Seeking Alpha—and Finding It

Empirical Studies of the Impact of Information Acquisition Behavior, Market Beliefs, and Risk Attitude on Fund Performance Among Equity Fund Managers in Sweden

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To
Mom and Dad

Foreword

This volume is the result of a research project carried out at the Department of Marketing and Strategy at the Stockholm School of Economics (SSE).

This volume is submitted as a doctor's thesis at SSE. In keeping with the policies of SSE, the author has been entirely free to conduct and present her research in the manner of her choosing as an expression of her own ideas.

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Stockholm, August 22, 2016

Emelie Fröberg

Table of contents

List of tables

List of figures

1 Introduction

1.1 Background

Since the first investment fund was introduced in 1774 (Rouwenhorst, 2004), the worldwide fund market has grown to a tremendous amount of 38 trillion dollars (Investment Company Institute, 2016). Globally, households trust professional fund managers with capital worth half of the gross world product (Central Intelligence Agency, 2015), over 150 million Ferraris or about one thousand Big Macs per person in the world. Equity funds, funds focused on investing in stocks, are the most common type of fund. The majority of equity funds are marketed as actively managed (Cremers, Ferreira, Matos, & Starks, 2016), wherein highly qualified investors (Menkhoff, 2010) attempt to deliver "Alpha" through their skill to gather and analyze information (Chevalier & Ellison, 1999). Alpha refers to superior risk-adjusted performance—the ability to earn returns higher than expected by given risk levels in managed portfolios (Jensen, 1968).[1] Some individual active fund managers are even distinguished as 'star' or 'top' managers by rating agencies and in the popular financial press (e.g., Morningstar, Citywire, Dagens Industri). The main task of active equity fund managers is to deliver Alpha through active stock-selection processes (Cremers & Petajisto, 2009). Active stock-selection costs are estimated at over 165 billion dollars per year, based on a conservative estimation of one percent of total managed capital (cf. Daniel, Grinblatt, Titman, & Wermers, 1997). Yet what active fund managers actually do, and what these costs supposedly enable, is largely unknown.

[1] Alpha can refer to superior abnormal performance, or to "beat the market". In this dissertation, abnormal performance and Alpha are used interchangeably. The term "alpha" can also denote different specific performance measurements, such as the Jensen (1968) 1-factor alpha, the Fama-French (1993) 3-factor alpha or the Carhart (1997) 4-factor alpha (see Appendix B for equations).

Moreover, whether (some) active fund managers provide more value than passive investments is open to scientific debate. Several prominent researchers (including Nobel laureates William F. Sharpe and Eugene F. Fama) have questioned the value of active fund management, even as small subsets of fund managers have been shown to persistently deliver Alpha (Barras, Scaillet, & Wermers, 2010; Cremers & Petajisto, 2009; Grinblatt & Titman, 1989; Kacperczyk, Nieuwerburgh, & Veldkamp, 2014; Kosowski, Timmermann, Wermers, & White, 2006; Porter & Trifts, 2012).[2] The performance of fund managers depends on a highly uncertain future, in contrast to many other professions (like electricians, hairdressers). Burton Malkiel (1999) famously argued that blindfolded monkeys throwing darts at the financial pages of a newspaper would perform just as well financial experts because of the random behavior of stock markets. Even so, a tremendous amount of money goes into the fund market industry. But fund savers are in the dark as to why they can, or cannot, expect the active fund managers to perform better than passive, cheaper alternatives. *How* some fund managers are (potentially) better able to actively manage their portfolio is largely unknown. This dissertation aims to shed some light on the value of active fund management by empirically exploring, describing and analyzing the impact of individual equity fund managers' (1) information acquisition behaviors, (2) beliefs about stock markets and (3) attitudes to risk on fund performance.

1.2 Theoretical perspectives

In this dissertation I propose to study equity fund managers from an interdisciplinary perspective, combining theories from finance, accounting and economic psychology, to gain insight into the value of active fund management. Stock returns (thus, fund returns) are dependent on how stock markets behave (finance) and how equity is valued (accounting). Portfolio choices (in turn, fund returns) are dependent on how fund managers behave and underlying psychological mechanisms (economic

[2] For example, during his 13 years tenure (1977-1990) at Fidelity Magellan, hedge fund manager Peter Lynch made an astonishing 380.46% market-adjusted cumulative return and Warren Buffett has through his investments become one of the richest people in the world.

psychology). In this section, I introduce the different perspectives (in no particular order).[3] These are elaborated on in Chapter 3 "Theoretical perspectives".

Finance is a discipline that studies investments and asset pricing (Miller, 2000). When applying a finance perspective, fund managers are (agents who are) provided money by fund investors (principals) in order to allocate those across available alternatives (cf. Jensen & Meckling, 1976) and thereby maximize expected returns and minimize risk (Markowitz, 1952). In neoclassical finance, stock markets are described as efficient, or all available information is reflected in market prices, and stock prices wander randomly around their intrinsic value (Fama, 1965). Fund managers are predicted to underperform the market, create value through private, insider information or create value through sophisticated fundamental analysis, depending whether one assumes the strong, semi-strong or weak form of efficient markets, respectively (cf. Malkiel & Fama, 1970). A growing literature stream called behavioral finance has further questioned the assumptions of efficient markets on the basis of psychological theories (see De Bondt & Thaler, 1995; Shefrin, 2000; Shleifer, 2000). In behavioral finance, there is room for potentially skilled fund managers to add value through their understanding of market behaviors. In sum, finance theories make conflicting predictions regarding the potential value of active fund management and how to obtain abnormal fund performance. Moreover, valuation models in finance do not necessarily take the underlying company into account, as there are models that rely solely on stock market data or simulations of future stock prices.

Accounting is a discipline that studies the usefulness of accounting data (Hopwood, 2007; Watts & Zimmerman, 1990) and is concerned with the information that companies provide to their users (investors, creditors, management, regulators, and internally). When applying an accounting perspective, equity fund managers are among the largest providers of capital to companies, and expect their capital to grow through the operations of the company (Graham, 1986; Koller, Goedhart, & Wessels, 2010; Penman, 2007). Active fund managers are predicted to use fundamental analysis in order to identify mispriced stocks and create value.

[3] This is a crude and simplified division for the purpose of this dissertation.

Fundamental analysis is used to calculate the intrinsic (fundamental) value of a company, which is justified with reference to information about potential future payoffs. Fundamental firm analysis is profitable if stocks are mispriced, but regress towards a firm's intrinsic value. Accounting theory is consistent with semi-strong or weak form of efficient markets, where the value of active fund management stems from either an information advantage or through conducting better fundamental analysis, but it cannot be used to create value under strong form efficient markets or behavioral markets.

Economic psychology is a discipline that studies the underlying psychological mechanisms and processes of human economic behavior (Wärneryd, 1988). Economic behavior, which involves economic decisions such as investments, is a function of human motives, perceptions, attitudes, expectations and is bounded by the economic conditions (van Raaij, 1988). When applying an economic psychology perspective, equity fund managers are treated as individuals that professionally make equity investment decisions. Individual fund managers can potentially be skilled at picking stocks (cf. Ericsson, Krampe, & Tesch-Römer, 1993) or may merely be lucky individuals in a high random environment (cf. Denrell, Fang, & Liu, 2015; Denrell, 2004; Taleb, 2005). In a general model of human decision-making behavior, individual fund managers acquire (or retrieve) information (from memory), process information, evaluate alternatives and make decisions (cf. Einhorn & Hogarth, 1981; van Raaij, 1988). In sum, in economic psychology individual investors differ in their underlying psychological mechanisms of their economic behavior. Little is known about the underlying mechanisms of active fund manager behavior and the impact on fund performance.

In this dissertation, I propose to study fund managers from an **interdisciplinary perspective** where fund managers are predicted to have heterogeneous information acquisition behaviors, market beliefs and attitudes to risk. First, both neoclassical finance theory and accounting theory predict that equity prices are justified through fundamental company information (and that private information can be used to earn abnormal returns). Individual fund managers can therefore be predicted to acquire information differently when making decisions. This dissertation thus takes

specific interest in *how* individual fund managers actually acquire information and whether it has an *impact* on fund performance. I further examine whether fund managers acquire information in the same way, or differently, and the rationales for this. This has implications for market efficiency and the requirements of information quality used for, possible, fundamental analysis. Second, neoclassical finance and accounting theories assume that markets are driven by fundamental information whereas behavioral finance theory assumes that markets are driven by investors' psychological mechanisms. Individual fund managers can be predicted to differ in their market beliefs. This dissertation thus takes specific interest in how fund managers view markets and whether this has an impact on fund performance. I evaluate beliefs about stock markets that fund managers actually hold in order to capture the spectrum in which market behavior can diverge between fundamentally driven (information efficient) and psychologically driven.[4] Third, both finance and accounting theory assume that more risk should be rewarded with higher returns. Risk attitude can influence stock valuations (accounting) or diversification [5] (finance). Individual fund managers can thus be predicted to differ in their attitudes to risk. This dissertation takes a specific interest in how willing fund managers are to take risk and whether it has an impact on fund performance. I evaluate risk attitudes of fund managers because it is unknown whether they differ in their attitudes, and whether this has a direct link to returns.

Previous interdisciplinary empirical research has found relationships between fund performance and whether fund managers perceived discussions with company management as important (Drachter, Kempf, & Wagner, 2007), the frequency of fund managers' company site visits (Switzer & Keushgerian, 2013), the degree of active stock picking (Cremers & Petajisto, 2009), and variations in stock picking (company fundamentals), and market timing (economic fundamentals) across the economic cycle

[4] The two contrasting views of market behavior are generally in opposite to each other, but when Riksbanken motivated the price winners for the Nobel prize in Economics in 2013 they argued that both views could be right—depending on which time horizon that were used. In the short run, markets are unpredictable (or any predictability is so small that after transaction costs no use) in accordance to efficient market hypothesis. But in the long run, there is some predictability in accordance to behavioral finance. (Economic Sciences Prize Committee of the Royal Swedish Academy of Sciences, 2013).

[5] By the exposure to more or less risky assets.

(Kacperczyk et al., 2014). Further, individual trader behavior has been linked to trader performance (Fenton-O'Creevy, Nicholson, Soane, & Willman, 2004; Fenton-O'Creevy, Soane, Nicholson, & Willman, 2011). Trader performance has been positively linked to traders' use of intuition in combination with controlled emotions (Fenton-O'Creevy et al., 2011), negatively linked to the illusion of control but not linked to individual risk attitudes (Fenton-O'Creevy et al., 2004).

In order to apply an interdisciplinary perspective, this dissertation does not study cognitive processes (cf. economic psychology), the use of, or valuations made from, accounting numbers (cf. accounting), or long return time-series, large number of observations, asset pricing or market modeling (cf. finance). Instead, it studies fund managers from an individual perspective. Hellman (2000) has provided an excellent grounded theory of how large Swedish institutional investors make equity investments—with emphasis on investors as organizations, not individuals. Holland (2016) has provided a grounded theory of how fund management organizations make equity decisions. Fund managers have also been studied using a sociological perspective, in which the investment objects were socially constructed by different market actors (see e.g., Abolafia, 2001; Blomberg, Kjellberg, & Winroth, 2012; Henningsson, Johanson, & Almqvist, 2015; Hägglund, 2001; Lai, 2006; MacKenzie, 2003, 2014).[6] In order to provide new knowledge and to address this existing gap, this dissertation takes an individual perspective: it zooms in on individual fund managers when evaluating the value of active fund management.

1.3 Research purpose and questions

Active equity fund manager behaviors, decisions, and performance have a huge impact on society and fund savers' wealth. But the value of active fund management is in scientific debate. Research provides conflicting

[6] Social network theory attempts to understand social interactions between (market) actors implementing theories from social psychology and sociology. Studies of social networks study aggregated levels and macro (network) effects. I refer the reader to the influential theories of weak-ties (Granovetter, 1973) and field theory (e.g., Fligstein, 2001; Lewin, 1951) and in addition to social studies of finance (e.g., Beunza & Stark, 2004; Blomberg et al., 2012; Graaf & Johed, 2016; Hardie & MacKenzie, 2007).

predictions of how active equity fund managers can achieve abnormal performance. This dissertation aims to shed some light on the value of active fund management, by providing insights into the black box of fund managers in their real-world setting. Furthermore, this dissertation aims to empirically explore, describe and analyze the impact of how individual equity fund managers acquire information in their daily work, their market beliefs, and their willingness to take risks on fund performance. Specifically, the following research questions are empirically investigated:

> **RQ1.** How do equity fund managers acquire information in their daily work and why?
>
> **RQ2.** What are the relationships between equity fund managers' information acquisition behaviors, market beliefs and risk attitudes?
>
> **RQ3$_a$.** What is the impact of equity fund manager information acquisition behavior on fund performance?
>
> **RQ3$_b$.** What is the impact of equity fund manager market beliefs on fund performance?
>
> **RQ3$_c$.** What is the impact of equity fund manager risk attitude on fund performance?

I use the phrases "acquire information" or "information acquisition" (e.g., Andersson, 2001; Einhorn & Hogarth, 1981; Holland & Doran, 1998), which has also been referred to as gather, seek or search for information (e.g., Barker, 1998; Drachter et al., 2007).[7] I have used the term "acquire" to highlight that it is a costly effort—mentally and money-wise—and thus might have implications for the fund performance. It should be noted that I do not use a cost-benefit framework approach to analyze costs of acquiring information. I use the phrase "beliefs about markets" to describe expectations about how stock markets behave or beliefs about financial

[7] In some contexts, it is an important distinction between information and data. The term information is used in the three theoretical perspectives which are applied in this dissertation.

market processes (see Menkhoff, 2010). It is used to capture the difference between, on the one hand, efficient market and fundamental views on stock markets and, on the other hand, behavioral beliefs about stock markets (i.e. beliefs that psychological factors are important). I use the term "risk attitude" to describe a self-assessed willingness to take risk or self-reported risk-seeking behavior or risk taking (see Anderson, Dreber, & Vestman, 2015; Dohmen et al., 2011). A financial glossary is provided in Appendix A.

1.4 Research approach

This dissertation is based on a combination of qualitative (exploratory) and quantitative (descriptive and causal) studies (Figure 10, p. 60, and Figure 11, p. 61, in Chapter 5 "Methods" provide illustrations). In February, 2013, a list of all actively managed equity funds registered in Sweden along with the name of the (Morningstar reported) responsible fund manager(s) was created. First, I conducted exploratory studies by direct observations of and in-depth interviews with a subset of ten active equity fund managers in order explore and describe how fund managers acquire information in their daily work. Second, I sent out a questionnaire—to measure information acquisition behaviors, beliefs about markets and risk attitudes—to the list of all active equity fund managers in Sweden in early 2013. Half of the population responded to the questionnaire. The questionnaire built on the exploratory studies and had a unique identifier so that the responses could be linked to archival data. Archival methods were then used to gather data about fund performance, including fund returns and benchmark returns, and control variables, including company size, fund size, management fee, geographic focus and small cap focus. It should be noted that active equity fund managers are not well researched as they are difficult to access. The empirical material of this dissertation provides unique insights into the 140 individuals that actively managed over 38 billion USD (253 billion SEK) in early 2013 in Sweden.

1.5 Research scope

The scope of this dissertation is individual active equity fund managers in Sweden. In other words, this dissertation takes a micro, or individual, level of analysis and the units of analysis is fund managers in Sweden. In effect, only actively managed funds with identifiable named responsible manager(s) are evaluated. That is, I do not examine passively managed funds (e.g., index funds) or funds managed by teams. By applying an individual perspective, fund managers are treated as individuals in team-contexts (cf. Barker, 1998; Eshraghi & Taffler, 2015; Tuckett & Taffler, 2012). Eshraghi and Taffler (2015) found that fund manager texts in fund annual reports could be attributed to individuals, and thus argued that individual fund managers were responsible for the decisions and performance of managed funds. Other research has studied behavior of large institutional investors, where fund managers can play a more or less dominant role (cf. Gniewosz, 1990; Hellman, 1996, 2000; Holland & Doran, 1998; Holland, 2016). My studies revealed similarly that some fund managers made investment decisions in groups within their institutional setting and some made all decisions independently. Individual fund managers played a more dominant role in small fund management firms, which were included in my study but not in the studies of large institutional investors. Both perspectives provide a deeper understanding of professional investors and can be seen as complementary.

The scope of this dissertation further includes equity funds, which follows from the duality of the traded company share, on the one hand, and the underlying company, on the other. Accounting theory suggests valuation to be based on company information whereas chartist or quantitative approaches require no information about underlying company fundamentals. Thus, I have excluded bond funds, mixed funds, hedge funds and fund-in-funds. For comparability, I focus on open-end funds and funds registered in Sweden. There are two main types of funds: closed-end funds and open-end funds. A closed-end fund has a fixed number of predetermined fund units and can only be traded between fund owners, whereas open-end fund owners can buy or sell their fund units at any time. In effect, open-end funds have variable money-flow in or out of the funds

whereas closed-end funds do not. I have excluded unit-linked funds, which are closed-end funds. The focus on Swedish funds was justified by the potential differences in regulatory settings and country cultures (cf. Beckmann, Menkhoff, & Suto, 2008), and to facilitate access. Nevertheless, the results are likely to be generalizable to other European markets and to closed-end funds (see section 5.7.3 "Representativeness and generalization").

I focus on equity fund managers. Because of this, I do not examine hedge fund managers, private equity investors or traders, who are not limited to investing on stock markets. I do not examine analysts, since they conduct investment research and recommendations, not investment decisions. Moizer and Arnold (1984) found significant differences in the behavior of analysts and portfolio managers. Previous research has examined portfolio managers (e.g., Clarkson & Meltzer, 1960; Farnsworth & Taylor, 2006), asset managers (e.g., Beckmann et al., 2008), money managers (e.g., Cheng, Liu, & Qian, 2006; Chong & Tuckett, 2015; Hong, Kubik, & Stein, 2005) or fund managers (e.g., Barker, Hendry, Roberts, & Sanderson, 2012; Barker, 1998; Chevalier & Ellison, 1999; Coleman, 2015; Cremers & Petajisto, 2009; Eshraghi & Taffler, 2015; Golec, 1996; Henningsson, 2009; Kacperczyk et al., 2014; Menkhoff, 2010; Porter & Trifts, 2012). However, terms other than fund managers can refer to individuals that manage someone else's wealth (cf. Clarkson & Meltzer, 1960; Farnsworth & Taylor, 2006). I focus on managers of funds: individuals that make decisions about which stocks to include in (open-end) funds. The scope of this dissertation facilitates performance evaluations as the great majority of equity funds are benchmarked to a market index.

Given the purpose and research questions of this dissertation, I do not examine the fund manager's owner role (cf. corporate governance) or if a fund manager has other professional roles within the company (e.g. as the CEO). Some fund managers may take active owner roles (e.g., Swedbank Robur has taken an active role in the socially responsible funds) and some fund managers may spend a lot of their time marketing the fund to potential investors. In such cases, a fund manager would have less time to spend on acquiring information. This would be captured in my study through measuring the frequency of information acquisition activities.

Finally, the studies took place during a boom-period. Results are thus specific for boom periods, because previous research has seen differences in behaviors between economic cycles (e.g., Kacperczyk et al., 2014; Loh & Stulz, 2013).

1.6 Intended contributions

This dissertation intends to make the following contributions to both science and practice. First, this dissertation intends to make an empirical contribution by describing and analyzing unique empirical data consisting of a mixture of direct observation, and individually linked survey and archival data. It aims to contribute to empirical studies of fund managers, which have predominantly relied on interview studies, and fund performance determinants, which have predominantly relied on archival data. Second, this dissertation intends to contribute to the scientific debate of the value of active fund management. Third, this dissertation intends to make practical contributions by providing insights into the daily work of individuals that make decisions that affect society and fund savers' wealth and pension savings which can also be used as a benchmark for practitioners and other capital market actors.

1.7 Content of the dissertation

This dissertation is organized as follows. Chapter 2 provides an overview of the emergence and legislation of fund products, how the Swedish fund market has developed, a description of the active equity fund managers that are examined in this dissertation and fund performance evaluations. Chapter 3 reviews the theoretical perspectives of this dissertation. Chapter 4 reviews previous empirical research on fund manager (1) decision-making behavior and (2) performance. Chapter 5 presents the research approach, the research design and the body of methods. Chapter 6 explores the first and second research questions (how equity fund managers acquire information in their daily work, and why, and the relationships between information acquisition behavior, beliefs about markets and risk attitude). It

draws on data collected through direct observation, interviews, and questionnaire data combined with archival data. Chapter 7 explores the third set of research questions (what is the impact of fund manager information acquisition behavior on fund performance; what is the impact of fund manager beliefs about markets on fund performance; and what is the impact of fund manager risk attitude on fund performance). It draws on archival data linked to questionnaire data. Chapter 8 discusses the main results of the thesis, implications, strengths and weaknesses, and suggestions for future research.

2 Background

This chapter describes how fund products emerged, legislation around them, and how the fund market has developed and performed in Sweden. This chapter also introduces the population of active equity fund managers in Sweden which are examined in this dissertation.

2.1 Emergence of fund products

A Dutch merchant and broker named Abraham van Ketwich has been acclaimed as the founder of funds (Khorana, Servaes, & Tufano, 2005; Rouwenhorst, 2004). Van Ketwich invited subscriptions from investors to form a (closed-end investment) trust in 1774 named "Eendragt Maakt Magt"—a motto translating to *Unity Makes Strength* which was frequently used in the Dutch Republic from the beginning of the 16th century (for example on Dutch coinage). The aim was to provide investors, with limited means, an opportunity to diversify (Rouwenhorst, 2004). Diversification was achieved by investing in Austria, Denmark, Germany, Spain, Sweden, Russia and several colonial plantations in Central and South America (ibid.). The first open-end fund was the Massachusetts Investors Trust, offered in the US in 1924 (Khorana et al., 2005).

A fund pools money from many investors to purchase a portfolio of securities. The idea of a portfolio is to reduce investment risk by diversification. Funds are generally divided by their asset classes: equity funds, hedge funds, bond funds, and balanced funds. An equity fund is a fund which mainly includes equities. Fund owners pay a fee for fund management and do not have any influence on the equity decisions. Equity funds can be actively or passively managed. Index funds are passively managed; that is, the portfolio is constructed so that its performance

reflects a particular benchmark index. Actively managed funds refer to funds where fund managers make portfolio choices to produce returns greater than those of their benchmark indices. Management fees and turnover are higher for actively managed funds. (CFA, 2013)

In the past six years the worldwide number of funds has increased by an average of 2,000 funds per year, and over one hundred thousand open-end funds were offered to investors in 2015 (Investment Company Institute, 2015). The total value of equity funds worldwide reached an astonishing all time high of 16.5 trillion USD in 2015 (Investment Company Institute, 2015).

2.2 Legislation

In the US and Canada, the term 'mutual fund' is used (CFA, 2013): "Mutual funds are pooled investment vehicles in which investors can purchase shares, either from the fund itself (open-end funds) or in the secondary market (closed-end funds)" (p. 202). Funds in Europe function in the same way, but the European legislation uses the term 'investment fund', which either refers to an undertaking for collective investments in transferable securities (Directive 2014/91/EC) or an alternative investment fund (Directive 2011/61/EC). The EU issued the first directive regarding undertakings for collective investments in transferable securities (UCITS) in 1985, which enabled funds to operate freely all through Europe. The directive is currently on the fifth version (UCITS V), implemented in 2014.

Sweden implemented UCITS (III) through the Investment Funds Act in 2004 (Pettersson, Helgesson, & af Segerstad, 2009). A fund in Sweden goes by the term 'investment fund', including both UCITS, which can be marketed or sold freely throughout Europe, and special funds, which are subject to the national regulation "Lag (2013:561) om förvaltare av alternativa investeringsfonder", and cannot be marketed or sold outside of Sweden. In early 2013, 85% of the actively managed equity funds registered in Sweden were UCITS (Fröberg, 2016b). According to UCITS-legislation, a holding cannot exceed 5% of the market value of the portfolio, with the exception of holdings between 5% and 10% of the portfolio that does not exceed 40% of the portfolio put together (referred to as the 5-10-40 rule).

In practice, UCITS are forced to hold at least 16 securities and cannot hold more than 10% cash.

2.3 Development of the Swedish fund market

The first Swedish fund company, AB Svenska aktier (merged into Industrivärden Invest AB in 2011) was founded in 1932 and worked with closed-end funds (SOU 1969:16). The first Swedish open-end fund was founded twenty-five years later. It was called Koncentra and was founded by the two brothers Ragnar and Gösta Åhlén (formally Stiftelsen Aktietjänst) in 1958 (SOU 1969:16). They aimed to promote equity-based savings in Sweden (Pettersson et al., 2009). In 1960, the company formed two more open-end funds, named Högkoncentra and Lågkoncentra (SOU 1969:16). In the same year, the Swedish Financial Supervisory Authority wrote to the King in Council that equity trading had changed in recent years due to the launch of equity funds (Pettersson et al., 2009). An Equity Funds Commission was appointed in 1963. The report was submitted to the Parliament in 1969 and the first Investment Funds Act was adopted in 1974 (Pettersson et al., 2009).

In 1978, a government subsidized savings form was introduced: the Aktiesparfond (equity savings fund, or tax-save funds). This savings form promoted savings in funds by giving savers deductions on their taxes in proportion to the saved amount, at most 30%, and tax-free capital appreciation if the funds were tied for five years (Nationalencyklopedin: Aktiesparfond). Aktiesparfond ended in 1984 (ibid.), but was succeeded by another state-subsidized alternative called Allemansfond (loosely translated to 'everyman's fund', Nationalencyklopedin: Allemanssparande). The Allemansfond had tax-free returns and allowed for capital appreciation (ibid.). The Aktiesparfond and its successor Allemansfond increased savings in equity funds substantially (Pettersson et al., 2009). In 1989, it also became possible to save in foreign shares, and investment in foreign funds saw a strong increase (Nationalencyklopedin: Aktiefond). By 1990, there were a total of 1.7 million of Allemansfond-accounts, corresponding to almost every fifth person in Sweden at that point. Allemansfond lost its tax subsidy in 1997 and was repealed in full in 1998 (Pettersson et al., 2009).

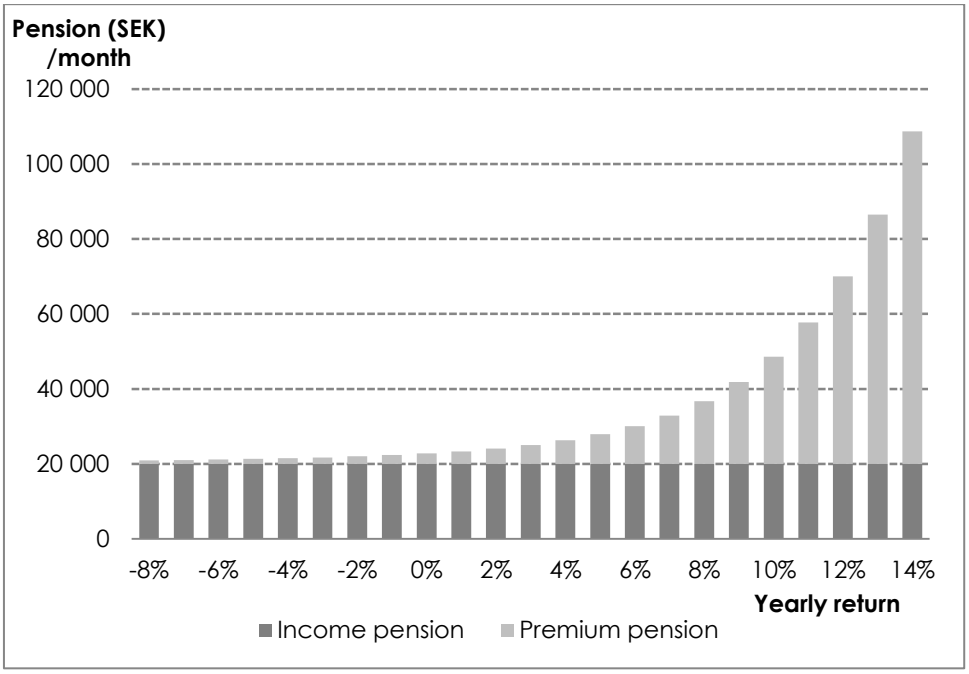
More governmental interventions had important implications for the Swedish fund market. In 1990, unit-linked funds were introduced. Unit-linked fund saving is a type of saving linked to insurance and offers the option of saving in either endowment insurance or pension insurance. There are no tax-related consequences to savers moving their money between different funds, because no tax is charged on capital gains. An annual yield tax, based on the value of the holding, is charged instead. Another change took place in 1994: individual pension savings (IPS) became an option. Savers could save in an IPS by buying units in funds, by buying individual securities, or by making deposits in a bank account, with the same tax rules as for pension insurance. Most IPSs are invested in funds (Pettersson et al., 2009)

Finally, a new Swedish national pension system was approved in 1994. One of its new features was that a percentage—2.5% of a salary—would go to the premium pension system, which offered savers the chance to choose for themselves the funds in which they wished to invest their money. The first choice of premium pension funds was made in 2000 (Pettersson et al., 2009). The new premium pension scheme gave 4.4 million Swedes the opportunity to invest part of their pension savings in equity or bond funds (Hedesström, Svedsäter, & Gärling, 2004). In 2015, over seven million Swedes had 838.7 billion SEK invested in 825 funds (Pensionsmyndigheten, 2016).

The Swedish pension system consists of premium pension, income pension and guarantee pension. Performance of funds in the premium pension has a huge impact on future pensions. Figure 1 shows the exponential benefits of saving in funds with higher yearly returns. Pension savers influence the yearly returns by their fund choices. Sörensson (2013) showed that a successful strategy for premium pension savers was to hold the top five funds, based on returns the last 30 days, and re-balance every 30 days. This resulted in an increase in the index from 1 to 4.05 from 2001-09-21 until 2011-09-28, as compared to, for example, holding the bottom funds which resulted in a decrease in the index from 1 to 0.7. On a related note, the Swedish Shareholder's Association initiated a lawsuit against two of the most popular actively managed funds in the Swedish pension

system.[8] Pension savers were claimed to have paid management fees of about 830 million USD (seven billion SEK), even though the funds made such small deviations from the market that they had no chance to deliver abnormal performance (Dahlberg, 2013, 2015).[9] In sum, the value of active fund management has huge impact on almost all adult Swedes' future pension levels.[10]

Figure 1. Expected future pension levels depending on fund performance in premium pension



Note: Expected future pension levels of males born in 1990, limited to a yearly return of 14% since pension levels increase exponentially (Ds 2013:35, chart 3.9, p.82)

[8] Swedbank Robur Allemansfond and Swedbank Robur Kapitalinvest

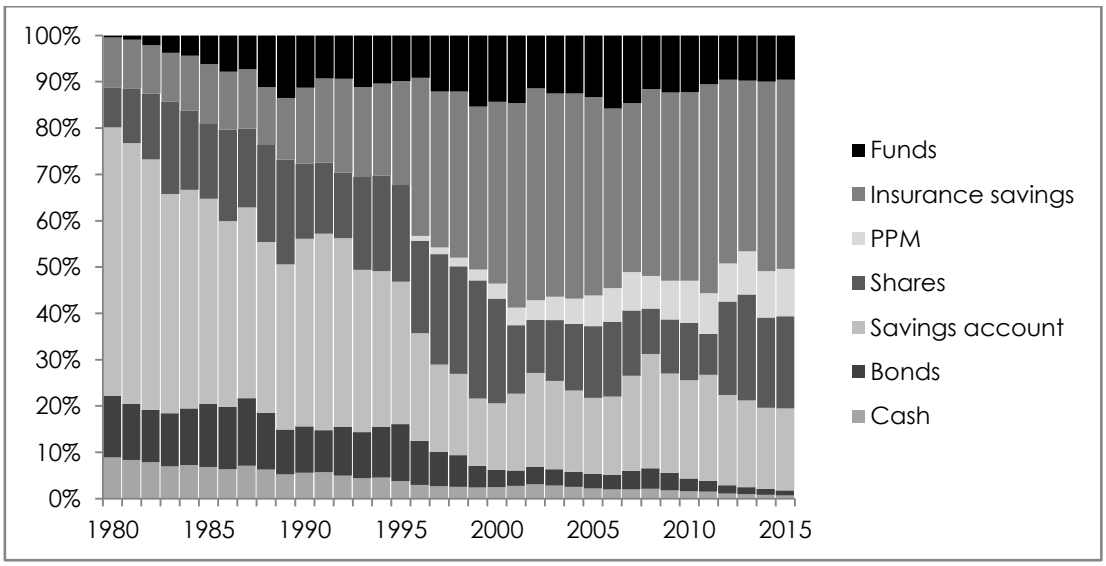
[9] The National Board for Consumer Disputes (ARN) declined, in 2014, to try a joint claim of fund savers vs Swedbank Robur.

[10] In the Swedish premium pension, fund owners are allowed to freely make (up until five) fund choices on a daily basis. The premium pension system is not limited to Swedish-registered equity funds and fund investors are provided reduced fund fees through the system, so this dissertation does not evaluate all actively managed funds that are available through the pension system.

2.4 Descriptive statistics of the Swedish fund market

This section describes how the Swedish fund market has developed using statistics from Statistics Sweden (SCB) and Swedish Investment Fund Association (Fondbolagens Förening). Figure 2 provides an overview of how Swedish households have distributed their savings since 1980. Noticeable is the proportional growth of savings in funds which occurred in 1980 around when the government-subsidized Aktiesparfond and Allemansfond were introduced. Further, the introduction of individual pension savings also had a great impact—especially around year 1995—on the distribution of savings. Unfortunately, the SCB statistics did not specify the fund proportion of insurance savings. But the chart shows that Swedish households have, since 1980 (until 2000), been inclined to invest their money in other asset classes than a regular savings account.

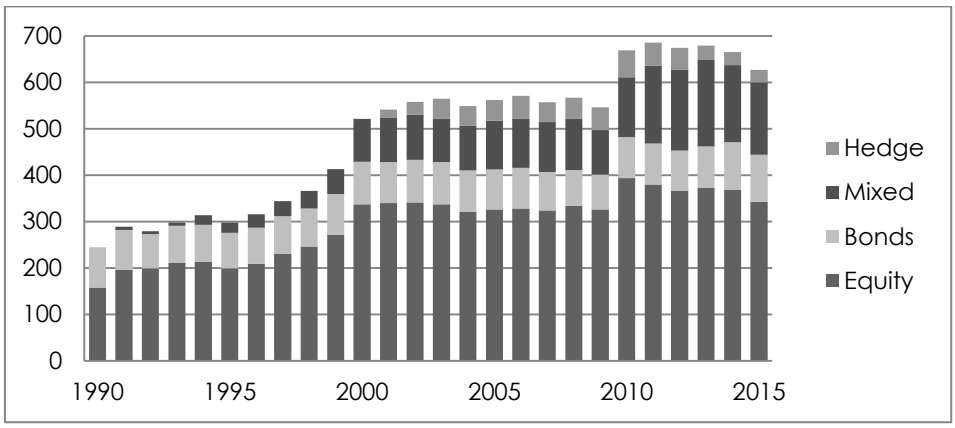
Figure 2. Distribution of household savings (end of year) per asset class



Notes: Own compilation from http://www.scb.se/FM0105. Insurance savings include unit-linked savings and traditional insurance (i.e., occupational pension), which can be invested in funds.

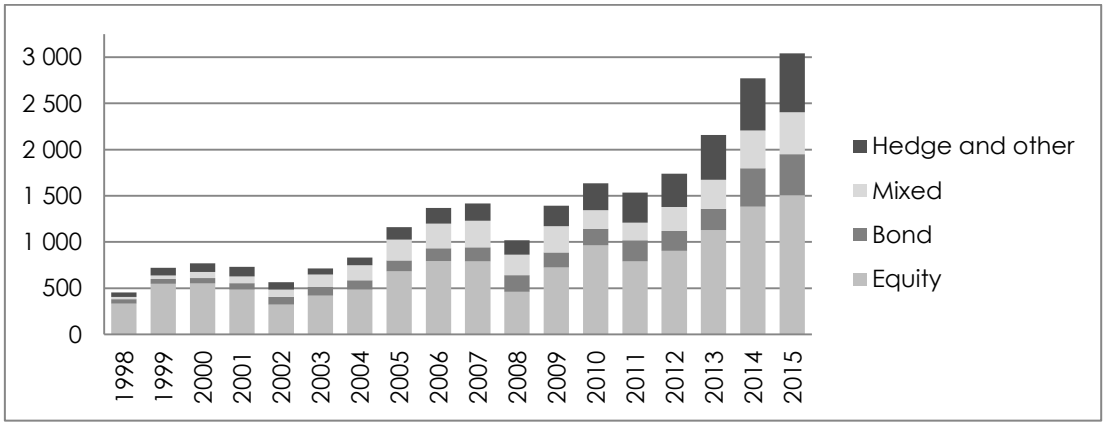
Funds are a common savings form for Swedish households. Figure 3 illustrates the development of the number of Swedish registered investment funds. Figure 4 illustrates the development of the total wealth. There has been an increasing trend, especially among equity funds—which represent over half of registered investment funds.

Figure 3. Number of funds registered in Sweden



Note: Own compilation from http://www.fondbolagen.se/sv/Statistik--index/Fondformogenhet

Figure 4. Total wealth (in billion SEK) of investment funds registered in Sweden



Note: Own compilation from http://www.scb.se/FM0403. Hedge and other funds include fund-in-funds.

A vast amount of about 200 billion USD (almost 1.6 trillion SEK), the same amount that all Swedes payed in direct and indirect income taxes[11], was invested in Swedish equity funds outside of the premium pension system in 2014 (TNS Sifo Prospera, 2015). As many as 76% (50%) of adult Swedes are estimated to own (equity) funds outside of the premium pension system (TNS Sifo Prospera, 2015). In the same period, less than 13.8% owned shares directly, a number that has been decreasing since 2002 (SCB, 2015). The development indicates that private investors increasingly choose to trust the equity investment decisions of equity fund managers.

2.5 Population evaluated in this dissertation

In February 2013, a list of all (369) Swedish registered equity funds along with the named responsible fund manager(s) were gathered from Morningstar.[12] Index funds, fund-in-funds, funds with more than three fund managers and funds with managers located outside of Sweden were manually excluded (cf. Cohen, Frazzini, & Malloy, 2008; Coval & Moskowitz, 2001; Ding & Wermers, 2012; Hong et al., 2005).[13] The final list consisted of 191 actively managed equity funds which were managed by 140 fund managers. They managed 86 billion USD (562 billion SEK), over 60% of total Swedish-registered equity fund wealth (Fondbolagens Förening, 2016), in the end of 2012 and they worked at 35 different companies. However, Figure 5 illustrates that in February, 2010 (three years

[11] It was 1,653 billion SEK in 2014 (http://www.ekonomifakta.se/Fakta/Skatter/Skattetryck/Skatteintakter-per-skatt/).

[12] I manually controlled the fund prospectus and fund manager comments in annual reports the Morningstar information cohered to that of the fund company. Nine funds (4.7%) did not fully concur to the Morningstar description. Six funds had an additional fund manager, still in total less than four managers, and three funds had someone else than was stated in Morningstar. Empirical results in this dissertation are unaffected by excluding the confusing cases. In the main analyses, I have used the Morningstar named fund manager to facilitate replication.

[13] One fund (AP7 Aktiefond) had a fund wealth of 125 billion SEK, three times more than the second largest fund. Together with the fixed income block, AP7 Aktiefond (as the equity building block) forms four fund products that are offered as the state-owned alternative in the Swedish pension system. Three million Swedes have chosen the default fund option AP7 Såfa (one of the four fund products). AP7 Aktiefond was thus excluded as an extreme case. One fund was excluded because it had no performance track record and five funds were excluded because they were duplications of other funds (apart from paying dividends instead of reinvesting them). Another three funds were also duplications, but differed in management fees (i.e., the net returns differed) and was not excluded.

earlier) only half of the funds were managed by the population in this dissertation. A potential explanation is that poor performing fund managers, or funds, has been terminated or merged.

Figure 5. Number of funds each month that was managed by the same manager(s) until (from) February, 2013

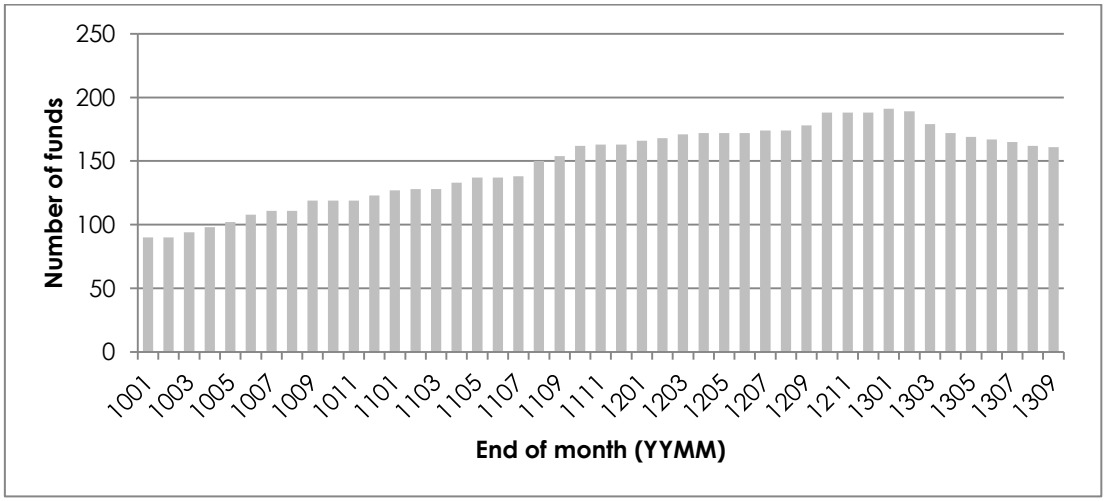


Table 1 provides an overview of the fund companies that the 140 fund managers worked for. The company name, the number of active equity fund managers, and company data from the annual report of 2012 is provided.[14] The fund managers were mainly employed by large Swedish banks; over a third worked at one of the four big banks (Handelsbanken, Nordea, SEB and Swedbank). Only three of 191 funds were located outside of Stockholm (and two were located in Uppsala, only 70 kilometers or 36 minutes by regional train from Stockholm). Fund managers brought in a great amount of money to the fund companies, as company sales are essentially management fees. Company costs are mainly personnel costs and other external costs (mostly administration costs such as rental costs,

[14] Caprifol had a non-calendar fiscal year. Figures are provided for the end of June, 2013.

IT costs, audit fees, provision costs).[15] Based on conservative calculations from Table 1, the 140 fund managers are estimated to have an average yearly salary of 176 thousand USD (1.15 million SEK).[16] Their income was small in relation to an estimated 860 billion USD (5.62 trillion SEK) that fund companies earned through management fees.[17]

In 2006, Swedish mutual fund managers were among the wealthiest Swedes; they had an average income of about 146 million USD (one million SEK) and their wealth was about 3.3 times bigger than the average citizen (Bodnaruk & Simonov, 2015). German fund managers had roughly the same salaries on average, as Drachter et al. (2007) reported an average total salary of 159 million USD (121 thousand EUR) in 2004, which then was lower than the US average at 247 million USD. Based on estimates from OECD statistics (OECD, 2016), Swedish (German) mutual fund managers had about 4.0 (3.9) times higher salaries than average employees in Sweden (Germany) in 2006.[18] Active equity fund managers were estimated to have 4.4 times higher salaries than average employees in Sweden in 2012.[19]

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[15] Equity funds provide separate annual reports. Income is capital gains (losses) and dividends (sometimes also interest rates and gains (losses) on exchange rates). Costs are management fees and commissions. Fund savers are charged with transaction costs, but sell-side analysis should be covered by management fees. However, fund savers can be charged with reasonable amounts of commissions on top of the management fee as the division is hard to make (FI Dnr 14-6664, 2014). Management fee can be fixed and/or provision based.

[16] Total personnel costs were 202 million dollars. There were 874 employees in total at the fund companies, 16% (140 ÷ 874) of fund companies' personnel were thus active equity fund managers. Assuming, conservatively, that fund managers earned 16% of total personnel costs and assuming social costs of 31%, the average yearly salary was calculated as $202 \times 0.16 \div 1.31 \div 140 = 0.176$ (i.e. 176 thousand dollars). It should be noted that fund managers can also be partners and thereby make additional income through dividends.

[17]Total stock selection costs can be estimated to one trillion dollars as the total of management fee × fund size. However, fund size reflects the total in the end of 2012 whereas management fee is paid based on the average throughout the year. Since 2012 was a boom period, total stock selection costs are overestimated. Stock selection costs can been estimated to 860 billion dollars based on a conservative estimation at one percent of total managed capital (Daniel et al., 1997).

[18] The average wage in Sweden (Germany) was 36,618 dollars (41,145 dollars) in 2006 (OECD, 2016) and 39,692 dollars in 2012. USD/SEK (USD/EUR) was 6.86 (0.76) in the end of 2006 (see Oanda Historical Exchange Rates).

[19] My study only evaluates active equity fund managers, which are expected to have higher salaries than bond fund managers or index fund managers. In 1997, Swedish equity funds had twice as high fees as Swedish bond funds (Dahlquist et al., 2000)

Table 1. Description of fund companies in Sweden

Fund company	*Active equity fund managers*	*Sales*	*Personnel costs*	*Other external costs*	*Net income*
Aktie-Ansvar	2	5 500	2 374	6 850	1 496
Alfred Berg Sverige	4	55 533	5 377	15 001	-6 905
AMF Fonder	5	15 396	5 620	28 627	1 954
Amrego Kapitalförvaltning	2	32 834	0	64 768	11 429
Caprifol	1	530	52	91	101
Carnegie Fonder	7	31 432	9 010	39 309	7 099
Catella Fondförvaltning	1	12 180	7 854	17 063	1 240
Cicero Fonder	3	3 531	2 192	3 274	119
Danske Invest	3	15 292	6 276	31 293	2 022
Didner & Gerge Fonder	6	14 314	3 346	1 437	7 001
DNB Asset Management	4	83 679	9 790	35 944	-2 810
E. Öhman J:or Fonder	3	6 209	4 163	2 679	-95
Enter Fonder	3	11 444	3 132	8 278	4 580
Granit Fonder	2	266	413	311	-519
Gustavia Fonder	7	8 005	1 118	30 999	251
Handelsbanken Fonder	12	84 142	30 832	115 012	23 935
HealthInvest Partners	1	3 137	731	920	586
IKC Fonder	1	5 410	1 374	6 103	581
Lannebo Fonder	5	40 358	9 759	4 196	11 264
Lundmark & Co Fondförvaltning	1	1 236	216	3 596	67
Nordea Fonder	5	79 431	4 171	237 259	2 180
OPM Stockholm	1	1 534	1 036	1 568	-118
PriorNilsson Fond & Kapitalförvaltning	1	4 431	841	574	490
PSG Capital AB	3	602	318	194	53
Remium Aktiv Förvaltning	3	652	640	379	-69
SEB Investment Management	11	134 411	27 660	273 354	25 785
Spiltan Fonder	2	1 040	755	1 263	148
SPP Fonder	1	21 790	1 861	9 944	5 484
Strand Kapitalförvaltning	1	1 850	1 281	344	-411
Swedbank Robur Fonder	30	223 033	56 998	37 342	90 679
Tanglin Asset Management	1	2 599	1 254	760	735
Tundra Fonder	2	635	44	1 061	-198
Valbay Kapitalförvaltning	2	404	317	386	-422
Västra Hamnen Fondkommission	2	2 523	1 143	747	276
Ålandsbanken Fonder*	2	2 103	N/A	N/A	3 023

Notes: Sales (omsättning), personnel costs (personalkostnader), other external costs (övriga externa kostnader) and net income (årets results) are collected from the Retriever database and are in thousand dollars (1SEK=0.153USD). Numbers are from the limited company's financial statement in 2012.

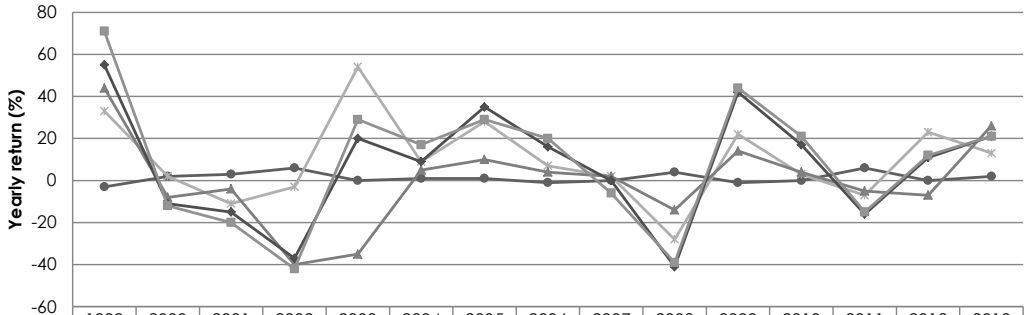
* Ålandsbanken Fonder AB was consolidated in October 2012, numbers (1EUR=8.59SEK) were retrieved from Ålandsbanken Abp 2012 annual report (p.3). This data was not part of the empirical analyses.

2.6 Performance of the Swedish fund market

2.6.1 Absolute returns of different fund types

Based on SCB statistics of all Swedish-registered investment funds, yearly aggregated returns were calculated for different fund types. The results are presented in Figure 6, along with returns from a market index that capture returns from the 30 largest companies on the Stockholm Stock exchange.

Figure 6. Yearly return (in %) per asset class of all Swedish registered investment funds and the Swedish stock market



	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Bonds	-3	2	3	6	0	1	1	-1	0	4	-1	0	6	0	2
Mixed	33	2	-11	-3	54	9	28	7	2	-28	22	3	-7	23	13
Other	44	-8	-4	-40	-35	5	10	4	2	-14	14	4	-5	-7	26
Equity	55	-11	-15	-37	20	9	35	16	0	-41	42	17	-16	11	21
OMXS30	71	-12	-20	-42	29	17	29	20	-6	-39	44	21	-15	12	21

Notes: Calculated as year-end fund wealth less total net flows (during the year) divided by last year-end's fund wealth (less 1), based on statistics from http://www.scb.se/FM0403 and http://www.euroinvestor.com/markets/stocks/europe/sweden/omx-stockholm-30/history

Equity funds are the most volatile fund type, slightly less volatile than the stock market.[20] SCB only provides aggregated statistics for passively and actively managed equity funds. However, statistics from Fondbolagens

[20] The geometric (arithmetic) equity risk premium on the Swedish stock market has been estimated to 4.4 (6.8) percent in 1919-2009 using ex post historical data and was expected to be 4.4 percent on average in 1998-2010 in ex ante surveys of corporate finance firms, stock brokers, fund managers and insurance companies (Sörensson, 2011).

Förening and a recent performance evaluation of actively and passively managed funds in Sweden (Flam & Vestman, 2014) indicate that ten percent of equity funds are passively managed. In the next two sections I present performance evaluations of actively managed equity funds.

2.6.2 Previous research

The first study on fund performance evaluation was published by Alfred Cowles in 1933 (Brown, 2000). Cowles (1933) showed that professional stock investors (namely insurance officers), on average, performed below the stock market average; a purely random selection of stocks would have performed better than the average fund. Since then, numerous studies outside of Sweden have shown that the net portfolio return of the average actively managed fund was outperformed by a passive market proxy (e.g., Fama & French, 2010; Jensen, 1968; Malkiel, 1995; Wermers, 2000; an extensive summary—including 124 published articles—can be found in Gallagher, 2002; recent reviews can be found in Ferson, 2010; Wermers, 2011). Moreover, Cremers and Petajisto (2009) showed in their seminal work that many actively managed funds were in fact passively managed, but that the most active fund managers (the ones that took the largest bets) exhibited positive performance persistence (see also Petajisto, 2013).

The vast majority of fund performance evaluation literature is conducted using US data (Ferson, 2010; Wermers, 2011) and a call for more out-of-sample evidence was made in a recent review (Wermers, 2011). Two studies have evaluated Swedish funds (Dahlquist, Engström, & Söderlind, 2000; Flam & Vestman, 2014) and one study has evaluated Swedish fund managers (Bodnaruk & Simonov, 2015). Three additional studies (Hellman, 2000; Henningsson et al., 2015; Henningsson, 2009) have examined Swedish fund managers, but without evaluating fund performance. These and additional studies on fund manager performance are discussed in Chapter 4 "Previous empirical research".

During the period 1992-1997 Swedish regular equity funds (Allemansfonder[21]) outperformed (underperformed) the benchmark indices

[21] A special sort of equity fund with other tax rules, more closely described in section 2.3 "Developmentt of the Swedish fund market". Allemansfonder are no different from regular equity funds since 1998.

with 0.5% (-1.30%) per year (Dahlquist et al., 2000).[22] In the period 1999-2013, Swedish actively-managed large cap funds underperformed the market (Flam & Vestman, 2014). Flam and Vestman (2014) found great differences in fund returns (the 4-factor alpha ranged between -15.3% and 13.6% in 1999-2009), but there was no evidence of active management skill among the top performing funds. Good or bad luck could explain most performance variation. Flam and Vestman (2014) also showed that both actively and passively managed funds, on average, underperformed the market. Bodnaruk and Simonov (2015) were able to collect data on private investments of 84, out of 218, Swedish fund managers in 2007. Results indicated no evidence of skill among the fund managers, as they did not perform differently from their non-financial expert peer-group (control group of other Swedes with similar socio-economic background). Nor could they identify market-timing or stock-picking skills among the fund managers, in general. Results showed that the fund managers made successful overlapping investments with their fund portfolios (about ten percent, or they were 3.6 times more likely to hold a stock also held by their fund[23]), in which it was assumed that the fund managers had some information advantage. Overlapping positions held by other funds in the fund company instead yielded negative abnormal performance. In sum, two recent empirical studies (Bodnaruk & Simonov, 2015; Flam & Vestman, 2014) have provided evidence for lack of superior investment skills among Swedish fund managers.

2.6.3 Evaluation of the population

In this section, I present performance evaluations of the population examined in this dissertation.[24] The results of the evaluations are summarized in Table 2 Panel A. Panel B shows the results of Flam and Vestman (2014). Panel C shows the results of Dahlquist et al. (2000). Table 2 shows that Swedish actively managed equity funds (investing in Sweden)

[22] But, indications of survivorship bias (see Appendix B) in the size of 0.6% to 0.7% per year were found, thus overstating the results.
[23] According to insider laws, fund managers are only allowed to take overlapping positions when their fund has had a long position
[24] Section 5.6.2 describes how data was gathered and evaluated (see also Appendix B).

had, on average, a 1-factor alpha of -1.5% (-2.1%) per year. In other words, during the period 2010 to 2013q3 actively managed equity funds in Sweden underperformed the market. Results are in line with Flam and Vestman (2014), but partly in opposite to Dahlquist et al. (2000). Dahlquist et al. (2000) found outperformance of regular equity funds but underperformance of Allemansfonder; these two types of funds have been merged after 1998. In sum, my performance evaluations indicate that the great majority of actively managed funds do not provide value to their fund savers.

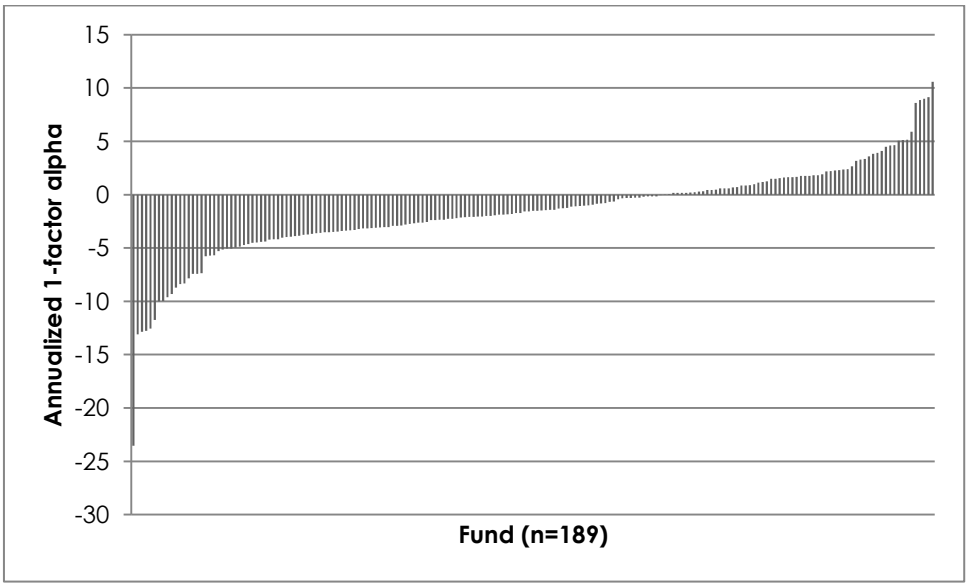
Table 2. Fund performance evaluation and comparison to previous studies

	1-factor alpha	R^2	*N*
My study: 2010-2013			
Active equity funds	-1.58 (-1.51)	0.73 (0.81)	189
Active equity funds with Swedish focus (subset)	-2.06 (-2.10)	0.91 (0.93)	83
Flam & Vestman (2014): 1999-2009			
Active equity funds with Swedish focus	-0.68		115
Dahlquist et al. (2000): 1992-1997			
Regular equity funds with Swedish focus	0.24 (-0.27)	0.86 (0.89)	80
Allemansfonder with Swedish focus	-1.30 (-2.17)	0.91 (0.94)	46

Notes: The values in the table are averages (medians) across funds. Alpha is the annualized intercept of the regression of fund returns on market returns; a positive (negative) alpha is interpreted as outperformance (underperformance). In my study, benchmarks reflect the self-declared index according to each fund, or the most common benchmark that is used for funds with similar investment styles. For funds investing in Sweden these are either SIX PRX or Carnegie Small Cap Return index. Flam and Vestman (2014) used the SIXPRX and excluded small cap funds. Dahlquist et al. (2000) used Findatas Avkastningsindex (which SIX now owns) and the Carnegie Small Cap Index (which had to be recalculated to include dividends; Carnegie Small Cap Return index reinvests dividends). Coefficients are estimated with least squares, but the standard errors are White (1980) and Newey and West (1987) consistent, in my study and in Dahlquist et al. (2000). My study required a minimum of 12 month return data Flam and Vestman (2014) required a minimum of 36 months. Dahlquist et al (2000) evaluated weekly returns and had no minimum requirement. I also analyzed robustness of performance by adding a non-linear term, namely market timing as defined by Treynor and Mazuy (1966) and by only including funds with more than 36 months of observation and by excluding small cap funds as in Flam and Vestman (2014). These results are not reported, but showed that the results are not sensitive to these changes.

Figure 7 shows the performance distribution. As can be seen, there was a wide distribution: 66.1% (125 out of 189) underperformed their benchmark indices. Annual fund 1-factor alphas ranged between -23.5% to 10.6%, which can be compared to Flam and Vestman (2014) in which annual 1-factor alphas ranged between -15.2% and 10.3% in 1999-2009 for 115 actively managed Swedish funds investing in Sweden. The results show that there is divergence in performance of actively managed funds. This divergence deserves investigation: is there anything about the fund managers that actively manage these funds that can explain the cross-sectional performance distribution?

Figure 7. Fund performance per fund



Note: Each column represent one fund, the funds are sorted by their 1-factor annualized alpha so that the horizontal axis show increasingly better performing funds left to right.

2.7 Summary

In this chapter, it was shown that funds are popular products in Sweden, mostly because of early governmental subsidies and the importance of the

pension system. Fund performance has a huge impact on future pension levels. This chapter further introduced the population of the 140 active equity fund managers that are evaluated in this dissertation. They managed 86 billion USD (562 billion SEK) at the end of 2012. It was also shown that they do not provide value by active fund management, on average, but a wide distribution was observed. This dissertation aims to provide insights into the distribution of performance in actively managed funds.

3 Theoretical perspectives

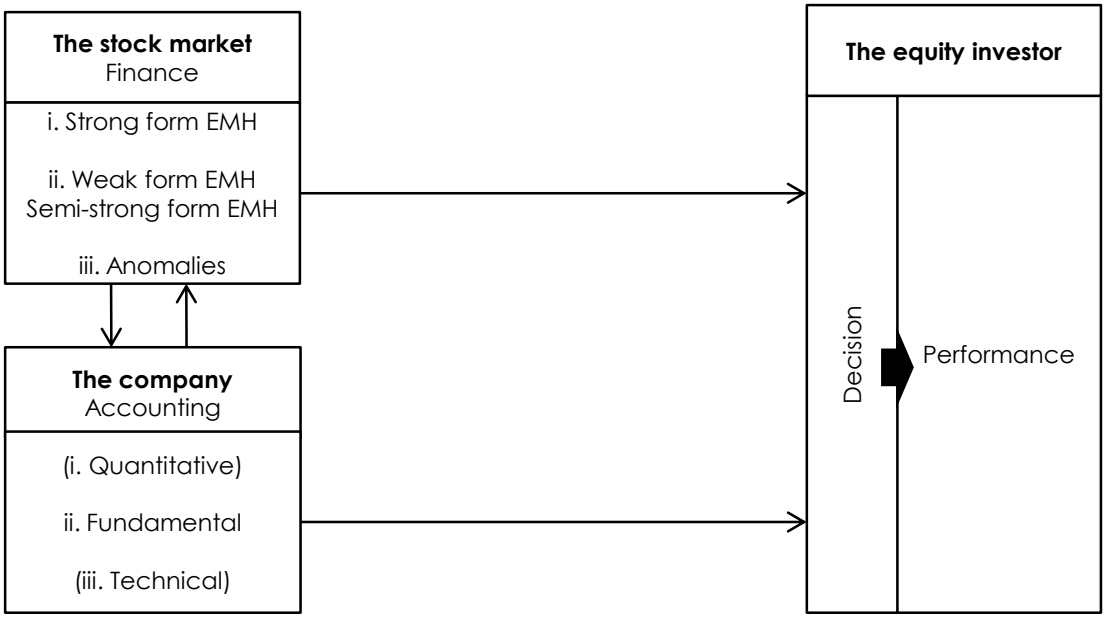
This chapter elaborates on the theoretical perspectives which were briefly discussed in the introduction, and positions this dissertation. This chapter also shows that current theories have conflicting predictions; they do not provide a clear answer to the question of how fund managers are predicted to achieve abnormal performance.

3.1 Conceptual model

Fund managers' main task is to make equity investment decisions. Equity fund managers attempt to deliver Alpha through active stock-picking. This dissertation thus has as its starting point theories on what determines equity fund performance and how performance can be evaluated. Figure 8 illustrates how equity investors achieve returns either from stock market trading value or directly from companies by dividends or cash from share repurchases (Penman, 2007). Fund manager performance depends on both market values of and dividends/cash repurchases from the portfolio stock holdings. Alpha, or superior abnormal performance, is defined as fund returns that are higher than market, or benchmark, returns. This dissertation relies on a finance perspective on how stock markets behave and an accounting perspective on how to value equity, illustrated to the left in Figure 8. Interrelationships are crudely indicated. First, fund managers cannot outperform the market under strong form efficient markets. Markets are described as random, and asset valuations are based on stochastic modeling (quantitative analysis), which requires no information about the underlying company (i). Second, fund managers can outperform the market by analyzing information about the underlying company. Semi-strong and weak forms of efficient markets are described to reflect and

integrate all available public information and past stock prices, and asset valuations are based on fundamental information (ii). It should be noted that accounting theory assumes that information about the underlying company is crucial for valuing equity. Third, fund managers can outperform the market by analyzing stock market behavior. Behavioral markets are influenced by psychological mechanisms and consist of systematic market anomalies. Asset valuations can, for example, be based on technical analysis where historical prices are used to predict future prices and thus require no information about the underlying company (iii).

Figure 8. A conceptual model of how investors can obtain abnormal performance through active equity investment decisions



Note: Parentheses are used to illustrate that quantitative analysis and technical analysis are not proclaimed by accounting theory.

An incoherent picture is provided, where investors are predicted to behave differently depending on their views of markets. Information also plays an important role. Based on different beliefs about markets, investors are

predicted to put different emphasis on different information sets. For example, on the one hand, if an investor believes in semi-strong forms of efficient markets, he/she should aim to look for private information. On the other hand, if an investor believes in behavioral markets, he/she should look for information about historical stock prices and psychological influences on market behavior.

Figure 9 illustrates how an economic psychology perspective can be added to gain further insights. By applying such a perspective, fund managers' individual characteristics, such as attitudes, preferences, and perceptions, underlie economic behavior (e.g., Wahlund, 1991; Wärneryd, 1988). Depending on how individual fund managers believe that markets behave, they are predicted to acquire information differently, to make different decisions and thus differ in performance outcome.

Figure 9. A conceptual model, including an economic psychology perspective, of how investors can obtain abnormal performance through active equity investment decisions

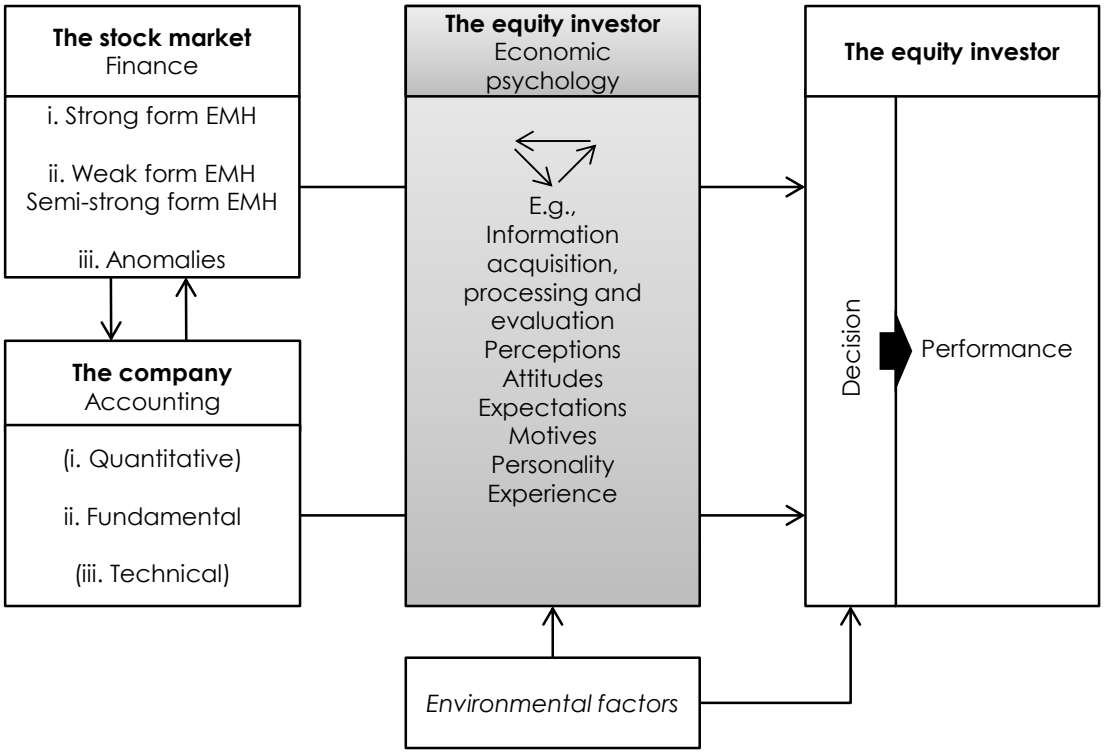


Figure 9 also illustrates how investors and decisions can depend on environmental factors (cf. Wahlund, 1991). The term "environmental factors" is used to describe organizational, legal and economic conditions. For example, when decisions are made by others in an institutional investment group rather than by the individual, this is an environmental factor that directly influences the investor decision. This is a simplification that is used in order to be able to emphasize, or zoom in, on individual fund managers. Another example is conditions related to the managed fund, such as an investment focus on a specific geographical market which limits the available stock alternatives or influence access to information. In such case, the environmental factor has an influence on the investor instead of a direct impact on the decision. In this dissertation, I control for environment factors for in order to zoom in on individuals, and thereby add to already existing knowledge (cf. Hellman, 2000; Holland, 2016).

3.2 Finance: The stock market

The standard theories in neoclassical finance were developed in the 1950s, 1960s and the 1970s, with Markowitz's (1952) groundbreaking work on diversification and the extended work by Sharpe (1964), Lintner (1965), and Mossin (1966) on capital asset pricing, the efficient market hypothesis (e.g., Fama, 1965; Malkiel & Fama, 1970) and option pricing (e.g., Black & Scholes, 1973). Given that investors have two objectives—to maximize returns on investments and to minimize the variance of the returns (*ceteris paribus*)—Markowitz (1952) developed what is now referred to as the modern portfolio theory. Portfolios are considered efficient if the included securities provide the least risk, given the expected return. Efficient portfolios are obtained by diversification, by including several uncorrelated securities (Markowitz, 1952). Appendix B provides a more detailed description of the modern portfolio theory, the capital asset pricing model and specifically how the model has been developed to conduct fund performance evaluations. In short, active fund management seeks to find Alpha: that is, to find undervalued securities and thereby delivering higher returns than the optimal risky asset portfolio—the market portfolio (CFA,

2013). Fund returns are thus evaluated against the market portfolio.[25] It should be noted that market behavior reflects the average of all market participants, so comparing fund portfolios to market portfolios is to compare fund managers to average investors. If market behavior is random, fund managers further have a fifty percent chance of outperforming the market at any time. So in order to truly add value fund managers must beat markets persistently, more often than fifty percent of the time and in excess of their management fees (Fama, 1965).

The efficient market hypothesis (EMH) stipulates that all available information is reflected in market prices (Malkiel & Fama, 1970). In other words, (1) asset prices reflect the expected present value of future fundamentals, (2) all current information is discounted in the price and (3) future stock prices cannot be predicted. Stock prices follow a random walk. But three forms of efficiency have been introduced (Malkiel & Fama, 1970): (i) weak form informational efficiency, where it is impossible to systematically beat the market using historical asset prices; (ii) semi-strong form informational efficiency, where it is impossible to systematically beat the market using publicly available information; and (iii) strong form informational efficiency, where it is impossible to systematically beat the market using any information, public or private. Strong form EMH suggests that active fund managers cannot consistently outperform the market. Since the future stock price is random, market behavior can be modelled and security prices can be calculated, for example by the Black-Scholes (1973) option model. In the semi-strong form, fund managers can systematically outperform the market using private (insider) information. In the weak form, fund managers can systematically outperform the market by sophisticated analysis of information (but not historical stock prices). Both the semi-strong form and weak form of EMH supports the use of fundamental analysis, which is elaborated on in the next section (3.3 "Accounting: The company").

[25] In regression tests, the intercept is denoted as "alpha" and the slope is denoted as "beta" (see Appendix B). A positive alpha reflects systematic outperformance and beta levels reflect systematic risk taking (e.g., Jensen, 1968). Superior abnormal performance, or Alpha, is typically measured using 1-factor alpha (Jensen, 1968), 3-factor alpha (Fama & French, 1993), 4-factor alpha (Carhart, 1997), or simple excess returns: fund returns less market portfolio returns.

The EMH builds on the assumption that investors can be assumed to behave rationally; that is, as if they maximize utility or wealth given a set of preferences (Becker, 1978), or maximize expected return and minimize risk (see Markowitz, 1952). In the 1980s, researchers started to question the assumption of rationality. In his seminal work, Robert Shiller (1981) argued that stock market prices were too volatile to be justified by "new information" related to future dividends. In the 1990s, the field of behavioral finance blossomed when Robert Shiller and Richard Thaler initiated the behavioral finance (National Bureau of Economic Research) conference series (Shiller, 2003). In behavioral finance, psychological theories—theories about the actual behavior of individuals—are used to explain anomalies in market behavior (e.g., Barberis & Thaler, 2003; De Bondt & Thaler, 1995; Ricciardi, 2008; Shefrin, 2000; Shleifer, 2000). For example, investors have been shown to be overconfident, trade excessively and thus eliminate value (Odean, 1999).

But already in the 1930s, John Keynes (1936) addressed the psychological aspects of markets when he famously made the following metaphor to describe markets (commonly referred to as the Keynesian beauty contest):

> Professional investment may be likened to those newspaper competitions in which the competitors have to pick out the six prettiest faces from a hundred photographs, the prize being awarded to the competitor whose choice most nearly corresponds to the average preferences of the competitors as a whole; so that each competitor has to pick, not those faces which he himself finds prettiest, but those which he thinks likeliest to catch the fancy of the other competitors, all of whom are looking at the problem from the same point of view. It is not a case of choosing those which, to the best of one's judgment, are really the prettiest, nor even those which average opinion genuinely thinks the prettiest. We have reached the third degree where we devote our intelligences to anticipating what average opinion expects the average opinion to be. And there are some, I believe, who practise the fourth, fifth and higher degrees. (p. 156)

In other words, investors buy shares based on what they think that others think that the value is (see Allen, Morris, & Shin, 2006; Oberlechner &

Hocking, 2004; Willman, O'Creevy, Nicholson, & Soane, 2001).[26] Fund managers are evaluated on a daily basis, based on stock prices and market behavior and thus potentially need to consider irrational market behavior regardless of what neoclassical finance theories have taught them. Technical analysis can be used to exploit patterns in historical price movements on the stock market and, in so doing, predict future stock prices (Kahn, 2010).

In sum, markets can be described as either fundamentally driven, according to neoclassical finance, or behaviorally driven, according to behavioral finance. Fund managers are said to actively pick stocks differently depending on their beliefs about market behavior. Fund managers' possibilities of adding value through active management differ depending on their view of how markets behave.

3.3 Accounting: The company

Accounting research is characterized by research into the impact of economic events on processes of summarizing, analyzing, verifying and reporting and effects of reported (standardized) financial information on economic events (Oler, Oler, & Skousen, 2010). Companies report their economic activities as accounting information, which in turn is used by external users (e.g. capital market actors) to make decisions (ibid.). Modern positive accounting research was introduced in the 1960s with the seminal work by Ball and Brown (1968) and other empirical and positive (as opposed to normative) studies (Hopwood, 2007; Watts & Zimmerman, 1990). Ball and Brown (1968) examined the link between released information about net reported income, the expected reported income, and the stock price. It was shown that stock markets reacted to accounting information in annual reports, but that most information was already

[26] Nagel (1995) introduced an experimental guessing game in which a group of people guessed, on a number between 0-100, what 2/3 of the average group guess was. The experiment was designed to allow inferences of how many iterations of "what other thinks" people are capable of. The expected average is 50, so 2/3 of 50 is 33—but others will realize this so the average will be 33 thus 2/3 is 22 (1 iteration)—but others will realize this so the average will be 22 thus 2/3 is 15 (2 iterations). (And so forth, until the expected average is 0—thus the rational guess would be 0). Even in groups of CEOs, PhDs and board members, almost no one picks the number 0 (Camerer, 1997).

anticipated before releases, and the income report was found to be only one out of many sources of information to investors (Ball & Brown, 1968).

Consistent with the (strong form of) EMH, stock prices wander randomly around its intrinsic value (Fama, 1965). The intrinsic value refers to the worth of the company justified by the information about its economic payoffs (e.g., Fama, 1965; Penman, 2007). Fundamental valuation, valuation analysis or fundamental analysis can be used to discover intrinsic values and refers to the analysis of information (Penman, 2007). It should be noted that there are many different approaches to conduct fundamental valuation and that it reduces some—but not all—investment uncertainty (ibid.). Fundamental valuation techniques are often risk-adjusted by discounting future forecasted or expected payoffs for risk (e.g., Graham, 1986; Koller et al., 2010; Penman, 2007). Depending on the forecasted future payoffs, investors can have different ideas about the fundamental value of a company (Barker, 1998). Using fundamental analysis to guide investment decisions is referred to as value investing and stems from the work by Benjamin Graham (1986).[27] Fundamental firm analysis is profitable if stocks are mispriced, but regress towards the fundamental value. In short, accounting theory coheres with semi-strong or weak form efficient markets where the value of active fund management is either by information advantage or by better conducted fundamental analysis, but it does not cohere with strong form efficient markets or behavioral markets.

3.4 Economic psychology: The equity investor

Economic psychology dates back to 1881 when Gabriel Tarde argued that theories of economic behavior should take account of the fact that people are social beings who interact with one another (Wärneryd, 1988). Influential works include: the principle of bounded rationality,[28] wherein people make satisficing decisions rather than optimal decisions because of

[27] One of the most known follower is Warren Buffett—the wealthiest investor alive (in 2016).

[28] The term 'bounded rationality' was not used in Simon (1955, 1956), but the concept was the same. The term was found to, in all likelihood, have first appeared in the book "Models of Man, social and rational " by Herbert Simon in 1957 according to a study that evaluated how the term 'bounded rationality' emerged (Klaes & Sent, 2005).

limited capabilities (Simon, 1955, 1956); cognitive decision processes, which can be divided into deliberate and intuitive thinking in which heuristics (rule-of-thumbs or mental shortcuts) bias intuitive decision processes (Kahneman & Tversky, 1972, 1973; Tversky & Kahneman, 1973, 1974; cf. e.g., Gigerenzer, Todd, & ABC Research Group, 1999); prospect theory, wherein people are loss averse and take more (less) risk if a problem is presented as a potential loss (certain gain) (e.g., Kahneman & Tversky, 1979; cf. Birnbaum, 2008); the endowment effect, wherein people tend to think of things as more valuable if they own, or are endowed, with it (Thaler, 1980); and mental accounting, wherein people have mental budgets and ascribe economic outcomes within the mental account (Thaler, 1985, 1999). A notable difference between behavioral finance, which focuses on aggregate market behavior building on psychological theories, and economic psychology, which focuses on human economic behavior, is that the latter focuses on individual differences among humans (Wärneryd, 2001).

Economic psychology studies economic behavior as a function of human motives, perceptions, attitudes, expectations and bounded economic conditions (van Raaij, 1988; Wärneryd, 1988). A general model of human decision-making behavior suggests that individuals acquire and process information (or retrieve it from memory), evaluate alternatives and therefrom make a decision (cf. Einhorn & Hogarth, 1981; van Raaij, 1988). Because of limited capabilities to process information (Simon, 1955, 1956), attention plays an important role in the information acquisition behavior of individuals (Einhorn & Hogarth, 1981). Fund managers may thus acquire information differently as part of their decision-making process, which may be influenced by their motives, perceptions, attitudes, and expectations.

If individual fund managers are skilled in actively picking stocks, they should persistently be able to outperform the market. Ericsson, Krampe, and Tesch-Römer (1993) argued, in what is known as the expertise framework, that true expertise can be reproducible. Expert performance is only attributable to individual differences in skill when the superior achievement can be demonstrated and repeated in a given domain (e.g., Ericsson, Andersson, & Cokely, 2005; Ericsson et al., 1993; Ericsson, 2000). Deliberate practice—effortful activities designed to improve

performance—explains important parts of expert performance (e.g., Ericsson et al., 1993). Fund managers might thus become skilled investors, by effortful activities to improve their ability to pick stocks. But fund managers work in random environments. The future outcome of their decisions is uncertain. Performance evaluations in random environments has not properly accounted for randomness and luck has been falsely attributed to skill (e.g., Denrell et al., 2015; Denrell, Fang, & Zhao, 2013; Denrell, 2004; Taleb, 2005). It is thus difficult to identify whether fund manager performance is the results of an individual's deliberate practice (i.e., skill) or merely random events (i.e., luck).

3.5 Position of this dissertation

Given the research purpose of this dissertation, to shed light on the value of active fund management, this dissertation is interdisciplinary. It studies how individuals acquire information, views about markets and risk attitudes, which were derived from theories of market behavior, company valuation and human decision-making behavior. This dissertation has taken this position, because fund returns are expected to be influenced by market trading value, firm value (i.e. company valuation) and heterogeneity among individual fund managers. In this chapter, it has been illustrated that the possibility of individuals to outperform markets is in scientific debate. This dissertation attempts to contribute, through empirical research in the real-world on a disaggregated level, to theories in finance, accounting and economic psychology.

4 Previous empirical research

This chapter reviews previous empirical research on fund managers and fund manager performance. Empirical research on fund managers can be divided into, first, research into fund manager decision-making behavior, and, second, research into fund performance. The former has mostly used survey studies (e.g. Coleman, 2015; Drachter et al., 2007; Holland, 2006, 2016; Tuckett & Taffler, 2012), with exceptions including observation studies (Barker et al., 2012; Barker, 1998; Chong & Tuckett, 2015), and focus groups (Henningsson et al., 2015). The latter has almost exclusively relied on archival data (e.g., Chevalier & Ellison, 1999; Christoffersen & Sarkissian, 2009; Cohen et al., 2008; Coval & Moskowitz, 2001; Golec, 1996; Gottesman & Morey, 2006; Hong et al., 2005; Pool, Stoffman, & Yonker, 2015). The two streams of literature have been kept separate, apart from in Drachter et al. (2007). Drachter et al. (2007) used questionnaire data (using a telephone survey) which was linked to archival data. This dissertation sheds light on the value of active fund management by providing insights into how these individuals actually behave in the real-world and the effects on performance. This dissertation thus addresses both streams of research. This chapter also provides a basis for the choice of methods (next chapter). In Appendix C, tables are provided that summarizes purpose, participants, method and main findings of previous empirical research on (1) decision-making behavior, (2) or other behavior, of individual, (3) or institutional (i.e. organizations, not individuals)[29], active equity fund managers, and (4) effects of individual factors related to fund managers on fund performance.

This review is limited to the above-mentioned two streams of literatures and closely related research. Additional related empirical

[29] "Institutional investors are organizations, not individuals." (Hellman, 2000, p. 237)

research, excluded from this review, includes the following: research on **emotional finance,** which focuses on the role of emotions and the unconscious in investment decisions and market behavior (e.g., Eshraghi & Taffler, 2012; Taffler, 2014; Tuckett & Taffler, 2012; Tuckett, 2009) and **neurofinance,** which applies neuroscience research—i.e., the functioning of the brain—to traditional finance theory (for a review, see Sahi, 2012). Although important to fund manager decision-making behavior, this dissertation has not set out to investigate emotions or the human brain. Besides, Tuckett and Taffler (2012) have already provided an excellent study of fund manager emotions. Previous research in **personality psychology** has studied the impact of personality traits on (work) performance. I am interested in understanding differences in fund managers, and the personality would be interesting to evaluate. But I lack the instruments that are required to draw conclusions about personality. I refer readers to interesting work by, for example, Shanteau (1988), Abdolmohammadi and Shanteau (1992) and Sjöberg (2010). Previous research on **private investor psychology** focuses on how individual investors (non-professional investors) are affected by psychological mechanisms when making decisions about investments. Non-professional investors are not comparable to equity fund managers because of their different setting, knowhow and incentive structures (e.g., De Bondt, 1998; Grinblatt & Keloharju, 2000; Lewellen, Lease, & Schlarbaum, 1977; Wärneryd, 2001).

4.1 Fund manager decision-making behavior

4.1.1 Information acquisition behavior

In an early study on the portfolio selection process of an investment officer of a trust fund, Clarkson and Meltzer (1960) found that:

> An investor is confronted with a large assortment of information which he may use in making decisions. There is a wide variety of data, past and current, on the operation of firms and the market valuation of their stocks. There are many published predictions about the present and the future state of the

> general economy, the stock market, and particular industries and firms. […] An investor choosing a portfolio is processing information: he sorts the useful from the irrelevant and decides which parts of the total information flow are most important. (pp. 469f)

Several studies have similarly found that fund managers spend a lot of time sorting the relevant from the irrelevant (e.g. Barker et al., 2012; Henningsson, 2009; Holland, 2006, 2016; Tuckett, 2012). Actively search for new information was regarded as the most promising approach to performance improvement among German fund managers (Drachter et al., 2007). Based on interviews with fund managers in the US, UK, France and Asia, Tuckett and Taffler (2012) found that:

> Asset managers must make decisions with incomplete information that is open to competing interpretations. They are swamped with this information, which is often conflicting, and although all managers have access to enormous computing power, such power is often to little advantage; there are usually no clear-cut decisions to be made on the basis of the mounds of data. No decision is obvious; otherwise, everyone would do the same thing and there would be no investment opportunities. The decisions that fund managers make, therefore, are always ambivalent and based on subtly interpreting the meaning of inherently ambiguous information. (pp. 3f)

Fund managers are described as operating in highly uncertain information environments where decisions are by no means obvious and based on ambiguous information. Coleman (2015) found that fund managers, from many different countries, acquired information from several sources to reduce uncertainty, which was also found in a study of Swedish institutional investors by Hellman (2000). Case studies of forty UK fund managers revealed that many pieces of information, from both public and private sources, were put together in a mosaic approach (Holland, 2006). Evaluations (and often decisions) were made over and over again in a process where information iteratively added to the opinion (cf. Clarkson & Meltzer, 1960; Hellman, 1996) and additional information was searched for or waited for (Hellman, 1996). Fund managers relied on qualitative information and intuition rather than investment theory such as CAPM, the modern portfolio theory or discounted cash flow analysis (Coleman, 2014,

2015; Holland, 2006, 2016). Private information played an important role (e.g., Barker, 1998; Barker, et al., 2012; Holland, 2016), whereas public information was less relevant or had little value (Coleman, 2015). Swedish fund managers were found to use social networks, including analysts, brokers and other investors, to reduce information complexity and make sense of company information (Henningsson, 2009). In a study of Swedish institutional investors, the information sources were found to vary; the reliance of internal analysis was important to some whereas other preferred sell-side research. Portfolio size had an effect on the choice of information sources; larger portfolios justified employing and utilizing internal analysts. Internal analysis was also used for marketing of the portfolio to private investors or to claim an analysis orientation that could be argued to result in better performance (Hellman, 2000).

Using a social network approach (see Granovetter, 1985), Lai (2006) examined the interaction between fund managers, brokers and analysts. Main results were that interpretative schemes were created in these networks. Fund managers acquired information from sell-side sources (analysts and brokers) because it was impossible to keep up with all information related to all stocks. Analysts (economists and strategists) conducted analyses and generated reports or recommendations which were passed on to fund managers by brokers. Brokers played an essential role in gathering and disseminating information: Brokers called three to four fund managers daily and six to 10 fund managers once or twice a week; fund managers were contacted by as many as 15 brokers on a daily basis (Lai, 2006). Fund managers also got access to company management, by company lunch presentations that sell-side organizations arranged (cf. Blomberg et al., 2012).

Discussions with company management have been ranked as the most important source of information (Barker et al., 2012; Barker, 1998; Drachter et al., 2007), because it allowed fund managers to understand the strategy and management capabilities (Barker, 1998; Holland & Doran, 1998). Barker et al. (2012) used observation studies and interviews to explore the information benefits of company-fund manager meetings. Main results were that company-manager meetings were considered as useful when interpreting a plethora of information and evaluating company long-

term performance. Company-manager meetings provided information about company strategy and management capabilities. Barker et al. (2012) speculated that information was unlikely to be useful or add value, since fund managers viewed company meetings as their primary source of information and fund managers underperformed the market according to previous empirical studies. However, fund performance has been positively linked to more frequent company visits at local companies (Switzer & Keushgerian, 2013) and the perceived use of direct company sources among small cap fund managers (Drachter et al., 2007). Links should be interpreted carefully though. Barker et al. (2012) studied large investee companies and senior fund managers at large fund management firms whom themselves organized meetings. Switzer & Keushgerian (2013) studied meetings that were organized by a sell-side organization, because the participating funds were likely to lack direct access to companies. The participing fund managers in Drachter et al. (2007) varied in experience, size of managed fund and size of fund company, but perceived importance of information from company managers was only beneficial when information came from small companies.

In sum, previous empirical research has shown that fund managers were overwhelmed by ambiguous and uncertain information. Different sources were used to reduce uncertainty. Fund managers relied on company management, but analysts and brokers also played important roles in disseminating information on stock markets. Previous empirical research indicates that there is variation in what sources fund managers rely on, partly as a result of the size of the managed fund or the fund company, partly as a result of individuals' limited time and efforts to acquire information.

4.1.2 Beliefs about markets

In a questionnaire study, Menkhoff (2010) surveyed 692 fund managers about their use of fundamentals and technical analysis. In five different countries, how much importance fund managers attached to technical and fundamental analysis varied between 15% to 30% on technical analysis and 60% to 78% on fundamental analysis; as many as 87%, averaged over all

countries, used technical analysis to some extent. Menkhoff (2010) argued that technical analysis could be used if information acquisition was expensive, but found that the main reason for different use of technical analysis was the different individual views of psychological influences as important pricing mechanisms on stock markets. The findings of Menkhoff (2010) relates to the division of neoclassical and behavioral finance view of market behavior—whether stock markets are fully informed or if they consists of systematic anomalies caused by human biases (discussed in section 3.2 "Finance: The stock market"). Professional investors working for institutions in the US (Pound & Shiller, 1987) or in Japan (Shiller, Kon-Ya, & Tsutsui, 1991) were of the opinion that investor psychology, rather than fundamentals, better described the reasons for recent stock market crashes. All of the fund managers interviewed by Coleman (2015) believed in the mean reversion of stock prices. Coleman (2015) also provided support for the findings in Menkhoff (2010), some fund managers believed in value of using technical analysis whereas some did not. However, in Tuckett and Taffler (2012) fund managers believed that market prices could diverge from fundamental value in the short run, but not in the long run. On a related note, Willman et al. (2001) discussed how traders knew that other market actors knew about theories that supposedly should guide decision processes, and showed that on an individual level, intuition and other approaches were thus employed as well to enhance chances of abnormal performance.

In sum, there seems to be some variation in market beliefs among fund managers. Possibly, market beliefs also affect fund manager behavior. Possibly, all fund managers converge in their market views in the long run.

4.1.3 Risk attitude

Fund managers have been shown to consider active risk as deviations from benchmark indices. A neutral position was seen as the same weight as the benchmark index rather than not holding a position at all (Barker, 1998; Hellman, 2000).[30] Interview studies have also shown that fund managers

[30] In effect, a neutral position could mean eight percent in a company a fund manager was fairly uncertain about (Palm, 2010).

perceived risk as to fail in making correct inferences and thereby experience an actual loss or underperformance (Coleman, 2015; Tuckett & Taffler, 2012). To the best of my knowledge, it is unknown how willing fund managers are to take risk in their managed funds and if there is divergence in risk attitudes between individual fund managers.

4.1.4 Environmental factors

Decisions are not made by isolated fund managers, but by fund managers in complex social networks (Tuckett, 2012). Fund manager decision-making processes are also influenced by the characteristics of their fund company (including top management context, organizational context and team context) and their managed funds (Drachter et al., 2007; Holland, 2006, 2016). Fund companies can differ, as any organization, in size, offered products and services, governance structure, operative markets, and clients. Funds can differ in number of responsible fund managers, investment objectives, sizes, fees, and risk profiles. The available investment universe—a list of potential investments—differs depending on investment focus of the fund. For example, the Swedish large cap list consists of about 75 available companies, whereas a global fund can invest in over thousands. Fund managers, though, have been found to have a reasonably small list in mind regardless of the size of the available investment universe (Coleman, 2015; Tuckett & Taffler, 2012)

Economic and legislative conditions can force fund managers to make decisions, especially the 5-10-40 UCITS rule (see section 2.2 "Legislation). Inflows (outflows) to the fund are common during booms (recessions), which can force fund managers to buy (sell) equities (cf. Hellman, 2000). Stock market developments also influence portfolio decisions, if a position weighs close to a limit a sell decision can be necessary to make even though there is no new information about the stock. Legal conditions and regulatory settings were found to influence decision behavior of large Swedish institutional investors (Hellman, 2000). Buy decisions were often initiated by investors, whereas sell decisions were described as hard to make and were more often forced by environmental factors (Coleman, 2015; Hellman, 2000).

In sum, fund managers' decisions, and in turn performance, are influenced by environmental factors such as characteristics of the fund company, the managed funds, legislative conditions and economic conditions.

4.1.5 Observation studies of other professionals

Direct observation has been used in social studies of finance, to explore social and cultural structures on financial markets and financial activities of traders (Beunza & Stark, 2004), hedge fund managers (Hardie & MacKenzie, 2007) and even entire investment banks, including traders, analysts, brokers and bankers (Blomberg et al., 2012). Beunza and Stark (2004) and Blomberg et al. (2012) argued that markets were socially and jointly interpreted, shaped and re-shaped. Hardie and MacKenzie (2007) argued additionally for the need to study the 'agencement' (assembling) of economic actors by including their tools, equipment, technical devices, algorithms, and so forth in sociological studies (cf. a musician with his/her instrument).

Previous management studies have also used direct observation in order to gain knowledge about what executive company managers do (e.g., Carlson, Mintzberg, & Stewart, 1991; Carlson, 1951; Mintzberg, 1973, 1975; Tengblad, 2004). Carlson (1951) studied the daily work of a group Swedish managing directors. The study demonstrated inefficiencies in how Swedish managers spent their time and a wide variety in their conducted work. Mintzberg (1973) found that extensive information confronted managers and required their attention.

In sum, observation studies can be used to gain insights into what professionals do in their daily work. This dissertation does not apply a sociological or a management perspective on fund managers, but has been inspired by observation as a method to study daily work of individuals in their real-world.

4.1.6 Summary

Equity fund managers are overwhelmed with uncertain and ambiguous information (Coleman, 2015; Holland & Doran, 1998; Holland, 2006, 2016; Tuckett & Taffler, 2012), and use several sources to reduce uncertainty (cf., Hellman, 2000), or complexity (Henningsson, 2009). It was argued that fund managers thus are likely to differ in information acquisition behavior, based on how they prioritize their limited time and efforts. Fund manager behavior was also discussed to be influenced by environmental factors, including fund company contexts, legislative conditions and economic conditions (cf. Drachter et al., 2007; Hellman, 2000; Holland, 2006, 2016). Fund managers may have different beliefs about markets (cf. Coleman, 2015; Menkhoff, 2010; Tuckett & Taffler, 2012). It was noted that little is known about willingness to take risk among fund managers. Finally, it was briefly discussed that other professionals have been studied using observation studies (Beunza & Stark, 2004; Blomberg et al., 2012; Carlson et al., 1991; Carlson, 1951; Hardie & MacKenzie, 2007; Mintzberg, 1973, 1975).

4.2 Fund manager performance

4.2.1 Individual factors

Two contemporary articles were the first to address fund manager characteristics as predictors of performance. The first to publish his results was Golec (1996), but his article has been less cited—probably because his findings have been claimed to contain survivorship biases. The second article was published by Chevalier and Ellison (1999) and has been the most influential. Chevalier and Ellison (1999) argued that younger managers might perform better (worse) if they were more concerned with working harder to advance their careers (lacked experience). Education could reflect smarter, better educated fund managers with better information networks and/or work positions within fund organizations with better support services. Results showed that age had a large and significant negative relation to performance, average SAT of the college the

manager attended had a significant positive relation, and MBA education was positively related to performance. Golec (1996) argued, in similar veins as Chevalier and Ellison, for age stamina and MBA as business-specific knowledge or reflection of better abled managers. Moreover, he argued that longer tenure implied greater knowledge, skill or experience (i.e., human capital), rather than less enthusiastic managers. Findings were similar to Chevalier and Ellison (1999), but Golec found tenure to have a positive impact. Chevalier and Ellison (1999) provided an explanation: Golec excluded all funds with less than three years return data, thus his sample suffered from survivorship bias.[31] More recent research tends to support Chevalier and Ellison (e.g., Porter & Trifts, 2012). In a replication and extension, Gottesman and Morey (2006) further investigated whether the quality of an MBA education mattered. Average GMAT score of attended MBA had a significant positive relation to performance. Moreover, the top 30 MBA programs according to *Business Week* exhibited superior performance to both fund managers without MBA and managers holding MBA from less renowned programs. Other education variables, such as CFA, PhD or college quality (SAT college variable), did not have predictive values. The authors speculated that higher ranked MBA programs had more communal learning and/or better curricula (higher number of available courses and more current courses).

In sum, previous empirical research has shown that fund manager individual factors have a systematic impact on fund performance. Fund performance was influenced by fund manager education and experience. Previous empirical findings are compatible with that some fund managers obtain private (insider) information or have better valuation models, if some fund managers are smarter, better educated, have better information networks and/or work in positions within fund organizations with better support services or valuation models.

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[31] Chevalier and Ellison included data on all terminated managers, Golec excluded those cases. As terminated managers have a pattern of poor results followed by their termination, tenure is negatively related to performance. Likewise, non-terminated managers have a history of performing well—at least their first years/in the short-term.

4.2.2 Factors related to information use

One stream of literature has examined how fund managers obtain valuable information through different social sources of information. Shukla and van Inwegen (1995) argued that UK managers of US funds underperformed US managers of US funds because the fund managers had different access to companies. Similarly, Coval and Moskowitz (2001) evaluated whether local holdings of equity fund managers performed better than non-local, based on the proximity between fund manager location and company headquarter location. Results showed that active equity fund managers had positive risk-adjusted performance in their local holdings. Fund manager had arguably obtained valuable information thanks to the geographic proximity to company headquarters. Coval and Moskowitz (2001) argued further that the local advantage was so high that the home-bias puzzle—wherein investors have unjustified preferences for local investment objects and fail to utilize foreign diversification (e.g., Tesar & Werner, 1995)—were in fact the opposite: It was a puzzle that fund managers did not hold more local holdings, given local performance benefits. Moreover, previous studies have found that fund performance was positively related to other financial institutions located nearby (Christoffersen & Sarkissian, 2009; Hong et al., 2005) and prestigious golf courses located nearby (Wei & Zhang, 2015), thus suggesting that fund managers can obtain valuable information from other social sources located nearby. Previous empirical research has also found that fund managers obtained an information advantage through (probable) social ties, by shared education, with company CEOs (Cohen et al., 2008) and with other fund managers living nearby (Pool et al., 2015). This research stream is consistent with the semi-strong form of efficient markets, where investors can systematically outperform markets using private or insider information.

Other related research has tried to link information acquisition from company managers to performance. In a questionnaire study of German fund managers that was linked to archival data of managed funds, ranked importance of conversations with company executives was shown to have a positive impact on net returns in excess of peer groups returns among small cap fund managers (Drachter et al., 2007). Using a unique archival dataset,

Switzer and Keushgerian (2013) evaluated the value of company visits to fund managers. They linked the frequency of on-site visits of 978 US equity funds and 254 global equity funds to fund performance and found a positive relation in number of site visits and performance for the US funds, but not for global funds. Switzer and Keushgerian (2013) argued that global fund managers might have higher commissions and thus did not benefit to the same extent as US fund managers from site visits (number of site visits was positively related to trading and, in turn, costs; site visits thus only provided valuable information if commissions were outweighed by the performance benefits). The two empirical studies provide indications that fund managers can obtain valuable information through their information acquisition behavior and that those differ between fund managers. This research coheres to semi-strong or weak forms of efficient markets where investors can systematically outperform markets by private (insider) information or more sophisticated analyses (if direct company information is required for such analyses). The results of Drachter et al. (2007) are more coherent with the former, since fund managers of small cap companies were the only that could benefit from the information.

In a recent study, Kacperczyk et al. (2014) reasoned that—due to limited time and effort to spend on acquiring and processing information—the ability to vary investment behavior along the business cycle could be used to measure fund manager skill. Findings were that recession periods were positively related to market timing skill (i.e. acquiring and processing macroeconomic news) and negatively related to stock-picking ability (i.e. acquiring and processing firm-specific fundamentals), especially among the top performers. The same fund managers successfully performed market timing or stock picking given economic conditions. By introducing a skill index that captured the ability to vary investment behavior across economic cycles, the authors showed persistent outperformance among the skilled managers for up to a year (statistical significance for up to six months).

In sum, previous empirical research has indicated that there is a systematic performance impact of fund manager use of valuable information obtained through social sources, company sources, and priority between macro and company fundamental information depending on economic cycle. Previous empirical findings are compatible with the view

that some fund managers obtain private (insider) information or have better valuation models. Previous research is also consistent with the view that fund managers have limited time to acquire and process information.

4.2.3 Environmental factors

Drachter et al. (2007) studied relationships between individual fund manager behavior and fund performance. They showed that fund manager perceived importance of conversations with company executives was a function of the managed fund's size (+), company size (+), manager age (-), and manager education (+). In a recent study using panel regressions of funds from 26 non-US countries (including Sweden) and the US, it was shown that the size of the fund company and the fund both had a positive impact on fund performance, arguably because of economies of scale (Ferreira, Keswani, Miguel, & Ramos, 2013). Fund size has, however, also been shown to have a negative impact on fund performance among regular equity funds in Sweden, arguably because of liquidity issues on the small Swedish stock market (Dahlquist et al., 2000). Fund management fee has a direct negative impact on fund performance, as it (*ceteris paribus*) lower the return in the same amount of the fees. Higher fund management fees could reflect higher compensation to more skilled managers, but empirical evidence indicate a negative impact on fund performance (e.g., Dahlquist et al., 2000). Geographic focus (Coval & Moskowitz, 2001; Engström, 2003; Shukla & van Inwegen, 1995) and small cap focus (Otten & Bams, 2002) has been shown to have a positive impact on performance, arguably because of information access and advantage.

4.2.4 Expert performance

As fund managers have many years of experience in finance and are highly educated (e.g., Drachter et al., 2007; Fang & Wang, 2015; Menkhoff, 2010), they could be expected to have developed expertise in stock picking. In a review study of financial expertise, Ericsson et al. (2005) found that industry specialization and in-depth (insider) knowledge about specific companies were related to persistent outperformance. The results gave

support to the importance for finance experts to conduct deliberate practice—effortful activities designed to improve performance (e.g., Ericsson et al., 1993; for a recent review see Baker & Young, 2014). Deliberate practice of traders has been linked to trader performance: Fenton-O'Creevy et al. (2011) found that intuition of traders increased with experience, but high-performing traders also actively controlled their emotions when using intuition in their decision. In opposite, superior achievement in business and finance has been acclaimed to randomness rather than skill (e.g., Denrell, Fang, & Liu, 2015; Denrell, Fang, & Zhao, 2013; Denrell, 2004; Taleb, 2005). Economic experts have also been shown to make poor forecasts (e.g., Andersson, Memmert, & Popowicz, 2009; Goldstein & Gigerenzer, 2009; Makridakis, Hogarth, & Gaba, 2009).

Research on experts can generally be divided into two streams: cognitive research on decision processes, or use of heuristics, and behavioral research on expert performance, or expertise (Camerer & Johnson, 1997; Fenton-O'Creevy et al., 2011). Cognitive research usually relies on experiments in controlled lab settings whereas behavioral research puts greater emphasis on the context (Fenton-O'Creevy et al., 2011). By combining the two streams of literature, Camerer and Johnson (1997) reviewed how experts can know so much but perform so poorly. Their review showed that experts were knowledgeable and able to efficiently process complex information, but experts nevertheless used heuristics which led to performance that rarely were better than simple statistical models.

Finally, management, economic and finance studies have evaluated whether manager characteristics predict firm performance. This research stream is often referred to as the upper echelon theory. In short, Hambrick and Mason (1984) argued conceptually for firm performance outcomes as a reflection of upper echelons' (top managements') managerial strategic choices and background characteristics—with observable characteristics as proxies for psychological factors (for an excellent review, see Carpenter, Geletkanycz, & Sanders, 2004).[32] In economics, Bertrand and Schoar (2003)

[32] An anecdotal example suggests that the stock market sees the firm as a reflection of the executive manager: Apples stock price had risen 9,000% since Steve Jobs returned in 1997—and fell an immediate 5% on the news of his death.

investigated whether individual firm managers affected firm behavior and performance by matching a panel dataset that tracked managers across firms. Bertrand and Schoar (2003) showed that individual managers had an effect on firm behavior, including, for example, investment levels, acquisitions and cash holdings, and on firm performance after controlling for fixed firm effects. Previous research in finance has found that CEO overconfidence was positively related to firm investment behavior, measured as the sensitivity of investment to cash flow (Malmendier & Tate, 2005), firms of 'super-star' rated CEOs subsequently underperformed previous performance and a matched sample of non-winning CEOs (Malmendier & Tate, 2009), and firm performance deteriorated after CEOs made private (large or costly) real estate purchases (Liu & Yermack, 2012).

In sum, other research streams have evaluated the impact of individuals, or experts, on economic performance. Previous empirical research has provided mixed results in regards expert performance. It is in scientific debate whether individual performance can be attributed to skill or luck and it is unclear to what extent the behavior of individuals in random environments can be expected to have an impact on performance.

4.2.5 Summary

In this section, I reviewed previous empirical research on fund manager performance. Table 3 provides a summary of all factors that has been reviewed in this section and the impact on fund performance. Research has found performance benefits for fund managers in proximity to company headquarters (Coval & Moskowitz, 2001), proximity to other financial institutions (Christoffersen & Sarkissian, 2009; Hong et al., 2005) and proximity to prestigious golf courses (Wei & Zhang, 2015). Fund manager education (Chevalier & Ellison, 1999; Golec, 1996; Gottesman & Morey, 2006) and social ties with CEOs (Cohen et al., 2008) or other fund managers (Pool et al., 2015) have been shown to have an impact on fund performance. Now, the information use of individual fund managers can depend on both individual factors, such as social ties through education or living-area (e.g., Cohen et al., 2008; Pool et al., 2015), or on environmental factors, such as where the fund company is located (Christoffersen &

Sarkissian, 2009; Coval & Moskowitz, 2001; Hong et al., 2005). It can also be interdependence between individual and environmental factors, if for example the most skilled fund managers are hired by companies at certain locations.

Table 3. Effects of individual, information and environmental factors on fund performance

Factors	*Empirical studies*	*Logic*
Individual		
Education	(+) Golec (1996) (+) Chevalier and Ellison (1999) (+) Gottesman and Morey (2006)	Reflects smarter managers or knowhow
Experience	(+) Golec (1996) (-) Chevalier and Ellison (1999) (-) Porter and Trifts (2008)	(+) Ability or (-) age stamina, entrenchment
Information		
Valuable information through social sources	(+) Coval and Moskowitz (2001) (+) Hong et al. (2005) (+) Cohen et al. (2008) (+) Christoffersen and Sarkissian (2009) (+) Pool et al. (2015)	Information advantage
Direct company information	(+) Drachter et al. (2007) (+) Switzer and Keushgerian (2013)	Information advantage
Varying information use behavior	(+) Kacperczyk et al. (2014)	Using relevant information (skill)
Environmental		
Organization size	(+) Ferreira et al. (2012)	Economics of scale or talent attraction
Fund size	(+) Ferreira et al. (2012) (-) Dahlquist et al. (2000)	(+) Economies of scale (e.g., can afford internal analysis) or (-) liquidity issues
Management fee	(-) Dahlquist et al. (2000)	Higher costs, *ceteris paribus*
Geographic focus	(+) Shukla and van Inwegen (1995) (+) Coval and Maskowitz (2001) (+) Engström (2003)	Information access or specialization
Small cap focus	(+) Fama and French (1993) (+) Otten and Bams (2002)	Riskier investment and should thus yield higher returns or specialization

Previous empirical findings seem to support the notion that fund managers potentially obtain private (insider) information under semi-strong form of efficient markets or have better valuation models under weak form of efficient markets. Thus previous empirical research can gain from better understanding how information acquisition behavior and market beliefs, as individual factors, can predict performance. Further, a number of environmental factors were discussed which needs to be controlled for when evaluating fund manager performance (see Table 3).

Finally, I discussed that archival methods have indicated that there are statistical relationships between characteristics of individual CEOs, firm behavior and firm performance (e.g., Bertrand & Schoar, 2003; Liu & Yermack, 2012; Malmendier & Tate, 2005, 2009), but that individual (so called) experts make poor economic forecasts (e.g., Andersson et al., 2009; Camerer & Johnson, 1997; D. G. Goldstein & Gigerenzer, 2009; Makridakis et al., 2009). In other words, the impact of individual factors on performance among professionals working in random environments has been examined in different fields of research. Empirical results seem to be mixed, in coherence to what was also discussed in the previous chapter.

4.3 Summary and implications

In this chapter, I reviewed the two empirical streams of literature on fund managers which has been kept separately. The first stream has evaluated the black box of fund managers. Empirical results have showed that fund managers are overwhelmed with ambiguous information. It was argued that there are reasons to believe that fund managers differ in information acquisition behavior and market beliefs. The first stream has relied on survey studies and it was also discussed that observation studies can be used to gain insights into the black box of professional daily work. The second stream has evaluated fund manager performance. Empirical results have shown that fund manager education and information use have a systematic impact on fund performance. The second stream has relied on archival studies. To link the two streams of literature requires a mixed-method approach that relies on both qualitative (observation and survey studies) and quantitative (archival) methods. One study has linked

questionnaire data to archival methods. This dissertation aims to go deeper by utilizing observation and in-depth interviews to understand the daily work of fund managers, building a questionnaire on this knowledge, and then test the impact on performance by linking individual questionnaire data with performance data and environmental factors (summarized in the previous subsection). In the next section I elaborate more on the methods of this dissertation.

5 Methods

This chapter presents the research approach, design and body of methods used in this dissertation. It also discusses reliability, validity and generalizability based on the chosen methods.

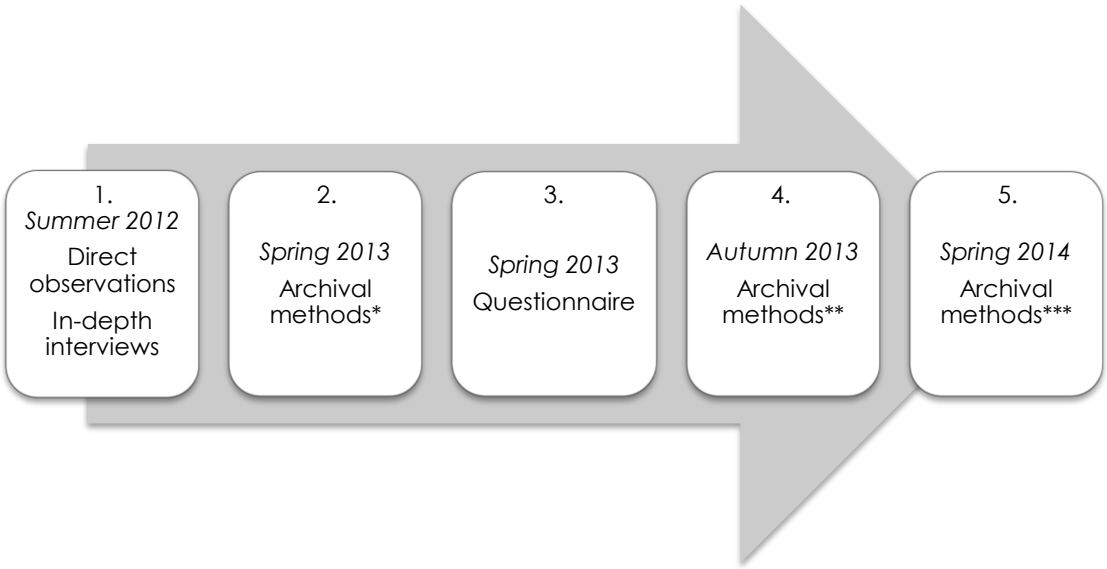
5.1 Research approach

Research approaches are generally divided into qualitative, quantitative or mixed-methods (Bryman, 2012; Creswell, 2014). In short, qualitative research aims to explore (develop theory), quantitative research aims to measure relations (test theory) and mixed methods use both approaches (Creswell, 2014; Tashakkori & Teddlie, 2010). My approach was predominantly quantitative, but included both qualitative and mixed-method approaches. Recall from the previous chapter that previous empirical studies have primarily relied on qualitative approaches to study fund manager decision-making behavior or quantitative approaches to study fund manager performance. Qualitative and quantitative research approaches have traditionally been described as polarized, but can also be seen as a continuum with mixed-methods somewhere in between (Newman & Benz, 1998).

Figure 10 provides an illustration of my research process in chronological order (see numbering). Qualitative research (1, 3) was undertaken to explore the first research question (how do equity fund managers acquire information in their daily work and why). Quantitative research (2-5) was undertaken to explore all research questions. Questionnaire data (3) can be both qualitative (by including open-end questions) and quantitative (by including choice-alternatives to questions). I used both. Mixed-method research (3) was undertaken in the sense that the

questionnaire (3) was designed based on the findings from the observations and interviews (1).

Figure 10. Research process in chronological order



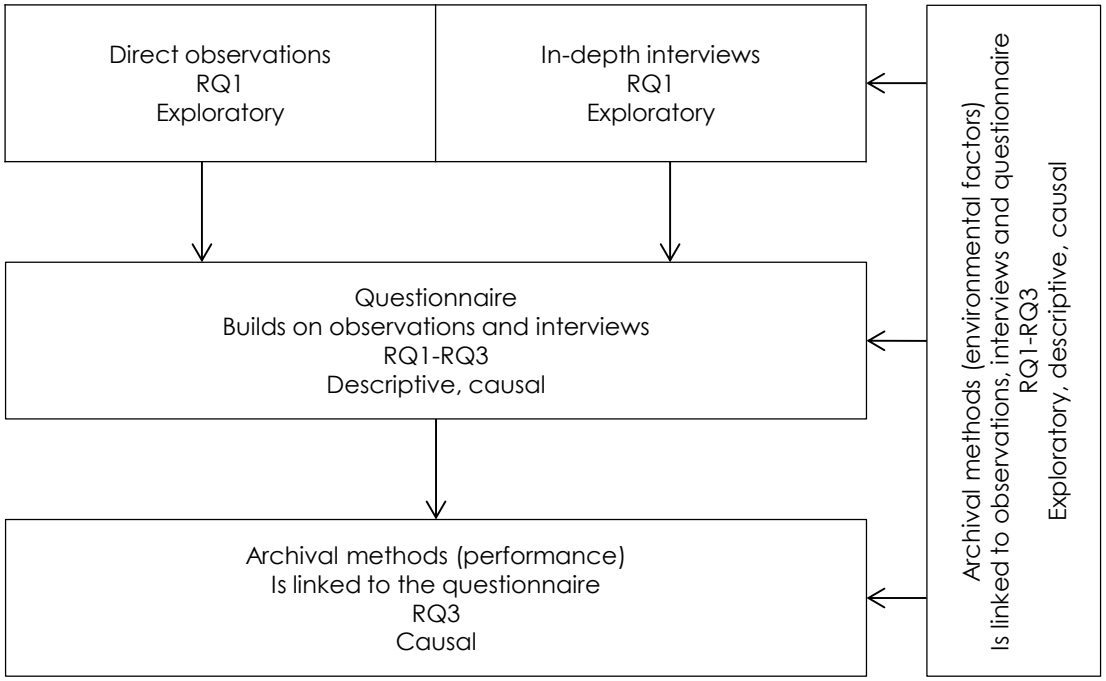
Notes: * (2) Web-scraping from Morningstar and fund websites were used to determine and gather data about the population (see section 2.5 "Population evaluated in this dissertation", ** (4) Performance data was provided directly from Morningstar, SIX, and Vinx and gathered from Finansinspektionen, Datastream, and Nasdaq OMX, *** (5) Data regarding environmental factors was gathered from fund annual reports and Retriever.

5.2 Research design

There are three main types of research designs: exploratory, descriptive and causal research (Creswell, 2014). This dissertation implements all three, see Figure 11. Exploratory research was used to examine the first research question and descriptive and causal research, which built on the exploratory research, was used to examine all research questions. The research design implemented triangulation in order to increase the validity (see Jick, 1979)—what was observed in reality was described in interviews and tested for in the questionnaire along with archival data. Direct observation

provided unique insights into the daily work of fund managers, but the empirical data was not generalizable since a small subset of fund managers and a small piece of their daily working lives was observed. In-depth interviews provided insights into why fund managers acquired information in certain ways. The empirical data was intended to be exploratory, but lacked in reliability because the interviews were unstructured. The questionnaire was used to generalize results and to test causal relations. In combination with the exploratory studies, the questionnaire was not guided, or restricted, by previous research. The archival data provided further reliability to the study as it was used to compare participants with non-participants and to control for environmental factors.

Figure 11. Illustration of research design



The research design needed to take account of the fact that some fund managers managed several funds, and some funds were managed by several fund managers, since the questionnaire (fund manager units) were

combined with archival data (fund units). Only 54 funds were managed by a single fund manager that was solely responsible for one fund. When exploring the first and second research questions (Chapter 6), I focus on fund manager units. The fund variables, used to capture environmental conditions (see section 5.6.1 ”Control variables: Environmental factors”), were merged to fund manager units in MS-Access. Equally-weighted averages were used for all variables but the fund size which was calculated as the sum over managed funds. The merging resulted in 140 cross-sections (i.e. the size of the population). For the third set of research questions (Chapter 7), I focused on unique fund-manager combinations. The questionnaire responses and archival data (both control and dependent variables) were appended in Stata using a relational table that provided the unique fund and fund manager combinations. The appending resulted in 254 fund-manager combinations.

5.3 Direct observation

5.3.1 Participants

In total, four equity fund managers were observed in their daily job (referred to as Alfa, Beta, Gamma & Zeta).[33] The four observed fund managers managed over 900 million USD (almost 6 billion SEK) in total, about one percent of what was managed by the total population (see section 2.5 “Population evaluated in this dissertation”). Three male managers and one female were observed.

Three participants (Alfa, Beta & Gamma) were recruited, by convenience sampling (see Robson, 2002), through personal contacts. Six additional equity fund managers were arbitrarily selected from a list of funds in a Swedish newspaper (Dagens Nyheter), but fund managers working for the largest fund companies were excluded.[34] The managed funds had different investment focuses (geographic, industry or capitalization focus), and all funds had their offices in Stockholm and were

[33] With Gamma, I first conducted an interview and then observed him in his daily work.
[34] I had conducted interviews with managers from the largest fund companies for my master’s thesis (see Palm, 2010).

actively managed by one main responsible fund manager. They were first contacted by a letter describing my research and that I would contact them by phone a few days later, which I did. The letter (see Appendix D) described that I wanted to conduct observation during their actual work and guaranteed confidentiality and anonymity. All but one, the one declining to meet, had read the letter when I called and agreed upon meeting. One fund manager (Zeta) was willing to let me observe him during his work. The others explained that it was not possible to arrange, but agreed to meet for an interview instead (see section 5.4 "Interviews").

5.3.2 Procedure

I observed Alpha, Beta, Gamma and Zeta directly, within their everyday working environment, to capture their daily activities in action (cf. Gniewosz, 1990). Figure 12 illustrates an overview of the observation studies. All observation studies started at the desks of the fund managers; I watched their computer screens, papers they read, their portfolios and tools that were used to manage them. The observations were more extensive for Alfa and Zeta. The observations lasted 18 hours in total, which is not even half of a working week. The observations have therefore been supplemented with interview and questionnaire data. Since fund managers are hard to access, unique insights were gained through the 18 hours of observations.

The observations were non-participant (Robson, 2002). The fund managers were asked to continue their day as usual, although questions were asked when it was considered necessary for clarification (cf. Gniewosz, 1990). The observations can be described as informal information gathering (Robson, 2002). I took notes "on the go": I had a notebook and wrote notes of what I heard and what I observed (even what I tasted). Admittedly, notes are selective.[35] But in practice, there was no other alternative. It was not possible to use a recorder. I could not bring a second researcher. It was hard to get access at all, so I had to be flexible and notes were considered the best and most efficient alternative. I

[35] Problems include selective attention, selective encoding and selective memory.

transcribed the hand-written notes to electronic documents immediately after the observations.

Figure 12. Scheme of observation studies

<table>
<tr><th></th><th>Alfa (F)
March 2, 5
9.5 h</th><th>Beta (M)
March 2
1.5 h</th><th>Gamma (M)
June 8
2.5 h</th><th>Zeta (M)
June 15
4.5 h</th></tr>
<tr><td>8:00</td><td rowspan="4">At desk</td><td></td><td></td><td rowspan="4">At desk</td></tr>
<tr><td></td><td></td></tr>
<tr><td>9:00</td><td></td><td></td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>10:00</td><td></td><td rowspan="2">Interview</td><td rowspan="2">Internal meeting
(at fund company)</td></tr>
<tr><td></td><td></td></tr>
<tr><td>11:00</td><td rowspan="2">Lunch</td><td></td><td>At desk</td><td rowspan="2">Preparation</td></tr>
<tr><td></td><td></td><td>Preparation</td></tr>
<tr><td>12:00</td><td rowspan="2">Analyst call
(at desk)</td><td></td><td>Company presentation
(at sell-side firm)</td><td>Private meeting with VP
(at company)</td></tr>
<tr><td>13:00</td><td></td><td>Interpretation</td><td>Interpretation</td></tr>
<tr><td></td><td rowspan="4">At desk</td><td></td><td></td><td></td></tr>
<tr><td>14:00</td><td rowspan="3">At desk</td><td></td><td></td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>15:00</td><td></td><td></td></tr>
</table>

Notes: I observed Alfa at two occasions. The overlapping time was between 8 and 9:30 (the stock market closed at 9). The activities were the same across days. I observed Alfa and Beta simultaneously, between 14 and 15:30, and the observation was mainly focused on Beta (since Alfa was reading). Before I observed Gamma, I interviewed him (see section 5.4 "Interviews"). Gamma and Zeta prepared for company meetings at the fund companies. The company meetings were also interpreted. Gamma and I talked outside of the sell-side firm. Zeta talked to a colleague in the taxi from the company location. I also asked Zeta and his colleague some clarifying questions.

The participants could have been influenced by my presence, but I have little reason to believe that their information acquisition behavior would be different if I was not there (unless they hid reliance on insider, illegal

information). Observation studies have weaknesses when it comes to reliability and validity. But, observation studies gain on capturing complexity and completeness. Recall that the purpose was to use the observation to explore and that triangulation, i.e. to gain confidence in results by applying several different methods, was used to increase the reliability. To the best of my knowledge, there is no (published) empirical study that has used direct observation to understand the daily work of fund managers, even though observation studies have been used in several other closely related research streams in business administration.

5.3.3 Analysis procedure

The observations were analyzed simultaneously as the interviews, a description of the analysis procedure is provided in the next section (section "5.4.3 Analysis procedure").

5.4 Interviews

5.4.1 Participants

In total, six equity fund managers participated in the interviews (referred to as Gamma, Delta, Epsilon, Eta, Iota, Theta).[36] They were all asked to participate in the observation study (see section 5.3.1 "Participants") but were restricted from doing so and instead agreed for an interview. Two of the fund managers (Gamma & Theta) were recruited through convenience sampling (see Robson, 2002), via personal contacts. Five participants were male and one was female. Five participants invested solely on the Swedish stock markets and one participant in a foreign market. Two fund managers invested only in small cap and one fund manager managed two funds of which one was a small cap fund. The six participants managed a total of over 555 million USD (almost 3.7 billion SEK), corresponding to about half a percent of the total wealth managed by active equity fund managers registered in Sweden in (February) 2013.

[36] With Gamma, I first conducted an interview and then observed him in his daily work.

5.4.2 Procedure

Table 4 provides an overview of the interview study. The participants were asked to tell me about their working days. I took notes while the participant was talking. It was beneficial, because there were periods of silence (when I took notes) followed by (additional thinking and) continued elaboration of the participant. Once the participant had finished talking, I asked the participant to elaborate more, to tell me more, or to tell my why or how by providing examples. The interviews were thus exploratory, as the participants could enter any topic, talk freely and inform me about anything that he/she considered as important (cf. Myers, 2013).[37] I did not use a structured interview guide with predetermined set of questions, apart from asking all participants about their working days (how they started their days and what activities they did during their days). There was no guarantee that the same areas were covered in all interviews. However, if an area was not mentioned during the interview it was most likely not an important activity to the participant. For the greater part, the same areas were covered in all interviews.[38]

Table 4. Description of interviews

Participant	*Length (h)*	*Date*
Gamma (M)	1	June 8
Delta (M)	3.5	June 11
Epsilon (M)	2	June 13
Eta (F)	1.5	June 18
Theta (M)	1.5	June 26
Iota (M)	1	July 9

[37] However, they were not providing verbal protocols about their cognitive decision processes, as they were not completing a task while talking (cf. Ericsson & Simon, 1998).
[38] Written company material, such as the annual report, was not discussed in all interviews however.

I transcribed the hand-written notes to electronic documents with full sentences immediately after the interviews.[39] No recorder was used, as the interview subjects may have been reluctant to talk about certain things if they were being recorded. Instead, they were more likely to engage in a free and frank discussion if they were not (Myers, 2013). However, the reliability can be questioned as notes are selective. Nevertheless, I argue that the interviews provide valuable insights into the reality of fund managers. Fund managers are difficult to access and some sacrifices had to be made in order to gain access. The interviews were further intended to be exploratory and generalization was tested using a questionnaire (see section 5.5 "Questionnaire").

5.4.3 Analysis procedure

I employed an inductive approach inspired by Glaser (1992) in which data was categorized using open coding. Open coding means that the empirical incidents—here transcribed notes cut out into pieces of paper strips—were described in terms of what it was about (ibid.).[40] The open coding resulted in three main categories and 11 sub-categories (see Appendix E for a picture of the coded paper strips),[41] which was compared to previous research. One of the main categories was information screening and it included the following concepts: company, analyst, broker, colleague and news. This category was chosen as the focus of this dissertation. The coded concepts were compared to previous research and I went through the empirical material again with the research question in mind (How do equity fund managers acquire information in their daily work and why?). In the

[39] The average document was 5.5 pages long (single-spaced, font size 11).

[40] The interviews and the observations studies resulted in almost 400 paper strips, which were openly coded. I read each paper strip and thought to myself: *What is this about?* At first, I used several words to describe the strips. I then put the papers with similar words next to each other and compared the words to create concepts. When I had coded almost all strips, I ordered them by the concepts and created documents for each concept summarizing the relevant paper strips. The concepts were then classified into three categories and one sub-category. Many paper strips were re-coded during this process, sometimes to new concepts and sometimes to multiple concepts.

[41] The material was coded into the following categories (including the following concepts): information screening (company—divided into the actual company and the share price which in Appendix E are separate; analyst; broker; colleague; news), investment decision-making (processing; experience; managing (the portfolio); situational decision-making), and investment frame (philosophy and policy—in Appendix E these are grouped together).

results section, translated quotes are used for simplicity, even though no recorder was used (i.e., the quotes does not reflect actual words of the observed or interviewed fund manager).

5.5 Questionnaire

5.5.1 Participants

A questionnaire was sent to all 140 active equity fund managers registered in Sweden in February, 2013 (see section 2.5 "Population evaluated in this dissertation"). In total, 71 completed surveys were received. The questionnaire had a response rate of 50.7% of the full population. In previous questionnaire studies of fund managers, by Drachter et al. (2007) and Menkhoff (2010), the population was unknown. Dracther et al. (2007) reported a response rate of 71% in Germany. Menkhoff (2010) reported response rates of 30% in the US, 77% in Germany, 29% in China, 58% in Italy and 94% in Thailand. In the US, Farnsworth and Taylor (2006) reported a response rate of 6%. The response rate was thus adequate, and considering that the full population was surveyed it was a high response rate.

There was no significant effect of respondents vs non-respondents on their (equally-weighted average) excess returns, $t(124) = 1.33$, $p = 0.19$ or on the fund-manager combined excess return, $t(220) = 0.74$, $p = 0.46$. The test results are robust to other performance measurements and longer time periods as well (unreported). The responses are thus generalizable for the full population of active Swedish equity fund managers.

Among the participants, 91.5% had completed a university degree (1.4% held a PhD) and the participants had many years of experience working with finance ($M = 18.68$, $SD = 7.73$) and fund management ($M = 11.45$, $SD = 7.38$). The educational level of equity fund managers in Sweden is much higher than that of the Swedish population; in 2013 25% of the population (aged between 25-64 years) had at least three years of post-secondary education. Among the 71 participants (fund managers), 92% (91%) were male. Menkhoff (2010) reported that an average of 89% of the responding fund managers had successfully completed an academic

education and that they had over nine years of experience in asset management.[42] Drachter et al. (2007) reported that 78% (20%) of German fund managers (German full-time employees) held a university degree, average job experience was eight years and 88% (66%) of German fund manager participants (German full-time employees) were male. Fang and Wang (2016) reported, among Chinese fund managers, 10.5 years of average time spent in the industry, that 11.4% held a PhD and 92% were male. Farnsworth and Taylor (2006) documented that 90% of US portfolio managers (working for investment advisory firms managing portfolios, not funds) were male. Swedish equity fund managers thus seem to be similar to fund managers in other countries.

5.5.2 Materials

The questionnaire was designed to measure information acquisition behavior, market beliefs, and risk attitude (see Appendix F). Fund managers have a tight time schedule, thus a limited number of questions were included to ensure a satisfactory response rate. In the design phase, feedback was provided by other researchers and one hedge fund associate—but the questionnaire was not pre-tested on any equity fund manager. Since the questionnaire was sent to the full population of active fund managers, but the population was quite small, I did not want to influence any of the potential respondents by involving them in a pre-testing phase. In retrospect, the benefit of pre-testing probably outweighs the benefit of assuring that respondents were not affected by being part of the design process. Nevertheless, valuable feedback was provided by other insightful people (researchers and one hedge fund associate).

Information acquisition behavior was measured in five different ways: (1) frequency of information acquisition activity, (2) importance of the information source, (3) relative importance of the information sources, (4) the number of sources (persons), and (5) type of acquired information from the information sources. The main measurement was the frequency of an information acquisition activity (1). Market beliefs and risk attitude were

[42] Specifically, 82% and 14 years in the US, 87% and 7 years in Germany, 87% and 11 years in China, 94% and 9 years in Italy and 96% and 7 years in Thailand.

measured on a related Likert (1932) scale. Constructs were created using indices (average of items); the items and reliability scores are presented in Table 5.

Some clarifications need to be made. **Information acquisition from company sources** included different type of direct access to the company, but not the use of written material from companies. The main reasons were the difficulty of interpreting responses, as releases are sporadic and highly related to specific financial reporting periods (cf. Gniewosz, 1990), and that it is a public source available to all investors. Statistical analyses (not reported) show that the frequency of using company written material had no impact on performance. The correlation coefficient with information acquisition from company was 0.46. **Information acquisition from buy-side sources** refers to colleague(s) with whom fund manager discusses potential investment decisions. **Risk attitude** was measured as a combined self-assessed general and specific risk attitude which has been shown to correlate with risk taking behavior (Dohmen et al., 2011) and risk preferences (Anderson, Dreber, & Vestman, 2015). I did not use risk perception measures where subjects are introduced to a situation in which their preferences reveal their risk perceptions or attitudes (referred to as the psychometric paradigm in Slovic, Fischhoff, & Lichtenstein, 1982; cf. e.g., Menkhoff, Schmidt, & Brozynski, 2006; Sjöberg, 2000; Wärneryd, 1996; for an excellent review of risk perception in financial markets, see Ricciardi, 2008). The main reason was time constraints, where the questionnaire needed to be short. Dohmen et al. (2011) argued that the self-reported risk attitude was as good as measure as the other, more time-consuming, risk perception measurements. **Perception of processed information** is not part of any research question, but was justified by the findings in the exploratory study and Barker (1998).

Table 5. Measurement items in the questionnaire

Variable	*α*	*Items*	*Empirical studies*
Information acquisition from sell-side	.87	• Personal contact with sell-side equity analysts by phone, mail or individual visit • Personal contact with sell-side macro analysts by phone, mail or individual visit • Personal contact with brokers by phone, mail or individual visit • Reading equity analysts' analyses • Reading macro analysts' analyses	Drachter et al. (2007); Barker (1998); My study
Information acquisition from buy-side	N/A	• Personal contact with colleagues in order to discuss potential investment decisions	Drachter et al. (2007); Barker (1998); Menkhoff et al. (2006); My study
Information acquisition from company	.80	• Personal contact with company (CEO, CFO, or IR) by phone, mail or individual visit • Contact with company (CEO, CFO or IR) at presentation for groups of investors and analysts • Organized company site visits for groups of investors and analysts	Drachter et al. (2007); Barker (1998); My study
Market beliefs	.48	• Stock prices are more driven by psychological influences than fundamentals, in the short term • Stock prices are more driven by psychological influences than fundamentals, in the long-run • The historical price development of a stock is an indicator of future price development	Menkhoff (2010)
Risk attitude	.75	• I am generally very risk willing • I am very risk willing in my fund management • I am very risk averse, i.e. careful, in my fund management (R) • I am generally very risk averse (R)	Dohmen et al. (2011) Anderson et al. (2015)
Perception of processed information	.78	• Equity analysts add value through their ideas and analysis • Macro analysts add value through their ideas and analysis • Brokers' recommendations are misleading (R) • Equity analysts' recommendations are misleading (R)	Barker (1998) Own study

Notes: Cronbach's alpha (α) is reported. Information acquisition behavior was measured as how often the activities were conducted in the daily work on a scale (1) daily, (2) several times a week, (3) once a week, (4) several times a month, (5) once a month, (6) less than once a month, or (7) never. The scale has been reversed in all analyses for intuitive reasons. Market beliefs, risk attitude and perception of processed information were measured on a scale (1) strongly disagree, (2) disagree, (3) undecided, (4) agree and (5) strongly agree. Some items have been reversed (R) when creating the constructs.

5.5.3 Procedure

Great efforts were made to ensure a decent enough response rate and to include the unique, yet anonymous, identification number. 140 paper copies and 140 online copies of the questionnaire were created. Each respondent was allocated a unique identifying number and a password of four random digits, which was linked to both of their questionnaire copies. The questionnaire can be found in Appendix F. Each and every questionnaire was signed by the researcher and had an attached business card. The questionnaire was addressed directly to the fund manager. It provided three ways to respond to the questionnaire: on paper (to be returned in a preaddressed and stamped envelope), online (using a short web address stated on the front page) or by using a smart phone or tablet (by just scanning a QR-code on the front page, generated by the online survey software). Each unique (long) URL that was provided by the online survey software was shortened using TinyURL—with the unique identifying number (e.g. q4etsbs) corresponding to the link provided by TinyURL (e.g. http://tinyurl.com/q4etsbs).

Every fund manager received their personalized (paper) questionnaire by post in March 2013 and a reminder was sent out to those who had not responded to the questionnaire in April 2013. Postal addresses were obtained from the fund companies' homepages. Emails were not used because fund managers receive hundreds of emails daily and the email-addresses were not publicly available for a majority of the respondents. The cover page further informed the respondents of the purpose, that the questionnaire had been sent out to all of the fund managers responsible for actively managed Swedish-registered equity funds, and that it would take about ten minutes to complete the questionnaire. They were also informed that the unique identification number included therein was going to be used for statistical analyses of their managed fund(s), but that their responses were confidential and would not be reported on an individual level. A signed copy of the researcher's ethical principles of confidentiality and anonymity was attached to the mail as well as a postage-paid, pre-addressed envelope in which the questionnaires could be returned, unless the fund managers responded to the questionnaire online. One week after the

questionnaire was sent, the Avanza Forum 2013 was held ("Sweden's biggest economic event for investments and savings", according to Avanza). I attended the Forum and approached three fund managers with the questionnaire, they all responded to the questionnaire. Within three weeks, 43 fund managers had responded by post and six by using the online version. As the questionnaire had a personal identification, a reminder was sent out to the 88 fund managers whom had not responded to the survey. An additional 19 fund managers responded to the remainder, of which 11 responded online. The paper responses were manually coded into an excel sheet.

5.6 Archival methods

Archival methods were used to collect data on fund manager environmental factors and fund performance. In total, ten different sources[43] were used to gather empirical data. This section describes the empirical material from the archival methods in two sections. The first section describes the fund manager environmental factors, i.e. the control variables. The second section described the performance measurements, i.e. the dependent variable.

5.6.1 Control variables: Environmental factors

Table 6 describes shortly the measured control variables. A dataset containing all collected variables are also available in Fröberg (2016b). In February 2013, the fund name, fund ISIN, management fee, 3-year Morningstar rating, fund category, fund manager name(s), and the fund manager(s) start date were collected from the Morningstar website. In September 2013, I controlled that the same fund manager was still managing the funds, and if not the information on the end date was included.[44] The number of fund managers per fund and the number of

[43] Specifically, Datastream, Retriever, Fund annual reports, Fund websites, Morningstar website, Morningstar, Nasdaq OMX website, Nasdaq OMX, SIX Financial Information, and Finansinspektionen.
[44] A fairly high number of funds (32) had unfortunately made some alteration during the seven months period.

funds a fund manager managed was derived. The fund category was confirmed when establishing which benchmark index to use, see the next section (section 5.6.2 "Dependent variable: Performance"). The fund category was recoded to a geographic focus variable. A small cap dummy was also created based on the category description in Morningstar (but changed for two funds that were described to invest in the Nordics according to Morningstar but in fact invested in Nordic small cap).

Table 6. Description of environmental factors measurements

Variable	*Description*	*N Fund*	*N Manager*	*N Fund-Manager*
Fund size	Logarithm (log10) of fund wealth (NAV) in million SEK, end of 2012	180	133	233
Company Size	Logarithm (log10) of total assets of fund company in thousand SEK, end of 2012	189	138	244
Management Fee	Yearly mgmt. and administrative fees in percentage of NAV	191	140	246
Geographic focus	1=Sweden, 2=Nordic, 3=Europe, 4=Global, 5=Foreign (ordinal)	191	117	223
Small cap Focus	1=Fund investing only in small cap, 0=All other funds (δ)	191	130	246

I collected data on fund company total assets from Retriever and fund size from the funds' annual reports. Retriever Business provides company information on Swedish companies. All Swedish companies must send their annual reports to Bolagsverket (the Swedish Companies Registration Office) and Retriever access the reports and upload them in their database. The fund organization is also required to publish an annual report separately for each fund, but these were not part of the Retriever database and had to be collected manually.

It should be noted that empirical data is initially reported by the fund company. The empirical data thus can contain falsified numbers[45] or errors (stemming from when the fund organization, the archival source, or I compiled or combined data). However, there was no alternative to collect these data and I have scrutinized all variables and all data to make reasonableness checks. Further, all empirical data is publicly available in Fröberg (2016b) and descriptive statistics are provided in Table 7.

Table 7. Descriptive statistics of evaluated environmental factors

		Min	*Max*	*1*	*2*	*3*	*4*	*5*
1	Fund size	1.10	4.26	2.98 (0.73)				
2	Company size	3.24	6.16	.61***	5.36 (0.78)			
3	Mgmt. fee	0.27	3.00	-.23**	-.26***	1.42 (0.53)		
4	Geographic focus	1	5	-.00	.11	.17*	2.54 (1.66)	
5	Small cap, δ	0	1	-.09	-.14	.06	-.51***	0.24 (0.43)

Note: Ms (SDs) at diagonal and Pearson's r correlation coefficients below.

5.6.2 Dependent variable: Performance

The measurements to evaluate performance were: excess return, 1-factor alpha, Sharpe ratio, adjusted information ratio and 3 year rating in Morningstar. Table 8 provides a short description of the different performance measurements. The main performance measurement was excess return in 2012 (e.g., Chevalier & Ellison, 1999; Drachter et al., 2007). The same fund manager that responded to the questionnaire was required to have managed the fund for the full evaluation period, and I required

[45] Such as with the Madoff Ponzi-scheme

fund return observations for the full evaluation period.[46] The sample is thus biased in the sense that terminated funds or fund managers are excluded. 28 cross-sections (15%) were excluded because return data lacked or the fund manager(s) had not managed the fund for the full period.

Table 8. Description of performance measurements (dependent variable)

Variable	*Description*	*N Fund*	*N Manager*	*N Fund-Manager*
Excess return	Annualized, average of monthly fund net returns less monthly benchmark net returns in 2012	163	126	222
1-factor alpha	Annualized, intercept of net returns on benchmark returns, heteroscedasticity and autocorrelation consistent*	163	126	222
Sharpe ratio	Fund net returns less the risk-free rate, divided by the standard deviation of monthly fund returns	163	126	222
Information ratio	The excess return divided by the (modified)** tracking error	163	126	222
Fund rating	The Morningstar 3-year fund rating (1 to 5, 5 being the best)	166	123	219

Notes: * Coefficients were estimated with least squares, but the standard errors were White (1980) and Newey and West (1987) consistent (using three lags), ** The tracking error is the standard deviation of the excess returns. A modified tracking error has been used, in accordance with Israelsen (2005) by adding an exponent: the excess return divided by the absolute value of the excess return. In result, positive excess returns will provide identical information ratios, but greater risk levels will no longer be rewarded under negative excess returns.

I collected 45 months of return data, from the last bank day of December 2009 until the last bank day of September 2013. The main analyses were on performance in 2012; 45 months of performance data were used for robustness checks. The time period was chosen because it was a long enough period to make inferences, and it was a short enough period for the

[46] The 3-year Morningstar rating does not fulfill these requirements.

linked questionnaire data to be relevant. The monthly fund net returns were kindly provided by Morningstar and matched to data gathered from their webpage by the fund ISIN-code. Morningstar is widely known and has been used in several studies in which fund managers are evaluated (e.g., Chevalier & Ellison, 1999; Cohen et al., 2008; Golec, 1996; Gottesman & Morey, 2006; Kacperczyk et al., 2014; Pool et al., 2015; Porter & Trifts, 2012). Morningstar calculates the monthly returns as point-to-point returns based on month-end net asset values. Thus, the net returns are after expenses (commissions and management fee for example). Dividends are re-invested and returns are before taxes. Net asset values are reported by the fund organizations to NAV-center which is managed by Fondbolagens Förening (Swedish Investment Fund Association). It should thus be noted that the performance measurements are based on self-reported data, but fund organizations are governed and scrutinized by Finansinspektionen and are thus likely to contain truthful values.

The process of establishing the benchmark index was very time-consuming. I manually examined fund websites, fund annual reports and/or fund prospectus to establish which benchmark to use. In selecting which index that was suitable for every fund, some decisions were made. I used common benchmark indices for funds that set out to outperform (illegitimate) indices their own organization had created. I used a small-cap index for a small-cap fund, even if the fund used a mid-cap or large-cap benchmark index (small cap is one of the empirical factors which have been shown to predict persistent outperformance, thus the performance of a small cap fund manager would most likely be overstated if comparing him/her to mid-cap or large-cap developments). For funds that invested globally, in Asia or in China I had to examine the portfolio holdings to determine which benchmark index to use.[47] Some funds used the MSCI

[47] Global funds were either benchmarked to MSCI All Countries World Index or MSCI World. The MSCI All Countries World Index includes 21 countries in emerging markets (in total 45 countries) whereas MSCI World only includes developed markets (in total 24 countries). Asian funds were either benchmarked to MSCI All Countries Asia Pacific or MSCI All Countries Far East ex Japan Index. The MSCI All Countries Asia Pacific includes Japan, Australia, New Zealand and India (in total 13 countries), whereas MSCI AC Far East ex Japan Index does not (in total 9 countries). China funds either used MSCI Golden Dragon or MSCI China. The MSCI Golden Dragon includes Hong Kong and Taiwan whereas the MSCI China does not. As a parenthesis, some funds had declared to use MSCI "free" index, which was not different from those without the "free" suffix at the time of data collection. Regarding funds that

Sweden, which is strongly correlated with the SIX PRX, $r(43) = .99$, $p < .01$. For comparability and simplicity reasons I have only used SIX PRX. A similar approach was used by Petajisto (2013).

In total, 27 indices were used to capture the different investment focuses of the different funds. Appendix G provides an overview of the 27 indices and the corresponding number of funds associated with the index, correlations between the indices and all the funds, their self-declared benchmark index, and the index that has been used in this dissertation. For the majority of indices, the Thomson Reuters Datastream database has been used (the daily MSCI and STOXX net return index datatypes, MSNR and NR respectively, were collected). The MSCI Net Total Return Indices reinvest net dividends in the local currency. For the Nordic and Swedish indices, data had to be collected separately, as they were not included in the Datastream package. SIX Financial Information kindly provided daily time series and the historical prices of the VINX share indices were available on the Nasdaq OMX website. All the time series were re-calculated to monthly point-to-point returns. The monthly interbank rate (STIBOR) was used as a proxy for the risk-free investments (cf. Dahlquist et al., 2000). The rate was available for free on the website of Sveriges Riksbank (Sweden's central bank).

A macro in Microsoft Excel (VBA) was written to match benchmark returns to the fund times-series return data. The matching resulted in 8 595 observations (45 months, 191 funds). Stata was used for statistical analysis.

Table 9 shows descriptive statistics of different measurements of the dependent variable. For all measurements but the Morningstar rating, the same fund manager(s) was required to have managed the fund for the full period. As can be seen, measurements are robust except for the Morningstar rating and the 2013 evaluations. All other measurements are based on the same set of fund returns but have different ways of adjusting for risk. The Morningstar rating does not take into account that the same fund manager managed the fund throughout the full period. Figure 5 (p. 21) showed that few fund managers managed the same fund three years in a

used the SIX 60, the holdings of these funds revealed that it made more sense to benchmark the funds to SIX PRX.

row. The difference across evaluated time periods indicates that there is not systematic, persistent skill between years.

Table 9. Descriptive statistics of different performance measurements

	Variable	*Min*	*Max*	*1*	*2*	*3*	*4*	*5*	*6*	*7*
1	Excess return 2012	-26.4	10.1	-3 (5.8)						
2	Alpha 2012	-24.1	16.1	.63	0.1 (5.4)					
3	Sharpe 2012	-0.4	0.6	.69	.81	0.3 (0.1)				
4	Info. ratio 2012	-11	0.5	.90	.55	.68	-1 (1.8)			
5	Rating 3 years	1	5	.16	.42	.32	.13	3.2 (1.1)		
6	Excess return 2013	-34.3	15.1	.27	.37	.43	.33	.31	-3.3 (5.9)	
7	Excess return 2010-2012	-26	8.8	.62	.51	.61	.63	.50	.69	-3 (4)

Note: Ms (SDs) at diagonal and Pearson's r correlation coefficients below.

5.7 Discussion

5.7.1 Reliability

The reliability of this dissertation can be questioned because I did not use a structured interview guide or a recorder in the qualitative studies. Compared to previous qualitative studies it was a fairly limited number of participants. But, I gained insights into individual fund managers, in their actual contexts, responsible for almost 10 billion SEK. The studies aimed to be exploratory and aimed for results that were not restricted by an interview guide or inhibited by the presence of a recorder. Few studies have gained access by direct observation of fund managers and the in-depth

interviews were valuable supplements for understanding what was observed. Additionally, the results has been compared to previous research and validated by a large number of participants that responded to the questionnaire.

5.7.2 Validity

This dissertation builds on the assumption that decisions of individual fund managers have an impact on fund performance. But fund managers could, for example, make small benchmark deviations rather than pick the stocks they actually believe in because of investment regulations or they could be part of an organization that together makes decisions (cf. Hellman, 2000; Holland, 2014). This dissertation only evaluates the main responsible fund managers, who are explicitly identified as making the investments decisions, and I have observed fund managers making investment decisions, putting orders and argued for why this is a good investment for future fund performance. Even if fund managers were less dominant in making fund decisions, fund investors pay a fee for active management by the named fund manager(s). It is thus of value to gain insights into individual active fund managers and their impact on fund performance.

The constructs that were used to capture individual information acquisition behavior, market beliefs and risk attitude could be proxies for something else. For example, information acquisition behavior items were formulated to measure how often a fund manager conducted an activity in his/her daily work; it was not formulated to specifically ask if this activity was used to acquire information. Although these activities were likely to be used in order to acquire information. I used an uneven number of items to construct the measurements and the measurement of market beliefs had a low internal consistency. But analysis of separate items did not affect results. Risk attitude was a self-assed measure, even though there is a large literature on how to capture risk attitude (perception). But Dohmen et al. (2011) found this measurement as effective as other risk perception scales.

Recall that some fund managers managed several funds and some funds were managed by several fund managers. Appendix H provides descriptive statistics related to the number of fund managers (Table A1) and the

number of managed funds (Table A2). When it comes to co-management, it is impossible to isolate the contributions of different fund managers (Porter & Trifts, 2014). Previous research has included up to three responsible managers (e.g., Cohen et al., 2008; Drachter et al., 2007), only included a lead manager, assuming that he/she is responsible for the decisions (e.g., Ding & Wermers, 2012; Golec, 1996; Li, Zhang, & Zhao, 2011) or only evaluated single-managers (e.g., Chevalier & Ellison, 1999; Gottesman & Morey, 2006; Porter & Trifts, 2012). I have reported results from all approaches, in which the main analyses are based on up to three fund managers. I have included up to three managers because it is reasonable that all three fund managers influence fund decisions and fund performance.

When a fund manager manages several funds, the problem is that it is unknown how the fund manager distributes his/her time and decisions between funds. Previous research has not addressed this issue (e.g., Chevalier & Ellison, 1999; Golec, 1996; Gottesman & Morey, 2006; Porter & Trifts, 2012), apart from Baks (2003) and Drachter et al. (2007). Drachter et al. (2007) used fund manager weighted averages and Baks (2003) used fund-manager combinations. I have used both approaches, in which the main analyses are based on fund-manager combinations.

Measuring fund performance can be tricky because returns tend to be non-normal and funds are heterogeneous in their volatility, autocorrelation, and skewness (Ferson, 2010). Figure 13 shows the monthly net returns of the evaluated funds and the relevant benchmark returns as functions of time. Figure 13 illustrate three things: (1) results can potentially be affected by which time period that is used, (2) there is potentially different risks on different markets, and (3) the fund returns (and benchmark returns) are potentially moving in some pattern over time (i.e., autocorrelation). Performance is thus evaluated for the same time period (in the main analysis, all funds have 12 months of observations during 2012), 27 different benchmark indices are used to capture different market developments, and alpha (see robustness checks evaluations) is estimated to allow for heteroscedasticity and autocorrelation (Newey & West, 1987; White, 1980).

Figure 13. Time series of monthly fund and benchmark returns

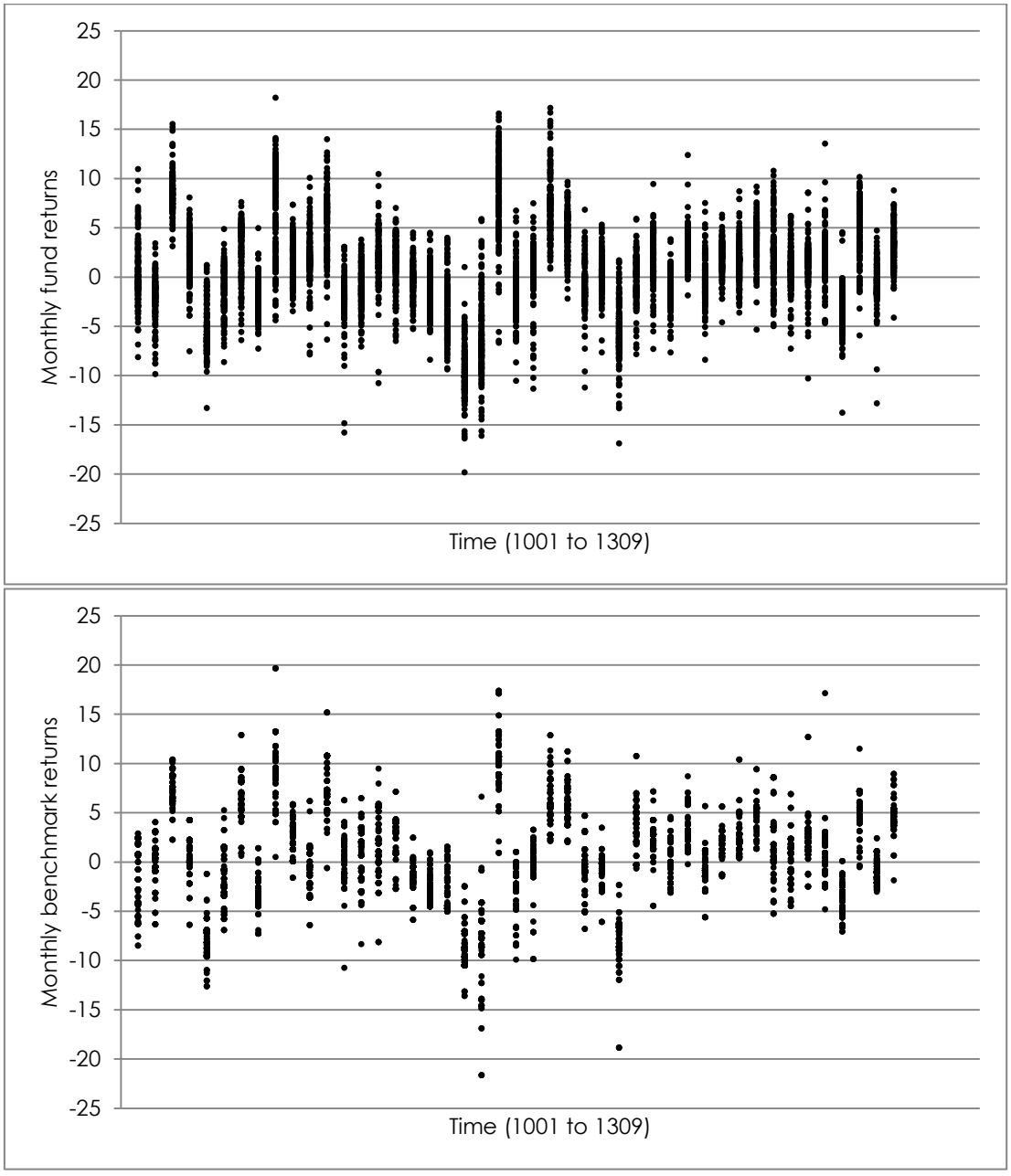
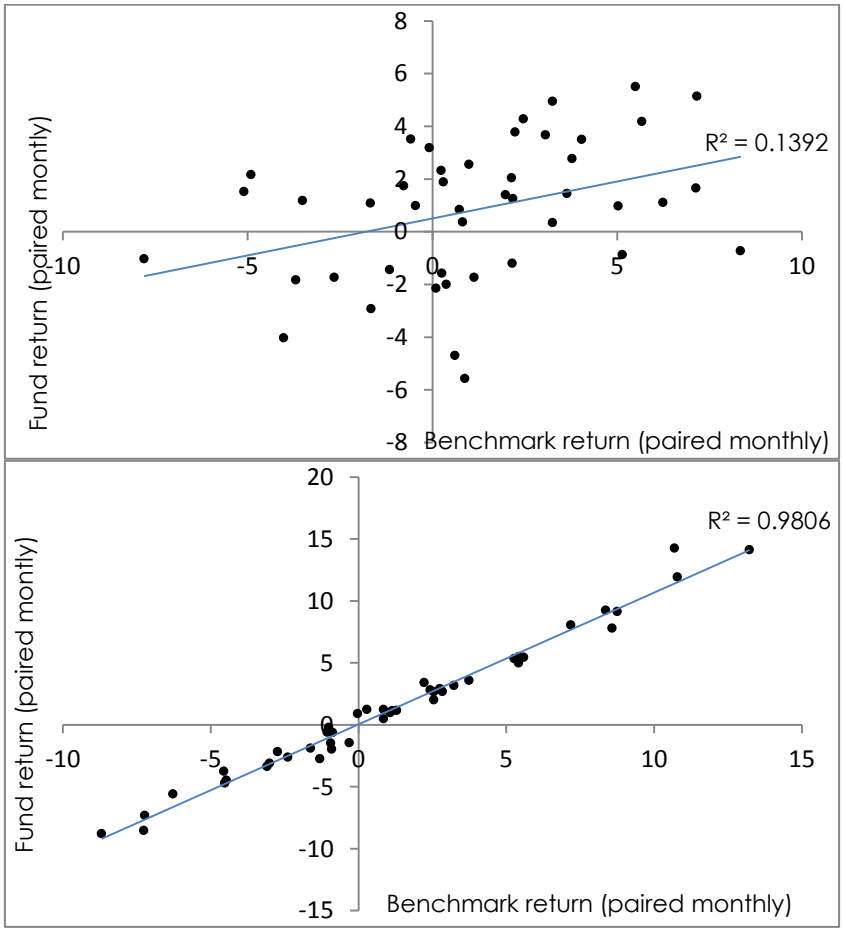


Figure 14 provides two scatter diagrams of fund returns and benchmark returns for two funds, one with high explained variance and one with low. Both funds outperformed their benchmark indices. But the fund with high

explained variance performed almost identical to the market proxy. By making small deviations, the fund has managed to systematically perform a little better than the passive alternative. But to call it active management is perhaps a stretch; the fund is even likely to have conducted closet indexing (cf. Cremers & Petajisto, 2009). The fund with low explained variance is more likely to have actively picked stocks and thereby created Alpha. But it can also be a case of misspecification, where the fund has not been evaluated against an appropriate benchmark index. In this dissertation, fund manager superior performance is thus measured in relation to named benchmark indices that fund managers explicitly, in their prospectus, set out to beat by making active equity investment decisions.

Figure 14. Examples of linear alpha estimations with high and low R^2



5.7.3 Representativeness and generalization

The questionnaire data is representative for all active responsible equity fund managers registered in Sweden, since there was no statistical difference in performance between the fund managers that participated in the questionnaire study and those that did not. The results can potentially be generalized to other fund markets as well. Even though Sweden is a tenth of the size of Germany, the equity fund market is about two thirds the size and fund managers manage, on average, about two thirds of what German fund managers manage. As the majority of Swedish funds follow the European legislation and Sweden has many similarities to other European countries, Swedish fund managers are likely to be similar to German fund managers (e.g. Dracther et al., 2007; Menkhoff, 2010) or British fund managers (e.g., Holland, 2006). (To the best of my knowledge, there is no study that has evaluated fund managers in other fund markets in Europe, such as Denmark, France, Norway, etc.) Further, survey studies have indicated that fund managers are similar globally (e.g., Coleman, 2015; Holland, 2016; Menkhoff, 2010). However, cultural differences have been linked to fund manager behavior in the US, Germany, Japan and Thailand (Beckmann et al. 2008) and MBAs are more common in the US than in Germany for example (cf. Drachter et al., 2007).

US fund managers of US funds has been shown to perform better than British fund managers of US funds (Shukla & van Inwegen, 1995), but local advantage has also been identified for US fund managers of US funds based on where in the US the fund is located (Coval & Moskowitz, 2001). Lai (2006) found differences between fund managers located in an emerging market (Singapore) and fund managers located in another developed market (London) that invested in an emerging market (Singapore). Previous research thus seems to indicate similarities across European markets, potential similarities across fund managers globally but also some differences between different continents.

In unreported evaluations, I examined if fund flows had an impact on fund performance. There was no statistical relationship. Further, there were no statistical relationships between fund flow, information acquisition behavior, market beliefs or risk attitude. Fund flow was measured as total in

and outflows to and from the fund during 2012. It can thus be speculated that results would be similar for fund managers of closed-end funds.

The results can probably not be generalized to other economic cycles (the study took place during a boom period). Previous research has indicated that fund managers behave differently during booms and recessions (Kacperczyk et al., 2014). It has also been shown that sell-side recommendations were used differently during booms and recessions (Loh & Stulz, 2014). No generalization is thus made to recession periods.

6 Opening the fund manager black box

6.1 Background

There has been paucity in research of individual equity fund managers, even though their decisions have great impact for private households, publicly-listed companies, and for stock market developments. This paucity has recently been highlighted (Coleman, 2015; Holland, 2016; Tuckett & Taffler, 2012) and the increasing trend of studying fund manager decision-making behavior has led to a number of insights. Fund managers make decisions based on interpretations of ambiguous information they have been overwhelmed with (e.g., Coleman, 2015; Holland, 2006, 2016; Tuckett & Taffler, 2012) and use many pieces of information obtained from public and private sources (Holland, 2006, 2016) or social networks (Coleman, 2015; Henningsson, 2009).

My studies aim to contribute to research on equity fund manager decision-making behavior (e.g., Coleman, 2015; Holland, 2006, 2016; Tuckett & Taffler, 2012), by using a mixed-method approach, involving both explorative and descriptive designs, to empirically examine the following research questions (formulated in the introduction of this dissertation):

> **RQ1.** How do equity fund managers acquire information in their daily work and why?
>
> **RQ2.** What are the relationships between equity fund managers' information acquisition behaviors, market beliefs and risk attitudes?

This chapter presents the empirical results from the exploratory studies based on direct observation of four fund managers and interviews with six fund managers. The exploratory studies explore the first research question. This chapter also presents the empirical results from the descriptive study based on questionnaire data from 71 fund managers. The descriptive study further explores both research questions.

6.2 Results of exploratory studies

6.2.1 Results of observation study

In this section I present the main empirical findings from the observations of four equity fund managers: Alfa, Beta, Gamma and Zeta. Table 10 provides an overview of fund manager characteristics and contexts (Panel A), and observed information acquisition behavior (Panel B). I present the empirical findings in the same structure as in Panel B. For simplicity, I provide translated quotes to illustrate some of the observed information acquisition. All quotes are based on my notes from the observation study. No recorder was used, so the quotes do not reflect the exact words of the observed fund manager.

All four observed fund managers had their offices in Stockholm. Three of the four observed fund managers (Alfa, Beta & Zeta) had their own offices, whereas one observed fund manager (Gamma) sat in a joint office space. All four observed fund managers used two (Beta & Zeta) or three (Alfa & Gamma) computer screens which showed real-time financial market information and their mailboxes. A financial terminal provided market information: real-time news updates and financial market developments. The vast majority of emails contained communication from sell-side actors; a new email—mostly sent to a subscription list of institutional investors—arrived every other minute. The emails contained summaries (bullet points) of the most important news or deeper analyses (equity and/or macro research reports). All four observed fund managers opened a handful of emails during the observations, but browsed through the email subjects every now and then.

Table 10. Overview of observation study

Observation participant	*Alfa*	*Beta*	*Gamma*	*Zeta*
Panel A: Characteristics and contexts of observed fund managers				
No. of funds	1	1	1	2
Fund size(s) (MSEK)	500-1,000	100-500	50-100	1,000-5,000
Company assets (MSEK)	10-50	10-50	10-50	50-100
Legislation	UCITS	UCITS	Special	Special
Geographic focus	Asia*	Sweden	Sweden	Sweden
Small cap?	N	Y	Y	N
Years in finance	< 5	10-14	25-29	≥ 30
Years as fund manager	< 5	5-9	5-9	25-29
University degree?	Y	N	Y	Y
Gender	F	M	M	M
Panel B: Information acquisition during observation, in minutes (in percent of total time)				
Computer, email/terminal	230 (40)	70 (78)	25 (17)	50 (19)
Newspaper	20 (4)			10 (4)
Broker, private call		2 (2)		15 (6)
Sell-side analyst, private call	70 (12)			
Sell-side analyst, research report	170 (30)		10 (7)	15 (6)
Colleague, private meeting			5 (3)	30 (12)
Colleague, general meeting			**	60 (22)
Company mgmt., private meeting				60 (22)
Company mgmt., lunch presentation		***	60 (40)	
Company report			20 (13)	45 (17)
Total time observed, in minutes	570	90	150	270

Notes: The time is estimated.
* A specific market in Asia, ** I was provided with a protocol, *** I was shown a scheduled lunch Beta planned to attend

I observed two of the four observed fund managers (Alfa & Zeta) when they started their working day(s).[48] Fund manager Alfa was managing a (UCITS) fund that had a geographic focus on an Asian market. During the hour in which Alfa started her day, and the stock market was closing, she worked intensively to pick up on the hours she had missed. Alfa started by evaluating the price developments of the portfolio holdings. Alfa watched the price development of the benchmark constituents. An excel sheet was

[48] I observed Alfa in two different days, each time from the beginning of her working day

used to present this data, and she could also see her deviations from the benchmark index and whether deviations were successful or not. She screened through emails and news in the financial terminal to get up to date of what had happened on the stock market while she was asleep. She opened one specific e-mail from a sell-side firm that summarized main macroeconomic news.

Fund manager Zeta was managing two (special) funds which were focused on the Swedish stock market. Even though Zeta started his day at the same time as Alfa, he had one hour to prepare before the stock market opened. In this hour, he read newspapers, screened news in the financial terminal and e-mails with updates from sell-side firms. Additionally, he received two phone calls in which brokers from sell-side firms called to summarize the main news and stock recommendations that that they had discussed at their morning meetings. When the stock market eventually opened, Zeta actively watched all real-time trades in a financial terminal. He evaluated his portfolio and the development of his benchmark index. After a few minutes, his attention changed. He continuously had one (of two) computer screen(s) available with a financial terminal that presented share prices, index developments, trades and real-time news, but turned to the information that he had received before the opening. He printed equity research reports of some of the companies that the two brokers had mentioned. He also received an additional call from a ('star') broker, but after the stock market had opened.

The two examples illustrate two very different contexts for two fund managers, depending on the geographic focus of their managed fund(s). Yet both the two observed fund managers (Alfa & Zeta) acquired information as soon as they started working. Alfa and Zeta behaved similarly in acquiring information through a financial terminal and via e-mails from sell-side actors, but differently when it came to acquiring information through broker calls. Three of the observed fund managers (Beta, Gamma & Zeta) had a Swedish geographic focus and one observed fund manager (Alfa) had a foreign geographic focus. Beta, Gamma and Zeta had the possibility to react to real-time news on a stock market that was open for trades, whereas Alfa (mainly) did not. However, the observations indicated that the amount of news that was acquired by the

four observed fund managers was equal—and tremendous. Table 10 showed that all observed fund managers spent time in front of their computers, where they had a financial terminal (and e-mails) that continuously provided news. It should be noted that the three observed fund managers investing in Sweden (Beta, Gamma & Zeta) clarified that they rarely reacted to the news feed, because even if they reacted immediately they would react too late. Automatic trading algorithms, located next to the stock market servers, had a speed advantage. However, they (Beta, Gamma & Zeta) expressed that they could make more advanced inferences and thus it was important to follow real-time news. The observed fund manager investing in a foreign market (Alfa) expressed similarly that she could not react to news but still needed to make inferences regarding potential effects on the portfolio or the benchmark.

The observation of the start of the working day showed that observed fund manager Zeta (Swedish focus) differed from observed fund manager Alfa (foreign focus) in the acquisition of information directly from sell-side brokers. Observed fund manager Beta also acquired information through a brief phone call with a broker during the observation, whereas observed fund manager Gamma did not (although, he expressed that he would typically receive such calls in the morning, which was before I started the direct observation). Observed fund manager Beta differed from observed fund manager Zeta in that Beta initiated the call, whereas Zeta received the three calls. Zeta also stood out from the other three observed fund managers (Alfa, Beta & Gamma) in fund wealth under management and the size of the fund company. Sell-side firms make money on commissions, thus larger transactions brings in more money to the sell-side firm. Zeta clarified, during the observation, that his fund company was courted by several sell-side firms thanks to their willingness to pay for analyses.

Text box 1 describes how Zeta acquired information through a broker call. Observed fund manager Zeta received three broker calls that were similar to the described excerpt in Text box 1; Zeta acquired information about how other stock market actors reasoned and interpreted the most recent news and how stock markets, and specific stocks, were anticipated to develop. The sell-side firms had also provided information through e-mails

that Zeta used for acquiring in-depth analyses of different stocks that were mentioned during the conversations with brokers.

Text box 1. Observation of information acquisition from a broker

Observed fund manager Zeta received the first call before the stock market opened. After the broker had greeted (and agreed to the conversation being held over a loudspeaker), he started:

> Were you on MTG's presentation? [talking really fast]

After fund manager Zeta admitted that he had only stayed half the day, the broker summarized how people had interpreted the presentation; he made a sales pitch of MTG claiming it was cheap. Zeta reached for paper and took notes; he opened an e-mail, containing an analyst research report of MTG from the same investment bank, and printed the enclosed analysis. In the middle of the call, another broker rang and Zeta asked if he could call back. The call continued with the first broker:

> We made a block sale of 2 million Volvo shares yesterday—you saw the block I had up for sale?—so there is a demand for Volvo shares. […] Banks, they will outperform, banks are cheap now.

Zeta checked his portfolio holdings at the same time. Zeta then asked if the broker had any comment about H&M (as they reported quarterly sales the same morning):

> It was a pleasant surprise; it was better than we had anticipated. It suggests that they've had a strong margin [because cotton prices had been down]. What do you think?

Zeta responded that he thought about the same as the broker and then they ended the conversation. They talked in total for about three minutes. Zeta clarified afterwards:

> They are so short-sighted; they only strive to make a lot of transactions. If they say 'this, we haven't talked about in a long time', then they are guaranteed to have a block to sell. [Pause] This guy is probably a good broker. He probably makes a lot of transactions.

All observed fund managers acquired information from sell-side sources in some sense. Two observed fund managers (Beta & Zeta) talked directly with brokers, one observed fund manager (Alfa) talked directly with a sell-side sector analyst, two observed fund managers (Alfa & Zeta) used a financial terminal to access sell-side analyst recommendations about specific stocks, and all observed fund managers received emails—three observed fund managers (Alfa, Gamma & Zeta) printed sell-side equity research reports received in those emails. Additionally, one observed fund manager (Gamma) attended a company presentation that a sell-side firm arranged and one observed fund manager (Beta) viewed a sell-side website in which he could book lunch company presentations to attend.

One of the observed fund managers (Alfa) talked directly to a sector sell-side analyst following the retail industry. Text box 2 describes how Alfa acquired information through direct contact with a sell-side analyst. She clarified that it was the first time that she spoke with the analyst. Alfa used a sell-side analyst to acquire information about the retail industry in general and about specific companies within the sector. During the one hour conference call, the sell-side analyst and observed fund manager Alfa talked about valuations, and potential cases, regarding ten different companies. Alfa acquired, directly from the analyst, informed analysis of specific companies and recent news about the industry.

Three observed fund managers (Alfa, Gamma & Zeta) printed sell-side research reports during the observations. Alfa spent almost three hours reading analyst reports. Gamma had printed, in preparation for a lunch presentation, two equity research reports, with the headings (1) "impressive sales growth, question mark regarding margins" and (2) "acquisitions dilute as expected". He had received them the same morning, after the year-end report had been released. One of the equity research reports was created by the same investment bank that organized the lunch presentation. The reports presented fundamental valuations updated for the newly released company financial information along with bullet points of the main takeaways from the newly released information. Analyst reports were used to quickly acquire newly released information about a company. But the reports also seemed to be used for acquiring informed analyses of

companies, as two observed fund managers (Alfa & Zeta) read analyst reports that were formerly released.

Text box 2. Information acquisition from a sell-side analyst

Observed fund manager Alfa started by introducing herself (and assuring that she could use the speaker) and summarized what kind of information she wanted: She asked if there was any news related to the industry, and specifically M, to do a run-through of the retail industry, and to provide detailed analyses of G and H. The analyst explained that M had recalled some of their products, reminding investors of the (product) scandal in 200x. The analyst then went through different retail companies one by one, concluding his thoughts and recommendations, backed up by analyses and expected multiples. For her two potential investments, the analyst explained:

> G and H differ in their strategies, G only choose the best locations in the big cities whereas H also locates in smaller cities. H generates lower sales per square meter. I have buy recommendations for both. Sales should increase with 25-30% in the next 2-3 years and both have transparent expansion plans. G has a target price of 24 in 12-months [consensus was at 18 and the current price was 20].

Notes: Letters have been used instead of company names to preserve anonymity. M is a manufacturing and distribution company. G and H are department stores.

Two of the observed fund managers (Gamma & Zeta) had other colleagues, analysts and/or fund managers[49], within the buy-side firm (i.e., the fund company) which were used similarly as the sell-side sources. The other two observed fund managers (Alfa & Beta) did not acquire information through buy-side sources, because they lacked such sources; other fund managers within the firm invested in other stock markets and had entirely different information sets to acquire information about. The

[49] Observed fund manager Zeta, and his fellow fund manager colleagues, had dual roles as fund managers and buy-side analysts.

acquisition of information from buy-side sources differed from sell-side sources in that the two observed fund managers Gamma and Zeta were interactively interpreting information and was also providing information to the other buy-side actors. Observed fund manager Zeta interacted with other buy-side actors: (1) during an internal meeting that lasted for an hour, see Text box 3, (2) in preparation for a private meeting with a company executive that lasted for half an hour, and (3) during a private meeting with a company executive that lasted for an hour, see Text Box 4. Zeta clarified that they had daily internal meetings. Observed fund manager Gamma had an open office space and an internal buy-side analyst sitting cross-diagonally from him less than three meters (ten feet) away. Gamma explained that they had weekly internal meetings and provided a protocol entitled "Protocol from placement committee".[50] During the observation, Gamma spoke briefly with the buy-side analyst that was sitting across from him.

Text box 3 describes how Zeta acquired information through an internal meeting with two other buy-side sources. All three had dual roles as fund managers and analysts, but their main job titles were as fund managers (two worked as equity fund managers and one as a bond fund manager). The three fund managers had different reporting responsibilities and presented one-by-one. The observed internal meeting was relaxed and casual, yet insightful. They acquired and interpreted information jointly at this meeting. The fund managers laughed at several occasions, but they also went through complex macroeconomic news (e.g., effects of the outcome in the coming Greek election on currencies and interest rates) and discussed several companies (e.g. effects of MTG's release of streaming services on sales). At the internal meeting, Tele2 was discussed as a potential investment. A private meeting with the Tele2 company management was scheduled in a month's time, and that ended the discussions for then. It seemed that more information acquisition, directly from company management, was required before an investment decision could be made.

[50] From an individual (a group) perspective, colleagues are seen as other buy-side sources (one investor). Gamma made decisions in group, Zeta worked in a group but made sole decisions for his funds, and Alfa and Beta worked solely. Both perspectives thus provide valuable insights into fund managers that actively manage equity funds.

Text box 3. Information acquisition from buy-side sources

After two hours of working, observed fund manager Zeta held an internal morning meeting with two colleagues. A bond fund manager presented information about the Greek elections, the most likely outcome and what effect it would have on financial markets. While addressing important news of the day, they discussed that H&M reported sales figures for Q2 that morning, with a constant like-for-like (i.e., no organic growth). They mentioned that they had not made any recent calculations of H&M, but it was priced at a low level currently. A colleague commented: "I saw that they [H&M] are offering promotional sales". Zeta responded: "Every store has sales now, even Filippa K."

When the second (equity) fund manager reported, they started discussing profit warnings. ABB had already indicated that they would need to make a profit warning. Sandvik had their capital markets day around May 28 (less than three weeks earlier), so they were unlikely to warn now. Coromant (a subdivision of Sandvik) had lower profits than expected, but Sandvik would make a profit warning sooner rather than later. Hexagon had also had their capital markets day and ought to have known such numbers by then.

Zeta was the last to report. He started by informing the other two fund managers about one of the earlier broker calls:

> They have a block of Tele2-shares on sale. We have scheduled a meeting in August. [Zeta held up a printed analyst report of Tele2] I haven't had time to read it yet, but they currently have a [dividend] yield of [sic] 13. [Everyone laughed]

Zeta summarized some main points from the MTG capital market day, which he had partly attended, and that the brokers confirmed his thoughts when leaving the event. MTG had not discussed their streaming service, which was surprising. The three colleagues discussed streaming services and speculated in future profits for this market and potential market shares for MTG. They specifically discussed the company management of MTG and their potential in performing.

Observed fund manager Zeta acquired information in private, jointly with his colleague, from the senior executive Vice President (VP) of a construction and equipment rental company. Zeta was one of the largest shareholders in the company and had met with the VP on several occasions. Observed fund manager Gamma acquired information at a lunch presentation jointly with seven other fund managers and three analysts from the organizing sell-side firm, directly from the CEO and the CFO of a ventilation company. Gamma had previously held a position, but had no position at that moment. Gamma had met the CEO on several previous occasions. Gamma and Zeta differed in two main aspects: whether they were owners and the size of their managed funds. Gamma got access through sell-side actors whereas Zeta got direct access. The other two observed fund managers (Alfa & Beta) did not acquire information from written company material or directly from company management during the observation, although Beta showed his registration to a company lunch presentation that would take place the coming week. Observed fund manager Alfa had a foreign investment focus and was thus restricted in her access to direct information from company management. The two observed fund managers (Gamma & Zeta) that acquired information directly from companies differed from the other two observed fund managers (Alfa & Beta) in their personal experience and the legislation of the funds. Gamma and Zeta had more experience and were less restricted in their fund management as they managed special funds.

Text box 4 describes how Zeta acquired information through a private meeting with a company VP. The private meeting was used to get a deeper understanding of the company results and strategy. Zeta clarified that he had already acquired information from the CEO/President of the company, but acquired more information from the VP because he had additional questions. At the private meeting Zeta was able to ask detailed questions about every number in the annual report. Zeta also acquired information about how the VP reasoned about the strategy and how it would be implemented in practice. He had known the VP for a while and felt more confident in the strategic change of the company once he found out that the VP was involved and onboard. Zeta also clarified that management capability influenced the required risk premium in the

fundamental analysis of the company (when management capability was high, the investment was perceived as less risky and thus required less in return).

Text box 4. Information acquisition at a private company meeting

Observed fund manager Zeta and his colleague, another equity fund manager, met privately (though observed) with the senior executive Vice President (VP) of an international construction and equipment rental company. They met him at his office and sat in a conference room inside of closed doors. The company had recently released their latest report. Zeta and his colleague had consequently scheduled a meeting; they had some questions that the CEO/President had not communicated so well at the latest presentation. During the meeting they asked the VP about the strategic change the company had mentioned in its annual report (namely going from growth to profitability). The VP clarified:

> We will increase our range of services, maintain the machines better, increase the fleet utilization rate, and, in turn, increase the cash flows. [Both fund managers took notes.] We are moving in the right direction, we are good—regardless the business cycle.

Zeta then showed a graph from the annual report on his iPad and the VP expressed his opinion about the growth estimates for different geographical areas presented in the report:

> The Baltics are doing very well so I cannot relate to this figure [-0.8%]. Poland is hard to say. Hungary, we have so little in Hungary.

Lastly, the fund managers asked if the planned strategy change was more than a PowerPoint. The VP exclaimed:

> Absolutely! Norway is a great example; we have cut all the unprofitable parts.

Text box 5 describes how Gamma acquired information directly from the company management through a lunch presentation. The company lunch

presentation was an efficient way to acquire information. The fund manager got a free lunch, listened to the contents of the annual report—directly from the company top management—and got an idea about what other fund managers and/or equity analysts asked for follow-up questions. The participants at the lunch presentation asked detailed questions about the numbers, company strategy and specifically how the CEO reasoned about—or balanced potential conflicts in—achieving the expected company growth goals (through inorganic growth) and making good acquisitions (i.e., acquiring companies at a reasonable price level).

Text box 5. Information acquisition at a company lunch presentation

Observed fund manager Gamma attended a lunch presentation of a ventilation company. Gamma was hoping to get some answers about the development in Russia. He had previously been an owner, but did currently not hold any shares. The CEO and the CFO held the presentation in a conference room, with exquisite interior design, at a sell-side firm. The CEO started by concluding that he had met everyone (but the PhD student) before. The CFO presented the results of the annual report using a PowerPoint on a big screen and the participants were given handouts. A delicious lunch—rack of lamb with red wine sauce—was served during the presentation. Questions were continuously asked during the presentation, for example:

> How are sales in Greece affected by the current situation [the Greek recession]?
>
> How do you plan to grow?
>
> Why did you acquire this company? What were your cost of capital, expected synergies and return on capital?

The CEO responded to most questions, only questions about specific numbers in the annual report were handled by the CFO. Gamma did not ask any questions during the presentation. No one took notes. The presentation finished in less than an hour.

Both the private meeting and the lunch presentation are examples of when the observed fund managers (Gamma & Zeta) acquired information directly from company management—information that was only provided to professional investors. Gamma and Zeta acquired similar information, but in the private meeting information flowed to one fund company whereas during the lunch presentation information flowed to several sell-side and buy-side actors.

Reasons *why* fund managers acquired information in certain ways seemed to be fund/company size, geographic focus of managed fund(s), and personal experience. Of the observed fund managers, Alfa had the least experience (a few years) and Zeta had the most experience (over 30 years of experience in finance). Alfa acquired information directly from one sell-side analyst she had never spoken to before. Zeta acquired information directly from three brokers (one top broker was an old colleague and was in the habit of calling every morning), two colleagues (buy-side sources), and a company VP—he knew all of them. On a related note, the most experienced observed fund manager (Zeta) acquired specific information about management capabilities because it was required in the valuation model. There could thus be a relation between personal experience and the sophistication of the used valuation model.

To summarize, the observed fund managers acquired information directly through brokers, analysts, buy-side sources, and company top management and through written material including (sell-side) emails, analyst reports and written company material. All the observed fund managers followed the news feed, but the observed fund managers differed in how they acquired information from brokers, analysts, buy-side sources and companies—information that were not available to private investors. Fund manager experience, fund company size, fund size, fund legislation, fund geographic focus, and valuation model seemed to have an influence on information acquisition behavior.

6.2.2 Results of interview study

In this section I present the main empirical findings of the interviews with six equity fund managers: Gamma,[51] Delta, Epsilon, Eta, Theta and Iota. Table 11 provides an overview of the fund manager characteristics and contexts (Panel A), and information acquisition behavior described in interviews (Panel B). I present the empirical findings in the same structure as in Panel B.[52] I provide translated quotes, for simplicity, to illustrate some of the described information acquisition behavior. All quotes are based on my transcribed notes from the interviews. No recorder was used, so the quotes do not reflect exact words of the interviewed fund manager.

All interviewed fund managers expressed that there was an abundance of information—several sources of news and information existed and were updated frequently. All interviewed fund managers corresponded daily, by e-mails and text messages, with their counterparties, the sell-side firms: they received summaries of their internal meetings, analysts' latest analyses, and lists of available block of shares for sale. But the interviewed fund managers differed in their attitudes to the news feed. Two interviewed fund managers (Delta & Iota) expressed that they actively sought news through many sources. Iota acquired the same information from several sources, because he wanted to know what others knew and what others knew that others knew. Iota also expressed:

> I'm a news addict. I read everything I can: all the Swedish newspapers, business papers, websites.

In contrast, two interviewed fund managers (Theta & Epsilon) expressed that there was little point in following news. Epsilon, the manager of a fund investing in an Asian market, expressed:

> We're not market timers. The fund is too small and we're too far away from the market.

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[51] Gamma was both interviewed and observed

[52] The interviewed fund managers briefly mentioned other information sources that were used to acquire information outside of their daily work (which is not part of the research question), such as salespeople in stores, people on the street, and people on the subway.

Table 11. Overview of interview study

Interview participant	*Gamma*	*Delta*	*Epsilon*	*Eta*	*Theta*	*Iota*
Panel A: Characteristics and contexts of interviewed fund managers						
No. of funds	1	2	2	1	1	1
Fund size(s) (MSEK)	50-100	50-100	50-100	1,000-5,000	100-500	1,000-5,000
Company size (MSEK)	< 50	< 50	< 50	100-500	< 50	10-50
Legislation	Special	UCITS	UCITS	UCITS	UCITS	UCITS
Geographic focus	Sweden	Sweden	Asia*	Sweden	Sweden	Sweden
Small cap?	Y	Both	N	Y	N	N
Years in finance	25-29	≥ 30	20-24	25-29	25-29	15-19
Years as fund manager	5-9	≥ 30	10-14	20-24	20-24	10-14
University degree?	Y	Y	Y	Y	Y	Y
Gender	M	M	M	F	M	M
Panel B: Information acquisition behavior in interviews						
News feed	Y	Y	Y/N	Y	Y/N	Y
Brokers	Y	Y	N	Y	N	Y
Analysts	Y	Y	Y	Y	Y	Y
Colleagues	Y	N	Y	Y	Y	Y
Company	Y	Y	Y	Y	N	Y

Notes: All interviewed fund managers were asked to describe their working days. All five sources in Panel B were covered during all interviews, even though I did not use a structured interview guide to ensure that all five sources were discussed.
* Specific markets in Asia.

Epsilon screened news anyway through a financial terminal (real-time news and chat rooms) and through e-mails from sell-side firms. Theta said that he had no interest in short-term noise on the market since he had a buy-and-hold strategy (i.e. he strived to buy stocks and hold them regardless of short-term market fluctuations), yet he discussed what he read in the newspaper with his two colleagues continuously. The other two interviewed fund managers (Gamma & Eta) explained that they used a financial terminal and sell-side e-mails (and SMSes) to follow the news feed, and that it was challenging to sift through the information.

Four of the interviewed fund managers (Gamma, Delta, Eta & Iota) acquired information from, or even sifted information through, brokers. They (Gamma, Delta, Eta & Iota) described how they received calls in the

morning which summarized the main points from the internal morning meeting at the sell-side firm. Delta sad he received two to three calls in the morning and had frequent contact with different brokers:

> The brokers often try to sell an interesting story. So we discuss it. The broker wants to know if I find the story interesting. Sometimes I do, sometimes I don't. […] I manage my portfolio alone, I have no one to discuss with. Sometimes I have an exchange of thoughts with brokers.

Iota said he received about four to five calls from different brokers in the morning, although not always:

> They don't call me every morning. I'm not so chatty. They know that, so they only call when they have something important to say. […] They have other clients, sometimes I want to hear how they reason. It can be good to hear the gossip, to hear what others think.

The other two interviewed fund managers (Epsilon & Theta) had less contact with brokers: Epsilon lacked confidence in brokers due to his previous position as a broker and Theta only used one (large and renowned) sell-side firm due to his buy-and-hold strategy. Theta expressed that he did not make enough transactions to pay commission to several sell-side firms. Epsilon even tried to avoid brokers, because of their short-termism and lack of reliable information:

> There are a lot of rumors among the information. Mostly, the brokers try to create stories. They aim to create a lot of transactions since they get commissions based on it. My previous manager [when Epsilon worked as a broker] used to say that we were in the entertainment business [i.e. exaggerated to create more transactions].

It seems that information acquisition from brokers differed between the interviewed fund managers and was influenced by environmental factors (the fund size of interviewed fund manager Theta) and fund manager perception (interviewed fund manager Epsilon's perception of the information quality obtained by brokers). Two interviewed fund managers (Eta & Iota) also expressed that they acquired information about how other

market actors reasoned in order to "outsmart the market". They tried to acquire information about what information other market actors had acquired. Two interviewed fund managers (Theta & Gamma) expressed that they made their decisions based on the fundamental values of companies, that they had a specific interest in company valuations rather than short-term market prices. They were less interested in listening to gossip from brokers or acquiring information about what other market actors knew. It thus seemed that market beliefs were related to information acquisition behavior of interviewed fund managers.

All of the interviewed fund managers acquired information from the other sell-side actor, analysts. Epsilon showed a macro research report he had received the same morning as our interview, which he planned to read. He explained that he had received this even though he was not paying enough commissions because of his personal contacts he had developed during his many years of experience in finance—he also explained that he was expected to pay commissions in the future when his fund grew bigger. Four of the interviewed fund managers (Delta, Epsilon, Eta & Theta) emphasized sell-side analyses as insightful and relevant, as exemplified below:

> They [analysts] are incredibly talented. Apart from the recommendation, they provide very good analysis and they have tremendous knowledge of the companies—sometimes even more than the CEO. Of course, no one can know how the market will develop, so the advices should be used carefully. (Delta)

> Analysts are very knowledgeable. They go beneath what the IR says. […] They live and breathe companies. (Theta)

Epsilon described that he often needed to talk directly with analysts:

> Often, it may be that the analyst can't write everything in black and white in the report. For example, they can't explicitly write about corruption. The analysts would have a hard time to get in touch with the company if they were to write explicitly about certain things.

In addition, two other interviewed fund managers (Delta & Theta) also expressed a need to have direct contact with analysts; Delta and Theta said that they always met with analysts before they made a decision to invest in a new company. Information acquisition through sell-side analysts was thus used to provide valuable processed information, rather than to screen the news feed. It seems that the perception of processed information was related to the acquisition of information from sell-side analysts. In the previous section, two of the observed fund managers acquired (processed) information from formerly released analyst reports and one observed fund manager talked directly to an analyst about company valuations. A potential explanation could be that the observed fund managers perceived processed information as valuable.

All interviewed fund managers acquired information from colleagues within the buy-side firm, to different extents. Three interviewed fund managers (Epsilon, Eta & Iota) acquired information from one (buy-side) colleague; Epsilon managed two funds that focused on Asian markets, his colleague managed a fund that invested in another Asian market; Eta managed a Swedish small cap fund, her colleague managed a Swedish fund; Iota managed a Swedish fund, his colleague managed a European fund. Information sets were thus similar. One interviewed fund manager (Delta) could seldom acquire information from his colleague; his colleague managed a fund investing on an Asian market whereas Delta managed funds investing in Sweden. Information sets were thus entirely different. Two of the interviewed fund managers (Gamma & Theta) described that they had regular scheduled internal investment meetings: Gamma had weekly investment meetings, where a meeting protocol describing investment decisions and the attending investment committee was formulated; and Theta had a monthly investment board with three external analysts and the three internal fund managers. In other words, two of the interviewed fund managers (Gamma & Theta) made decisions in groups. Four interviewed fund managers (Delta, Epsilon, Eta & Iota) were solely responsible for fund decisions. Eta had weekly internal meetings at the fund firm where they discussed the week and new reports, but she expressed that she, herself, made all decisions about her managed fund. Buy-side sources were thus used as external information sources by three

interviewed fund managers (Epsilon, Eta & Iota), was seldom used at all by one interviewed fund manager (Delta) or jointly made decisions with two interviewed fund managers (Gamma & Theta).

Three of the interviewed fund managers (Delta, Epsilon & Iota) mentioned written reports from the companies during the interviews.[53] Delta expressed an inability to assimilate all information that was released during company reporting periods, but said that sell-side analysts kept him informed of the most important news. Epsilon explained that he was forced to deal with highly uncertain numbers, as it would often take half a year before the largest companies presented their annual reports. Iota used the financial report to think of questions to ask the company management.

Five of the six interviewed fund managers (Gamma, Delta, Epsilon, Eta & Iota) acquired information through direct contact with companies. Gamma had the most number of meetings of the interviewed fund managers; he said he had company meetings seven times a week, which he admitted was unusually often. He strived to get a feeling for the company and the management. The other four (Epsilon, Delta, Eta & Iota) had irregular company contact, during organized meetings (afternoon tea, lunch, dinner, or even site visits), online presentations, or corporate access conferences. One of the interviewed fund managers (Epsilon) had a foreign geographic focus and explained that he met with companies during conferences in which several companies visited Stockholm, or London (Epsilon had recently attended one where he met with ten companies in one day). One of the interviewed fund managers (Theta) rarely acquired information directly from company management. Theta pointed out that he occasionally called the CEO of a small cap (investee) company or attended a company presentation (sometimes online), but he preferred to be in contact with analysts. He explained this thusly:

> I know one fund manager who tells me he meets companies three times a week. Let's estimate. Including preparations and travel time, this would mean that he spends about 15 hours per week meeting companies—almost half the

[53] It should be noted that interviews took place a few weeks before the half year reporting period. At that point, there had been few recent releases of written company information. Written company information was not discussed in all interviews, which reflects the exploratory approach where interviews were not guided to cover specific areas.

> week. Is that reasonable? [Pause] And what do you really find out during such a meeting?

It thus seems that information acquisition behavior differed between fund managers based on how they perceived its use in relation to required time and effort. One interviewed fund manager (Delta) also clarified that thanks to his many years in finance, he had built up a knowledge base of each company that he could invest in. He also reasoned that the bulk of the company rarely changed, that he thus could retrieve information from his knowledge bank. In other words, Delta was not always required to acquire new information. Experience thus seems to enable information access and reduce the need for information.

On a final note, one interviewed fund manager (Delta) explicitly mentioned that he was willing to take risk whereas one interviewed fund manager (Gamma) explicitly mentioned that he was risk averse—but those attitudes were not addressed in relation to information acquisition. Additionally, one fund manager (Epsilon) clarified that the portfolio management software had many alternatives to evaluate fund risk taking levels (including beta, tracking errors, and value at risk). Epsilon measured his risk taking in order to write his fund annual report and to provide information to fund clients (foremost managers of fund-in-funds).

6.2.3 Summary and discussion

The main finding was that participating fund managers, in their daily work, acquired information from: news feed providers, sell-side brokers, sell-side analysts, colleagues, and companies. The interviewed fund managers expressed that they were overwhelmed with information and challenged to sift out important information. The news feed was followed by all observed and interviewed fund managers, to different extents, whereas they differed in their acquisition of information from brokers, analysts, colleagues and companies. Brokers were specifically used to acquire information about how "the market" was reasoning and to sift the news feed; analysts were used for their valuable analysis and to sift the news feed, colleagues were used to interactively acquire and interpret information, and companies were

used to get a deeper understanding of company, and company management, information. Information acquisition behavior was influenced by fund manager individual factors (experience, market belief and perception of processed information) and environmental factors (fund company size, fund size, fund legislation and fund geographic focus).

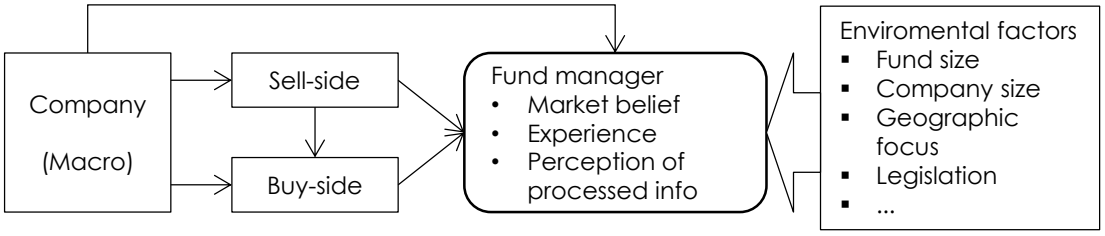
Previous empirical research has also found that fund managers are overwhelmed with information and spend their time sorting out relevant information from irrelevant (e.g., Barker et al., 2012; Coleman, 2015; Holland, 2006, 2016; Tuckett & Taffler, 2012). News providers has similarly been shown to have little impact on fund manager decisions (Coleman, 2015) or even that it was impossible for fund managers to react on news (Barker, 1998). The other sources (sell-side brokers, sell-side analysts, colleagues, and companies), are the same as in the theory of "the market for information" (Barker, 1998). Figure 15 shows how stock market information flows directly from companies to fund management firms (buy-side) and to stockbroker firms (sell-side) and, in addition, sell-side firms acquire information from companies, process it and then sell it (through commissions) to buy-side firms.[54] From a fund manager perspective, information was acquired from companies, sell-side sources (brokers or analysts) or buy-side sources (colleagues that are analysts and/or fund managers). Fund manager information acquisition behavior is influenced by individual factors (market belief, experience, and perception of processed information) and environmental factors (fund size, company size, geographic focus, legislation).

Barker (1998) showed that stock market information directly from companies was considered as most important, but processed sell-side information played an essential role as well. Studies applying sociological perspectives have argued that analysts and investors jointly interpret investment objects in a sense-making process (Hägglund, 2001; see Weick, 1995), that networks of fund managers, brokers and research analysts transfer, interpret and produce knowledge in their embedded networks (Lai, 2006; see Granovetter, 1985) and that fund managers apply meaning

[54] "Sell-side brokers provide services such as information gathering, disseminating reports and assisting in setting up meetings with company management, while fund managers 'buy' such services from them as clients." (Lai, 2006, p. 629)

to accounting numbers by interpreting information in meetings with company management (Åhlblom & Sjögren, 2015). Fund managers could thus acquire information from company, sell-side or buy-side sources for joint interpretations of stock market information according to sociological perspectives. Findings of this dissertation are consistent with previous sociological research, although this dissertation has not applied a sociological perspective. It was for example shown that observed fund manager Zeta discussed, in a private meeting with a company VP, the meaning of accounting numbers.

Figure 15. Illustration of fund manager information acquisition behavior



Notes: Modified by author from Barker (1998, p. 5, cf., Hägglund, 2001, p. 12; Lai, 2006, p. 632). Sell-side (Lai, 2006) has also been referred to as stockbrokers (Barker, 1998, Hägglund, 2001), and has included analysts (Barker, 1998), analysts and brokers (Hägglund, 2001) or analysts, brokers, strategists and economists (Lai, 2006). Buy-side has also been referred to as the fund management firm (Barker, 1998) or investors (Hägglund, 2001), and has included fund managers (Barker, 1998), fund analysts (förvaltaranalytiker) and fund managers (Hägglund, 2001) or fund managers, in-house analysts and economists (Lai, 2006).

By applying an economic psychology perspective, a plethora of information could lead to information overload (see Ricciardi, 2008), defined as (Schick, Gordon, & Haka, 1990): "the information processing demands of an individual's time to perform interactions and internal calculations exceed the supply or capacity of time available for such processing" (p. 199). In other words, when too much information and too many alternatives are available a fund manager might lack the cognitive abilities needed to deal with all the information. Bounded rationality has been used to describe decision-making when people make satisficing decisions based on their

limited capability to process information (Simon, 1955, 1956). People tend to make worse decisions when they are faced with too much information, i.e. when faced with information overload (e.g., Jacoby et al., 1974; see Paredes, 2003; Ricciardi, 2008; for a review, see Eppler & Mengis, 2004; for opposite results, see Russo, 1974). Paredes (2003) argued that such are the circumstances, due to the Sarbanes-Oxley Act and the SEC requirements, when investors try to calculate a fundamental, or intrinsic, value of a company. A parallel can be made to the findings of Barker (1998)—that fund managers used processed information to filter large raw information sets and to provide news updates. Acquiring processed information could thus be described as a tool for reducing information overload. My studies indicated that instead of facing all information, sorting for the relevant information, keeping track of news and conducting valuations of the investment alternatives, participating fund managers relied on sell-side or buy-side sources as fast cues so that less attention from the fund manager was required. For example, one interviewed fund manager (Delta) expressed that analysts kept him up to date during reporting periods. Vayanos (2003) proposed a model in which information processing of portfolio managers were decentralized to agents due to limited information processing capabilities and showed conceptually that this would improve decisions. Mental short-cuts have been argued and shown to lead to better decisions (e.g., Gigerenzer & Gaissmaier, 2011; Gigerenzer & Goldstein, 1996; Gigerenzer et al., 1999; Gigerenzer, 2001; D. G. Goldstein & Gigerenzer, 2009; Todd & Gigerenzer, 2000). In a study of traders, experience was shown to relate to increased use of intuition or cue utilization in the decision-making behavior (Fenton-O'Creevy et al., 2011) and that when such decision-making was combined with controlled emotions, trader performance was better. Using processed information can thus be argued to be smart mental short-cuts, if specialists are able to provide better analyses.

Barker (1998) found that analyst valuations were considered valuable. The participating fund managers in my study also considered analysts' research valuable. Gniewosz (1990) described for example how analysts spent hours analyzing the information content in annual reports. In a review of financial expertise, specialists were found to be most likely to

exhibit expertise (Ericsson et al., 2005). It could therefore be beneficial for fund managers to buy (specialized) analyst research instead of conducting the analyses on their own. The findings of my study indicated that fund managers perceived processed information as valuable. Specifically, it seemed important to get summaries of the latest news (mainly through broker calls) and valuations (mainly directly or in reports from analysts).

Results of my study further showed that information from sell-side firms were perceived as valuable, by some interviewed fund managers, because it could be used to interpret how "the market" reasoned. Fund manager behavioral market beliefs explained why some fund managers used technical analysis in a study by Menkhoff (2010). Fund managers' behavioral market beliefs were linked to information acquisition from sell-side sources in my study. A parallel can be drawn to Keynes' (1936) metaphor of markets as beauty contests (see section 3.2 "Finance: The stock market"), if fund managers make guesses about average stock market investor behavior. My study showed that fund managers have similar educational backgrounds (had knowledge about the same valuation models) and had access to the same consensus valuations. In other words, the participating fund managers knew the market price, deviations from consensus valuations and that other knew the same information. Relative valuation (current stock price is related to comparable companies, or peers, within the same industry) was common among Swedish institutional investors that relied on external analysis, because of beliefs that it was important to other market participants (Hellman, 2000). My study indicated that some fund managers believed that their task was to outsmart other market actors' reasoning around stock market prices. Some fund managers thus acquired information from brokers that could provide ideas about how market actors were reasoning. My study indicated that fund managers differed in how they acquired information based on their market beliefs. But it was also shown that information acquisition behavior was influenced by the type of information that could be acquired through different sources. The observation study of Zeta showed that information directly from management (namely management capabilities) was used to determine the risk premium in the valuation model. Tentatively, model sophistication

can thus have an impact on information acquisition behavior, rather than market beliefs of individual fund managers.

On a related note, previous research has found that information from several sources was acquired by fund managers (Coleman, 2015) and institutional investors (Hellman, 2002) to reduce uncertainty in decisions. My study found generally that more information was acquired before a decision was made, for example by a private meeting with company management (e.g., Zeta) or discussions with sell-side analysts (e.g., Delta & Theta). Acquisition of more information has been linked to higher (unjustified) confidence in decisions rather than better decision outcome (Oskamp, 1965). Acquisition of more information can thus reflect poorer performing fund managers. In the next chapter, I evaluate if information acquisition behavior influenced fund performance.

Regardless of whether information was acquired because of joint interpretation, information overload, because it was perceived as valuable information, or to reduce uncertainty in decisions, the fund managers had different access to different information sources. Some participating fund managers (e.g., Zeta & Epsilon) had access to sell-side sources because of their individual experience in the finance industry and some (e.g., Alfa) were restricted from access due to environmental factors such as the geographic focus of the managed fund. I acknowledge that individual fund managers are more or less important for how fund portfolios are managed, largely depending on their environmental factors. It was even discussed how two participating fund managers (Gamma & Theta) made fund decisions in group rather than individually (cf. Gniewosz, 1990; Hellman, 1996, 2000; Holland & Doran, 1998; Holland, 2006, 2016). This dissertation was justified by paucity in research of individual fund managers. My study provided empirical evidence that the importance of individuals differ. Even if important aspects of their complex reality has been lost by zooming in on individuals, I argue that valuable insights have been made about the black box of individual active equity fund managers.

Finally, the observation study revealed how information was acquired but not how information acquisition was linked with eventual action or investment decisions. Hellman (1996) found that decision processes were continuous, with no direct link between the release of company

information and the investment action in his study of what caused institutional investor actions. The findings can be seen as a complement to previous findings of an earnings announcement drift (see Hellman, 2000, for an excellent discussion of implications of disaggregated institutional investor behavior on aggregated market behavior)—when stock prices drift upwards (downwards) after an announcement of good (bad) news—that has been identified on several markets, including Sweden (Setterberg, 2012). My study showed how observed fund managers (e.g. Gamma) acquired information, at an earnings announcement, but did not react immediately. More information was required first, to process the announcement.

Like most scientific research, the exploratory studies have weaknesses and limitations. The largest shortcoming pertains to reliability and validity in the exploratory approach that was used, since neither a structured guide nor a recorder was used. These shortcomings are addressed in the next section, where a large number of participants responded to formal questions. In the next section I quantify information acquisition behavior, and evaluate the relationships between individual factors (including market beliefs, risk attitude, experience and education), and environmental factors (including fund size, company size, geographic focus, legislation, and small cap focus). I focus on individual fund managers' acquisition of information from sell-side analysts, sell-side brokers, colleagues and company direct contact. These information acquisition behaviors were found to differ between individual fund managers. The sources can further be claimed to justify active fund management, as they are not available to private investors.

6.3 Results of descriptive studies

6.3.1 Results of questionnaire study

This section presents the empirical results of the questionnaire responses from 71 equity fund managers (out of the total population of 140 active equity fund managers) in Sweden. This section evaluates how equity fund managers in Sweden acquire information in their daily work.

Table 12 presents the frequency of information acquisition activities, the importance of that information source to investment decisions and relationships between frequency in information acquisition and importance to decisions. The empirical results showed that equity fund managers in Sweden acquired information through: brokers, colleagues and equity analysts (directly and by reports) several times per week or even daily; company written reports a few times per week; company direct contact (in private or at presentations) once a week; and sell-side macro analysts and company site visits on a monthly basis. On average, the respondents had direct contact with between two to six individual sell-side equity analysts, brokers, colleagues, and company managers and one to three sell-side macro analysts in an average week (not reported in Table 12). Equity fund managers in Sweden considered direct contact with company management, colleagues and written material from the company as their most important sources of information. Sell-side analysts were important to very important, whereas brokers and macro analysts were only some important. There was a moderately positive and statistically significant relationship between information acquisition behavior (i.e. frequency of information acquisition activities) and importance to decision, apart from between information acquisition through written company information or direct contact and relative importance of written company information and company site visits. But even if direct company contact was considered the most important source of information, participants acquired information directly from company management less frequently than from brokers and sell-side equity analysts.

The respondents were also asked if there was any other activity that they conducted in their daily work that was not covered in the questionnaire. Among the activities related to information acquisition behavior, a broad spectrum of additional sources was added. However, only four sources were mentioned by more than one respondent; three respondents mentioned magazines and/or journals. Two participants mentioned industry association representatives, exhibitions, or blogs. Additional sources, only mentioned by one respondent, were: consultants, embassy staff, politicians, privately listed companies, books, news feed terminal, reports of equity strategists or quantitative strategists, buy-side

sector analysts, other independent actors of the stock market, conferences with one-on-one company meetings organized by the sell-side, or a stock database. One respondent wrote "think on my own, or create space / time to not receive information". It thus seems that the information acquisition activities contained in the questionnaire, and which were identified through the earlier exploratory studies, largely captured the information acquisition behavior of active equity fund managers.

Table 12. Overview of information acquisition in questionnaire

Information acquisition	*Average (median)*			*Correlation*
	Behavior	*Importance*	*Relative importance*	
Equity analyst report	4.93 (5)	3.28 (3)	11.64 (10)	.62*** (.34***)
Sell-side equity analysts	4.8 (5)	3.3 (4)	10.01 (10)	.61*** (.45***)
Macro analyst report	3.77 (4)	2.79 (3)	6.39 (5)	.73*** (.52***)
Sell-side macro analysts	2.87 (3)	2.7 (3)	4.79 (3)	.62*** (.48***)
Brokers	5.21 (6)	2.61 (3)	6.87 (5)	.47*** (.37***)
Buy-side sources	5.41 (6)	4.03 (4)	19.04 (20)	.49*** (.20*)
Company written report	4.49 (5)	4.11 (4)	19.09 (20)	.27** (.09)
Company direct contact		4.2 (4)	18.36 (20)	
Company, private	3.86 (4)			.50*** (.44***)
Company, presentation	3.92 (4)			.51*** (.41***)
Company site visit	1.96 (2)			.26** (.12)

Notes: Information acquisition behavior was measured with the following question: *How often do you perform the following activities in your work?* Response choices were: (1) daily, (2) several times a week, (3) once a week, (4) several times a month, (5) once a month, (6) less than once a month, or (7) never. The scale has been reversed in all analyses for intuitive reasons. Information importance was measured on a scale (1) not at all, (2) slightly important, (3) moderately important, (4) very important, or (5) extremely important. Information acquisition relative importance was measured as 100 points, distributed along the alternatives (along with an "other"-option). Pearson's r correlation coefficients are between behavior and importance (behavior and relative importance in parentheses). Results are not sensitive to excluding respondents that participated in the exploratory studies (average and median values of information acquisition behaviors were systematically one digit higher though, and the relationship between information acquisition from colleagues and relative importance of colleagues were not statistically significant).

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (1-tailed significance test)

Table 13 presents different kind of fundamental company information that fund managers acquired through the different sources of information. The results indicate low variance in the kind of acquired information within a source of information and higher variance between sources of information. In other words, when information was acquired from a source it seems that information around several topics was acquired. Information about executive capabilities was an exception, which was specifically acquired directly from analysts, buy-side sources, and company management. Quantitative information (expected cash flows, growth estimates, and expected profit margins) was foremost acquired from written equity analyst reports and company reports—although quantitative information was also acquired directly from company management. Company management seems to be unique in that it provided all kind of information, both qualitative and quantitative information, which could be one explanation to why it was considered as the most important source of information. But the most collected type of information was the information about expected cash flows, which was acquired from equity analyst reports from 81% of the respondents.

Table 13. Kind of company information and sources of information

	Equity analyst report	*Sell-side equity analyst*	*Broker*	*Colleague*	*Company written report*	*Company direct contact*
Strategy	57%	54%	30%	61%	64%	64%
Expected cash flows	81%	46%	10%	40%	60%	64%
Growth estimates	74%	50%	21%	51%	70%	69%
Expected profit margins	76%	54%	20%	47%	61%	69%
Planned investments	60%	44%	11%	36%	69%	74%
Market share	63%	51%	10%	36%	64%	74%
Competitors	66%	64%	27%	49%	54%	66%
Executive capabilities	40%	64%	40%	61%	36%	80%

Note: The respondents were asked to indicate, by ticking a box, if they acquired certain fundamental information from certain sources. This table provides the number of respondents that ticked yes in percentage of total respondents.

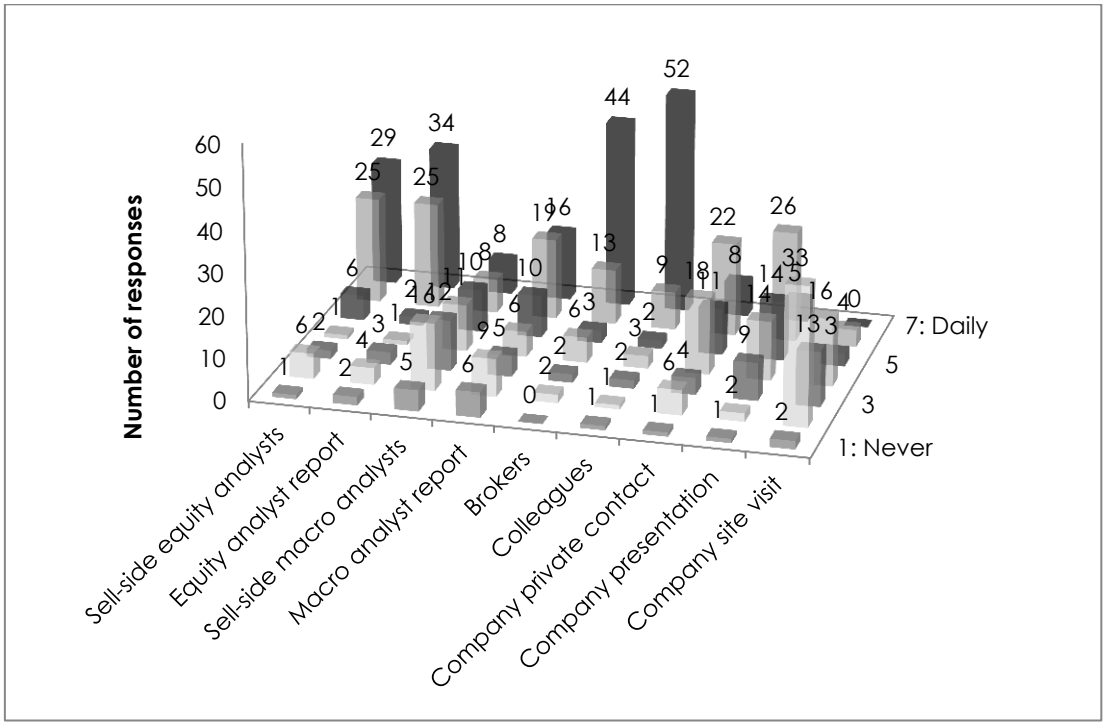
These findings provide a coherent picture of what has already been discussed: direct company contact was used to acquire most information, followed by equity analysts and written company reports. Brokers seemed to provide little information, although 30% of the participants acquired information about company strategies from brokers. In the previous section, brokers were used to acquire information about how "the market" was reasoning, but only fundamental company information was measured in the questionnaire unfortunately.

So far, I have presented information acquisition behaviors, on average. But the previous section found that individual fund managers differed in how they acquired information. Figure 16 illustrates the individual variation in information acquisition activities. Responses indicated low variance in acquiring information from: colleagues, 74% discussed potential investments daily with other buy-side sources (and 87% at least twice a week); equity analysts, 80% acquired information from equity analysts at least twice a week; and brokers, 63% acquired information from brokers on a daily basis. There was divergence in how frequently the respondents acquired information from macro analysts or directly from companies.

In the previous section, I discussed three main sources of information that had previously been identified in the literature (cf. Barker, 1998; Hägglund, 2001; Lai, 2006): buy-side, sell-side and company sources. A confirmatory factor analysis was used to test if the division had an empirical logic as well. Sell-side equity analyst contact, sell-side equity analyst report, sell-side macro analyst contact, sell-side macro analyst report and brokers were hypothesized to belong to sell-side sources; colleagues was hypothesized to belong to buy-side sources; and company personal contact, company presentation, and company site visit were hypothesized to belong to company sources.[55] The test results are presented in Table 14. The model was accepted as a good fit, but RMSEA, CFI and SRMR values indicated that it was a weak good fit.

[55] Note that company written material is not included, because written material from companies are presented at given times, not continuously, and thus the frequency-measure does not accurately capture the acquisition of information from written company material. Equity analyst reports are updated continuously and are thus included in the analysis. This study is further focused on the sources that are only available to professional investors.

Figure 16. Distribution of responses regarding frequency of activities



Note: Information acquisition behavior was measured with the following question: *How often do you perform the following activities in your work?* Response choices were: (1) daily, (2) several times a week, (3) once a week, (4) several times a month, (5) once a month, (6) less than once a month, or (7) never. The scale has been reversed in all analyses for intuitive reasons. The overall pattern was similar when excluding respondents that participated in the exploratory studies.

Table 14. Confirmatory factor analysis of information acquisition behavior

Fit statistic	*Result*
χ^2_M	75.854
df_M	27
P	<.0001
RMSEA (90% CI)	0.162 (.119-.206)
$p_{close\text{-}fit\ H0}$	<.0001
CFI	0.825
SRMR	0.204

Note: Ran in SAS using the CALIS-Procedure

To summarize, the descriptive study provided results that were in line with the exploratory study: Active equity fund managers in Sweden acquire information through three main sources: directly from companies, from sell-side and/or buy-side sources (colleagues). These three sources had an empirical and theoretical logic (cf. Barker, 1998), but divergence in how individuals acquired information was also found. Information directly from companies was considered as the most important source of information, but it was not acquired most frequently. Information about expected cash flows from equity analyst reports was the most acquired fundamental kind of information.

6.3.2 Results of questionnaire study linked to archival data

This section presents the empirical findings of the questionnaire responses from 71 equity fund managers (out of the total population of 140 active equity fund managers) in Sweden along with linked archival data of managed fund(s). This section explores if there are any relationships between information acquisition, market belief and risk attitude of individual fund managers. In addition, this section tests if individual and environmental factors, identified in the exploratory study, influence fund manager information acquisition behavior

Table 15 provides an overview of the respondents' market beliefs and risk attitudes. Respondents were overall not willing to take risk, neither in general nor in their managed funds. Respondents tended to have a more fundamental than behavioral view on market behavior. Fund manager beliefs about market behavior in the short-run and in the long-run differed markedly, where behavioral views dominated the former and fundamental views dominated the latter. Finally, Table 15 shows clearly that there was divergence in how individual fund managers viewed markets and how willing they were to take risk.

Table 16 provides correlation coefficients between information acquisition behavior, market beliefs and risk attitude (first five rows). Information acquisition behavior was divided into information acquisition from (1) sell-side, (2) buy-side, and (3) company sources (see Table 14, p. 118, for a confirmatory factor analysis of the three factors). Market belief

was measured as (4) behavioral beliefs about markets (i.e., beliefs in psychological influences on stock prices or that historical stock prices could be used as indicators for future prices). Risk attitude was measured as (5) willingness to take risk (i.e. the more risk seeking the higher willingness to take risk). Behavioral market beliefs and risk willingness was constructed from the statements in Table 15 (see also section 5.5.2 "Materials").

Table 15. Fund manager risk attitude and market beliefs

Frequencies (in %)	*1*	*2*	*3*	*4*	*5*
Market beliefs					
Stock prices are more driven by psychological influences than fundamentals, in the short-run	1	7	17	54	20
Stock prices are more driven by psychological influences than fundamentals, in the long-run	38	48	7	7	
The historical price development of a stock is an indicator of future price development	16	45	29	10	
Risk attitude					
I am generally very risk willing	16	57	20	7	
I am very risk willing in my fund management	23	56	16	6	
I am generally very risk averse	6	24	27	40	3
I am very risk averse, i.e. careful, in my fund management	7	34	29	26	4

Notes: Respondents were asked to indicate to what extent they agreed with each of the statements. Responses were measured on a (Likert-type) scale of (1) strongly disagree, (2) disagree, (3) undecided, (4) agree, and (5) strongly agree.

Table 16 shows that there were no statistical relationships between fund manager information acquisition behavior, behavioral beliefs about markets, or risk willingness.[56] There was a positive relationship between

[56]The market beliefs measurement had a low internal consistency, thus separate analyses per items were also conducted. Greater agreement to the statement "the historical price development of a stock is an

information acquisition from sell-side, buy-side and company sources. It seems that fund managers that acquired information more frequently from sell-side sources also acquired information more frequently from buy-side and company sources (and vice versa).

Table 16. Correlations between information acquisition behavior, market beliefs, risk attitude, other individual factors and environmental factors

		1	*2*	*3*	*4*	*5*
1	Info. acquisition from sell-side	5.3 (1.4)				
2	Info. acquisition from buy-side	**.37****	6.4 (1.3)			
3	Info. acquisition from company	**.32****	**.38****	4.2 (1.2)		
4	Behavioral market beliefs	.01	-.20	-.07	2.7 (0.6)	
5	Risk willingness	.04	.06	.19	.20	2.5 (0.7)
	Perception of processed info.	**.55****	-.06	-.08	-.04	-.03
	Years as fund manager	.19	.03	**.35****	.12	.07
	Years in finance	**.32****	.19	**.33****	.19	.11
	University degree, δ	.10	.03	-.12	-.21	**-.24***
	Company size	.13	**.28***	**.39****	-.17	.12
	Fund size	.12	**.25***	**.26***	-.06	.18
	Geographic focus	.06	.03	**-.31***	-.06	-.13
	UCITS, δ	.22	-.08	.22	-.02	.11
	Management fee	.15	.03	-.01	.05	-.07
	Small cap, δ	.10	.11	**.33****	-.16	**-.26***

Notes: Ms (SDs) are provided at the top diagonal.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (2-tailed significance test)

Table 16 also shows the influence of individual and environmental factors on fund manager information acquisition behavior, market belief, and risk attitude. There was statistical links between information acquisition from sell-side sources and individual perceptions of processed information (+) and individual fund manager experience (+), supporting that individuals influence how information is acquired. Environmental factors also played

indicator of future price development" was positively linked to risk willingness. Results were otherwise robust.

an essential role, as acquisition from companies and buy-side sources were both linked to company size (+) and fund size (+). Acquisition directly from companies was further linked to geographic focus (-)[57], small cap focus (+) and experience (+). Results also show that education was negatively related to risk willingness, as well as small cap focus (fund managers of large cap funds tended to be more willing to take risk).

6.3.3 Summary and discussion

The main findings were that active equity fund managers in Sweden acquired information from sell-side, buy-side and company sources at least once a week, in most cases daily. There was divergence, particularly in acquisition of information from macro analysts and direct contact with company management—even though company management was considered as the most important source of information to the great majority of participating fund managers. The main reasons for *why* information acquisition differed between individual fund managers were fund manager experience and perception of the value of processed information, and environmental factors including fund size, company size, geographic focus and small cap focus. There were no statistical relationships between individual fund manager information acquisition, market beliefs and willingness to take risk as measured in this dissertation.

German fund managers' market beliefs had previously been shown to relate to their use of technical analysis in Menkhoff (2010). Menkhoff (2010) argued that the high information costs of fundamental analysis might have contributed to the use of technical analyses. It was thus surprising that there was no statistical relationship between market beliefs and information acquisition behavior among Swedish equity fund managers. However, results were in line with Tuckett and Taffler (2012), as the dominating view was that market prices were fundamentally driven in the long run. The non-existing statistical relationship between risk attitude and information acquisition behavior was in line with previous research on

[57] The lower values of geographic focus, the more local investing (focus on the Swedish stock market was coded as one, see Table 6).

credit analysts' risk attitudes and information acquisition behavior (Andersson, 2001).

The descriptive study supported the following rationales, identified in the exploratory studies (see section 6.2.3 "Summary and discussion"): individual fund managers had different perceptions of the value of processed information (Barker, 1998) and different access (Drachter et al., 2007; Hellman, 2000; Holland, 2016). Unfortunately, I did not test if information acquisition behavior was influenced by limited cognitive capabilities because of information overload (cf. Barker et al., 2012), a desire to make joint interpretations (cf. Hägglund, 2001; Lai, 2006; Åhlblom & Sjögren, 2015), to reduce uncertainty and increase confidence (cf. Coleman, 2015; Hellman, 2000; Oskamp, 1965) or because it was required in valuation models (cf. Penman, 2007). In a study of how experts and novices differed in information acquisition behavior, it was found that the same amount of information was acquired regardless of experience, but the information was weighted differently—experts relied on fewer cues in their decision-making (Shanteau, 1992). This study has not addressed cognitive processes.

The findings can also be linked to previous studies of ranked importance of information sources to fund manager. Findings were in line with previous research that has found direct company contact to be considered as most important (e.g., Barker et al., 2012; Barker, 1998; Imam & Spence, 2016) and that raw data from companies ranked higher than processed data from analysts (Barker, 1998). The results were not in line with the findings of Menkhoff et al. (2006), in which German fund managers ranked buy-side sources (colleagues) as slightly important ($M = 3.2$ on a scale 1, very important, to 6, not important at all). In my study, buy-side sources were ranked as very important to extremely important ($M = 4.03$ on a scale 1, not at all important, to 5, extremely important). A potential explanation could be that one third of those contained in Menkhoff et al.'s (2006) sample managed bond funds. Further, Barker (1998) found that information from companies outranked information from analysts because analysts were perceived as short-termed, too close with companies, that it was interpreted and known information (Barker, 1998). My study showed that fund managers anyway acquired

information from analysts more frequently than directly from companies, but there was also a link in which individuals' perceptions of processed information (as valuable) was positively linked to the frequency in information acquisition from sell-side sources.

Like most scientific research, the descriptive study has weaknesses and limitations. The measurements can be questioned (see section 5.7.2 "Validity"). I have grouped brokers, equity analysts and macro analysts as sell-side sources, but other researchers would argue that those are very different. Graaf and Johed (2016) for example argue that brokers and analysts have very different roles. However, from the fund manager perspective brokers and sell-side analysts both disseminates processed information or research from the sell-side firm. Another problem is that some analysts could be regarded as important, while others are unimportant (cf. Barker, 1998), are "analysts" then important to the decision? However, the main focus has been on frequency in information acquisition. I have argued that colleagues, or buy-side sources, are external sources from the perspective of the fund manager. Previous research has showed that fund managers are part of organizations, and that organizations make investment decisions (Hellman, 2000). I showed that there were cases when fund managers made decisions jointly in their organizations and that there were cases where fund managers were solely responsible for the fund decisions. The focus of this dissertation has been on the individuals that make decisions, but this comes at the expense of real-world complexity. Nevertheless, I refer readers who are interested to read more about organizational investment decision-making to Hellman (2000) and Holland (2006, 2016) and attempt, by the individual perspective, to add new knowledge to their research. In the previous section, I speculated about information overload, joint interpretations and uncertainty as potential reasons for information acquisition behavior, but I did not gather data so that I could examine it further.

Regardless of these shortcomings, my study takes small steps to open the fund manager black box. Only one study (Drachter et al., 2007), to the best of my knowledge, has used a mixture of archival data and survey data to explore equity fund manager decision-making behavior. I have surveyed a known population in which over half responded to the descriptive study.

My study thus makes use of a unique dataset, highly representative of actual active equity fund managers, in order to provide insight into the black box of active equity fund managers' behaviors and performance.

6.4 Responses to research questions and scientific contributions

The responses to the first and second research questions were:

> **RQ1.** How do equity fund managers acquire information in their daily work and why?

Based on a mixture of observation, interview and questionnaire data, conclusions were that equity fund managers acquire information through four main sources: sell-side, buy-side, company, and news feed sources. The three first sources are not available to private investors and thus can serve to justify active fund management.[58] Divergence was found in how often fund managers acquired information from sell-side, buy-side and from company sources. Fund manager experience and perceived value of processed information, as well as fund size, company size, geographic focus and small cap focus, influenced how fund managers acquired information.

> **RQ2.** What are the relationships between equity fund managers' information acquisition behaviors, market beliefs and risk attitudes?

In general, fund managers were found to hold behavioral market beliefs and to be risk avoiding, although divergences were found between individual fund managers. However, there were no statistical relationships between fund manager information acquisition, market beliefs or risk attitude. There were statistical links between information acquisition behavior and perceived value of processed information, fund size, company

[58] Sell-side recommendations are often available in a financial terminal such as Bloomberg and can serve as consensus estimates of market beliefs. As such the source can be argued to be public. But the sell-side analysts, brokers and the actual analyses are not public sources.

size, geographic focus, cap focus or individual experience as well as between risk willingness and education or cap focus.

◆ ◆ ◆

My study attempts to contribute to previous empirical research on fund manager decision-making behavior (e.g., Coleman, 2015; Drachter et al., 2007; Holland, 2006, 2016; Menkhoff, 2010; Tuckett & Taffler, 2012), by providing empirical evidence that individual fund managers differ in their information acquisition behavior, market beliefs and risk attitudes. The results are further relevant for previous empirical research on information flows on capital markets (Barker, 1998; Hägglund, 2001; Imam & Spence, 2016; Lai, 2006) and fund manager market beliefs (Coleman, 2015; Menkhoff, 2010; Tuckett & Taffler, 2012). The next chapter evaluates whether the identified differences between individuals can explain cross-sectional variation in fund performances among active equity fund managers in Sweden.

7 Explaining fund manager performance

7.1 Background

In the previous chapter, it was shown that individual equity fund managers in Sweden differed in how often they acquired information from sell-side sources, directly from companies or within the buy-side firm, in their beliefs about markets, and in their attitudes to risk. In this chapter, those differences are related to fund performance. Fund performance is a well-researched area, but the vast majority of studies has only used archival data and thus lacks insight into the individuals that actually make the equity investment decisions. This chapter presents the results of a questionnaire study that was linked on an individual fund manager level to archival data about managed funds and their fund companies. To the best of my knowledge, there is only one study (Drachter et al., 2007) that has linked responses from fund managers to their managed funds. The main finding was that fund managers' perceived importance of direct company sources was linked to fund manager performance. My study differed from Drachter et al. (2007) in four main ways. First, I measured information acquisition behavior as frequency of activity instead of perceived importance.[59] Second, I evaluated the impact of fund managers' market beliefs and risk attitudes. Third, I measured risk-adjusted performance in several ways and I used the self-declared benchmark which the fund managers set out to beat whereas

[59] In my study, only one respondent considered direct company contact as unimportant, in Drachter et al. (2007) 17 respondents rated importance of conversations with executive boards as unimportant. Their study had twice as many respondents (153 vs 71). In my study, it makes little sense to link perceived importance of companies to performance, but I am instead able to link variation in behavior (frequency of conversations with executive board).

Drachter et al. only measured risk-adjusted performance as net returns less peer group returns. Fourth, I surveyed a known population, whereas Drachter et al. used a database (the BVI) and could not report how the sample related to the full population. This chapter examines the following research questions (formulated in the introduction of this dissertation):

> **RQ3$_a$.** What is the impact of equity fund manager information acquisition behavior on fund performance?
>
> **RQ3$_b$.** What is the impact of equity fund manager market beliefs on fund performance?
>
> **RQ3$_c$.** What is the impact of equity fund manager risk attitude on fund performance?

This chapter explores the set of research questions through a causal study. This chapter thus develops hypotheses which are tested in evaluations of 102 fund-manager combinations.[60] Fund managers are required to have managed the fund for the full evaluation period in order to be included in performance evaluations.

7.2 Hypothesis development and model specification

7.2.1 Information acquisition behavior

On the one hand, previous empirical research has found that fund manager received an information advantage through social sources, which had a positive impact on performance (e.g., Christoffersen & Sarkissian, 2009; Cohen et al., 2008; Coval & Moskowitz, 2001; Hong et al., 2005; Pool et al., 2015). In the semi-strong form of the efficient market hypothesis (Malkiel

[60] In total, there were 222 fund-manager combinations with non-missing performance data for the full evaluation period of 2012. Of these, 102 fund-manager combinations had uniquely linked questionnaire data. There were no statistical differences in performance of these two groups.

& Fama, 1970), private information can be used to make abnormal positive returns. In other words, information acquisition behavior can be expected to have a positive impact on fund performance if valuable information is obtained. On the other hand, theories in the economics of information predict that information acquisition costs equate or exceed the marginal utility of the benefit derived by having the information (e.g., Grossman & Stiglitz, 1980; Stigler, 1961). In other words, no impact or negative impact could be expected of information acquisition behavior on fund performance. It thus seems to be conflicting predictions about effects of information acquisition behavior on fund performance.

In the previous chapter, I argued that equity fund managers in Sweden acquired information through sell-side, buy-side and company sources. Information acquisition behavior is thus evaluated based on these three sources. Previous empirical research has also evaluated the different sources separately.

Sell-side research can add value through, for example, analysis, (better) relations with companies, or economies of scale in information processing (Barker, 1998). They can provide an interpretation of information releases to the market, where changes in their earnings forecasts, stock recommendations, and price target even can provide independent information as such (Asquith, Mikhail, & Au, 2005); they can actually create their own price momentum as large opinion makers on the market (cf. Jegadeesh, Kim, Krische, & Lee, 2004). Fund managers whom receive information first may earn abnormal profits (Blomberg et al., 2012; Holland, 2006; Irvine, Lipson, & Puckett, 2007), but receiving the first call is usually related to paying high commissions (thus making it expensive to be the first call). Further, sell-side firms have incentives to create rumors, to build stories, to make the fund managers believe that they will make money by listening to their advices (Blomberg et al., 2012).

Empirical studies have found positive (negative) abnormal returns for upward (downward) earnings forecast revisions or new buy (sell) recommendations of sell-side research (Asquith et al., 2005; Barber, Lehavy, McNichols, & Trueman, 2001; Jegadeesh et al., 2004). Trading strategies based on earnings forecast revisions require frequent rebalancing and after accounting for transaction costs they did not reliably beat a

market index, i.e. the value of sell-side analysis did not outset the cost (Barber et al., 2001; Frey & Herbst, 2014; Kacperczyk & Seru, 2007).

Two studies have specifically examined fund managers' performance and their use of sell-side recommendations. Kacperczyk and Seru (2007) found that US fund managers whose portfolio changes were less correlated with sell-side recommendations had better fund performance. It has also been shown that fund managers' trades, based on sell-side recommendations, did not lead to a positive performance impact (Frey & Hirbst, 2014). In summary, sell-side sources might provide valuable information but previous research indicates that the cost of acquiring information from sell-side sources exceeds the benefits. The following hypothesis is thus formulated:

> **$H1_a$.** Fund manager acquisition of information from sell-side sources has a negative impact on fund performance.

Buy-side analysts are increasingly used instead of sell-side research (Frey & Herbst, 2014). Research have found that hedge fund buy-side analysts, globally, provided valuable recommendations (Crawford, Gray, Johnson, & Price, 2012), that buy-side analyst-run funds in the US generated significant abnormal returns (Cici & Rosenfeld, 2016), but that buy-side recommendations of analysts in one large buy-side firm in the US were not valuable and did not outperform their sell-side counterparts (Groysberg, Healy, & Chapman, 2008; Groysberg, Healy, Chapman, Shanthikumar, & Gui, 2007; Groysberg, Healy, Serafeim, & Shanthikumar, 2013).

Two studies have evaluated fund manager acquisition of buy-side research. Cheng et al. (2006) evaluated the sources of research, divided into buy-side or sell-side research, to investment strategies for 1,237 funds in 2000, 1,300 funds in 2001 and 1,330 funds in 2002. They found a positive and significant relationship between fund performance and the weight that was put on buy-side research. This relationship was more prominent for value funds than for growth funds (Cheng et al., 2006). Frey and Herbst (2014) studied to what extent mutual fund managers followed buy-side recommendations, by the use of a dataset including in-house analyst recommendations and fund positions on a daily basis for a set of European

equity mutual funds from a large, globally active asset management firm. They showed that the buy-side recommendations had a significant effect on fund manager behavior and that the trades that were triggered by these recommendations had higher returns than other trades. The following hypothesis is thus formulated:

> **$H1_b$.** Fund manager acquisition of information from buy-side sources has a positive impact on fund performance.

In the only other study that has linked fund manager questionnaire data with archival data on managed funds, Drachter et al. (2007) found that German fund managers of small cap funds that ranked the importance of conversations with company executives as high performed better than those that ranked the importance as low, arguably because the benefits were larger in small cap companies. The value of direct company contacts has further been examined in evaluation of the number of company site visits. Switzer and Keushgerian (2013) evaluated the value of company visits to fund managers using a novel dataset from an international investment broking and consulting firm. They found a positive relationship between the number of site visits and performance for US funds, but not for global funds. The number of site visits was also positively related to trading and, in turn, costs. The authors argued that global fund managers probably had higher commissions and thus did not benefit to the same extent as US fund managers from site visits. Based on the studies of Drachter et al. (2007) and Switzer and Keushgerian (2013), the following hypothesis is formulated (keeping in mind that fund size and geographic focus might affect the results):

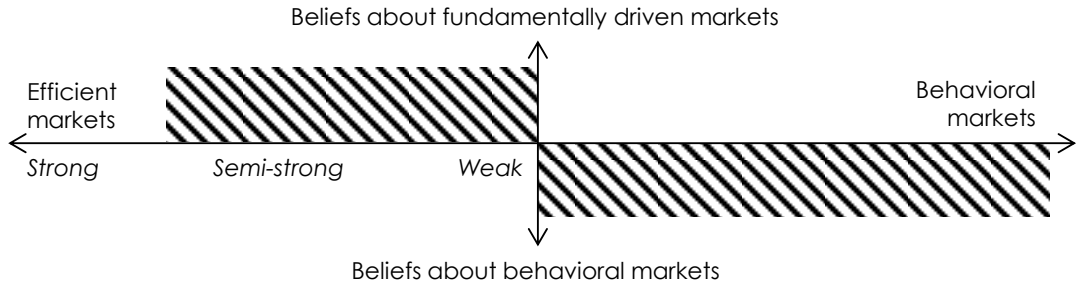
> **$H1_c$.** Fund manager acquisition of information directly from companies has a positive impact on fund performance.

7.2.2 Beliefs about markets

Psychological theories argue that individual economic behavior is a function of human beliefs (e.g., van Raaij, 1988). A relationship between

individual fund managers' beliefs, behavior, decisions and performance can be expected. However, the (strong form) efficient market hypothesis stipulates that market behavior is random and that fund managers cannot systematically outperform the market based on their individual beliefs. Different outcomes are thus expected given which perspective that is applied. Recall from Chapter 3 "Theoretical perspectives" that actual market behavior is predicted differently in neoclassical finance and behavioral finance. Figure 17 illustrates how performance depends on actual market behavior (assuming that fund managers behave according to their beliefs). Given beliefs in fundamentally-driven markets, markets are required to be semi-strong or weak form efficient so that fund managers can use private fundamental information or fundamental valuation to outperform the market. (If markets are behaviorally driven, fund managers cannot use private fundamental information or fundamental valuation to outperform the market.) Given beliefs in psychologically driven markets, markets are required to be behaviorally driven so that fund managers can use (e.g.) technical analysis to outperform the market. (If not, fund managers cannot use models that rely on behavioral markets to outperform the market.) If markets are strong form efficient, fund managers cannot outperform the market regardless their beliefs.

Figure 17. Investors' possibility to outperform markets, depending on market beliefs and actual market behavior



Note: The striped areas imply possibilities to systematically outperform the market. This is a simplification, as fund managers can hold both behavioral and fundamental views over time, and markets can behave in both ways.

To the best of my knowledge, there is no study that has examined relationships between fund managers' market beliefs and fund performance. But, market beliefs among fund managers have been shown to have an impact on their use of technical analysis (Menkhoff, 2010). In a related study, Fenton-O'Creevy et al. (2004) had traders to engage in a game where traders pressed three different buttons in order to raise market prices. The game was designed so that their behavior had no impact on outcome. Even though performance was identical (by design), there was great divergence in participating traders' self-rated success in the game (i.e., illusion of control, or attributing chance events to own ability). Illusion of control scores had a negative significant statistical association with trader (self-rated and manager rated) performance, holding educational level, job level and trading experience constant. In other words, beliefs among individual traders in financial markets had implications for trader performance. Menkhoff (2010) and Fenton-O'Creevy et al. (2004) support that beliefs among individual professional investors have an impact on their behavior and performance. Further, since this dissertation argues for the importance of psychological theories, the following hypothesis is formulated:

> **H2.** Fund manager beliefs in behavioral markets have a positive impact on fund performance.

7.2.3 Risk attitude

Following the above discussion, attitudes of fund managers are (not) predicted to have an impact on decisions and performance according to psychological (neoclassical finance) theories. But higher risk taking is predicted to be rewarded with higher returns in both finance and accounting theories. Thus, it could be predicted that willingness to take risk has a positive impact on actual risk taking and on performance.

However, previous empirical research has not found links between risk attitude and entrepreneurs' business performance (Brockhaus, 1980; Willebrands, Lammers, & Hartog, 2012), online sports bettors' financial performance (d'Astous & Gaspero, 2013) and even traders' financial

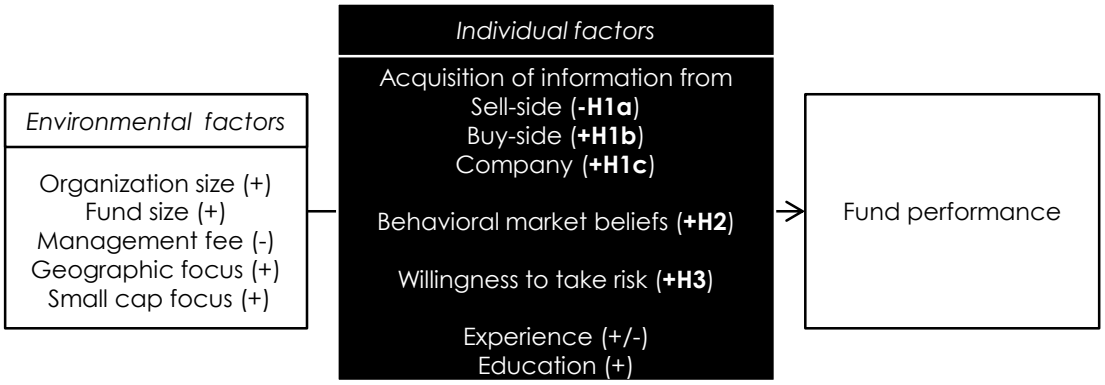
performance (Fenton-O'Creevy et al., 2004). In a study of experienced individual private investors in Sweden, no links were found between risk attitude, genes (related to uptake of dopamine and serotonin) and investment risk taking (Anderson et al., 2015). In a comparative study of female and male fund managers, no differences were found in risk-taking or performance (Bliss & Potter, 2002), even though females are generally more risk averse than males (e.g., Jianakoplos & Bernasek, 1998). It is unknown whether risk attitude among fund managers have an impact on fund performance. Given that both finance and accounting assume higher return for higher risk taking and that individuals differ in willingness to take risk, the following hypothesis is formulated:

> **H3.** Fund manager risk willingness has a positive impact on fund performance.

7.2.4 Model specification

Figure 18 provides an illustration of the model that is tested in the causal study. Fund performance is influenced by individual factors, illustrated in the black box, and environmental factors (see Figure 9, p. 33). The impact of the individual factors was hypothesized above. Further, hypothesized impact of other individual factors and environmental factors are based on previous empirical research (see Table 3, p. 56).

Figure 18. Model specification along with hypotheses



7.3 Results of causal studies

7.3.1 Results of questionnaire study linked to performance data

Based on their excess returns in 2012, the 222 fund-manager combinations were grouped into performance quintiles (each group had 44 observations, but the bottom quintile that had 46 observations). Fund-manager combinations in the top (bottom) quintile outperformed (substantially underperformed) their benchmark index. Table 17 shows mean scores, per quintiles, of information acquisition behavior, market beliefs and risk attitudes, as measured in this dissertation. T-tests between the top and bottom quintiles are also presented.

Table 17. Information acquisition behavior, market beliefs and risk attitude, per performance quintiles

	Bottom 0-20%	*20-40%*	*Middle 40-60%*	*40-60%*	*Top 80-100%*	*T-test Top vs Bottom*
Excess return	-11.15 (3.35)	-5.61 (1.23)	-1.88 (0.73)	0.40 (0.42)	4.19 (2.94)	
Information acquisition from sell-side	5.62 (1.03)	5.63 (1.44)	5.50 (0.92)	5.41 (1.38)	4.78 (1.83)	0.87† (1.90)
Information acquisition from buy-side	6.50 (1.06)	6.75 (0.45)	6.73 (0.88)	6.65 (0.70)	5.90 (2.10)	0.55 (1.10)
Information acquisition from company	3.47 (0.79)	4.63 (0.94)	4.92 (0.97)	4.90 (1.15)	4.47 (1.01)	-0.98*** (-3.68)
Behavioral market beliefs	2.67 (0.51)	2.56 (0.51)	2.79 (0.45)	2.59 (0.76)	3.13 (0.89)	-0.44* (-2.05)
Risk willingness	2.30 (0.68)	2.83 (0.55)	2.65 (0.52)	2.56 (0.72)	2.50 (0.69)	-0.20 (-0.99)
Observations	22	16	22	17	21	

Notes: Means, mean differences, and standard deviations, or *t* statistics, in parentheses. Quintiles are based on annual excess return in 2012. Information acquisition behavior was measured on a scale of 1 (never) to 7 (daily). Behavioral market beliefs and risk willingness was measured on a scale of 1 (strongly disagree) to 5 (strongly agree).
†$p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Fund managers in the top quintile acquired information more frequently from companies and less frequently from sell-side sources than fund managers in the bottom quintile. Those differences are statistically significant at 0.1% and 10% respectively. However, when scrutinizing the three mid-quintiles, it seems that the mid-quintiles acquired information directly from companies even more frequently than the top quintile. Frequent information acquisition directly from companies seemed to be beneficial up to a point. The results indicate that the best (worst) performing fund managers acquired information from sell-side sources less (more) often than once a week, from company management about every other week (month) and from buy-side sources less (more) often than twice per week (almost daily). There was no statistical relationship between information acquisition from buy-side sources and fund performance. The results thus indicate support for $H1_a$ and $H1_c$, but not $H1_b$.

The test indicates that fund manager differed in their performance based on their market beliefs. The best quintile tended to have behavioral markets beliefs whereas the worst quintile tended to have fundamental views on markets. The difference is statistically significant at 5%, but in economic terms the difference is quite small (3.13 vs 2.67) although at different sides of the cutoff point (scale 1-5, 3 is the cutoff). The best (worst) performing fund managers believed more in psychologically (fundamentally) driven markets. The result indicates support for H2.

There was no statistical relationship between risk attitude and fund performance. The result did not provide support H3. I also tested if there was greater variance in performance of fund managers that rated risk willingness above three (risk seekers) than to those with risk willingness below three (risk avoiders). But there was no support for differences in variance in performance based on self-rated risk attitude (not reported).

In sum, T-tests between top and bottom performance quintiles showed that information acquisition from sell-side and company sources, and market beliefs were associated with fund performance outcome. Information acquisition from buy-side and risk willingness did not seem to be associated with fund performance.

Next, I evaluated the set of research question using univariate tests. Table 18 shows the correlation coefficients between fund performance and

evaluated variables. The correlation coefficients indicate that information acquisition from: (1) sell-side sources have a negative effect on performance, (2) buy-side sources have a negative effect on performance, and (3) company management has a positive effect on performance. The coefficients are statistically significant at 1% for information acquisition from sell-side sources or directly from company management and at 5% for acquisition of information from buy-side sources. Again, the results indicate support for $H1_a$ and $H1_c$. Results also provided evidence in the opposite of $H1_b$. Buy-side sources were expected to have a positive impact on fund performance, but were found to have a statistical negative association. The result should not be overemphasized though, as fund managers overall have frequent internal discussions as suggested by survey data (recall section 6.3.1 "Results of questionnaire study"). The empirical material showed that only 9% of the observations had rated information acquisition from buy-side sources less frequently than twice a week (<6 on a scale 1-7). They had, on average, delivered annual excess returns in 2012 of 0.67%. In comparison, the other 91% had delivered annual excess returns of -3.19% on average in 2012. Those differences were statistically significant in a one-sided t-test, $t(99) = 1.95$, $p < .05$. It should also be noted that some organizations might have daily morning meetings where fund managers, because of their organizational context, are forced to acquire information through buy-side sources (or that they even make equity investment decisions in groups). Less frequent information acquisition from buy-side sources can thus measure less reliance on information from internal sources, or it can be a proxy for independence in decision-making. The results are discussed further in the next section.

The univariate tests also showed that there were no statistical linear relationship between fund performance and behavioral market beliefs, or fund performance and risk willingness. In other words, there was no statistical support for H2 or H3. Fund performance was positively related to fund size, negatively related to management fee, positively related to local geographic focus and positively related to small cap focus. Those relationships were in line with previous empirical findings (see Table 3, p. 56 and Figure 18, p. 134).

In sum, univariate tests showed that information acquisition from sell-side, buy-side and company sources was associated with fund performance outcome. Market beliefs and risk willingness did not seem to be associated with fund performance.

Table 18. Univariate analysis of model

		1	*2*	*3*	*4*	*5*	*6*
1	Excess returns	-3.06 (5.74)					
2	Info. acquisition from sell-side	**-.28****	5.38 (1.37)				
3	Info. acquisition from buy-side	**-.21***	**.23***	6.51 (1.21)			
4	Info. acquisition from company	**.28****	**.20***	**.34*****	4.48 (1.10)		
5	Behavioral beliefs about markets	.17	-.065	**-.20***	.065	2.76 (0.66)	
6	Risk willingness	.094	.10	.059	**.24***	**.20***	2.56 (0.64)
	Years in finance	.13	**.31*****	.053	**.38*****	**.29****	**.16**
	University degree, δ	-.035	-.026	-.027	**-.25****	**-.29****	**-.25****
	Company size	.12	-.032	**.37*****	**.46*****	-.051	.14
	Fund size	**.27*****	-.056	**.28****	**.23***	-.094	.10
	Management fee	**-.14***	.17	.031	-.13	.025	-.12
	Geographic focus	**-.47*****	.056	.062	**-.35*****	-.17	-.14
	Small cap, δ	**.26*****	-.073	-.043	**.29****	-.048	-.045

Notes: M (SD) at top diagonal, unstandardized Pearson's r correlation coefficients below. Excess return is measured as the annualized average monthly excess return in 2012. Information acquisition behavior was measured on a scale of 1 (never) to 7 (daily). Behavioral market beliefs and risk willingness was measured on a scale of 1 (strongly disagree) to 5 (strongly agree). Company and fund size were measured on a logarithmic scale. Geographic focus was coded as 1=Sweden, 2=Nordic, 3=Europe, 4=Global and 5=Foreign.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Finally, I evaluated the set of research questions using multivariate tests. Model 1 tests the set of research questions separately. Model 2 tests the set of research questions, by controlling for other previously investigated individual factors including experience (e.g., Chevalier & Ellison, 1999; Porter & Trifts, 2012) and education (e.g., Chevalier & Ellison, 1999;

Golec, 1996; Gottesman & Morey, 2006). Model 3 tests the set of research questions, by controlling for the following environmental factors: fund size and management fee (cf. Dahlquist et al., 2000, see Table A3 in Appendix H for a comparison of descriptive statistics), and company size, fund geographic focus and capitalization focus (e.g., Drachter et al., 2007; Ferreira et al., 2013; Otten & Bams, 2002). Model 4 tests the full model (see Figure 18, p. 134). The following models are tested:

Performance = (Information acquisition behavior, Market beliefs, Risk attitude) (1)

Performance = (Information acquisition behavior, Market beliefs, Risk attitude, Experience, Education) (2)

Performance = (Information acquisition behavior, Market beliefs, Risk attitude, Organization size, Fund size, Management fee, Geographic focus, Capitalization focus) (3)

Performance = (Information acquisition behavior, Market beliefs, Risk attitude, Experience, Education, Organization size, Fund size, Management fee, Geographic focus, Capitalization focus) (4)

Table 19 shows the results from the multivariate regression analysis. The first model indicates support for $H1_a$ and $H1_c$, and statistically significant relationships in the opposite direction to $H1_b$. As expected from the univariate analysis, multivariate regressions did not provide support for an impact of market beliefs or risk attitude on fund performance. The multivariate tests provided no support for H2 or H3. The set of H1 hypotheses are robust to adding controls related to the individual (Model 2) or the environment (Model 3). However, the coefficient of information acquisition from sell-side was not statistically significant in the full model

(Model 4), although the direction of the relationship was robust. The main individual factors that were evaluated in this dissertation explained almost 23% of variance in fund performance. Previous research on fund manager determinants have explained about 3% of variance, see Ericsson et al., 2005 and Appendix C. Multivariate tests further show that fund manager individual factors (experience and education) had a small economic impact on fund performance, whereas environmental factors had a large economic impact. Results indicate that the best performing fund managers managed large funds with a local geographic focus, at small fund companies (not banks), and acquired information directly from company management about every other week, but avoided to acquire information from sell-side or buy-side sources too frequently.

Table 19: Multivariate regressions of model

	Excess return			
	(1)	*(2)*	*(3)*	*(4)*
Info. acquisition from sell-side	-.28** (-3.03)	-.31** (-3.24)	-.24** (-2.82)	-.17 (-1.87)
Info. acquisition from buy-side	-.32** (-3.15)	-.31** (-3.09)	-.30** (-3.07)	-.31** (-3.16)
Info. acquisition from company	.44*** (4.33)	.43*** (4.04)	.30* (2.63)	.30* (2.60)
Behavioral market beliefs	.03 (.30)	.02 (.23)	-.00 (-.01)	.05 (.50)
Risk willingness	.02 (.17)	.03 (.36)	-.05 (-.54)	-.05 (-.66)
Individual factors				
Years in finance		.12 (1.18)		-.20 (-1.90)
University degree, δ		.11 (1.13)		-.07 (-.73)
Environmental factors				
Fund size			.46*** (4.20)	.49*** (4.36)
Company size			-.33* (-2.33)	-.37* (-2.63)
Management. fee			-.20* (-2.20)	-.22* (-2.47)
Geographic focus			-.27* (-2.14)	-.30* (-2.38)
Small cap, δ			-.09 (-.76)	-.05 (-.45)
Observations	97	97	84	84
Adjusted R^2	.23	.24	.49	.50
F-statistic	6.86	5.23	8.98	7.95

Notes: Standardized beta coefficients; t statistics in parentheses. See Table 5 (p. 71) and Table 6 (p. 74) for descriptions of variables.
* p < .05, ** p < .01, *** p < .001

Statistical relationships between information acquisition behavior and fund performance were also robust to evaluating (see Table A4 in Appendix H): (1-4) other performance measurements, including alpha, the Sharpe-ratio, the (modified) information ratio and the Morningstar 3-year rating; (5-6) performance measurement in other time periods; (7) using the fund manager equally-weighted returns as the unit of analysis; (8) only evaluating the lead fund manager (the manager that is named first in Morningstar); and (9) only evaluating single-managed funds. Further, there was no statistical relationship between acquisition of written company information and fund performance, as measured in this dissertation (not reported). The robustness checks provide support for $H1_a$ and $H1_c$, but not $H1_b$, H2 or H3. In sum, fund manager information acquisition from company sources had a linear positive impact on fund performance whereas information acquisition from sell-side or buy-side sources had a negative impact on fund performance.

I also tested if the evaluated variables were associated with risk levels of managed fund(s) (see Table A5 in Appendix H). Results indicated, somewhat surprisingly, that acquisition of information directly from companies had a statistical negative relationship with tracking error (active risk) and, less surprisingly, that fund managers were trading more often when in more frequent contact with sell-side sources. Counterintuitively, risk willingness had a somewhat negative association with active risk and active share. In other words, the self-rated willingness to take risk was negatively associated with actual risk taking levels in managed fund(s). The direction was the same regardless if active risk was measured in 2012 (before the questionnaire was sent) or the second and third quarters in 2013 (after the questionnaire was filled in). These results are discussed further in the next section.

7.3.2 Summary and discussion

The main findings were that fund manager information acquisition behavior had an impact on fund performance. No statistical linear relationship was found between fund performance and either market beliefs or risk attitude, although the top 20% (that outperformed the market) had a

somewhat more behavioral view on fund markets than the other 80%. Fund manager information acquisition from sell-side sources and buy-side sources had a negative impact on fund performance. Information acquisition directly from companies had a positive impact on fund performance. These relationships remained after controlling for fund manager individual and environmental factors that has been evaluated in previous empirical studies and in the previous section: experience, education, fund size, company size, management fee, geographic focus and capitalization focus.

The findings supported previous empirical research that has questioned the value of sell-side research (Barber et al., 2001; Frey & Herbst, 2014; Irvine et al., 2007; Kacperczyk & Seru, 2007). It should be noted that most variation between individuals' information acquisition was in direct contact with and reading written material from macro analysts, whereas previous research (which was used to formulate the hypothesis) has examined sell-side equity analysts' recommendations. Further, my study took place in a boom period. Fundamental stock (macro) information has been claimed to be more valuable in boom (recession) periods (Kacperczyk et al., 2014). The sell-side measurement had most variation in use of macro analysts, which could support that the use of sell-side macro analysts were not profitable in a recession period.

My study did not provide support for previous empirical studies that has found buy-side research to have a positive impact on fund performance (Cheng et al., 2006; Frey & Herbst, 2014). But previous empirical research has also shown that buy-side recommendation at one large buy-side firm were not valuable (Groysberg et al., 2008, 2007, 2013), which could indicate that results are specific to the buy-side firms that evaluated fund managers in this dissertation utilized. The results of my study should not be overemphasized though, as only small variation in buy-side acquisition behavior was found and only direct contact with buy-side sources were evaluated in this study (i.e., written recommendations, which was evaluated in previous research, was not part of the buy-side measurement).

My study provided results that are in line with previous empirical studies, which found a positive impact of direct company contact on fund performance (Drachter et al., 2007; Switzer & Keushgerian, 2013).

Drachter et al. (2007) found that only managers of small cap funds benefitted from direct company contact, which was not the case in my empirical study. Fund managers benefitted from company direct contact regardless of the capitalization of the investment companies. Likewise, Switzer and Keushgerian (2013) found that fund managers that invested in foreign markets did not benefit from company visits, whereas my empirical results were not affected by the geographic focus of the managed funds. Cohen et al. (2008) evaluated whether fund manager ties to company executives through shared education were used to earn abnormal returns, based on the following logic:

> There are a number of potential ways information could be moving through networks. First, there could be a direct transfer from senior firm officers to portfolio managers. Second, the networks could simply lower the cost of gathering information for portfolio managers. So, for instance, it may take fewer calls, or people may be more forthcoming with information if they are inside the network. This explanation would be a case in which agents have comparative advantages in collecting certain types of information. Third, it could be that networks may make it cheaper to access information on managers and so assess managerial quality (for reasons similar to those mentioned above). (p. 953)

The results in Cohen et al. (2008) showed that equity fund managers made concentrated bets in companies they were connected to and that these bets outperformed the holdings in which fund managers lacked connections. Cohen et al. (2008) also controlled for geographical proximity and characteristics of the academic institutions, thus showing that results were explained by valuable information through connections and not local advantage (cf. Coval & Moskowitz, 2001) or quality of education (cf. Chevalier & Ellison, 1999). A first explanation of my results could thus be that fund managers obtained valuable private information from company managers, since more frequent access had a positive effect on fund performance. Private information can be profitable according to semi-strong form of efficient markets. But I have not made evaluations of the quality in information that was acquired through company sources. The private meeting between two fund managers and a CEO, described and

analyzed in Chapter 6, did not reveal any insider information, but rather illustrated how fund managers captured information about company strategy and management capabilities. A second explanation could be that company managers provide specific information that cannot be acquired in any other way. Information about ability of company managers can probably be assessed better by meeting the managers. Direct access to company management could thus be valuable information if this information is necessary in sophisticated valuation models (in coherence to weak form efficient markets). A third explanation could be that fund managers are required to meet with company management in order to understand the meaning of accounting numbers, that fund managers can make better predictions or valuations when they have been provided some meaning of the numbers (cf. Åhlblom & Sjögren, 2015). To understand a company and the value drivers it could be necessary to get verbal explanations from the most insightful people of the company. A fourth explanation could be that my study took place in a boom, given that stock fundamentals are said to be more important during booms (Kacperczyk et al., 2014).

The empirical results partly cohere to models in information economics (e.g., Grossman & Stiglitz, 1980; Stigler, 1961). Acquiring processed information from sell-side or buy-side sources are costly and my results indicate that benefits (potential abnormal fund performance) do not outweigh costs (commissions or salaries). Results can also be related to the reasoning of Barker et al. (2012): since fund managers view company meetings as their primary source of information and they are unable to outperform their benchmark on average it is likely that the information is not useful (they conducted no tests of this logic). Recall from Chapter 2 "Background" that active equity fund managers in Sweden underperformed their benchmark indices on average. My study also showed (previous chapter) that companies were viewed as the most important source, but I found that other sources—specifically buy-side and sell-side sources—were used more frequently. Thus, I partly confirm the logic of Barker et al. since I also found that the frequency of information acquisition from buy-side and sell-side sources was negatively linked to fund performance. In other words, fund managers acquired information from buy-side and sell-side

sources most frequently and they underperformed their benchmark on average, the more frequently they acquired processed information the poorer performance. But, in contrast to the logic of Barker et al., in which company meetings was thought to have a negative effect on performance, acquiring information directly from companies was positively related to performance in my study.

Results further indicated that more frequent acquisition, in general, had a negative impact on fund performance. Previous empirical research have shown that fund managers acquire more information to reduce uncertainty (Coleman, 2015; Hellman, 2000). Oskamp (1965) showed that acquiring more information increased confidence in decisions, but actually led to worse decisions. It can thus be speculated that fund managers that are uncertain in their decisions acquire more information which make them more certain in their decisions without improving decisions. Reliance on less information can thus be a proxy for skill.

My study provided mixed evidence of the impact of fund manager market beliefs. Fund managers viewed markets as in between fundamentally and psychologically driven. There was no statistical linear impact of behavioral market beliefs, but there was an indication that the best performing fund managers had a somewhat more behavioral view. On the other hand, a positive impact of acquiring information from company management is consistent with a view of markets as fundamentally-driven. Potentially, fund managers need to be flexible and open to both views. It could also reflect that a division of markets as either fundamentally driven or behaviorally driven is an oversimplification. It should also be noted that even if (neoclassical or behavioral) finance theories concern investors (including fund managers), they are on aggregated levels. Markets are the aggregate of individuals and market prices are determined by the marginal investor. Individual behavior cannot be inferred from aggregated market behavior, although attempts have been made (see Fenton-O'Creevy et al., 2004; Frydman & Camerer, 2016 for excellent reviews). Fenton-O'Creevy et al. (2004) discussed different theoretical perspectives on aggregated market behavior and examined how traders (arbitrageurs) behaved on individual levels and linked it to theories of market behavior. Traders, as arbitrageurs, are one of the foundations for assuming that markets are

efficient (because arbitrageurs correct mispricing). Fund managers are not necessarily arbitrageurs, but they do seem to play an important role in possibly keeping markets efficient or in creating market anomalies, by partly relying on fundamental information, partly relying on psychological impacts on markets.

My study found no evidence of a statistical relationship between risk attitude and fund performance, which was in line with previous studies of other actors or in other domains (e.g., Brockhaus, 1980; d'Astous & Gaspero, 2013; Fenton-O'Creevy et al., 2004; Willebrands et al., 2012). However, it did reveal a counterintuitive negative relationship between willingness to take risk and actual risk taking. One potential explanation to this counterintuitive result could be that the fund managers that deviated more from their benchmark indices considered that they were more risk averse, because they were in fact more certain in the deviations they made. Penman (2007) argued that for a fundamental investor, the more stock prices deviate from fundamental value the higher chance of Alpha making abnormal returns and the less risky investment. Empirical research has also shown that low beta stocks (i.e., low risk investments) outperform high beta stocks (i.e. high risk investments), arguably because institutional investors buy high beta stocks, as theory suggests, and consequently make high beta stocks too pricey (M. Baker, 2016). Potentially, institutional investors are also restricted from investing in low beta stocks (ibid.). It would have been relevant to have tested if fund managers faced risk limits, but fund annual reports did not reveal risk restrictions of fund managers. Actual tracking error levels of the fund were often reported in the fund annual report, which at least indicated that fund managers were aware of their tracking error levels. It should be noted that in sociology and psychology it has been heavily debated whether attitudes predict behavior (e.g., Ajzen & Fishbein, 1977; Kim & Hunter, 1993; Kraus, 1995). Higher specificity, or attitudinal relevance, has been argued to have stronger predictive values (Kim & Hunter, 1993; Kraus, 1995). My study measured fund manager risk attitude in fund management and active risk taking behavior in managed funds and was thus expected to be strongly related. The negative association between risk willingness and risk taking can thus question the risk attitude measurement (cf. Sjöberg, 2000; Wärneryd, 1996).

Finally, my study evaluated fund performance net of fees. Active fund managers have been found to possess stock picking abilities (e.g., Chen, Jegadeesh, & Wermers, 2000; Daniel et al., 1997; Grinblatt & Titman, 1989; Wermers, 2000), but added value did not offset costs of active management (i.e., management fees and commissions). Results might thus have been different if I evaluated stock-picking ability. I focused on fund performance net of fees, because information acquisition costs are charged to the fund and thus have a direct impact on returns of actively managed funds.[61]

Like most scientific research, my study has weaknesses and limitations. The univariate and multivariate tests are based on assumptions of linear relationships, even though the assumptions for OLS estimations are not fulfilled. I have for example evaluated fund-manager combinations (thus there is dependence between observations) and I have included endogenous factors (such as management fee). But robustness checks of lead fund manager or single managed funds indicated that violation of assumptions was not a problem. I have also evaluated quintiles, which do not rely on linear assumptions. Further, my study has evaluated variation in performance. In other words, active equity fund managers have been evaluated in relation to each other. A great majority (65 percent) of the evaluated funds underperformed their benchmarks, so my study mainly explained poor performance. However, the top performance quintile outperformed their benchmark so determinants of outperformance were also identified. Additionally, the measurements that were used can be questioned, for example the confirmatory factor analysis (Table 14, p. 118) indicated a weak good fit of the division of sources of information, the buy-side sources could have consisted of more than one variable (such as written material from buy-side analysts and a division into fund manager and internal buy-side analysts), the market beliefs construct had a low internal consistency, and risk attitude could have been measured differently (cf. Sjöberg, 2000; Wärneryd, 1996). Admittedly I have used few observations for multivariate regressions, although the number of actively managed funds was in line with previous Swedish evaluations (cf. Bodnurak & Simonov, 2015; Dahlquist et al., 2000; Flam & Vestman, 2014). My study

[61] Commissions are typically not part of management fees, but they impact fund performance as they are charged to the fund (and thus have a direct impact on fund returns)

evaluated shorter time-series, did not contain panel data (fund characteristics measured at several points in time) and was not free of survivorship bias. However, I have evaluated the full population of actively managed equity funds in Sweden in early 2013 (see section 2.5 "Description of the population examined in this dissertation"). Even if the observation points are few, the questionnaire data reflects half of the population and is representative for Swedish active equity fund managers. Additionally, my study has included funds regardless of geographic focus by using individually-matched benchmarks. Moreover, my study has provided links between fund manager data and fund performance data (as a result, a shorter evaluation period was required). My study provides insight into the impacts of active fund management on fund performance, by the use of a unique dataset which is highly representative of actual active equity fund managers in Sweden.

7.4 Responses to research questions and scientific contributions

Table 20 provides a summary of all hypothesis and testing results, the research questions are repeated below along with the answers.

Table 20. Summary of hypotheses testing results

Hypothesis		*Findings*
$H1_a$.	Fund manager acquisition of information from sell-side sources has a negative impact on fund performance.	Supported
$H1_b$.	Fund manager acquisition of information from buy-side sources has a positive impact on fund performance.	Not supported
$H1_c$.	Fund manager acquisition of information directly from companies has a positive impact on fund performance.	Supported
H2.	Fund manager beliefs in behavioral markets have a positive impact on fund performance.	Not (or weakly) supported
H3.	Fund manager risk willingness has a positive impact on fund performance.	Not supported

RQ3$_a$. What is the impact of equity fund manager information acquisition behavior on fund performance?

Based on a questionnaire study that was linked to archival data about managed funds, it was shown that the frequency of direct contact with companies had a positive impact on fund performance. The finding was mainly driven by the fact that fund managers with worst fund performance also made least use of company sources. Fund managers that most frequently acquired direct company information did not have the best performance—acquisition of company information about every other week seemed to be the most beneficial. The use of sell-side sources and buy-side sources had a negative impact on fund performance. The relationships were statistically significant and remained after controlling for experience, education, fund size, company size, management fee, geographic focus and cap focus. Results were further robust to different performance measurements, unit of analysis, and different time periods.

RQ3$_b$. What is the impact of equity fund manager market beliefs on fund performance?

Based on a questionnaire study that was linked to archival data about managed funds, is was shown that fund managers that tended to hold behavioral market beliefs also tended to have higher fund performance, but there were no statistically significant linear relationships between fund performance and fund manager market beliefs.

RQ3$_c$. What is the impact of equity fund manager risk attitude on fund performance?

Based on a questionnaire study that was linked to archival data about managed funds, is was shown that there was no statistical relationship between fund performance and fund manager risk attitude, as measured in this dissertation. There was a somewhat negative association, which was not statistically significant, between fund manager willingness to take risk and actual risk taking levels of managed fund(s). It was hypothesized to reflect

that fund managers made informed deviations from their benchmark, which was perceived as risk aversion in fund management.

◆ ◆ ◆

The documented relations can be generalized to all active responsible equity fund managers registered in Sweden, since there was no statistical difference in performance between the fund managers that participated in the questionnaire study and those that did not. First, the empirical study attempts to contribute to Dracther et al. (2007) and Switzer and Keushgerian (2013) in confirming their results of a positive relation between use of direct company contact and fund performance. My study confirmed the results of Drachter et al. (2007) using a similar research design but on a known population and using additional performance measurements. My study also adds to Drachter et al (2007), by showing that acquisition of processed information (from sell-side or buy-side sources) had a negative impact on fund performance. The results also relate to previous studies on the value of sell-side (e.g., Asquith et al., 2005; Barber et al., 2001; Frey & Herbst, 2014; Jegadeesh et al., 2004; Kacperczyk & Seru, 2007) or buy-side research (e.g., Cheng et al., 2006; Cici & Rosenfeld, 2016; Crawford et al., 2012; Frey & Herbst, 2014; Groysberg et al., 2008, 2007, 2013). The findings contradict previous research that has found buy-side to make valuable recommendations (Cheng et al., 2006; Frey & Herbst, 2014). Previous empirical studies focused on buy-side recommendations whereas my study focused on direct acquisition through personal contact from any buy-side source. In my study the great majority acquired information from buy-side sources on a daily basis. Nevertheless, my study adds some nuance to previous research by showing that frequent acquisition of processed information might actually erase fund value.

Second, my study aims to contribute to previous research on relationships between fund performance and fund manager individual factors (e.g., Chevalier & Ellison, 1999; Cohen et al., 2008; Gottesman & Morey, 2006; Pool et al., 2015) by showing that individual information acquisition behavior of fund managers explained fund performance, but market beliefs and risk attitudes, as measured in this dissertation, did not.

8 Discussion of results

This chapter summarizes the main results of this dissertation, provides answers to the research questions and discusses the scientific contributions and practical implications of this dissertation. In addition, this chapter addresses the strength and weaknesses of this dissertation.

8.1 Main results and responses to research questions

This dissertation was motivated by the paucity of research into the individuals that actively manage equity funds. Their decisions have great impact for private households' pension-savings, fund savers' wealth and publicly-listed companies' access to capital. It explored the impact of information acquisition behavior, market belief and risk attitude on fund performance among fund managers of actively managed equity funds in Sweden.

This dissertation consisted of three parts. First, an exploratory study was used to evaluate how individual fund managers acquired information in their daily work. The exploratory approach built on direct observations and in-depth interviews. It identified differences between individuals in regards their information acquisition behavior. Second, a descriptive study was used to evaluate if the findings from the exploratory study could be generalized. The descriptive study built on a questionnaire that was sent to all active equity fund managers in Sweden in early 2013 and designed to implement findings from the exploratory study. The sample had high representability, because the questionnaire had a response rate of over fifty percent and there was no statistical difference in performance between respondents and

non-respondents. The second part also evaluated relationships with individual market beliefs and risk attitude. Third, a causal study was used to evaluate if information acquisition behavior, market belief and risk attitude, as measured in this dissertation, had an impact on fund performance. The causal study relied on archival data that was linked to the questionnaire study on an individual level. The third part used control variables, different performance measurements and different ways of linking individual fund managers to managed fund(s) to evaluate the robustness of the results. The responses to the research questions were as follows.

> **RQ1.** How do equity fund managers acquire information in their daily work and why?

Results from direct observations of four equity fund managers and interviews with six equity fund managers showed that equity fund managers in Sweden acquired information through four main sources: sell-side, buy-side, company and news feed. Results of questionnaire responses from 71 fund managers showed that equity fund managers in Sweden differed in how they acquired information from sell-side, buy-side and companies. Some identified reasons were individual experience and perceived value of processed information as well as environmental factors (namely fund size, geographic focus and small cap focus).

> **RQ2.** What are the relationships between equity fund managers' information acquisition behaviors, market beliefs and risk attitudes?

Results of the questionnaire responses from 71 fund managers showed that equity fund managers in Sweden tended to hold fundamental views of markets and were not willing to take risk, but divergence between individual fund managers was found. However, those differences were not associated to information acquisition behavior. There were no statistically significant relationships between information acquisition behaviors, market beliefs or risk attitudes.

> **RQ3$_a$.** What is the impact of equity fund manager information acquisition behavior on fund performance?

Information acquisition behavior was measured as information acquisition from (1) sell-side, (2) buy-side and (3) company. Evaluations of 71 questionnaire responses linked to archival data of 191 funds showed that acquisition of information directly from companies had a positive impact on fund performance. However, fund managers that had the most frequent contact with company management did not perform the best. Results showed that direct contact with company management about every other week was the most beneficial. Acquisition of information from sell-side or buy-side sources had a negative impact on fund performance. Linear relationships were significant and remained after controlling for fund manager experience, fund manager education, fund size, fund company size, fund geographic focus and fund management fee. The findings were robust across different time periods and other performance measurements. It should be noted that the evaluated active equity fund managers in this dissertation, on average, underperformed their benchmark indices, which indicate that the linear relationships foremost explained different degrees of underperformance.

> **RQ3$_b$.** What is the impact of equity fund manager market beliefs on fund performance?

Evaluations of 71 questionnaire responses linked to archival data of 191 funds showed that fund manager behavioral market beliefs was somewhat positively associated with better fund performance. However, in linear evaluations there was no support for statistically significant linear relationships between fund performance and fund manager market beliefs.

> **RQ3$_c$.** What is the impact of equity fund manager risk attitude on fund performance?

Evaluations of 71 questionnaire responses linked to archival data of 191 funds showed that willingness to take risk had no statistical relationships

with fund performance. There was a tendency that higher risk willingness was associated with lower active risk and active share in managed funds, which was not statistically significant. Risk attitude of fund managers had little effect on fund decisions and fund performance as measured in this dissertation.

8.2 Scientific contributions

8.2.1 Fund managers

This dissertation has had an interdisciplinary approach and aims to contribute to, on the one hand, previous empirical research of fund manager decision-making behavior, and, on the other hand, previous empirical research of fund manager performance. But first, this dissertation attempts to show that it is beneficial to bridge the two literatures to find new insights. As such, this dissertation attempts to make a methodological contribution, as the research design implemented a rich body of methods in order to bridge the two literatures.

Second, this dissertation attempts to contribute to previous empirical research into fund manager decision-making behavior (e.g., Chong & Tuckett, 2015; Coleman, 2015; Drachter et al., 2007; Eshraghi & Taffler, 2015; Holland, 2006, 2016; Menkhoff, 2010; Tuckett & Taffler, 2012). The empirical results of this dissertation are consistent with previous findings that fund managers are overwhelmed with information. The empirical results add to previous research by showing that individuals differ in how they acquire information in their daily work, their market beliefs and their risk attitudes. I argue that information acquisition behavior is an individual factor, because humans are different in how they acquire information. It is an important part of the decision-making process of individuals. People differ in whether they prefer verbal or written information, information from one source or several sources, etc. Additionally, given that fund managers have been shown to face an abundance of information, they cannot acquire all information and are required to make decisions about what information to acquire. However, information acquisition behavior can be argued to be a proxy for something else (unrelated to the individual).

For example, if there are no buy-side sources within the organization, a fund manager cannot acquire information from buy-side sources. If a fund manager manages a fund that invests in a foreign geographic market, the fund manager might not be able to access information directly from company management. The multivariate tests thus included a number of controls to eliminate this possibility and thus supported that information acquisition behavior was a factor related to the individuals that actively manage funds.

Second, this dissertation attempts to contribute to previous empirical research that has evaluated fund manager performance (e.g., Chevalier & Ellison, 1999; Christoffersen & Sarkissian, 2009; Cohen et al., 2008; Coval & Moskowitz, 2001; Golec, 1996; Gottesman & Morey, 2006; Hong et al., 2005; Pool et al., 2015). Previous empirical research has rested on the assumption that some fund managers are better able to gather and analyze information (e.g., Chevalier & Ellison, 1999), but this underlying assumption has not itself been tested. This dissertation engages with this underlying assumption, and finds that some fund managers were better able to acquire information. The information acquisition behavior of individual fund managers can, as such, be interpreted as an individual skill component, where skilled fund managers are capable of trusting solely in direct information from company management. Since fund managers can only impact probabilities of abnormal performance (future company and stock outcomes are uncertain), acquiring information from company management can be a proxy for ability to find pieces of valuable information in an uncertain information environment. Likewise, acquiring information too often or from too many sources can be a proxy for an unskilled fund manager that is not able to independently make inferences, identify valuable information, or that needs acquire more information to get (unjustified) confidence in his/her decision (cf. Oskamp, 1965). It should also be mentioned that fund performance variation was mainly explained by environmental factors, including fund size, company size and geographic focus, rather than other individual factors, including risk attitude, market beliefs, experience, and education, measured in this dissertation. Furthermore, this dissertation painted a dark picture of a world in which few fund managers outperformed the market (in accordance to the efficient

market hypothesis). But, a glimmer of light was found: Active equity fund managers found Alpha, based on their acquisition of information directly from company management.

Additionally, as this dissertation has focused on information acquisition from three main capital market actors it also addresses a third stream of literature. This dissertation thus attempts to contribute to previous empirical research that has focused on the information value and dissemination/flows between buy-side, companies and sell-side (e.g., Barker et al., 2012; Barker, 1998; Drachter et al., 2007; Frey & Herbst, 2014; Groysberg et al., 2008, 2007, 2013; Imam & Spence, 2016; Kacperczyk & Seru, 2007; Switzer & Keushgerian, 2013). It was empirically shown that frequent acquisition of processed information, from buy-side or sell-side, had a negative impact on fund performance. These three actors seem to be important for efficient markets, by disseminating information among market participants and thus actually making this information less valuable.

Finally, this dissertation has focused on actively managed equity funds in Sweden. Thus, this dissertation attempts to contribute to previous empirical studies of Swedish funds (Dahlquist et al., 2000; Flam & Vestman, 2014) and Swedish fund managers (Bodnaruk & Simonov, 2015; Hellman, 2000; Henningsson et al., 2015; Henningsson, 2009). Cross-sectional differences in fund performance of active equity fund managers in Sweden was demonstrated to relate to fund size, management fee, geographic focus, and information acquisition behavior of individual fund managers.

8.2.2 Market behavior

This dissertation has examined how one important type of capital market investor acquired—potentially valuable—information. The efficient market hypothesis stipulates that markets are efficient and reflect all available information. This dissertation has presented research findings that are compatible with the efficient market hypothesis, by showing how information was efficiently disseminated between different capital market actors. Specifically, fund managers acquired fundamental information about companies from within the fund company firm, directly from companies

and from sell-side sources. Several sources that analyze and disseminate capital market information were used. My exploratory study also illustrated how participating fund managers, in their daily work, followed the news feed to keep themselves informed about recent events, even though they claimed that they had little chance in reacting on news. Empirical findings indicated that buy-side and sell-side firms were important in keeping markets efficient. Fund managers seemed to rely on buy-side and sell-side sources, as they were shown to have a systematic impact on fund performance.

This dissertation further analyzed whether valuable information could be obtained by individual fund managers. In the strong form of efficient markets, investors cannot systematically outperform markets, in the semi-strong or weak form of efficient markets, investors can obtain valuable information or conduct advanced valuations and thus systematically outperform markets. In behavioral finance, investors' psychological mechanisms cause anomalies and deviations from efficient markets and investors can systematically beat the market by understanding the psychological aspects of market behavior (rather than company fundamentals). This dissertation has empirically provided evidence that mainly supports the semi-strong form of efficient markets. The empirical results indicated that fund managers could only systematically beat the market by acquiring private (or insider) information directly from companies. Results from the qualitative studies indicated that fund managers did not receive insider information from company management. In the next section, I discuss potential reasons for this relationship, relying on theories of fundamental valuation. It should also be noted that results indicate that markets are temporarily mispriced, in a process where company management provides private information which markets later reacts on (for example, after dissemination through sell-side sources). Previous research has shown that sell-side analysts, buy-side analysts and fund managers considered direct information from companies as their most important source of information—but, nevertheless, fund managers acquired information from buy-side or sell-side analysts, and buy-side analysts acquired information from sell-side analysts (e.g., Barker, 1998; Imam & Spence, 2016). Speculatively, fund managers acquire information

that company management provide, but at different time lags depending on the information source, where the only profitable source is the source without time lag (i.e. company managers).

Finally, it should be mentioned that the top performing quintile of fund managers (those who outperformed the market) tended to believe in behavioral markets. It was a statistically significant difference between their beliefs and those of the bottom quintile of fund managers. The bottom quintile substantially underperformed their benchmark indices and tended to view markets as fundamentally driven (i.e. efficient). One can speculate that markets at times are more fundamentally driven and at times are more behaviorally driven, thus creating a need for fund managers to be open to both possibilities.

8.2.3 Company valuation

Given that this dissertation has provided empirical findings that largely support a semi-strong view of efficient markets, fund managers are advised to pick stocks based on fundamental valuations. The results from the empirical studies indicate that in order to find Alpha, fund managers should acquire information directly from companies. I also tested if the frequency in acquisition of written information from companies had an impact on fund performance, but found no statistical relationship (however, written information is released sporadically and the proxy for acquisition of written information had flaws). It should be noted that acquisition of information directly from company management was only beneficial up to a point, after which fund performance was worse. In other words, the capital market information environment seems to be such that valuable information is obtained by meeting company managers about every other week. Less frequent or more frequent acquisition had a negative impact on performance. Acquiring information directly from company managers is time-consuming and focused on one specific company. The empirical material indicated that sell-side or buy-side sources were used to acquire information that initially was obtained directly from company managers, and thereby the fund managers could follow several companies simultaneously. But such a strategy was less valuable. More frequent

acquisition of information from sell-side sources or buy-side sources had a negative impact on performance. There could be a number of reasons for the results and the implications for fundamental valuation theories.

First, the information quality can be much higher when obtained directly from management. Supposedly, processed information can obtain noise that draws attention from any valuable information. The "broken telephone" game can be used as an analogy: children (or adults) form a chain, with the first person whispering a message that the rest then pass on. The message becomes noisier after every person it goes through. The final message is often entirely different from the first message. Similarly, sell-side or buy-side sources can distort the initial information that company management provided.

Second, there could be specific information that can only be acquired directly from company management (such as company strategy or management capabilities), which can reflect that some fund managers use better fundamental valuation models which implement value-driving information. The results thus have implications for fundamental valuation theory in that models need to implement "soft" values that can only be captured in direct contact with company management. Similarly, it could be that discussions with company management are required to interpret or create meaning of accounting numbers (cf. Åhlblom & Sjögren, 2015). In other words, investors need to meet with company managers in order to understand the meaning of the numbers that they put in the valuation model.

Finally, it should be mentioned that analysts, brokers or other intermediaries might still play an important role in keeping markets efficient—without them fundamental valuations might be of no use at all (as discussed in the previous section).

8.3 Practical implications

First, this dissertation has implications for practitioners, because it illustrates that the information acquisition behavior of individual active fund managers have an impact on the fund performance. Fund managers and fund manager organizations need to consider the costs of information

acquisition and relate it to the potential added value when actively managing equity funds.

Second, this dissertation has implications for society and fund investors. Fund manager performance has vital implications for future pensions of the citizens in societies. This dissertation can be used to get an increased understanding of the daily working life of individuals that actively make equity decisions that affect fund savers' wealth and societies' pension savings. This dissertation, however, shed some doubt on the benefits these fund managers provide. It is a possibility that fund managers are restricted so that they cannot create, or destroy, value as their willingness to take risk had no impact on fund performance. Another possibility is that value cannot be created by active fund management, if stock markets are (strong form) efficient. It should be noted that I have only evaluated 12 months of performance data (45 months for robustness checks), whereas pension savings are managed for many, many years. For this dissertation, it was not possible to evaluate behavior for that long period as it would require panel data for many years. Nevertheless, there were few equity fund managers with tenure track that long, thus making any scientific inquiry into the value of pension fund management hard.

Third, the results have implications for publicly-listed companies and their managers as fund managers are among the main capital providers. Fund managers are the ones deciding which companies should get capital, capital which in turn is used to pay salaries to its employees (i.e. society citizens). Fund managers gained on direct contact with company management, and it thus seems that company management need to communicate directly with their investors.

8.4 Strength and weaknesses

In this section, I evaluate the body of methods upon which this dissertation's findings relies. The observation study provided unique insights into the daily work of active equity fund managers. The results would have been more reliable if I could have observed more days or more fund managers. However, it is rare to gain access through direct

observation and my study took small steps in increasing our understanding of the daily work of active equity fund managers.

The interview study is the weakest in this dissertation, in retrospect a structured interview guide would have assured that the same topics were covered in all interviews, a recorder would have improved reliability substantially and facilitated (future) analysis of the material, and more interview subjects would have increased the generalizability. But the interview study was intended to be exploratory, thus I did not write a structured interview guide that would have restricted findings; I wanted to ensure honest answers, and thus did not use a recorder that could have inhibited the respondents; and I used a questionnaire to test my results on the full population of active equity fund managers in Sweden. Regarding the recorder, the interviews did not reveal any sensitive information and thus, in retrospect, there was no benefit to conduct interviews without a recorder. Nonetheless, the interviewees may have been less forthcoming had they known that they were being recorded.

The questionnaire data provided unique insights by the individual identifier that was included and since I also received such a high response rate from the actual subjects of interest, the questionnaire is the greatest strength of this dissertation. The efforts that I made to ensure that fund managers would respond (three possible ways to answer, all easily accessible, short questionnaire sent personally by snail-mail, and the handwritten signature on the request to participate along with my business card) probably increased the response rate. However, in retrospect I would have posed and framed my questions differently. First, I would have used checks, such as whether the respondent made portfolio decisions, the most important task of the respondent and to name the (eventual) benchmark index and other environmental variables that could be validated with the archival method. Second, I would have made some alterations regarding the measurements, such as including questions that would reveal risk preferences, information acquisition from buy-side written material and assured that the questions were framed to capture information acquisition. Third, I would have added questions about risk limits, perceptions of information overload and joint interpretations of investment objects and markets. Evaluations of other populations (other markets) or replications in

later time periods would benefit the empirical investigation, but it should be noted that equity fund managers are difficult to access and sending a questionnaire to other countries or repeating the study in Sweden would not guarantee as many responses. Telephone surveys could yield good response rates and could be linked individually, but are even more time-consuming. Within the scope of the dissertation project, the measures undertaken to increase likelihood of response rate of the Swedish population and the gathering of archival data was demanding enough. Again, each responding fund manager was personally addressed in order to assure high response-rates.

Similarly, the archival methods would have been more useful if I included other populations or if I collected data for several years, but the strength of this dissertation is the link to the questionnaire data. There was no point in collecting archival data that could not be linked to the questionnaire responses.

In this dissertation, I have not investigated cognitive processes such as information overload. I believe that further insights can be made by studying fund managers using for example verbal protocols, experience sampling or experiments to establish a link between information acquisition and actual decisions.

8.5 Future research

In this thesis, I have employed an individual perspective to study professional equity investors. As has been illustrated, individuals behaved differently and links were found to fund performance. I thus propose using an individual perspective to study other aspects of decision-making behavior and performance, such as the role of individual cognitive processes (e.g., evaluation or interpretation of information), personal traits (personality) and/or emotions.

In recent years, there has been a growing trend in active fund management, where machine-learning algorithms are used for digital automatic management (Wigglesworth, 2016). Algorithms can handle information overload, but would not be able to capture information that is transferred in direct contact with company management. A potential future

project could be to evaluate if algorithms can become expert stock market investors.

Lastly, I propose to test if findings hold for other time periods, other countries or other professional equity investors.

9 References

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10 Appendices

Appendix A. Finance glossary

Term	*Description*
1-factor alpha	Intercept in regression of fund returns on market proxy
3-factor alpha	Intercept in regression of fund returns on market proxy, small factor and value factor. Also referred to as Fama-French-alpha
4-factor alpha	Intercept in regression of fund returns on market proxy, small factor, value factor and momentum factor. Also referred to as Carhart alpha
Alpha	Higher expected returns than those implied by systematic risk taking (i.e. returns from the market portfolio)
Benchmark index	A portfolio of securities, often the market index/portfolio, which is used to compare (benchmark) returns to
Buy-side	Fund organization that buys services from sell-side
Closed-end fund	A fund with specified dividends, the fund units are predetermined and the fund can only be traded
Commission	The fee for trading. Typically, sell-side investment analysis is paid for by trading with that sell-side firm
Equity	Stock or shares are also common names for a part in a company
Equity fund	Invests (90%) in listed stocks and other securities
Excess return	Fund returns in excess of benchmark returns (can sometimes refer to excess of risk-free rate of return)
Fund	A fund pools money from several investors and invests in securities
Fund-in-fund	A fund that invests in funds
Index fund	A passively managed fund that mimics a market portfolio
Macro	Refers to news about the whole economy (specifically interest rates, unemployment, currencies)
Market portfolio	The tangent of the capital allocation line on the efficient frontier (CAPM)
Market proxy	Used as a proxy for the market portfolio
Mutual fund	A fund pools money from several investors and invests in securities (mutual is used in the US to indicate that is sold to the public)
Open-end fund	A fund with fund units that investors can sell at any time (thus diminishing the total assets of the fund)
Outperformance	Higher risk-adjusted performance than zero (also referred to as positive abnormal performance)
Risk-free rate	An investments with zero risk, usually T-bill as governments are assumed and have no risk of default
Sell-side	The sell-side refers to a firm selling investment services. A sell-side firm usually consists of brokers, analysts and traders.
Top-down	In the top-down approach, investors first analyze macroeconomic information and makes decisions about sector weights and asset allocation
Traders	Traders execute orders
UCITS	Undertakings for Collective Investment in Transferable Securities - the European legislation of funds
Underperformance	Lower risk-adjusted performance than zero

Appendix B. How to evaluate fund performance

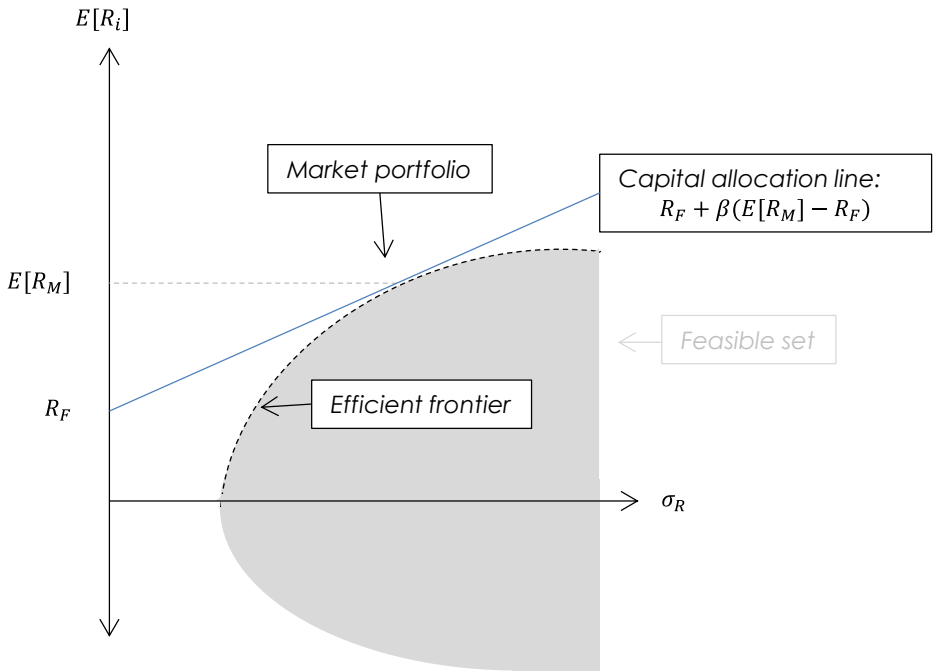
Background

Investing in stock markets is to make a decision about an unknown future outcome (Clemen & Reilly, 2001). The likelihood of an (undesirable) unknown outcome is referred to as risk. In financial markets, risk is often measured in terms of volatility (standard deviation) of returns. Naturally, higher risk should be compensated with higher expected returns. This is also the reason for taking risk into account when evaluating performance, instead of just comparing absolute returns. Even in the first performance evaluation study, Cowles (1933) had a sensed performance needed to be benchmarked to something (namely, a random selection of stocks). As finance theory developed in the 1950s and 1960s, the random selection of stocks was replaced with a stock market index, i.e. the (weighted) average of (selected) stocks. The concept of a stock market index, or a market portfolio, stems from Markowitz's (1952) ground-breaking work on diversification, and the extended work by Sharpe (1964), Lintner (1965), and Mossin (1966) on capital asset pricing.

Given that investors have two objectives—to maximize returns on investments and to minimize the variance of the returns (*ceteris paribus*)—Markowitz (1952) developed what is now referred to as the modern portfolio theory*;* a theoretical understanding of how investors should construct portfolios of assets with regard to risk. Portfolios with different expected returns can be created, but only the ones with the least uncertainty, given the expected return, can be considered efficient. In Figure A1, the gray area illustrates the feasible investment set available to the investor and the dashed line illustrates all efficient portfolios; for all other portfolios within the feasible set, we can find an efficient portfolio at the same risk level but with a higher expected return or with the same expected return but at a lower risk level. To achieve these efficient portfolios it is important to diversify the positions in the portfolio. Greater diversification of securities is reached by including more, and uncorrelated, positions (Markowitz, 1952).

The work of Markowitz (1952) was extended by Sharpe (1964), Lintner (1965), and Mossin (1966) into the capital asset pricing model (CAPM), which in turn laid the foundation for portfolio performance evaluation. By introducing a risk-free asset[62], the most efficient portfolio can be defined as the tangency of the (solid) capital allocation line on the efficient frontier in Figure A1. This portfolio is referred to as the market portfolio, the market index or the benchmark index and the feasible set reflects the (stock) market universe. A market portfolio consists solely of risky assets from the feasible set, but investors can include (borrow/go short in) risk-free assets and thereby create portfolios with lower (the same) risk but the same (higher) expected return as portfolios on the efficient frontier. Portfolios with more exposure to the risky assets are thus expected to be more volatile.

Figure A1. The Capital Asset Pricing Model (CAPM), own illustration inspired by Lintner (1965: 19)



[62] Often a government bond, or a T-bill, with negligible risk of default

To measure fund performance, fund returns need to be adjusted for market portfolio returns. As illustrated in Figure A1, the CAPM can be used to calculate an expected return:

$$E[R_i] = R_F + \beta(E[R_M] - R_F) \quad (1),$$

where $E[R_i]$ is the expected (*ex-ante*) return, R_F is the risk-free rate of interest[63], β is the sensitivity of the asset to the market, and $E[R_M] - R_F$ is the expected return of the market portfolio less the risk-free rate of interest.

Theoretical performance measurements

By making some rearrangements and adjustments in Equation (1, Jensen (1969) evaluated portfolio performance by estimating, in a regression, the intercept α_p:

$$(R_p - R_F) = \alpha_p + \beta(R_M - R_F) + \varepsilon_p \quad (2),$$

where $R_p - R_F$ is the (*ex-post*) return of the evaluated fund portfolio less the risk-free rate, $R_M - R_F$ is the market index return less the risk-free rate, β is the sensitivity of the fund portfolio to the market index, and ε_p is the error term of the regression. Alpha (end epsilon) is expected to be zero (so that Equation 1 and 2 are equal). A positive (negative) alpha, i.e. the intercept, is interpreted as outperformance (underperformance), abnormal performance, or risk-adjusted performance. Jensen (1969) reasoned that investors could systematically earn higher or lower returns than the market portfolio and by estimating alpha this systematic abnormal performance was captured.

Benchmark-adjusted evaluation models have however been criticized for being sensitive to the choice of the benchmark (Ferson, 2010). Roll

[63] By definition, $R_F = E[R_F]$ (since the return is risk-free the expected return is the same as the actual return)

(1978) showed that evaluated alphas differed substantially depending on how the market index was defined (e.g., value-weighted or equally-weighted). Benchmark errors (Roll, 1981), i.e. when a benchmark index does not reflect actual (true) market risk, provides false alphas. Mayers and Rice (1979) however argued that if only mean-variance efficient indices were allowed, superiority could never be detected. If information advantage causes superiority, a better informed investor should systematically perform above the security market line (*ibid.*).

Empirically justified performance measurements

Other benchmark-adjusted measures include three- and four-factors alphas, which are empirically justified rather than theoretically motivated. Fama and French (1993) documented that stock-market returns were related to firm size and book-to-market ratio in addition to a market portfolio proxy. 3-factor alphas (see equation 3) are estimated from benchmarks based on zero-cost portfolios: a small size minus big size zero investment portfolio and a high book-to-market minus low book-to-market zero investment portfolio. In addition, Jegadeesh and Titman (1993) demonstrated that buying stocks with high returns in previous periods and selling stocks with poor returns in the same periods yielded abnormal returns—which was named momentum. Carhart (1997) then constructed a four-factor model (see equation 4), that additionally included a momentum factor, winning (prior-period) stocks less losing (prior-period) stocks zero investment portfolio, to the Fama-French three-factor model. The equations are presented below:

$$\left(R_p - R_F\right) = \alpha_p + \beta_m(R_M - R_F) + \beta_{smb}\mathrm{SMB} + \beta_{HML}\mathrm{HML} + \varepsilon_p \quad , \tag{3}$$

$$\left(R_p - R_F\right) = \alpha_p + \beta_m(R_M - R_F) + \beta_{smb}\mathrm{SMB} + \beta_{HML}\mathrm{HML} + \beta_{WML}\mathrm{WML} + \varepsilon_p \tag{4},$$

Survivorship, omission and selection bias

Since the 1990s, fund performance evaluation literature has been concerned with how to handle effects of survivorship bias (Elton, Gruber and Blake, 1996, 2001). Survivorship bias refers to the problem that poorly performing managers tends to be terminated. These funds were often omitted in earlier fund evaluation studies, so that only survivors, the ones that were (ex-post) successful, were included in, thereby, biased samples (Brown et al., 1992). Problems of survivorship bias have been handled using survivorship free datasets (i.e. include all funds, even the dead ones). However, problems of omission bias (Elton, Gruber and Blake, 2001), poorer performing funds are terminated and thus are without future return data, are impossible to overcome.

The size of survivorship bias has been estimated by comparing return data of surviving funds to return data of terminated funds. Grinblatt and Titman (1989) estimated the size of survivorship bias to between 10 and 40 basis points on average (or less than 50 basis points) per year using hypothetical gross returns. Elton et al (1996) argued that most attired funds were actually merged in the same fund family and estimated the bias by evaluating merged returns. They estimated survivorship bias in the size of about 70 basis points per year. Survivorship bias among Swedish equity funds—calculated as the difference between returns among survivors and liquidated or merged funds—has been estimated to between 60 and 70 basis points per year (Dahlquist et al, 2000).

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Appendix C. Literature review, (1) decision-making behavior of equity fund managers

Study and purpose	Participants	Method	Main findings	Field
Holland (2006): To explore how fund managers deal with uncertainty in their decisions	40 UK equity fund managers	Interviews	Fund managers had problems in implementing finance theory. Instead, fund managers used private, qualitative information concerning intellectual, or intangible, capital in valuing companies and making decisions.	Accounting (Finance)
Drachter, Kempf & Wagner (2007): To examine decision processes of German fund managers and the impact on fund performance	153 German equity (mutual) fund managers	Questionnaire (telephone interviews) linked to archival data from the German Investment Funds Association (BVI)	Active search for new information was seen as the greatest potential for performance improvement. Conversations with company mgmt. were most important, followed closely by conversations with other equity fund managers and printed or electronic media. The perceived importance of direct company contact was affected by manager age and experience, fund company size and fund geographic focus and had a positive influence on fund performance, but only for fund managers of small cap funds.	Finance
Tuckett & Taffler (2012): To explore the everyday-job situation for fund managers and specifically focus on the role of emotions to investor decisions	52 (40 equity) fund managers in the US, UK, France, and Asia	Interviews	The real world exhibited by fund managers was summarized as: First, deliver exceptional performance, second, make decisions with incomplete information, third, performance outcome is a function of perceptions of an underlying values, fourth, beliefs are uncertain, and thus, fifth, emotional relations to equity investments play an important role for fund managers.	Emotional Finance
Holland (2016): To create a grounded theory of the behavior of the fund management firm	15 international fund mgmt. firms; 24 equity fund managers	Interviews (case studies)	The fund management firm had many similarities to non-financial firms. Firm organizational contexts, processes and resources were used to reduce and make sense of the inherent uncertainty of financial markets and in the fund manager decision process.	Accounting (Finance)
Coleman (2015): To describe how fund managers make investment decisions, focusing on strategy and processes	34 (22 equity) fund managers in Istanbul, London, Melbourne and New York	Semi-structured interviews	Fund managers made limited use of modern finance theory (namely asset pricing models, arbitrage pricing theory and discounted cash flow analysis). Fund managers relied heavily on qualitative techniques to make equity decisions and social pressures influenced the decisions	Finance (Accounting)

Appendix C, cont. Literature review, (2) equity fund managers, other behavior

Study and purpose	**Participants**	**Method**	**Main findings**
Rockness & Williams (1988): To describe decision processes of managers of social responsibility mutual funds	8 social responsible equity mutual funds	Questionnaire	Decision processes, specifically the sources of social information, varied widely from fund to fund. The most frequently used source was data provided by firms.
Barker (1998): To develop a grounded theory of the market for capital market information	39 equity fund managers (pension funds, life assurance, units or investment trusts), 32/39 analysts (in interview/questionnaire) and 40 finance directors	Participant observation; Questionnaires; Interviews	Stock market information that flows directly from companies to fund managers (raw data) is considered as most important for investors (fund managers), but processed information through intermediaries (analysts) play an essential role as well. Previous research has overstated the role of analysts and understated the direct use of company information for fund managers.
Menkhoff, Schmidt & Brozynski (2006): To explore the relation between risk-taking and experience of fund managers	117 German bond or equity fund managers	Questionnaire	Found some evidence of inexperienced fund managers taking more risk, and that they herd more.
Lai (2006): To explore how Asian emerging markets are jointly interpreted and created by fund managers, brokers and research analysts	22 fund managers, brokers and research analysts from Singapore and London	In-depth interviews	Asian emerging markets are jointly shaped by social networks—through knowledge transfer and socialization—of fund managers, brokers and analysts; by their processes of information gathering and dissemination, their assessments and evaluations of data, companies and economies, and their actual investments and transactions.
Beckmann, Menkhoff & Suto (2008): To examine cultural differences in views of fund managers and the effect on behavior	1,025 asset managers from US, Germany, Japan and Thailand	Questionnaire	Fund manager investment behavior was affected by cultural differences in a complex way. More individualism predicted less herding, more power distance predicted older and less experienced managers in top positions, masculinity predicted more men in top positions and greater wealth, and uncertainty avoidance was related to larger margins to tracking error limits and more research efforts.

Study and purpose	Participants	Method	Main findings
Henningsson (2009): To explore how fund managers are influenced by social forces when observing company information, particularly about intellectual capital	14 Swedish equity fund managers	Interviews	Three main social forces influenced fund managers when they handled complex (company) information: fund company contextual premises, the market price and rationale, and the agenda surrounding a company.
Menkhoff (2010): To survey the importance, the use and the rationales of technical analysis among fund managers	692 asset managers from US, Germany, China, Italy and Thailand	Questionnaire	Fund managers used technical analysis for forecasting horizons of weeks. Some fund managers used technical analysis to a greater extent; those had similar experience, education, careers and overconfidence in decisions, as their peers that preferred fundamental analysis but they differed in their beliefs of psychological influences on stock prices.
Barker et al. (2012): To explore rationales behind why fund managers consider private meetings with company management as the most important source of information, even though the legislation prohibits that any price-sensitive information is revealed.	18 CEOs or IR managers, 19 senior asset managers in the UK	Interviews & observation of 8 meetings	Support was found for three propositions: (1) that the acquired information was useful even if it is not price-sensitive, (2) that fund managers irrationally relied on the information obtained, and (3) that such meetings were used to claim informational advantage to clients.
Chong & Tuckett (2015): To examine how cognitive and emotional conflicts of fund managers impacts their daily operations	92 fund managers in the UK, US, France and Singapore	Interviews & observation of 2 fund management conferences	In order to deal with cognitive and emotional conflicts within, fund managers create convincing narratives so that they can feel committed to their beliefs even though the future is uncertain.
Eshragi & Taffler (2015): To explore how fund managers deal with the fact that they cannot all be exceptional, or how they maintain self-belief and motivation	50 equity fund managers in the UK, US, France and Singapore	Interviews	By telling stories, or constructing narratives, that explains why fund manager decisions did, or did not, work out, fund managers maintain self-belief and motivation
Henningsson, Johanson & Almqvist (2015): To explore the role of trust for fund managers when reducing information complexity, particularly about intangible resources and sustainability	4 communications executives, 4 experienced Swedish fund managers	Focus groups	In the relation between fund managers and company management, fund managers oscillate between exhibiting trust and distrust. Stable contexts are generally more trusted, and fund managers strive to trust company management.

Appendix C, cont. Literature review, (3) decision-making behavior of fund managers as institutional investors

Study and purpose	**Participants**	**Method**	**Main findings**
Holland & Doran (1998): To describe how financial institutions (1) acquire information from investee companies, (2) use this information in their decision-making, and (3) influence investee companies in their portfolios	27 large UK financial institutions	Interviews	Private information was central to fund manager decisions and fund managers worked hard on establishing company relations. Information acquired directly from companies were considered as valuable and used to get a deep understanding of the businesses.
Hellman (1996): To examine what causes institutional investor actions	One large Swedish institutional investor (life-insurance)	Interviews	The main factors that seemed to cause institutional investor actions were macro-economic information, private information and different investor conditions. Equity decisions were continuous processes and decisions to act had considerable time lag after information events.
Hellman (2000): To explore behavior, or reasons for investment actions, of institutional investors and the role of financial information	8 large Swedish institutional investors (life and non-life insurance, open- and closed-end funds, foundation)	Interviews (case studies)	Investment actions of institutional investors were restricted or reinforced by investor contexts and market premises. Qualitative judgements played an important role and uncertainty was dealt with by collecting more information during investment decision-making processes.

Appendix C, cont. Literature review, (4) equity fund manager performance determinants

Study and purpose	Market	Period	Cross-sections	Performance	Benchmark	Method	Factors	Relation	R^2
Golec (1996): To test if fund manager characteristics explain performance, risk and fees.	US	1988-1990	530 funds	Alpha	S&P 500	Regression (3SLS)	Manager age Manager tenure Years of education MBA dummy	Negative Positive Weak/unclear Positive (strong)	.12
Chevalier & Ellison (1999): To test if fund manager characteristics are related to mutual fund performance	US	1988-1995	492 funds	Excess return	CRSP	Regression	College SAT MBA dummy Age Tenure	Positive (strong) Positive Negative Weak	.03
Coval & Maskowitz (2001): To present links between geographic location, informed trading and performance among fund managers	US	1975-1994	Not reported 150 funds in 1975, 1,258 funds in 1994	DGTW		T-test	Local holdings	Positive	
Baks (2003): To examine the relative importance of the fund manager and the fund organization to fund performance	US	1992-1999	2,086 managers 1,602 funds	4-factor alpha	4-factors	Regression Bayesian	Past fund return Past manager return	Positive Weak/unclear	.03
Gottesman & Morey (2006): To examine the relation between fund manager education and fund performance	US	2000-2003	518 funds	Excess returns 4-factor alpha Conditional alpha	4-factors	Regression	GMAT score Other education	Positive Weak/unclear	.12 .05 .26
Drachter, Kempf, & Wagner (2007): To examine the fund manager decision process and the impact on fund performance	Germany	2004	153 managers	Excess return (Weighted)	Peer group	T-test	Conversations with executive boards Risk limits	Positive (small funds) Weak/unclear	
Cohen, Frazzini & Malloy (2008): To test if social networks, specifically school-ties between fund managers and executives, are related to fund performance	US	1990-2006	1,648 funds 2,501 managers 42,269 board members 14,122 seniors	DGTW 5-factor alpha	DGTW 5-factors	T-test	Connected holdings	Positive	

Study and purpose	Market	Period	Cross-sections	Performance metric	Benchmark metric	Method	Factors	Relation	R^2
Christoffersen & Sarkissian (2009): To test if funds in financial centers perform better and attract better managers (sorting) or if transfer of information are higher in financial centers (learning)	US	1992-2002	1,917 funds	4-factor alpha Conditional alpha	4-factors	T-test	Financial centers	Positive	
Cremers & Petajisto (2009): To evaluate, by introducing a new measure, whether active portfolio management style is related to performane	US	1980-2003	2,647 funds	4-factor alpha	Benchmarks	Regression	Active Share	Positive	.04
Bär, Kempf & Ruenzi (2011): To test if (fund) management teams differ from single (fund) managers in investment styles and performance outcomes	US	1994-2003	652 fund companies	4-factor alpha	4-factors	T-test	Single-managed	Positive	
Porter & Trifts (2012): To evaluate the effect of experience, among fund managers with at least ten years of tenure	Not reported	1928-2008	289 managers 355 funds	MACAR	CRSP	T-test	Tenure	Negative	
Ding & Wermers (2012): To evaluate the relation between fund performance and fund governance structure	US	1985-2002	2,689 funds 3,136 managers	4-factor alpha DGTW	4-factors DGTW	Regression	Governance	Positive	.04
Kacperczyk, Van Nieuwerburgh & Veldkamp (2014): To test, by a new measure, if ability to vary behavior along the economic cycle predicts performance	US	1980-2005	3,477 funds 4,267 managers	Alpha	CRSP	Regression	Skill index	Positive	N/A
Pool, Stoffman & Yonker (2014): To evaluate if fund manager trades and holdings are affected by social connections (neighbors) and relations to performance	US	1996-2010	2,558 funds 4,622 managers	Zero-cost portfolio	DGTW	T-test	Neighbors	Positive	

Study and purpose	Market	Period	Cross-sections	Performance metric	Benchmark metric	Method	Factors	Relation	R^2
Fang & Wang (2015): To evaluate how fund manager characteristics affect return and risk and in turn comprehensive performance	China	2008-2011q2	287 funds 157 managers	Sharpe	Benchmark	Regression	MBA CFA Other characteristics	Positive Positive Weak/unclear	.70
Wei & Zhang (2015): To evaluate if fund managers are informed on the golf-course, by looking at the relation between closeness to prestigious golf-courses and fund performance	US	1990-2011-	90 964 investor-quarter 71 051 firm-year	Alpha	CRSP	Regression	Golf course proximity	Positive	.02
Bennet et al. (2016): To explore how long-term skill relates to categorizations of trades and fund manager styles	Australia	1994-2009	156 funds	Excess return; DGTW	S&P/ASX	Event study	Informed trades; Growth oriented; Boutique (vs institutional)	Positive; Higher; Higher	

Appendix D. Letter request to participate in qualitative study

Hej,

Jag är en doktorand vid Handelshögskolan i Stockholm som skriver min doktorsavhandling inom Ekonomisk Psykologi. Jag undersöker hur fondförvaltare tar investeringsbeslut och avser att skapa en modell som förklarar detta. Befintliga förklaringsmodeller fångar inte upp den kontext fondförvaltare befinner sig i och komplexiteten i beslutsfattandet. Viktigt för studien är att förstå hur en fondförvaltares vardag ser ut. Jag skulle därför vilja observera dig under ditt arbete någon gång under de kommande månaderna.

Jag har kontaktat flera andra fondförvaltare och avser att skapa både bredd och djup i det empiriska underlaget till min forskning genom att observera flera fondförvaltare under deras arbetsdagar. Jag vill öka förståelsen för vilka aktiviteter som är viktiga och kan påverka beslutsfattandet. Jag kommer även använda mig av sekundärt material i form av exempelvis fondprospekt, årsredovisningar, etc.

Som stöd i min forskning har jag en handledarkommitté som består av professor Richard Wahlund, tf professor Niclas Hellman, docent Patric Andersson och dr Hanna Setterberg. Min forskning finansieras av Johan och Jakob Söderbergs Stiftelse.

Jag garanterar anonymitet i uppsatsen och jag lämnar också en skriftlig sekretess- och anonymitetsutfästelse utformad av Handelshögskolan i Stockholm. Jag skulle sätta mycket stort värde på om du har möjlighet att medverka i min studie. Självklart anpassar jag mig efter ditt schema och är flexibel gällande hur observationen går till. Jag kontaktar dig per telefon inom de närmaste dagarna för att höra hur du ställer dig till min förfrågan.

Med vänliga hälsningar,
Emelie Palm
Emelie.Palm@hhs.se
073-9** ** **

Etiska principer om tystnadsplikt och anonymitetsskydd

Etiska principer om tystnadsplikt och anonymitetsskydd att gälla för forskare verksamma vid Handelshögskolan i Stockholm och till högskolan knutna institut ("Handelshögskolan")

§ 1 Inom ramen för de nedan angivna etiska principerna har varje forskare vid Handelshögskolan (inbegripet forskarstuderande, doktorander, doktorer, docenter, professorer och ev andra forskarkategorier, nedan "forskare vid Handelshögskolan") full frihet att själv utforma forskningsprojekt, utföra forskning och utan förbehåll publicera uppnådda forskningsresultat.

§ 2 För möjligheten att bedriva empirisk forskning av den art som sker vid högskolan är ett förtroendefullt samarbete med uppgiftslämnare i näringsliv och förvaltning en nödvändighet. Information av känslig eller konfidentiell natur får därför inte i någon form utan godkännande av uppgiftslämnaren spridas på sådant sätt att uppgiftslämnaren kan identifieras. De uppgifter som inhämtas från enskild fysisk eller juridisk person skall behandlas med största möjliga konfidentialitet och anonymitetsskydd i enlighet med vad som stadgas nedan. Med uppgiftslämnare avses här förutom fysiska personer även personer som för juridiska personer svarat för uppgiftslämnandet.

§ 3 Vad gäller forskarens vid Handelshögskolan relation till uppgiftslämnaren skall huvuddragen i de forskningsetiska principer som är antagna av Humanistiska samhällsvetenskapliga forskningsrådet (HSFR) i mars 1999 (reviderad i november 1994) tillämpas.
a. Informationskravet Forskaren skall i görligaste mån informera de av forskningen berörda om den aktuella forskningsuppgiftens syfte.
b. Samtyckeskravet Deltagare i en undersökning har rätt att själva bestämma över sin medverkan. Samtycket måste inhämtas såväl från enskild uppgiftslämnare som i förekommande fall från uppgiftsobjektet/ ex v företag. Härvid skall också graden av konfidentialitet och anonymitetsskydd anges, i förekommande fall genom skriftligt avtal med uppgiftslämnaren/företrädaren för uppgiftsobjektet.
c. Konfidentialitetskravet Uppgifter om alla i en undersökning ingående fysiska eller juridiska personer skall ges största möjliga konfidentialitet och uppgifterna skall förvaras på ett sådant sätt att obehöriga inte kan ta del av dem.
d. Nyttjandekravet
Uppgifter insamlade om enskilda fysiska eller juridiska personer får endast användas för forskningsändamål. Uppgifter om enskilda, insamlade för forskningsändamål, får inte användas eller utlånas för kommersiellt bruk eller andra ickevetenskapliga syften. De får inte utan uppgiftslämnarens medgivande överlämnas till annan än

forskare som ej omfattas av här angivna etiska principer. De får ej heller utan uppgiftslämnarens medgivande utnyttjas för annat än forskningsändamål än det för vilket samtycke erhållits.

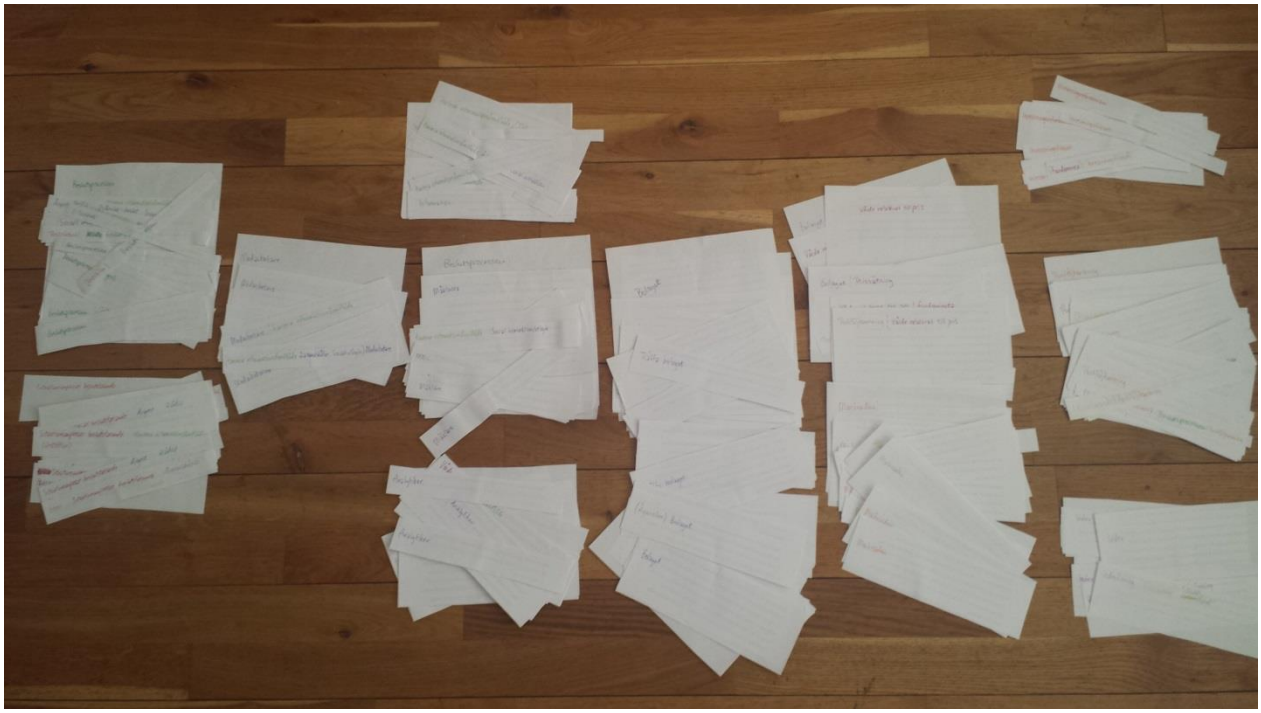
§ 4 Vidare skall i enlighet med HSFR:s rekommendationer följande gälla:

- Forskare bör ge uppgiftslämnaren tillfälle att ta del av etiskt eller ur konfidentialitetssynpunkt känsliga avsnitt, kontroversiella tolkningar etc i undersökningsrapporten innan den publiceras. (Rekommendationen får inte tolkas så att de som är föremål för forskning skall kunna hindra publicering av för dem negativa forskningsresultat. Om individuell uppgiftslämnare eller andra berörda känner sig negativt berörda eller orättmätigt kritiserade av forskarens tolkningar och slutsatser bör värdet av det förväntade kunskapstillskottet vägas mot de negativa konsekvenserna för de berörda av en eventuell publicering.)
- Uppgiftslämnare bör få veta var forskningsresultaten kommer att publiceras och om de så önskar få en rapport eller sammanfattning av undersökningen.

§ 5 Såvitt gäller tolkningen och tillämpningen av ovan angivna etiska principer hänvisas till HSFR:s sammanställning (utgiven i reviderad version i november 1994) "Etik HSFR" i tillämpliga delar.

§ 6 Forskare vid Handelshögskolan som är projektledare eller handledare för forskare vid högskolan har ett särskilt ansvar att informera berörda forskare om de här angivna etiska principerna.

Appendix E. Picture of coded paper strips



Lösenord: **3438**

Appendix F. The questionnaire

12 mars 2013

Undersökning av fondförvaltares aktiviteter, informationskällor och attityder

Denna enkät riktar sig till samtliga huvudansvariga aktiva fondförvaltare av svenskregistrerade aktiefonder. De frågor som jag ställer handlar främst om vilka aktiviteter och informationskällor som är viktiga för investeringsbeslut. Syftet med enkäten är att få kunskap om hur olika aktiviteter prioriteras och vilken betydelse olika informationskällor har.

Resultaten från denna enkätundersökning kommer att redovisas i min doktorsavhandling vid Handelshögskolan i Stockholm. Som stöd i min forskning har jag en handledarkommitté som består av professor Richard Wahlund, tf professor Niclas Hellman, docent Patric Andersson och dr Hanna Setterberg. Forskningen finansieras av Johan och Jakob Söderbergs Stiftelse.

Enkäten beräknas ta knappt tio minuter att besvara. Jag skulle sätta mycket stort värde på om du har möjlighet att medverka i min studie. Enkäten har ett id-nummer så att svaren anonymt kan kopplas ihop med din/a förvaltade fond/er för statistiska analyser. Dina svar på enkäten är konfidentiella och inga svar kommer att redovisas på individnivå. Bifogat denna enkät finns även en anonymitetsutfästelse. Om du föredrar att besvara enkäten online finns den tillgänglig på http://tinyurl.com/q4etsbs. Du kan också besvara enkäten på en surfplatta via QR-koden nedan. Lösenord finner du ovan i övre högra hörnet.

Bästa hälsningar
Emelie Palm
Emelie.Palm@hhs.se
073 9** ** **

Id: **q4etsbs**

Aktiviteter

1) Hur ofta förekommer det att du genomför följande aktiviteter i ditt arbete? Markera det alternativ som stämmer bäst.

	Dagligen	***Flera gånger i veckan***	***En gång i veckan***	***Flera gånger i månaden***	***En gång i månaden***	***Mindre än en gång i månaden***	***Aldrig***
Personlig kontakt med aktieanalytiker på säljsidan via telefon, mail eller individuellt besök	☐	☐	☐	☐	☐	☐	☐
Personlig kontakt med makroanalytiker på säljsidan via telefon, mail eller individuellt besök	☐	☐	☐	☐	☐	☐	☐
Personlig kontakt med mäklare via telefon, mail eller individuellt besök	☐	☐	☐	☐	☐	☐	☐
Personlig kontakt med medarbetare i syfte att diskutera potentiella investeringsbeslut	☐	☐	☐	☐	☐	☐	☐
Personlig kontakt med fondinvesterare via telefon, mail eller individuellt besök	☐	☐	☐	☐	☐	☐	☐
Personlig kontakt med företag (VD, finans-chef eller IR) via telefon, mail eller individuellt besök	☐	☐	☐	☐	☐	☐	☐

	Dagligen	***Flera gånger i veckan***	***En gång i veckan***	***Flera gånger i månaden***	***En gång i månaden***	***Mindre än en gång i månaden***	***Aldrig***
Kontakt med företag (VD, finans-chef eller IR) vid presentation för grupper av investerare och analytiker	☐	☐	☐	☐	☐	☐	☐
Organiserat besök på företags-anläggning för grupper av investerare och analytiker	☐	☐	☐	☐	☐	☐	☐
Genomläsning av aktieanalytikers	☐	☐	☐	☐	☐	☐	☐
analyser							
Genomläsning av makroanalytikers analyser	☐	☐	☐	☐	☐	☐	☐
Genomläsning av finansiell rapport från företag	☐	☐	☐	☐	☐	☐	☐
Omallokering i fondportfölj	☐	☐	☐	☐	☐	☐	☐

2) Finns det några andra aktiviteter som du frekvent genomför i ditt arbete?

.....
.....
.....
.....

Id: **q4etsbs**

Informationskällor

3) Hur viktiga är nedanstående informationskällor när du gör din bedömning av ett företag i samband med investeringsbeslut? Markera det alternativ som stämmer bäst. Publicerat material avser rapporter och annan dylik skriftlig information från informationskällan. Direktkontakt avser information som kommuniceras direkt från källan till dig, muntligt eller skriftligt.

	Inte alls viktiga	***Lite viktiga***	***Måttligt viktiga***	***Mycket viktiga***	***Extremt viktiga***
Aktieanalytiker på säljsidan *publicerat material*	☐	☐	☐	☐	☐
Aktieanalytiker på säljsidan *direktkontakt*	☐	☐	☐	☐	☐
Makroanalytiker på säljsidan *publicerat material*	☐	☐	☐	☐	☐
Makroanalytiker på säljsidan *direktkontakt*	☐	☐	☐	☐	☐
Mäklare	☐	☐	☐	☐	☐
Medarbetare	☐	☐	☐	☐	☐
Företag *publicerat material*	☐	☐	☐	☐	☐
Företag *direktkontakt*	☐	☐	☐	☐	☐

4) Finns det några andra informationskällor som är viktiga för din bedömning?

.....
.....
.....
.....

Id: **q4etsbs**

5) Vänligen fördela 100% bland nedanstående informationskällor på ett sätt som representerar den relativa vikten du fäster vid dessa när du gör din bedömning. Om en kategori inte är tillämplig, ange 0% vid den. Summan av procentsatserna ska uppgå till 100%.

_____ % Aktieanalytiker på säljsidan, *publicerat material*

_____ % Aktieanalytiker på säljsidan, *direktkontakt*

_____ % Makroanalytiker på säljsidan, *publicerat material*

_____ % Makroanalytiker på säljsidan, *direktkontakt*

_____ % Mäklare

_____ % Medarbetare

_____ % Företag, *publicerat material*

_____ % Företag, *direktkontakt*

_____ % Annat: .....

6) Hur många informationskällor av nedannämnda kategorier av experter har du personlig kontakt med, via telefon, mail eller individuellt besök, under en genomsnittlig vecka i syfte att inhämta information från nämnda expert?

	Ingen	***En***	***Två till tre***	***Fyra till sex***	***Sju eller fler***
Aktieanalytiker på säljsidan	☐	☐	☐	☐	☐
Makroanalytiker på säljsidan	☐	☐	☐	☐	☐
Mäklare	☐	☐	☐	☐	☐
Medarbetare	☐	☐	☐	☐	☐
Företag, *räkna flera personer från ett och samma företag som en källa*	☐	☐	☐	☐	☐
Annat:	☐	☐	☐	☐	☐

Id: **q4etsbs**

7) Med hjälp av vilka informationskällor inhämtar du information om nedanstående företagsspecifika faktorer? Kryssa i samtliga informationskällor där det är tillämpligt. Om du inte inhämtar information om en faktor, kryssa i så fall inte i något av alternativen på den aktuella raden.

	Aktieanalytiker på säljsidan		***Mäklare***	***Medarbetare***	***Företag***	
	publ. material	*direkt-kontakt*			*publ. material*	*direkt-kontakt*
Strategi	☐	☐	☐	☐	☐	☐
Förväntade kassaflöden	☐	☐	☐	☐	☐	☐
Tillväxtprognos	☐	☐	☐	☐	☐	☐
Förväntade vinstmarginaler	☐	☐	☐	☐	☐	☐
Planerade investeringar	☐	☐	☐	☐	☐	☐
Marknadsandelar	☐	☐	☐	☐	☐	☐
Konkurrenter	☐	☐	☐	☐	☐	☐
Ledningens kompetens	☐	☐	☐	☐	☐	☐

Attityder

8) Ange i vilken grad du instämmer i vart och ett av nedanstående påståenden. Inga svar är rätt eller fel, det är din *uppfattning* jag vill ha del av.

	Håller absolut inte med	***Håller inte med***	***Tveksam***	***Håller med***	***Håller absolut med***
Aktieanalytiker adderar värde genom sina idéer och analyser	☐	☐	☐	☐	☐
Makroanalytiker adderar värde genom sina idéer och analyser	☐	☐	☐	☐	☐
Jag är i allmänhet mycket riskbenägen	☐	☐	☐	☐	☐
Jag är mycket riskbenägen i min fondförvaltning	☐	☐	☐	☐	☐
Aktiekurser är mer drivna av psykologiska influenser än fundamenta, på kort sikt	☐	☐	☐	☐	☐
Aktiekurser är mer drivna av psykologiska influenser än fundamenta, på lång sikt	☐	☐	☐	☐	☐
Den historiska kursutvecklingen av en aktie är en indikator för den framtida kursutveckligen	☐	☐	☐	☐	☐
Mäklares rekommendationer är missvisande	☐	☐	☐	☐	☐
Aktieanalytikers rekommendationer är missvisande	☐	☐	☐	☐	☐
Det är viktigt att träffa företagsledningen för att bedöma deras kompetens	☐	☐	☐	☐	☐
Erfarenhet leder till bättre prestation	☐	☐	☐	☐	☐
Jag är mycket riskavert, dvs. försiktig, i min fondförvaltning	☐	☐	☐	☐	☐
Jag är i allmänhet mycket riskavert	☐	☐	☐	☐	☐

Id: **q4etsbs**

Bakgrundsfrågor

9) Hur många år har du arbetat som fondförvaltare? ..... år

10) Hur många år har du arbetat inom finansbranschen? ..... år

---

11) Vilken är din högsta genomförda utbildning?

.....

Stort tack för din medverkan!

12) Jag vill delges resultaten av studien ☐ Ja ☐ Nej

Posta enkäten i bifogat svarkuvert eller skicka den till:

Emelie Palm

Handelshögskolan i Stockholm

Box 6501

113 83 Stockholm

Appendix G. Details about the benchmark indices, summary of used indices (and their abbreviations), which database that has been used to collect net returns and the number of funds associated to each index

Index name	*Index abbreviation*	*Source*	*N*
(Dow Jones) Stoxx Europe Small 200**	DJSES200	Datastream	2
MSCI AC Asia Pacific*	MSACAP	Datastream	1
MSCI All Countries Far East ex. Japan*	MSACFEXJ	Datastream	3
MSCI All Countries World Index*	MSACW	Datastream	9
MSCI China**	MSC	Datastream	2
MSCI Emerging Markets*	MSEM	Datastream	5
MSCI Emerging Markets Eastern Europe*	MSEMEE	Datastream	3
MSCI Emerging Markets Latin America 10-40**	MS14EMLA	Datastream	1
MSCI Golden Dragon*	MSGD	Datastream	2
MSCI India**	MSI	Datastream	1
MSCI Japan**	MSJ	Datastream	3
MSCI Pakistan**	MSP	Datastream	1
MSCI Pan-Euro**	MSPE	Datastream	11
MSCI Russia**	MSR	Datastream	5
MSCI USA**	MSU	Datastream	4
MSCI World*	MSW	Datastream	12
MSCI World Energy*	MSWE	Datastream	3
MSCI World Health Care*	MSWHC	Datastream	3
MSCI World IT*	MSWIT	Datastream	6
MSCI World*/MSCI Emerging Markets* 50/50	MSACW/MSEM 50/50	Datastream	1
MSCI All Countries World Index*/ SIX Portfolio Return Index** 30/70	MSACW/SIXPRX 30/70	Datastream/SIX	5
MSCI All Countries World Index*/ SIX Portfolio Return Index** 50/50	MSACW/SIXPRX 50/50	Datastream/SIX	11
VINX Benchmark Cap***	VINXBCAP	Nasdaq OMX	8
VINX Small Cap***	VINXSC	Nasdaq OMX	2
Carnegie Real Estate***	CREX	SIX	3
Carnegie Small Cap Return Index Sweden**	CSRXSE	SIX	29
SIX Portfolio Return Index**	SIXPRX	SIX	55

* $, ** local currency, *** SEK

Appendix G, cont. Pearson correlations between used benchmark indices

		1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*	*20*	*21*	*22*	*23*	*24*	*25*	*26*
1	MSACFEXJ	1																									
2	MSACAP	.91	1																								
3	CREX	.67	.63	1																							
4	MSACW	.88	.93	.64	1																						
5	MSC	.92	.81	.57	.78	1																					
6	MSEM	.97	.93	.68	.91	.90	1																				
7	MSEMEE	.84	.85	.52	.89	.77	.90	1																			
8	MSP	.44	.37	.38	.42	.30	.40	.40	1																		
9	DJSES200	.83	.86	.66	.90	.74	.85	.85	.56	1																	
10	MSPE	.76	.80	.61	.92	.70	.78	.78	.49	.90	1																
11	MSGD	.98	.89	.64	.86	.96	.94	.81	.38	.80	.75	1															
12	MSI	.72	.68	.57	.62	.65	.75	.59	.41	.56	.54	.69	1														
13	MSJ	.45	.70	.22	.62	.37	.50	.52	.28	.60	.61	.45	.40	1													
14	MS14EMLA	.78	.77	.61	.82	.77	.86	.77	.30	.74	.75	.77	.64	.44	1												
15	MSR	.76	.77	.46	.82	.70	.83	.96	.39	.81	.73	.73	.53	.49	.73	1											
16	MSU	.78	.83	.59	.96	.68	.82	.81	.43	.85	.88	.76	.52	.59	.78	.75	1										
17	MSW	.84	.91	.62	1.00	.75	.88	.87	.42	.89	.92	.82	.58	.64	.80	.80	.97	1									
18	MSWE	.80	.81	.52	.93	.72	.83	.87	.36	.82	.85	.78	.45	.50	.73	.84	.92	.93	1								
19	MSWHC	.65	.74	.61	.81	.57	.66	.63	.25	.71	.79	.64	.48	.53	.56	.53	.79	.83	.70	1							
20	VINXBCAP	.82	.82	.65	.86	.73	.83	.82	.58	.94	.86	.79	.63	.60	.73	.80	.82	.85	.79	.70	1						
21	MSACW/SIXPRX 50/50	.90	.92	.68	.96	.80	.91	.86	.52	.95	.91	.87	.65	.62	.80	.81	.93	.96	.88	.79	.95	1					
22	MSACW/SIXPRX 30/70	.90	.93	.67	.99	.80	.92	.88	.49	.94	.92	.87	.64	.63	.81	.82	.95	.98	.91	.81	.92	.99	1				
23	MSACW/MSEM 50/50	.94	.95	.67	.98	.86	.98	.92	.42	.90	.87	.92	.70	.58	.86	.84	.91	.96	.90	.76	.87	.96	.98	1			
24	MSWIT	.75	.80	.52	.91	.63	.78	.76	.48	.80	.83	.73	.54	.59	.74	.70	.94	.92	.85	.68	.76	.86	.89	.87	1		
25	SIXPRX	.85	.83	.67	.85	.75	.84	.77	.59	.92	.83	.81	.64	.57	.70	.73	.82	.83	.76	.71	.96	.96	.92	.86	.75	1	
26	CSRXSE	.82	.79	.79	.80	.71	.82	.73	.56	.87	.75	.78	.59	.47	.72	.71	.79	.78	.73	.65	.89	.89	.86	.83	.71	.92	1
27	VINXSC	.81	.81	.64	.83	.71	.82	.81	.65	.92	.79	.78	.62	.56	.71	.80	.80	.82	.76	.61	.92	.90	.88	.84	.76	.89	.92

Appendix G, cont. List of the full sample of funds with their matching benchmark index

Fund	Index in dissertation	Index in fund annual report
Aktie-Ansvar Europa	MSPE	Stoxx Europe 50
Aktie-Ansvar Sverige	SIXPRX	SIXPRX
Alfred Berg Fastighetsfond Norden	CREX	CREX
Alfred Berg Ryssland	MSR	MSR
Alfred Berg Småbolagsfond	CSRXSE	CSRXSE
Alfred Berg Sverige Plus	SIXPRX	OMX Stockholm Benchmark Index
AMF Aktiefond Asien Stilla havet	MSACAP	FTSE World Asia Pacific
AMF Aktiefond Europa	MSPE	FTSE World Europe
AMF Aktiefond Global	MSACW	FTSE World Index
AMF Aktiefond Mix	MSACW/SIXPRX 30/70	FTSE All World Return Index/FTSE World Index/OMX Stockholm Benchmark Index 30/40/30
AMF Aktiefond Nordamerika	MSU	FTSE World USA
AMF Aktiefond Småbolag	CSRXSE	CSRXSE
AMF Aktiefond Sverige	SIXPRX	OMX Stockholm Benchmark Gross Index
AMF Aktiefond Världen	MSACW/SIXPRX 50/50	FTSE World Index/OMX Stockholm Benchmark Index 40/60
Awake Global Energy	MSWE	MSWE
Banco Etisk Europa	MSPE	MSPE
Caprifol Nordiska Fonden	VINXBCAP	VINX Nordic
Carnegie Afrikafond	MSEM	-
Carnegie Emerging Markets	MSEM	-
Carnegie Indienfond	MSI	-
Carnegie Kinafond	MSGD	-
Carnegie Rysslandsfond	MSR	-
Carnegie Småbolagsfond	CSRXSE	-
Carnegie Sverigefond	SIXPRX	-
Catella Reavinstfond	SIXPRX	SIXPRX
Catella Sverige Select	CSRXSE	CSRXSE
Cicero Focus	SIXPRX	OMX Stockholm Benchmark Index
Cicero SRI Sverige	SIXPRX	SIXPRX
Cliens Sverige A	SIXPRX	SIXPRX
Cliens Sverige B	SIXPRX	SIXPRX

Cliens Sverige C	SIXPRX	SIXPRX
Danske Invest Sverige	SIXPRX	SIXPRX
Danske Invest Sverige Fokus	CSRXSE	OMX Stockholm 50 Equal Weighted
Danske Invest Sverige/Europa	MSPE	SIXPRX/MSCI Europe 50/50
Didner & Gerge Aktiefond Sverige	SIXPRX	SIXPRX
Didner & Gerge Global	MSW	MSACW
Didner & Gerge Småbolag	CSRXSE	CSRXSE
DNB Småbolagsfond	CSRXSE	CSRXSE
DNB Sweden Micro Cap	CSRXSE	CSRXSE
DNB Sverige Koncis	SIXPRX	SIXPRX
DNB Sverigefond	SIXPRX	SIXPRX
DNB Utlandsfond	MSW	MSW
Enter Select	CSRXSE	OMX Stockholm 50 Equal Weighted
Enter Select Pro	CSRXSE	OMX Stockholm 50 Equal Weighted
Enter Sverige	SIXPRX	SIXPRX
Enter Sverige Pro	SIXPRX	SIXPRX
Ethos Aktiefond	MSACW/SIXPRX 50/50	SIXPRX
Folksam LO Sverige	SIXPRX	SIXPRX
Folksam LO Världen	MSW	MSW
Folksam LO Västfonden	SIXPRX	SIXPRX
Folksams Aktiefond Asien	MSACFEXJ	MSCI All Countries Asia Pacific ex. Japan
Folksams Aktiefond Europa	MSPE	MSCI Europe ex. Sweden
Folksams Aktiefond Japan	MSJ	MSJ
Folksams Aktiefond Sverige	SIXPRX	SIXPRX
Folksams Aktiefond USA	MSU	MSU
Folksams Globala Aktiefond	MSACW	MSACW
Folksams Idrottsfond	MSACW/SIXPRX 50/50	MSW/MSCI Sweden 50/50
Folksams Tjänstemannafond Sverige	SIXPRX	SIXPRX
Folksams Tjänstemannafond Världen	MSW	MSW
Granit Kina 130/30	MSC	MSGD
Granit Småbolag	CSRXSE	CSRXSE
Granit Sverige 130/30	SIXPRX	SIXPRX
Gustavia Balkan SEK	MSEMEE	MSEM
Gustavia Energi & Råvaror	MSWE	MSCI World Materials

Gustavia Global Tillväxt	MSW	MSW
Gustavia Kazakstan/Centralasien	MSEM	MSEM
Gustavia Ryssland	MSR	MSR
Gustavia Småbolag	CSRXSE	CSRXSE
Gustavia Sverige SEK	SIXPRX	SIXPRX
GustaviaDavegårdh Nanofond	MSWIT	MSCI World IT 10-40
GustaviaDavegårdh Sol, vind & vatten	MSWIT	MSCI World IT 10-40
Handelsbanken Amerikafond	MSU	MSU
Handelsbanken Asienfond	MSACFEXJ	MSACFEXJ
Handelsbanken AstraZeneca Allemans	SIXPRX	-
Handelsbanken Bostadsrätterna	SIXPRX	SIXPRX
Handelsbanken Europafond	MSPE	MSPE
Handelsbanken Globalfond	MSACW	MSACW
Handelsbanken Japanfond	MSJ	MSJ
Handelsbanken Latinamerikafond	MS14EMLA	MS14EMLA
Handelsbanken Läkemedel SEK	MSWHC	MSWHC
Handelsbanken Norden Aggressiv	VINXBCAP	SHB NORDIX Port Nordic Net
Handelsbanken Nordenfond	VINXBCAP	SHB NORDIX Port Nordic Net
Handelsbanken Nordiska Småbolag	VINXSC	SHB NORDIX Port Nordic Net
Handelsbanken Svenska Småbolag	CSRXSE	Carnegie Small Cap Return Index Gross
Handelsbanken Sverige/Världen	MSACW/SIXPRX 50/50	MSACW/OMX Stockholm Benchmark Index Gross 50/50
Handelsbanken Sverigefond	SIXPRX	SIXPRX
Handelsbanken Tillväxtmarknad	MSEM	MSEM
Handelsbanken Östeuropafond	MSEMEE	MSCI Emerging Markets Europe 10-40
HealthInvest Value	MSWHC	Russel 2000 Health Care Index
IKC Global Brand	MSW	MSW
KPA Etisk Aktiefond	MSACW/SIXPRX 50/50	MSW/MSCI Sweden 50/50
Lannebo Småbolag	CSRXSE	CSRXSE
Lannebo Sverige	SIXPRX	SIXPRX
Lannebo Sverige 130/30	SIXPRX	SIXPRX
Lannebo Vision	MSWIT	MSCI World IT 10-40
Lundmark & Co Aktiv Europa	MSPE	MSCI Europe ex. Sweden
Länsförsäkringar Europafond	MSPE	MSCI Europe
Länsförsäkringar Fastighetsfond	CREX	CREX

Länsförsäkringar Småbolagsfond	CSRXSE	CSRXSE
Länsförsäkringar Sverigefond	SIXPRX	OMX Stockholm Benchmark Index
Lärarfond 21-44 år	MSACW/SIXPRX 50/50	MSW/SIXPRX 50/50
Nordea Alfa	SIXPRX	SIXPRX
Nordea Nordenfond	VINXBCAP	VINXBCAP
Nordea Olympia	SIXPRX	SIXPRX
Nordea Private Banking Sverige Plus	SIXPRX	OMX Stockholm Benchmark Index
Nordea Selekta Sverige	SIXPRX	SIX 60
Nordea Småbolagsfond Sverige	CSRXSE	CSRXSE
Nordea Spektra	MSACW/SIXPRX 50/50	MSW/MSCI Sweden 50/50
Nordea Swedish Stars icke-utd	SIXPRX	SIX 60
Nordea Sverigefond	SIXPRX	SIX 60
OPM Listed Private Equity	MSW	MSACW
PriorNilsson Sverige Aktiv	SIXPRX	OMX Stockholm Benchmark Gross Index
PSG Small Cap	CSRXSE	CSRXSE
Remium Småbolag Sverige	CSRXSE	OMX Stockholm Small Cap PI
SEB Europafond	MSPE	MSCI Europe
SEB Europafond Småbolag	DJSES200	MSCI Europe Small Cap
SEB Nordenfond	VINXBCAP	VINXBCAP
SEB Special Clients Sverigefond	SIXPRX	SEB Lika 70
SEB Stiftelsefond Sverige	CSRXSE	SEB Etiskt Value Return Index
SEB Swedish Focus Fund	SIXPRX	SEB Lika 50
SEB Swedish Value Fund Inc	CSRXSE	SEB Value Return Index
SEB Sverigefond	SIXPRX	SIXPRX
SEB Sverigefond Chans/Risk	SIXPRX	SIXPRX
SEB Sverigefond Småbolag	CSRXSE	CSRXSE
SEB Sverigefond Småbolag Chans/Risk	CSRXSE	CSRXSE
SEB Östersjöfond/WWF	VINXBCAP	VINXBCAP
Skandia Cancerfonden	SIXPRX	SIXPRX
Skandia Offensiv	MSACW/SIXPRX 50/50	MSACW/MSCI Sweden 50/50
Skandia Småbolag Sverige	CSRXSE	CSRXSE
Skandia Sverige	SIXPRX	SIXPRX
Skandia Världsnaturfonden	SIXPRX	SIXPRX
SKF Allemansfond	SIXPRX	-

Spiltan Aktiefond Dalarna	SIXPRX	SIXPRX
Spiltan Aktiefond Småland	SIXPRX	SIXPRX
Spiltan Aktiefond Stabil	SIXPRX	7% annual average return
Spiltan Aktiefond Sverige	SIXPRX	SIXPRX
SPP Global Topp 100	MSACW	MSACW
Strand Småbolagsfond	CSRXSE	OMX Stockholm Mid Cap GI
Swedbank Robur Aktiefond Pension	MSACW/SIXPRX 30/70	MSW/MSCI Sweden Gross/VINX 30/MSCI EM50 50/30/10/10
Swedbank Robur Allemansfond Komplett	MSACW/SIXPRX 30/70	MSW/MSCI Sweden Gross/VINX 30/MSCI EM50 50/30/10/10
Swedbank Robur Amerikafond	MSU	MSU
Swedbank Robur Asienfond	MSACFEXJ	MSCI All Countries Asia ex. Japan
Swedbank Robur Ethica Global MEGA	MSW	MSW
Swedbank Robur Ethica Offensiv	MSW	MSW
Swedbank Robur Ethica Sverige	SIXPRX	SIXPRX
Swedbank Robur Ethica Sverige Global	MSACW/SIXPRX 50/50	MSW/SIXPRX 50/50
Swedbank Robur Ethica Sverige MEGA	SIXPRX	SIXPRX
Swedbank Robur Europafond	MSPE	MSPE
Swedbank Robur Europafond MEGA	MSPE	MSPE
Swedbank Robur Exportfond	CSRXSE	-
Swedbank Robur Global Emerging Markets	MSEM	MSEM
Swedbank Robur Globalfond	MSW	MSW
Swedbank Robur Globalfond MEGA	MSW	MSW
Swedbank Robur Humanfond	SIXPRX	OMX Stockholm Benchmark Index
Swedbank Robur IP Aktiefond	MSACW/SIXPRX 30/70	MSW/MSCI Sweden Gross/VINX 30/MSCI EM50 50/30/10/10
Swedbank Robur Japanfond	MSJ	MSJ
Swedbank Robur Kapitalinvest	MSACW/SIXPRX 30/70	MSW/MSCI Sweden Gross/VINX 30/MSCI EM50 50/30/10/10
Swedbank Robur Kinafond	MSGD	MSGD
Swedbank Robur Medica	MSWHC	MSCI World Health Care 10-40
Swedbank Robur Nordenfond	VINXBCAP	VINX Nordic
Swedbank Robur Ny Teknik	MSWIT	-
Swedbank Robur Privatiseringsfond	MSACW	-
Swedbank Robur Realinvest	CREX	MSCI World Real Estate/SIX Fastigheter Return 75/25
Swedbank Robur Rysslandsfond	MSR	MSCI Rencap 10-40

Swedbank Robur Råvarufond	MSWE	MSWE/MSCI Metals & Mining 50/50
Swedbank Robur Småbolagsfond Europa	DJSES200	DJSES200
Swedbank Robur Småbolagsfond Norden	VINXSC	VINXSC
Swedbank Robur Småbolagsfond Sverige	CSRXSE	NASDAQ OMX Small Cap Sweden GI
Swedbank Robur Svensk Aktieportfölj	CSRXSE	OMX Stockholm 50 Equal Weighted
Swedbank Robur Sverigefond	SIXPRX	SIXPRX
Swedbank Robur Sverigefond MEGA	SIXPRX	SIXPRX
Swedbank Robur Talenten Aktiefond MEGA	MSACW/SIXPRX 50/50	MSW/SIXPRX 50/50
Swedbank Robur Technology	MSWIT	MSWIT
Swedbank Robur Östeuropafond	MSEMEE	MSCI Emerging Markets Europe 10-40
Svensk Fondservice Maximal	MSACW	MSACW
Svensk Fondservice Maximal B	MSACW	MSACW
Svensk Fondservice Offensiv	MSACW	MSACW/OMRX Treasury Bill 80/20
Svensk Fondservice Offensiv B	MSACW	MSACW/OMRX Treasury Bill 80/20
Tangent	CSRXSE	-
Team Catella Tennisfond	SIXPRX	SIXPRX/OMRX Treasury Bill 75/25
Tundra Agri & Food	MSACW/MSEM 50/50	MSW
Tundra Pakistanfond	MSP	MSCI Pakistan
Tundra Rysslandsfond	MSR	MSR
Valbay Nordic Equity Fund	VINXBCAP	VINXBCAP
Valbay Swedish Equity Fund	SIXPRX	OMX Stockholm Benchmark Gross Index
Ålandsbanken China Growth	MSC	MSC
Ålandsbanken Swedish Small Cap	CSRXSE	SIXPRX
Öhman Hjärt-Lungfond	MSACW/SIXPRX 50/50	MSW/MSCI Sweden 50/50
Öhman IT-fond	MSWIT	MSWIT
Öhman Sverigefond	SIXPRX	MSCI Sweden
Öhman Varumärkesfond	MSW	MSCI World Growth

Appendix H. Additional statistical analyses

Table A1. Differences depending on the number of fund managers

Managers	*1*	*2*	*3*
Fund management fee	1.43	1.37	1.30
Fund size	3 149	3 150	2 467
Fund turnover	.73	.85	.59
No. of fund company employees	73	159	169
Excess return	-.27	-.19	-.62

Notes: Of the 191 funds, 135 funds (7.7%) were single-managed, 48 funds (25.1%) had two fund managers and 8 funds (4.2%) had three fund managers. Funds managed by teams were excluded. An ANOVA-test showed that the differences below were not statistically different, apart for the company size. The main effect of company employees and number of managers was significant, $F(2, 186) = 15.51$, $p < .001$. Post hoc analyses using Tukey HSD showed that the fund company size for single-managers were significantly lower than for two managers ($p < .001$) and three managers ($p < .05$). The difference between the company size for two and three managers was not significant ($p = .964$). In Drachter et al. (2007), 307 funds were managed by their fund manager sample. 23 funds were associated with two managers and one fund with three managers thus resulting in 332 combinations of fund and fund managers. Fund turnover was collected from fund annual reports and reflects the lesser of purchases or sales divided by yearly average net asset value (as reported). Number of company employees was collected from the Retriever database. Other variables are described in the Methods-chapter.

Table A2. Differences depending on the number of managed funds

Managed funds	*1*	*2*	*3*	*> 4*
Fund management fee	1.47	1.56	1.46	1.20
Fund size	2 570	4 194	5 696	21 978
Fund turnover	.80	.86	.88	.69
No. of company employees	70	71	53	202
Excess return	-.35	-.34	-.30	-.19

Notes: Of the 140 fund managers, 87 fund managers (62.1%) manage one fund, 25 fund managers (17.9%) manage two funds, 11 fund managers (7.9%) manage three funds, 10 fund managers (7.1%) manage four funds, five fund managers (3.6%) manage five funds, one fund manager (.7%) manages eight funds, and one fund manager (.7%) manages 11 funds. On average, fund managers managed 1.8 funds. An ANOVA-test showed statistical main effects in fund management fee, $F(3, 136) = 2.672$, $p = .05$, fund size, $F(3, 129) = 2.191$, $p < .001$, and company size, $F(3, 134) = 1.395$, $p < .001$. Other differences were not significant. Post hoc analyses using Tukey HSD showed that the fund size and the company size were only significantly higher for fund managers that managed more than four funds ($p < .001$ for all versus all six). The management fee was only significantly different between fund managers of more than four funds and fund managers of exactly two funds ($p < .05$). All other differences were non-significant. In Drachter et al. (2007), the managers in the sample ran about two funds on average. Baks (2003) found that US managers ran about 1.36 funds on average in 1999. This number had increased in the study by Ding and Wermers (2012), where the (lead) fund managers managed on average 1.9 funds. Fund turnover was collected from the fund annual report and reflects the lesser of purchases or sales divided by yearly average net asset value (as reported). Number of company employees was collected from Retriever. Other variables are described in the Methods-chapter.

Table A3. Descriptive statistics in comparison to previous Swedish study

	N	*TNA*	*Size*	*Flow*	*Adm. Fee**	*Turnover*
My study						
Active equity funds	191	562,111	3,123	312	1.4	76
			(1,330)	(35)	(1.5)	(52)
Active equity funds with Swedish focus (subset)	83	217,527	2,862	99	1.3	83
			(1,228)	(17)	(1.4)	(52)
Dahlquist et al. (2000)						
Regular equity funds with Swedish focus	80	90,739	568	108	1.4	75
			(171)	(22)	(1.3)	(55)
Allemansfonder (equity funds) with Swedish focus	46	107,151	1,862	-91	1.5	47
			(1,224)	(-20)	(1.5)	(40)

Notes: This table shows the same characteristics that were used in the study of Swedish equity funds by Dahlquist et al. (2000). N refers to the number of funds. TNA refer to the total net assets in million SEK on December 31, 2012. The table provides means and medians (in parenthesis). Dahlquist et al. used average data across funds and across their full period (1992 to 1997) whereas I only use a 1-year evaluation period and thus only present averages across funds. Dahlquist et al. focused on funds that invested in the Swedish stock market, but evaluated both regular equity funds and Allemansfonder; Allemansfonder are since 1998 regular equity funds. In my study, I included funds that invested in other geographic markets as well (but presents a comparable subset only focusing on the Swedish stock market). As can be seen, the number of equity funds has remained constant (or diminished if Allemansfonder continued as regular equity funds), but the fund wealth per fund was substantially higher in 2012. The fee structure and activity remained at similar levels. Dahlquist et al. gathered characteristics from the two publications Nya Finans, Sparöversikt and from the fund annual reports. Neither Nya Finans nor Sparöversikt were available in 2012 (the requirements on Finansinspektionen to publish Nya Finans ended in January 1997 and Sparöversikt was cancelled in 2005). Fund turnover in my study was collected from fund annual reports and reflects the lesser of purchases or sales divided by yearly average net asset value (as reported). Other variables are described in the Methods-chapter.

* Management fee in my study.

Table A4. Robustness checks

	(1) Alpha	(2) Sharpe	(3) Info. ratio	(4) Rating	(5) Excess 2013	(6) Excess 2010-2012	(7) FM equal-weighted	(8) Lead FM	(9) Single FM
Info. acquisition from sell-side	-0.24*	-0.16	-0.17	-0.22	-0.13	-0.26*	-0.28*	-0.23*	-0.23*
	(-2.36)	(-1.53)	(-1.84)	(-1.94)	(-1.30)	(-2.14)	(-2.25)	(-2.06)	(-2.06)
Info. acquisition from buy-side	-0.13	-0.17	-0.17	-0.15	-0.39***	-0.45***	-0.31*	-0.29*	-0.29*
	(-1.25)	(-1.55)	(-1.71)	(-1.22)	(-3.50)	(-3.49)	(-2.33)	(-2.36)	(-2.36)
Info. acquisition from company	0.10	0.26*	0.50***	0.05	0.24*	0.45***	0.44**	0.35**	0.35**
	(0.96)	(2.38)	(4.87)	(0.40)	(2.20)	(3.69)	(3.41)	(2.84)	(2.84)
Behavioral market beliefs	0.04	0.08	0.07	0.01	-0.16	0.04	0.02	0.04	0.04
	(0.37)	(0.81)	(0.69)	(0.08)	(-1.57)	(0.39)	(0.13)	(0.31)	(0.31)
Risk willingness	-0.15	0.05	0.05	0.05	-0.03	0.15	0.05	0.06	0.06
	(-1.49)	(0.51)	(0.49)	(0.44)	(-0.33)	(1.36)	(0.38)	(0.57)	(0.57)
Observations	97	97	97	88	95	67	61	73	73
Adjusted R^2	0.06	0.07	0.22	0.03	0.11	0.33	0.20	0.14	0.14
F-statistic	2.25	2.43	6.38	1.53	3.31	7.42	3.99	3.39	3.39

Notes: Standardized beta coefficients; *t* statistics in parentheses. FM stands for fund manager. Alpha is the Jensen alpha and the regression is weighted by the residuals of the inverse of the alpha estimates. The Sharpe ratio is calculated as the excess return (portfolio return less risk-free asset return, i.e. STIBOR) divided by the standard deviation of the portfolio returns. The information ratio is measured as the excess return divided by the (modified, i.e. tracking error by the power of the sign of the excess returns) tracking error. The rating is the 3 year rating of Morningstar, but the rating is for the fund and does not take into account if the same fund manager has managed the portfolio throughout the full period.

* $p < .05$, ** $p < .01$, *** $p < .001$

Table A5. Risk taking in managed funds

	Fund Turnover	Active Share	Tracking Error
Information acquisition from sell-side	0.18 (1.76)	-0.07 (-0.50)	-0.11 (-1.15)
Information acquisition from buy-side	-0.22* (-2.04)	0.10 (0.67)	0.02 (0.21)
Information acquisition from company	0.03 (0.28)	-0.07 (-0.48)	-0.37*** (-3.57)
Behavioral market beliefs	-0.10 (-0.98)	-0.05 (-0.36)	-0.15 (-1.49)
Risk willingness	0.16 (1.59)	-0.17 (-1.20)	-0.10 (-1.00)
Observations	100	57	97
Adjusted R^2	0.04	-0.04	0.18
F-statistic	1.87	0.58	5.32

Notes: Standardized beta coefficients; *t* statistics in parentheses. Fund turnover was collected from the fund annual report and reflects the lesser of purchases or sales divided by yearly average net asset value (reported). Details of how active share was calculated and how data was collected, along with the dataset, can be found in Fröberg (2016a)
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$