphasizes the importance of the on-premise due diligence activity. Related to this, two of the respondents also mentioned the usage of private detectives as a means to mitigate a lack of information, but this was only prevalent in the more extreme cases where other kinds of information were inaccessible. However, it might raise the question of whether an investor should utilize this service to a larger degree, given the fact that personal characteristics might be of a concern in assessing the propensity of fraudulent behavior. Especially in cases where information is scarce, such as in the case of funds lacking a long track-record. Conclusively, the importance of assessing the manager when determining the risk of fraud in a hedge fund, indicate that it might be of more importance to perform a due diligence on the managers of the hedge fund, rather than the fund itself. After all, fraudulent actions are committed by people, not organizations.

7.4 Externalities

According to the investment managers, the increased regulation of hedge funds does not necessarily provide investors with increased comfort and does not reduce the importance of a thorough due diligence. Furthermore, it is specifically noted by one of the investment managers that alternative UCITS, despite common beliefs, are not less risky per se and it is stressed that a comprehensive due diligence still needs to be performed but that it might be a quicker process when the fund is compliant with UCITS. Similarly, the investment manager also acknowledges the persistent opportunity to commit fraud independent of how restrictive the regulations are. However, the analysis of our cases shows that the fraud committed by Weavering Capital could

have been prevented under the UCITS directive, as it imposes strict restrictions on counterparty exposures (Financial Conduct Authority, 2019). The same can be noted in the case of LTCM, where their high amounts of leverage would not have been allowed as UCITS only accepts a gross exposure of 200% (CESR, 2010). Thus, this would imply that hedge funds that are compliant with UCITS might be more secure in terms of the risk of fraud even though it does not provide the respondents with any significant comfort. On the other hand, considering the fraud committed by the manager of Pequot Capital, this act of insider trading could not have been prevented by any regulations, suggesting that it might be challenging to be entirely secured against fraud regardless of the regulation. Furthermore, it would most likely be very difficult for an investor to assess the risk of these kinds of fraudulent actions.

Despite the possible reduction in the risk of fraudulent actions in alternative UCITS compared to non-UCITS hedge funds, both theory and the respondents acknowledges limitations in the execution of certain hedge fund strategies under the UCITS regime. Both of the respondents from the hedge fund perspective argue that their strategies as long-short equity (*Equity Hedge*) and a systematic trend-following (*Global Derivatives*) are replicable as a UCITS-fund without many constraints, thus, offering the same exposure as the conventional hedge funds pursuing the same strategies. This is not surprising considering that these strategies can be performed without the usage of illiquid assets and high amounts of leverage, for instance. However, as mentioned by both research and the interviewees, other types of strategies might be more challenging to replicate as an alternative UCITS-fund (Busack, Drobetz, & Tille, 2014). Thus, an investor should potentially question hedge funds that are operating as an alternative UCITS pursuing strategies that, for instance, are known to require the usage of illiquid assets or high amounts of leverage, such as a Relative value- or Event-driven strategy, and still are able to achieve similar returns as their non-UCITS peers. This is also illustrated by research, stating that an investor in an alternative UCITS-fund might not experience the same exposure as she would have in an offshore hedge fund (Busack, Drobetz, & Tille, 2014). Furthermore, respondents from both perspectives stated that alternative UCITS-funds face higher management costs, thus, they tend to have a higher base fee, making them relatively more expensive.

In the due diligence process, our respondents indicate that it has been an increase in the scrutiny of hedge funds regarding ESG aspects. AIMA also recognizes this increased importance as they published an entirely new questionnaire specifically on these questions. Even though these questions seem to be more common in Scandinavia compared to other parts of the world, the interviewees state that there is a growing concern on a global level as well. This indicates that ESG factors might become increasingly more important, even from a fraud point of view as compliance to ESG-related frameworks might be demanded on a greater scale.

7.5 Short Track-Record

A lot of institutional investors today have a minimum requirement in terms of how many years the fund has to be active before they make an investment. Söderberg & Partners, for instance, require a hedge fund to have a track-record of at least three years before investing, while another investment manager only requires a track-record of one year in order to avoid the startup risk. This can be contrasted by the other respondent from the investment perspective, stating that they are willing to invest, more or less, from day one. Both respondents from the investment perspective acknowledge the potential benefits that young hedge fund managers often provide a niche exposure and outperform many of their more mature peers. This notion is empirically supported by research stating that young hedge funds tend to outperform their peers significantly (e.g., Prequin, 2013; Boyson, 2003; Aggarwal & Jorion, 2010). Additionally, by investing in emerging hedge funds, investors usually receive fee discounts (e.g., Lack, 2012; Hedge Fund Research, 2005). Despite the support for young hedge funds to provide attractive investment opportunities, there are according to research risks associated with these investments, for instance, showing that young hedge funds tend to fail relatively more often (e.g., Baquero, Horst, & Verbeek, 2005; Brooks & Cat, 2001). Furthermore, the study by Christory, Daul, and Giraud (2007) even indicate that these young funds might be more prone to commit fraudulent actions.

To mitigate the potential risk associated with investing in young hedge funds, the importance of the operational due diligence becomes even more apparent since quantitative analysis and other assessments common in the financial due diligence becomes challenging. Therefore, studies suggest that focus should be shifted more towards the manager's skills and the quality of the management team, rather than the fund (CAIA, 2012; IOSCO, 2008). This is also verified by the respondents from the investment manager's perspective, highlighting that despite a fund having a long track-record, the management might have changed over the years. However, another aspect of looking more at the management team than the actual fund is that highly reputable individuals might not necessarily guarantee a lower risk of operational risk, as illustrated in the case of LTCM.

Nonetheless, the background checks of the management team become increasingly important in order to assess the risk of the hedge fund. It is also stated by one of the respondents from the investment perspective that it is important that young hedge funds choose well-known counterparties as this is something that otherwise could make them as investors skeptical towards the fund. They also said that it becomes increasingly important to continuously monitor the hedge fund manager when investing in a young hedge fund. This is also supported by research stating that young hedge fund managers should be monitored closely regarding the fund's volatility and consider exiting if they start to display abnormally high volatility. Another alternative solution could be to invest as a seeder in a young hedge fund, entering a more partnership-like agreement where the investor has the potential to share a portion of the hedge fund's future profits and gain more insights into its operations, thus potentially reducing the information asymmetry. It is,

however, likely that this kind of investment can incur a higher financial risk and also require a longer lockup period.

The emerging hedge funds today are facing more stringent legal requirements than before, and all respondents agree to the fact that it is more challenging to start a new hedge fund today. Both respondents from the hedge fund perspective agree that it is close to impossible to start a hedge fund from scratch, especially without a good track-record. One of the respondents from the investment perspective also adds that it is more difficult in Europe than in the U.S. due to the more relaxed requirements in terms of independent compliance functions on small hedge fund managers. Altogether, this could potentially indicate that the risk of fraud inherent in investing in young hedge funds today is less prevalent than before, especially in European hedge fund. However, as mentioned earlier, the investment managers do not consider stricter regulations to necessarily translate into lower operational risks in hedge fund investments.

Finally, it should be mentioned that the investor, independent on the characteristics and nature of the targeted hedge fund, should never neglect the importance of a comprehensive operational due diligence in order to avoid potentially disastrous effects from fraudulent actions. It might appear obvious, however, it can be challenging to withstand the pressure to achieve good returns as illustrated by an interviewee explaining that some investors invested in Madoff despite being aware of the warning signs.

7.6 Summary of Discussion

A summary of the discussion is depicted in figure 10 where the main takeaways are presented under the corresponding category.

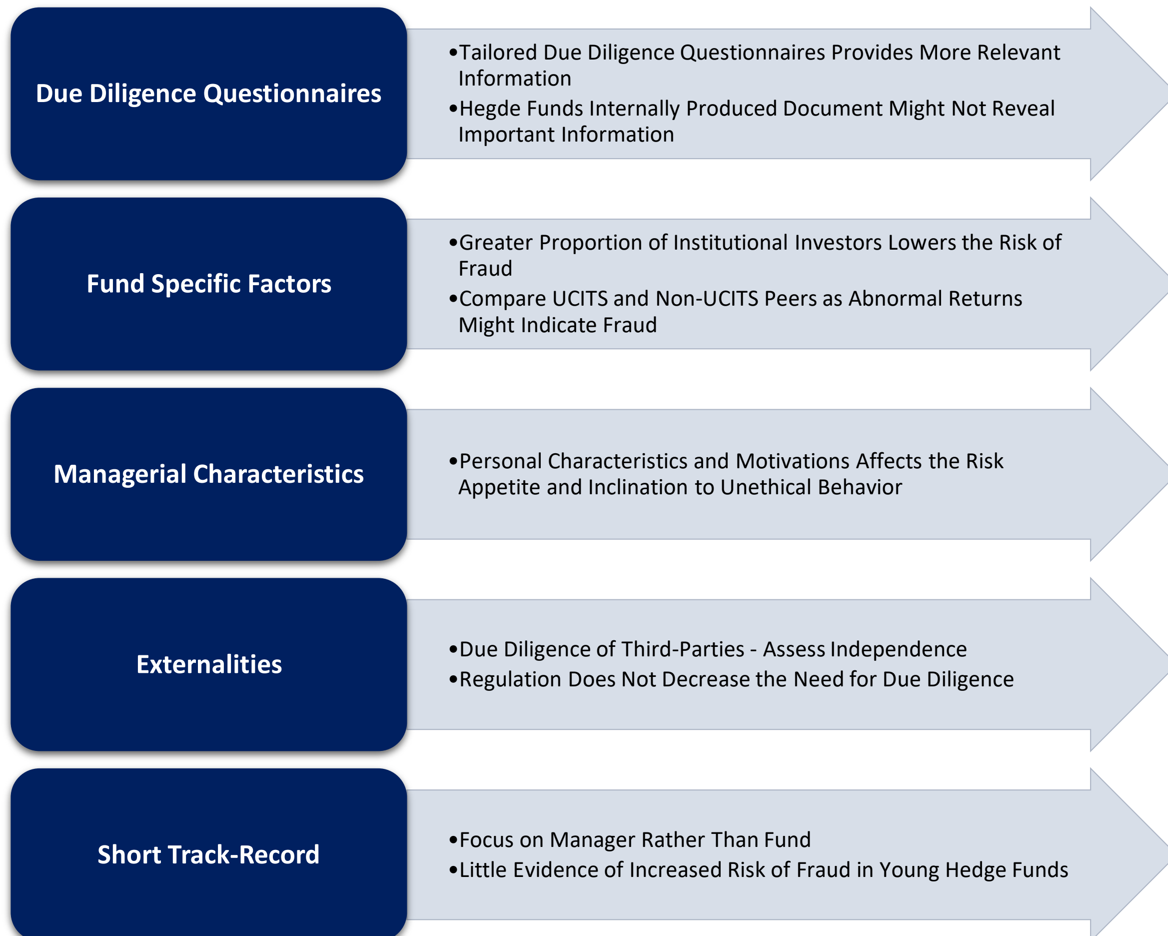

Figure 10. Summary of Discussion

8 Conclusion

In this section a summary of the main conclusions derived from the previous discussion is presented. In addition to this, we propose ideas of further research that has emerged throughout the process but that has been out of scope for this thesis.

8.1 Practical Contribution

An investor should perform a thorough operational due diligence in order to assess the risk of fraud in a hedge fund before an investment is made. One part in the due diligence process is to have the hedge fund answer a due diligence questionnaire which has been shown to be able to provide valuable insights of the hedge fund's risk of fraud. In order to increase the usefulness of the questionnaire, an investor should tailor it to fit the strategy of the targeted hedge fund as this will provide more relevant and accurate answers.

Although the due diligence questionnaires might be highly useful to assess the risk of fraud in a hedge fund, it does not encapsulate all the aspects that are important to consider as an investor. There will still be a need for physical meetings with the hedge fund managers at their offices to be able to follow up on the answers provided in the questionnaire in order to verify the provided information as well as clarify any potential ambiguities. This also enables the investor to get to know the managers on a more personal level as we have found that it might be more important to assess the managers of the hedge fund rather than the fund itself. This shift in focus from fund to manager, implies that a hedge fund's short track-record could be less of an issue in terms of ability to assess the risk of fraud as the track-record of a manager might be more important than the fund's track-record. Thus, this enable investors to benefit from the positive attributes associated with emerging hedge funds without necessarily being exposed to a higher risk of fraud.

The increased regulation within the hedge fund industry is not found to provide any additional comfort in the operational due diligence process for investors. Despite that a due diligence on an alternative UCITS-fund might be less time-consuming it still has to be equally as comprehensive as on a non-UCITS-fund. Furthermore, alternative UCITS-funds are subject to more stringent restrictions, making them less able to replicate certain hedge fund strategies. Thus, an investor should question alternative UCITS that are able to perform in parri passu with traditional hedge fund strategies.

Conclusively, despite performing a thorough operational due diligence, an investor can never fully prevent or assess fraudulent actions as certain events can never be predicted.

8.2 Theoretical Contribution

This thesis complements to the empirical studies in the field by adding a more practical perspective which has been enabled by the close collaboration with an institutional investor. Furthermore, our choice of a qualitative research method provides in-depth insights, stemmed from the quantitative research that have been conducted prior to this study.

Our findings suggest that a lot of the indicators that have been found to be able to assess the risk of fraud in hedge funds in previous research are also, to a large extent, applied in practice. This thesis also provides initial insights into the unexplored area of how an investor should assess the risk of fraud in hedge funds that lack a long track-record. Also, research on how the UCITS regulation affect the operational due diligence of hedge funds is limited, thus our findings contribute with a theoretical observation that might nuance the practical understandings.

8.3 Future Research

During the research process in general and during the interviews in particular, we noticed that ESG-matters are something that is increasingly influencing managers within asset management and hedge funds. From what we have seen, regulations concerning these aspects are still in its infancy and varies among regions. However, as we have noted, hedge funds and investment managers appear to be keen on advertising the fact that they are following guidelines or policies such as being PRI Signatory for instance. Nevertheless, they also highlight that it is very difficult to make a distinction between who is being ESG-compliant and who is not due to the subjectivity of the matter. It would therefore be interesting to study how these questions might affect fraudulent behavior in hedge funds or asset management in general and if a potential failure to comply with these policies will give rise to a new kind of focus in terms of fraud.

We have also discovered through our interviews that the operational due diligence process today is something that is fairly costly for both parties and the time spent on answering a vast amount of different due diligence questionnaires is one of the explanations. We believe that there are possibilities for efficiency improvements in the due diligence process in general and with the due diligence questionnaires in particular. Therefore, we believe that there is a need to study how these efficiency gains could be realized and what the benefits this could bring for both parties.

Finally, as we have found it to be important to take the applied strategy of the targeted hedge fund into consideration when conducting an operational due diligence, it might be of useful to conduct further research on how the due diligence more specifically should be adjusted to fit certain strategies.

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Appendices

Appendix 1: Indicators of Fraud

Fund structure	Author
Kink	*Bollen & Pool (2009)*
Leverage	*Brown et al. (2008)*
Average return	*Brown et al. (2009)*
Sharpe Ratio	*Brown et al. (2009)*
Age	*Brown et al. (2009)*
Incentive fee, %	*Brown et al. (2009)*
Presence of high-water mark compensation hurdle	*Brown et al. (2009)*
Previous returns	*Brown et al. (2009)*
Previous std dev	*Brown et al. (2009)*
Fund age	*Brown et al. (2009)*
Log of assets	*Brown et al. (2009)*
Reports assets	*Brown et al. (2009)*
Incentive fee	*Brown et al. (2009)*
Margin	*Brown et al. (2009)*
Audited	*Brown et al. (2009)*
Onshore	*Brown et al. (2009)*
Accepts managed acts	*Brown et al. (2009)*
Relationship between conflict of interest and legal/regulatory problems (externally)	*Brown et al. (2009)*
Broker/dealer	*Brown et al. (2009)*
Investment firm	*Brown et al. (2009)*
Investment advisor	*Brown et al. (2009)*
Bank	*Brown et al. (2009)*
Insurance	*Brown et al. (2009)*
Sponsor of LLP	*Brown et al. (2009)*
Relationship between conflict of interest and legal/regulatory problems (internally)	*Brown et al. (2009)*
BuySellYourOwn	*Brown et al. (2009)*
BuySellYourselfClients	*Brown et al. (2009)*
RecSecYouOwn	*Brown et al. (2009)*
AgencyCrossTrans	*Brown et al. (2009)*
RecUnderwriter	*Brown et al. (2009)*
RecBrokers	*Brown et al. (2009)*
OtherResearch	*Brown et al. (2009)*
Ownership Structure	*Brown et al. (2009)*
Ownership	*Brown et al. (2009)*
Controlling	*Brown et al. (2009)*
75% ownership	*Brown et al. (2009)*
Direct domestic corps.	*Brown et al. (2009)*
Leveraged	*Brown et al. (2009)*
Margin	*Brown et al. (2009)*
Failure to use a well-known auditor	*Brown et al. (2012)*
Discontinuity in the distribution of returns	*Cici, Kempf & Puetz (2016)*
Broker in firm	*Dimmock & Gerken (2012)*
Investment Co. Act	*Dimmock & Gerken (2012)*
Percent client agents	*Dimmock & Gerken (2012)*
Log (AUM)	*Dimmock & Gerken (2012)*
Log (avg. acct. aize)	*Dimmock & Gerken (2012)*
Interest in transaction	*Dimmock & Gerken (2012)*
Leverage	*Dimmock & Gerken (2012)*
Funds with high water-mark provision are less likely to fail	*Liang & Park (2010)*
Absence of compliance function	*Muhtaseb (2010)*
Absence of independent boards of directors	*Muhtaseb (2010)*
Conflicts of interest due to perverse incentives for the management	*Muhtaseb & Yang (2008)*
Valuation of illiqiud assets	*Muhtaseb & Yang (2008)*
Well-reputated service providers	*Muhtaseb & Yang (2008)*

Managerial	Author
Psycopathic tendencies	*Brinke, Kish, & Keltner (2018)*
Narcissistic tendencies	*Brinke, Kish, & Keltner (2018)*
Personal capital	*Brown et al. (2009)*
Unwillingness to be forthcoming about past regulatory violations	*Brown et al. (2012)*
Past regulatory	*Dimmock & Gerken (2012)*
Past civil or criminal	*Dimmock & Gerken (2012)*
SAT undergraduate institution	*Li, Zhang & Zhao (2011)*
Manager's talents and motivations	*Li, Zhang & Zhao (2011)*
Fund managers criminal record	*Muhtaseb & Yang (2008)*

External	Author
Reports to commercial databases	*Aiken, Clifford, & Ellis (2012)*

Appendix 2: Interview Protocol – Hedge Fund Manager

Due Diligence Questionnaires

1. What is your professional opinion of due diligence questionnaires in an investment process?
2. How much would you say that the DDQs differ from each other?
    a. Why do you think that is?
3. How much time would you estimate that you spend on answering due diligence questionnaires?
    a. Who is generally in charge of this?
4. Are there questions on the DDQs that are impossible or challenging to answer?
5. According to theory, the information stated in the DDQs is not always accurate due to hedge fund managers trying to portray a better image. Do you think this is an issue in practice?
6. How do/would you feel about answering questions related to your personal life?
7. Do you have your own due diligence questionnaire? Why/why not?

General Due Diligence

8. Are there differences between foreign and Swedish investors in terms of demand for ESG criteria?
    a. Does this demand differ dependent on the proportion of institutional and retail investors? If so, what do you think the reason is?
9. How do you choose who to employ and do you perform a background check? If so, how?
    a. Do you have a policy regarding hiring relatives? Are you using a third party in recruiting? Conflicts of interest.
10. How did you decide on your fee structure?

Regulation

11. What is your professional opinion on the balance between secrecy and transparency towards your investors?
12. What is your perception of increased regulation in general?
    a. Better or worse in terms of risk and return?

Short Track-Record

13. Did you have problems reaching investors when you were newly established?
    a. How did you work around these issues?

Appendix 3: Interview Protocol – Investment Manager

Due Diligence Questionnaires

1. What is your general view on DDQs?
    a. How much comfort do they provide in the investment process?
2. How important is the DDQ in the DD process?
    a. Have you used an external service provider?
3. Do you have an in-house due diligence questionnaire?
    a. If yes, how did you choose the questions to ask?
4. Why do you think that DDQs differ?
    a. Do you think it would make sense to have a universal version of the DDQ?
5. To what extent do you check the answers provided from the DDQ with a third party?
    a. How much do you trust the information stated in the DDQ?
6. Have you detected any lies or wrongful answers in a DDQ?
    a. To your knowledge, do you think this is a common incident? (Both intentional and unintentional misstatements)

General Due Diligence

7. How much effort do you put into investigating other key personnel/service providers in the hedge fund? (Conflicts of interest? Background? Google/Facebook?)
8. On a scale of 1-10, where 10 is entirely subjective, and 1 is entirely formal, how would you rate your due diligence process/decision making?
9. How important is the ESG aspect of investment decisions?
    a. Is there an external demand for this?
10. What is your thought of hedge funds using leverage?
    a. Does it imply more/less risk? Why?
11. How do you interpret a hedge fund's fee structure?

Regulation

12. Do you take comfort in the fact that a hedge fund is UCITS compliant?
13. What is your perception of the increased hedge fund regulation in general?
    a. Better or worse in terms of risk and return?

Short Track-Record

14. How do you perceive hedge funds that have a shorter track-record?
    a. Do you have a policy of minimum years?
    b. Does the policy change if the managers can display a good (bad) track-record from previously managed hedge funds?
15. What is your take on the potential investment discount offered by newly established funds?

Appendix 4: Comparison of Due Diligence Questionnaires and Theory

Fund structure	ILPA	MFA	Wiley	AIMA	S&P	Author
Kink	N/A	N/A	N/A	N/A	N/A	*Bollen & Pool (2009)*
Leverage	✓	✗	✓	✓	✓	*Brown et al. (2008)*
Average return	✓	✓	✓	✓	✓	*Brown et al. (2009)*
Sharpe Ratio	✗	✗	✗	✗	✗	*Brown et al. (2009)*
Age	✗	✗	✓	✓	✓	*Brown et al. (2009)*
Incentive fee, %	✓	✓	✓	✓	✓	*Brown et al. (2009)*
Presence of high-water mark compensation hurdle	✓	✓	✓	✓	✗	*Brown et al. (2009)*
Previous returns	✓	✓	✓	✓	✓	*Brown et al. (2009)*
Previous std dev	✗	✗	✗	✗	✓	*Brown et al. (2009)*
Fund age	✗	✗	✓	✓	✓	*Brown et al. (2009)*
Log of assets	✓	✓	✓	✓	✓	*Brown et al. (2009)*
Reports assets	✓	✗	✗	✓	✗	*Brown et al. (2009)*
Incentive fee	✓	✓	✓	✓	✓	*Brown et al. (2009)*
Margin	✗	✗	✗	✗	✗	*Brown et al. (2009)*
Audited	✓	✓	✓	✓	✓	*Brown et al. (2009)*
Onshore	✓	✓	✓	✓	✓	*Brown et al. (2009)*
Accepts managed acts	✗	✗	✗	✗	✗	*Brown et al. (2009)*
Relationship between conflict of interest and legal/regulatory problems (externally)	✓	✓	✓	✓	✓	*Brown et al. (2009)*
Broker/dealer	✓	✓	✗	✓	✓	*Brown et al. (2009)*
Investment firm	✓	✗	✗	✓	✗	*Brown et al. (2009)*
Investment advisor	✓	✗	✗	✓	✗	*Brown et al. (2009)*
Bank	✓	✗	✗	✗	✗	*Brown et al. (2009)*
Insurance	✓	✗	✗	✗	✗	*Brown et al. (2009)*
Sponsor of LLP	✗	✗	✗	✗	✗	*Brown et al. (2009)*
Relationship between conflict of interest and legal/regulatory problems (internally)	✓	✓	✓	✓	✓	*Brown et al. (2009)*
BuySellYourOwn	✗	✗	✗	✓	✗	*Brown et al. (2009)*
BuySellYourselfClients	✓	✓	✗	✓	✓	*Brown et al. (2009)*
RecSecYouOwn	✗	✗	✗	✗	✗	*Brown et al. (2009)*
AgencyCrossTrans	✗	✗	✗	✗	✗	*Brown et al. (2009)*
RecUnderwriter	✗	✗	✗	✗	✗	*Brown et al. (2009)*
RecBrokers	✓	✗	✗	✓	✓	*Brown et al. (2009)*
OtherResearch	✗	✗	✓	✓	✗	*Brown et al. (2009)*
Ownership Structure	✓	✓	✓	✓	✓	*Brown et al. (2009)*
Ownership	✓	✓	✓	✓	✓	*Brown et al. (2009)*
Controlling	✓	✗	✓	✓	✓	*Brown et al. (2009)*
75% ownership	✓	✗	✓	✓	✓	*Brown et al. (2009)*
Direct domestic corps.	✓	✓	✓	✓	✓	*Brown et al. (2009)*
Leveraged	✓	✗	✓	✓	✓	*Brown et al. (2009)*
Margin	✗	✗	✗	✗	✗	*Brown et al. (2009)*
Failure to use a well-known auditor	✓	✓	✓	✓	✓	*Brown et al. (2012)*
Discontinuity in the distribution of returns	N/A	N/A	N/A	N/A	N/A	*Cici, Kempf & Puetz (2016)*
Broker in firm	✓	✓	✓	✓	✓	*Dimmock & Gerken (2012)*
Investment Co. Act	✓	✓	✓	✓	✓	*Dimmock & Gerken (2012)*
Percent client agents	✗	✗	✗	✗	✓	*Dimmock & Gerken (2012)*
Log (AUM)	✓	✓	✓	✓	✓	*Dimmock & Gerken (2012)*
Log (avg. acct. aize)	✗	✓	✗	✓	✓	*Dimmock & Gerken (2012)*
Interest in transaction	✓	✓	✓	✓	✓	*Dimmock & Gerken (2012)*
Leverage	✓	✓	✓	✓	✓	*Dimmock & Gerken (2012)*
Funds with high water-mark provision are less likely to fail	✓	✓	✓	✓	✗	*Liang & Park (2010)*
Absence of compliance function	✓	✓	✗	✓	✓	*Muhtaseb (2010)*
Absence of independent boards of directors	✗	✗	✗	✓	✓	*Muhtaseb (2010)*
Conflicts of interest due to perverse incentives for the management	✓	✓	✓	✓	✓	*Muhtaseb & Yang (2008)*
Valuation of illiqiud assets	✓	✓	✓	✓	✓	*Muhtaseb & Yang (2008)*
Well-reputated service providers	✓	✓	✓	✓	✓	*Muhtaseb & Yang (2008)*
Managerial						**Author**
Psycopathic tendencies	✗	✗	✗	✗	✗	*Brinke, Kish, & Keltner (2018)*
Narcissistic tendencies	✗	✗	✗	✗	✗	*Brinke, Kish, & Keltner (2018)*
Personal capital	✗	✗	✗	✗	✓	*Brown et al. (2009)*
Unwillingness to be forthcoming about past regulatory violations	✓	✓	✓	✓	✓	*Brown et al. (2012)*
Past regulatory	✓	✓	✓	✓	✓	*Dimmock & Gerken (2012)*
Past civil or criminal	✓	✓	✓	✓	✓	*Dimmock & Gerken (2012)*
SAT undergraduate institution	✓	✗	✗	✓	✓	*Li, Zhang & Zhao (2011)*
Manager's talents and motivations	✗	✗	✗	✗	✗	*Li, Zhang & Zhao (2011)*
Fund managers criminal record	✓	✓	✓	✓	✓	*Muhtaseb & Yang (2008)*
External						**Author**
Reports to commercial databases	✗	✗	✗	✓	✓	*Aiken, Clifford, & Ellis (2012)*
Score	**29**	**26**	**28**	**34**	**35**	**Average: 30,4**
Score, %	**64%**	**58%**	**62%**	**76%**	**78%**	**Average, %: 68%**