

Hedge Fund Voluntary Disclosure

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Abstract

We study voluntary financial disclosures using a proprietary database of 3,234 letters sent by 434 hedge funds to their investors. Our analysis includes aspects of funds' portfolios and performance as well as the presentation of performance. We find that managers use more frequent (monthly) and less frequent (quarterly) disclosures for somewhat different purposes with frequent disclosures serving a role for transparency and infrequent disclosures serving as a way to discuss and promote desirable fund attributes. Consistent with managers' concerns about proprietary costs, we find that in frequent disclosures better performing funds disclose less. Consistent with managers' self-interests influencing disclosure, riskier funds disclose less and also deemphasize poor and risky performance, particularly in lower frequency letters. Consistent with increasing awareness of transparency concerns for hedge funds, hedge funds have become more transparent over time. Our findings speak to regulatory concerns about voluntary disclosures in the presence of agency problems.

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1. Introduction

In this paper, we study the determinants of voluntary financial disclosure using a hand-collected, proprietary dataset of 3,234 letters sent by 434 hedge funds to their investors over the period 1996–2011. Our setting differs from others in the voluntary disclosure literature—such as management forecasts, press releases, and discussions in 10-K filings—because hedge funds are exempt from the securities regulations that mandate that investment vehicles make disclosures about their performance, operations and risk to their investors and/or the public (Oesterle, 2006). As such, the disclosures that hedge funds make to their investors are entirely voluntary.¹ They are also rich, spanning a wide array of information about current and past return performance, fund risk and investment positions, along with discussions of fund performance and the investment environment.

Because little is known about the voluntary (private) disclosures made by hedge funds, we first describe the letters sent by hedge funds to their investors. In collecting information from investors' letters, we code a large number of items that capture important aspects of funds' portfolios and performance as well as how performance is presented within the letters. The question naturally arises as to the benefits of such an approach. We demonstrate the value of studying a broad set of disclosures by showing how the disclosures in investor letters relate to a disclosure used frequently by hedge fund researchers—the reports voluntarily made to commercial databases (Aiken, Clifford and Ellis, 2013; Agarwal, Fos and Jiang, 2013). Noting that returns are just one of the many disclosure items contained in our database and are the primary disclosure to

¹ Hedge fund managers are required to disclose portfolio holdings at the manager level in publicly available Form 13-F filings to the Securities and Exchange Commission if the manager holds \$100 million or more in assets under management and conducts business using the U.S. Postal Service. Some hedge fund managers also choose to register with the SEC as registered investment advisors, thereby committing themselves to certain mandatory disclosures to the SEC.

commercial databases, we therefore describe the relation between the disclosure to commercial databases and the disclosure via investor letters.

We show that the choice to report fund returns to a commercial database is not only uncorrelated with the totality of the information hedge funds disclose in their investor letters, but it is both positively and negatively related to the disclosures actually made in investor letters, depending on the subcategory chosen. Given the large amount of data directly disclosed to investors in hedge fund letters, we are therefore able to test different aspects of disclosure that are not reflected by the choice to disclose some information via commercial databases.

Some stylized descriptive information from the investor letters is useful for understanding our analysis, particularly in our application of theories of voluntary disclosure to the hedge fund setting. Suggestive of theories of precedence setting in disclosures, we see that the vast majority of disclosure choices are stable over time. We also see some difference in the role that lower frequency disclosures play relative to higher frequency disclosures. In particular, lower frequency disclosures like quarterly and annual letters do often include information about performance, but they also appear to be used in a more conversational discussion about the fund than do higher frequency disclosures like monthly letters. Additionally, in collecting data from the letters, we code a large number of disclosure variables. However, because many of these disclosure items are related or may convey the same information (e.g. return volatility and the distribution of returns), we use a latent trait analysis to extract factors from the set of disclosures we collect. The factors have intuitive appeal and capture aspects in disclosures that match with aspects of disclosure that would appear to be particularly important to hedge fund investor letters. For example, one factor captures variation in disclosure variables related to the analysis of funds' returns while another factor captures variation in disclosure variables related to the attributes of portfolio holdings. Our

empirical design is then to test economic theories of voluntary disclosure by using measures of risk, performance, and other variables to explain these disclosure aspects within investor letters as captured by these disclosure factors.

With this background in mind, we briefly describe the theories, tests, and results of our analysis. Using our dataset of investor letters, we develop and test the predictions made in our setting by multiple theories of voluntary financial disclosures. One of the theories of voluntary disclosure hypothesizes that managers have concerns about voluntarily disclosing proprietary information that may be used by competitors such that future profits will be reduced. In practice, this seems to be a particular concern for hedge fund managers, particularly because the disclosure of performance is directly related to the strategies that managers pursue. This contrast with the disclosure of earnings information in corporate disclosures where the disclosure of earnings is only indirectly related to proprietary information such as product design and differentiation.

A key feature of our research setting is that the economics of the hedge fund industry serve to amplify the degree of information asymmetries between managers and investors, and the proprietary costs of making disclosures. Because hedge funds face no requirement to “level the playing field” and are not subject to Regulation FD, they can engage in selective disclosure with current and prospective investors, opening the door to acute information asymmetries (Cassar and Gerakos, 2010). The proprietary costs of making disclosures are high because hedge fund managers and current investors can incur losses if competitors² learn the fund’s investment strategy since such data would increase the ability of competitors to mimic the fund’s strategy and/or trade against the fund (Aragon, Hertzell and Shi, 2013; Agarwal, Jiang, Tang and Yang, 2013).

² Competitors include other managed funds, potential entrants, and even current investors because if investors knew a fund’s strategy they could invest their funds with lower management and performance fees.

The disclosure of proprietary information is a particular concern for managers when using frequent (monthly) disclosure and for information that is more likely to reveal a fund's particular strategy. Consistent with managers' concerns about proprietary costs, we find that better performing funds disclose less holdings, including highlighting particular positions, and less decomposition of returns into the source of the returns. In describing performance, better performing funds also discuss less about the source of returns.

A second theory that is the basis of concern when there are agency problems between managers and investors poses that when possible managers withhold or deemphasize bad news, something we refer to as the self-interest hypothesis. In the context of hedge funds' disclosures this theory most strongly applies to less frequent disclosures and to the presentation of performance. Following this theory, we expect poorly performing and riskier funds to disclose less and to present disclosures in a way that deemphasizes poor performance and risk. Consistent with managers' self-interests influencing disclosure, riskier funds disclose less information and also deemphasize the riskiness of performance and emphasize good performance. Specifically, we find that riskier funds have less return analysis, less holding information, less information about return sources, less information about the composition of returns, and less information highlighting individual positions. Riskier funds also deemphasize performance and describe performance as more extreme. Additionally, when funds perform poorly they also provide less information about return sources and attributing performance to particular reasons less, deemphasize performance, and call performance extreme. The findings are primarily for quarterly letters.

These findings of self-interest in disclosures suggest that contracting and incentives do not overcome agency problems that limit disclosure, particularly for funds for which transparency would be most important, i.e. risky and poorly performing funds. These findings echo regulators'

concerns about the lack of transparency in the hedge fund industry. However, consistent with the increased demand for hedge fund transparency, we find that fund transparency has improved over time. Specifically and primarily for monthly letters, return analysis, return sources, and holdings composition have increased over time and managers interpretation of performance through discussions of performance (in the form of our textual attribution and extreme performance factors) have decreased over time³.

We therefore contribute to disclosure research in at least two ways. First, by using a setting in which disclosures are voluntary. Second, by using a broad set of disclosures in the hedge fund setting. Third, we provide new evidence relevant to discussions by investors and regulators regarding hedge funds.

First, we contribute to the disclosure literature by testing the predictions from agency cost, proprietary cost, and self-serving management theories using a setting in which disclosures are fully voluntary. Most investigations of voluntary disclosure are in settings where there are existing regulations to protect investors, including mandatory reporting and disclosure standards (Guo, Lev, Zhou, 2004). The limited exceptions include studies that investigate settings before the introduction of regulatory oversight (Barton and Waymire, 2004; Shivakumar and Waymire, 1993) or outside of highly developed securities markets (Price, 2000). An advantage of studying an unregulated disclosure environment is the absence of distortion to the cost-benefit trade-offs that organizations face when making their disclosure choices in regulated settings. Our evidence suggests that hedge funds' disclosure choices as manifested in their investor letters are, in part, explained by economic theories of proprietary costs and self-serving management behavior, with no support for agency costs influencing hedge fund disclosure choice.

³ Given that many of our disclosures are sticky over time, at least some of the increase over time in disclosures comes from new funds providing more disclosure than old funds over time.

Second, we extend research on disclosure concerns in the hedge fund setting. Because much of the research on hedge fund disclosure has necessarily focused on mandated disclosures in the form of form 13-F filings with the Securities and Exchange Commission in the United States and on voluntary reports to commercial databases. Our results are important because they are based on a large set of disclosures made by hedge funds directly to their investors and these disclosures are not, on the whole, correlated with the disclosures made to commercial databases (and are more frequent and more detailed and include more information than the aggregated quarterly information made in 13-F filings).

Third, our study contributes to the debate on the optimal level of regulation for hedge funds. Regulators such as the Securities and Exchange Commission (SEC) consider public disclosure to be a critical element of protecting investors, and have proposed and enacted several regulations that increase mandatory filings and disclosures by hedge fund managers (Smith, 2006a, 2006b; Oesterle, 2006; PwC, 2011). In response, the hedge fund industry has advocated that funds should voluntarily follow best practice standards that give consideration to the particular characteristics and circumstances of each fund (MFA, 2009; WGFM, 2008). Whereas prior research focuses on the effects of mandatory public filings to regulatory authorities (Brown, Goetzmann, Liang and Schwarz, 2008) or on the choice to report monthly returns to a commercial database (Agarwal, Fos and Jiang, 2013), we show by using the actual disclosures made by hedge fund managers to their investors that the extent of disclosure is greater than that previously documented by researchers and regulatory agencies and that funds' disclosure choices are related to their proprietary costs. However, echoing the concerns of because, there may be concern about which funds choose to disclose particular items; in particular, since fund riskiness and disclosure about fund risk are negatively related, mandating particular aspects of disclosure could be important.

2. Hedge funds and hedge fund disclosure regulation environment

The term ‘hedge fund’ describes a broad set of managed investment vehicles structured so as to be exempt from securities regulations (ABA, 2005; Cassar and Gerakos, 2010; Lhabitant, 2008; MFA, 2009; WGFM, 2008) and from the reporting obligations of the Securities Exchange Act of 1934 (Fraser, 2007; Lhabitant, 2008; Oesterle, 2006). Hedge funds therefore exist in an economic environment characterized by almost fully voluntary disclosure—they do not have to disclose their portfolio holdings or returns to investors (Lhabitant, 2008) or provide periodic reports containing information about their investments (SEC, 2003, p.50). The only exception that exists is if the hedge fund manager holds \$100 million or more of assets under management and conducts business using the U.S. Postal Service, where the manager is required to disclose the long side of their portfolio holdings via publicly available Form 13-F filings with the SEC. However, these mandated disclosures are limited in that the disclosure requirement applies to management companies and not necessarily to individual funds making it difficult to uncover which holdings apply to a particular fund and the filing requirement is quarterly and only for long equity positions leading to only limited value when funds hold short positions, debt, or option positions, or have trading strategies that turnover more frequently than quarterly.

2.1 Hedge fund disclosure regulation

The exceptions from mandatory disclosure provided to hedge funds have been increasingly challenged by the SEC. Over time the SEC has sought to require hedge funds to disclose detailed information about their holdings, operations and risk to regulators and investors, and hedge funds have vigorously resisted. For example, in 2004 the SEC adopted a rule that required most hedge funds to register under the Investment Advisers Act of 1940 (Brown, Goetzmann, Liang, and

Schwartz, 2008, 2012). Although the rule required hedge funds with more than 14 clients, assets of at least \$25 million and a lockup period of less than two years to disclose via Form ADV detailed information about their internal compliance systems and not their operations or holdings, it was widely seen as a first step by the SEC toward oversight and regulation (George and Hwang, 2011) before being negated by the U.S. Court of Appeals in 2006. Then the financial crisis of 2007-08 gave regulators fresh impetus to seek to regulate hedge funds under the banner of managing systemic risk, despite a lack of evidence that hedge funds contributed to the financial crisis (Brown, Green and Hand, 2012).

Despite strong opposition from hedge funds (Eder, 2011), in 2011 the SEC proposed that hedge funds based in the U.S. make regular reports on their trading positions, counterparties and performance to a financial stability Panel established under the 2010 Dodd-Frank Wall Street Reform and Consumer Protection Act (PwC, 2011). Since mid-2012, per Rule 204(b)-1 of the Advisers Act, hedge funds registered as advisors with the SEC must periodically file Form PF, which requires managers to provide the SEC—but not to investors in the fund or the public—with information on exposure by asset class, counterparties, leverage, geographic concentrations, risk profiles, investor details, liquidity terms, strategies, turnover by asset class, stress test results and value-at-risk data.

2.2 *Voluntary disclosure by hedge funds*

2.2.1 Reporting to a commercial database

Many but not all hedge fund managers choose to report their fund's return performance to commercial databases such as HFR and Lipper-TASS. These self-reports are made under the 3(c)1 and 3(c)7 exemptions to the Investment Company Act, and are not interpreted as falling under Rule 502(c) of the 1933 Securities Act. Because they consist of disclosures relating to monthly

return performance and fund size, they are often viewed as representing a channel through which hedge funds can strategically market themselves to investors (Jorion and Schwarz, 2014). Despite the likely presence of strategic selection biases, such self-reports have been used to study the performance and behavior of hedge funds (Fung and Hsieh, 2009; Aggarwal and Jorion, 2010; Agarwal, Fos and Jiang, 2013; Aiken, Clifford and Ellis, 2013) and have been equated to an implicit commitment by hedge funds to investor disclosure (Aiken, Clifford and Ellis, 2013, p.212). These self-reports by hedge funds have also been shown to exhibit strategic biases in their reporting (Aiken, Clifford and Ellis, 2013; Aragon and Nanda, 2014; Bollen and Pool, 2009, 2012).

2.2.2 Investor letters

In our study, we diverge from the prior literature by directly examining the disclosures that hedge funds voluntarily make by means of letters to their investors. Should they choose to disclose, hedge funds can select from a wide range of possibilities, including annual financial statements (audited or unaudited), periodic net asset value statements and performance information; investor letters and risk reports, and disclosure of or access to the investment positions of the fund.

Among these, we propose that frequent and timely investor letters are among the most important because they are standard practice in the hedge fund industry and they provide all investors in the fund with a standardized and equal opportunity to discern the fundamental portfolio characteristics and drivers of performance, and determine if these factors are changing over time (WGFM, 2008, p.51). Investor letters are informally thought to vary in style and form, and include developments relating to changes or divergence in investment strategy, risk exposure, key personnel, and financial market events (MFA, 2009; SEC, 2003, p.50; WGFM, 2008, p.51). Investor letters can also encompass a variety of backward and forward looking narrative or analysis

of performance history or future events (MFA, 2009; SEC, 2003, p.50; WGF, 2008, p.52).

Within investor letters, disclosures about risk can provide the extent of risks taken, the fund's approach to risk management and information in light of their approach, such as concentration of positions or variations in strategy by asset type, geography, and leverage employed (MFA, 2009). Industry prescribed best practice suggests periodic letters should also include information about exposure to types of positions, portfolio by geographic, industry or strategy classification, and top individual positions (WGF, 2008, p.51). Within communications with investors, fund managers may provide factors underlying the fund's performance and attribution of fund performance by strategy, regions, long and short, or particular significant winners and losers (MFA, 2009; WGF, 2008, p.52).

3. Determinants of disclosures in hedge fund investor letters

In this section, we outline theories pertaining to voluntary disclosure, and connect each to the novel setting of hedge fund investor letters. Ex-ante, we argue that the economics of the hedge fund industry likely amplify the degree of the agency costs faced by investors, the information asymmetries between fund managers and investors, the proprietary costs of making disclosures, and the effects of dynamic disclosure concerns. For example, hedge fund managers are highly reticent to share the proprietary details of their investing strategies to even their own investors, given that such strategies are readily portable and can have the potential to earn billions of dollars.

The use of hedge fund investor letters offers several benefits for testing hypotheses about disclosure. First, investor letters represent a somewhat comprehensive representation of and are a primary source for the disclosures that hedge funds provide to their investors. Second, timing and types of disclosures are not all equally related to the hypotheses tests that have predictions for

particular disclosures rather than equally applying to overall disclosure. We develop hypotheses based on theories proposed in prior research as applied to the disclosures made in hedge funds' letters to investors.

3.1 Agency costs

3.1.1 Monitoring and signaling

A long line of economic literature argues that greater disclosure reduces information asymmetries between managers and investors, thereby lowering agency costs (Diamond and Verrecchia, 1991). Lower agency costs from disclosure are achieved through two mechanisms. First, disclosure reduces moral hazard costs since greater disclosure provides better monitoring of fund managers and lowers the likelihood that investors will bear costs arising from managers not behaving in their best interests. Unreported divergence by managers from their stated investment strategy may also adversely affect investors in that their total portfolio of investments including those outside hedge funds may not be optimally allocated. Consistent with these ideas, survey evidence suggests that additional position transparency is demanded to monitor strategy drift and sector concentration to ensure funds are investing in the class of assets and investment style they claim to be investing in (SEC, 2003, p.49; DB, 2003).

Second, by providing greater disclosure and therefore greater transparency and monitoring, funds can signal their quality and thereby reduce adverse selection concerns. Since hedge funds face no requirement to “level the playing field” and are not subject to Regulation FD, they can engage in selective disclosure with current and prospective investors, opening the door to acute information asymmetries (Cassar and Gerakos, 2010) that provide hedge funds with strong incentives to alleviate through voluntary disclosure. Consistent with the predictions of agency

cost theory, Cassar and Gerakos (2010) predict and find that internal controls are stronger in funds with higher potential agency costs such as in younger funds that lack valuable reputations, offshore funds that are subject to a weaker legal system, and unlevered funds that are not subject to creditor monitoring. Also, Brown, Goetzmann, Liang and Schwarz (2008) find that hedge funds operated by managers who voluntarily filed the detailed information about their internal compliance systems required by Form ADV in 2006 had better past performance and more assets than hedge funds that did not.

To the extent that hedge funds face high agency costs that can be reduced by the voluntary and credible disclosure of financial data to investors, we expect to observe that a greater quantity and quality of disclosure in hedge fund investor letters helps alleviate agency concerns, particularly for poor performing and high risk funds. This would be the case if contracts and incentives are designed to encourage transparency. Applying this reasoning to the hedge fund data leads to some hypotheses about disclosures. In general anecdotal evidence suggests that investors desire more disclosure from hedge funds and that the emphasis on transparency for disclosures has increased over time. However, the particular type of disclosure that investors demand is likely to be a function of the type of fund and returns that a particular fund earns. (As an extreme anecdotal example, investors in Bernie Madoff's funds supposedly were willing to accept the lack of disclosure because the fund returns were stable and good). Additionally, as the number of investors increases and the amount of money invested in the fund increases there is increased demand for disclosures particularly if a larger investor base makes communication with individual investors more difficult or less likely. Although it is difficult to predict the exact relation that demand might have on types of disclosures, comments by regulators, investors, and the media suggest that the biggest demand from investors for more disclosure is from risky funds or where a large number of

potentially smaller-dollar-per-investor investors hold shares of the fund and one of the concerns is the lack of transparency in the case of poor performance. This reasoning leads to the following hypotheses if disclosures are designed to mitigate agency costs. First, that transparency had increased over time. Second, that risky and poorly performing funds are more transparent than less risky funds.

3.1.2 Self-serving hedge fund manager behavior

Agency problems arise because investors are concerned that managers disclose information in ways that are in their own interests, potentially at the sacrifice of information that investors would desire to have. These agency problems can be manifest in the information that is disclosed to investors and in how the information is conveyed.

The willingness of hedge funds to disclose can be influenced by performance due to self-serving reasons. Miller (2002) finds increased disclosure during a period of increased earnings, while Lang and Lundholm (1993) find analysts perceive that firm disclosure is greater in years with a positive annual earnings surprise. And the premise that managers will be more (less) forthcoming when performance is good (poor) underlies many of the SEC's deliberations and discussions in exchange listing guides (Lang and Lundholm, 1993, p.249).

Related to self-serving reasons, and because the riskiness of a managers' investment strategy is critical for hedge fund investors to understand (Titman and Tiu, 2011), hedge fund managers with riskier investment strategies may be less willing to disclose information about performance and about fund risk. Indeed, one of the concerns that has been expressed about the lack of disclosure by hedge funds is that investors cannot or do not understand the risks involved in hedge fund investments (<http://investor.gov/investing-basics/investment-products/hedge->

funds).

Additionally, investor communications can be used to legitimize fund manager actions and performance. Indeed, while voluntary and not audited, providing attribution of performance is encouraged as a best practice for hedge funds (MFA, 2009; WGFM, 2008, p.52). However, the attribution of good (bad) performance to the fund manager (external) influences can help fund managers present themselves in an asymmetrically biased manner at the potential expense of their investors (Cassar, 2001; Baginski, Hassell and Hillison, 2000). Evidence from letters to shareholders in corporate annual reports consistently shows that favorable and positive outcomes are more often attributed to internal causes, while unfavorable and negative outcomes are attributed more to external causes that are deemed to be unstable and uncontrollable (Bettman and Weitz, 1983; Staw, McKechnie and Puffer, 1983; Salanick and Meindl, 1984). Similarly, research has found that for management earnings forecasts external (internal) attributions are more likely for bad (good) forecast news (Baginski, Hassell and Hillison, 2000; Baginski, Hassell and Kimbrough, 2004).

To the extent that hedge fund managers present themselves in an asymmetrically biased manner to investors, we expect fund managers to provide more information when fund performance is good rather than when it is poor, and to emphasize good performance and not disclose or deemphasize poor performance. Additionally, if hedge fund managers can conceal the risk of their investment strategies from investors, we expect riskier hedge fund managers to disclose less about performance in general and particularly less about fund risk. Because of the apparent differences in the roles of different letters (quarterly versus monthly), and because low frequency letters include more conversation about performance and the fund, we expect that self-interest concerns will be most evident in quarterly letters.

3.2 *Proprietary costs*

Hedge funds face substantial risks of experiencing high proprietary costs for two reasons. First, hedge fund investments are essentially a bet on the fund manager's proprietary financial strategies and abilities (Edwards and Caglayan, 2001; Lo, 2008). Hedge fund managers command management and performance fees greater than other investment managers because investors expect that the fund manager's proprietary strategies will achieve greater net of fees returns than alternative investment approaches, such as mutual funds or personal investing. However, by periodically disclosing the fund's investment positions, investors could reverse engineer the fund's proprietary strategy (Aragon, Hertz and Shi, 2013; Agarwal, Jiang, Tang and Yang, 2013). In the extreme, if an investor could completely unravel the fund's investment strategy, then there would be little benefit to being a limited partner in the hedge fund and compensating the fund manager, since the investor could earn similar returns by replicating the fund manager's investment strategy without paying the manager fees (SEC, 2003, p.20; WGFM, 2008, p.51). Fund managers therefore have incentives to limit disclosure to their investors in order to reduce the likelihood that their proprietary strategies can be identified and replicated.

Second, over and above the concern identified above, a hedge fund can incur substantial losses if outsiders acquire proprietary information about the fund's investment positions because such information could increase the ability of competitors to profit by trading against the fund. Consistent with this, Cassar and Gerakos (2010) find that funds with a short bias investment strategy have less external verification of fund operations and asset valuation by outside service providers. This reasoning for why proprietary costs limit voluntary disclosure is that disclosure may reveal information about the generation of abnormal profits to current and potential competitors and lead to increased competition and reduced future profits.

The evidence on proprietary costs' effects on disclosure is mixed. One of the difficulties in other research is that the link between the information that reveals proprietary strategies and the information disclosed is not particularly strong. For example, how the disclosure of earnings reveals proprietary information about product production is indirect at best. However, for hedge funds, whose product is the stream of returns that they report, the link between the information that is disclosed and the strategy that is proprietary is strong.

Because of the nature of these disclosures, if proprietary costs are a real and important driver of disclosure decisions, proprietary costs should matter most when the disclosures by hedge funds are more timely and disaggregated. With hedge fund letters, we expect proprietary cost concerns to be most evident in high frequency (monthly) letters because this information is more likely to be timely and relevant if disclosed to potential competitors. Therefore, if proprietary strategies generate higher returns, then the proprietary cost hypothesis predicts that funds with higher returns are less transparent in high frequency disclosures.

3.3 Costs of setting disclosure precedents

Most agency cost and proprietary cost theories consider single period disclosure decisions. In contrast, Einhorn and Ziv (2008) use a multi-period model of voluntary disclosure and show that managers could avoid providing voluntary disclosures because the first act of disclosure sets a costly precedent. Survey-based evidence supportive of managers having concerns about disclosure precedence is provided by Graham, Harvey, and Rajgopal (2005). In light of such work, we propose that disclosure precedent concerns may be particularly important for hedge fund managers because hedge funds have historically avoided disclosure, hedge fund managers have a long horizon that typically matches the life of their fund, and Einhorn and Ziv (2008) show that

such attributes magnify managers' concerns about setting disclosure precedents. Specifically, following this theory, we expect hedge fund disclosure to be stable over time, particularly for those types of disclosure that are likely to set a costly precedent.

4. Sample of hedge fund investor letters

4.1 Sample selection

We obtained access to a confidential database of 3,234 letters from hedge fund managers to their investors from a single fund-of-hedge-funds investor. The letters span the period 1996–2011 and are from 434 funds and 265 management companies⁴. Table 1 presents descriptive statistics on the letters and funds. Panel A tabulates the reporting frequencies of the letters, and statistics on the number of pages in the letters. Of letters, 82% are issued on a monthly frequency, 15% are issued quarterly, and other frequencies only represent a small percentage of the letters. We were unable to identify the frequency for 36 letters. Investor letters are on average 3.3 pages long, although some are much longer (maximum is 37 pages). Panel B tabulates both investor letters and funds by investment strategy. Sample funds span a broad range of investment strategies, with equity long/short being the most prominent. Panel C tabulates the years of inceptions and the years that letters are issued. The modal year that funds in our sample were started was 2005, with most letters being issued after 2000. Panel D shows the number of funds and the percent of funds that report performance to a commercial database as well as the number of management companies

⁴ A potential concern with our sample is that there is some selection bias in the funds that provide letters to the fund-of-funds that is the source of our letters. While this is a concern with our data, we do not have the means to test whether any selection bias is driving our results. However, selecting letters from a single investor provides us with other benefits. First, that this investor is a highly sophisticated investor with a large amount of capital making concerns that hedge funds disclose different information to different investors and in particular to this investor unlikely. Additionally, our examination of the letters suggest that these are form letters sent to all investors and that all investors receive this information making this additional concern unlikely to create problems with making general inferences regarding the disclosures sent to investors.

and the percent of management companies that file form 13-F with the SEC. About half of the management companies file form 13-F and about half of the funds report performance to commercial databases.

In appendices A.1–A.4 we provide examples of the typical kinds of investor letters in our sample, where each example has been disguised by recreating the original letter after replacing the identities of the actual fund(s), the management company and the fund manager(s) with fictitious equivalents. Appendix A.1 illustrates a terse, numbers-oriented letter and appendix A.2 a short, words-oriented letter. Appendix A.3 is an example of a letter that while compact, contains a large amount of high quality information by means of diverse text, tables, graphics and statistics. Lastly, Appendix A.4 displays an example of a letter specifically structured so as to be emailed to investors, including links to more detailed fund-specific PDF files.

4.2 Information disclosed in investor letters

As suggested by the examples provided in appendices A.1-A.4 and from the best practice guidelines, investor letters can contain a great deal of information. In Table 2 we report descriptive statistics for the items that we code from each letter. Because the letters from different frequencies may contain different types of information, we separately describe the information in our two most periodicities, monthly and quarterly. Given the richness of the textual, tabular, graphic, and numerical data that exists, we sought to reasonably balance the volume of items we coded and the detail with which we coded them against the substantial costs involved in executing the time-intensive hand-coding involved. Implementing this tradeoff led us to code the large majority of disclosures that we chose to focus on via 1/0 indicators that record the presence or absence of an item. The main exception to our binary indicator coding scheme was that we coded the most recent fund return as numerically reported in the letter. We also code the assets-under-management as the

dollar value when available. In Table 2, we list the disclosure items we coded, divided into five categories based on our intuition for what the different disclosures represent and representing categories that are important from an investor's perspective: fund-related, return performance, asset holdings, risk, and text-based performance discussions. For each disclosure item, Table 2 shows the percentage of monthly and quarterly letters that disclose the item and the percentage of letters with at least two letters of the same frequency that change from not disclosing to disclosing or from disclosing to not disclosing an item.

To highlight a few of the results, 97% of monthly letters and 98% of quarterly letters report their most recent period returns. Returns are usually presented in tabular format for monthly letters and more often in the text for quarterly letters. Only a small percent of letters report fund related information. Investor letters also provide a breakdown of the fund's investment positions, such as the percentage of the fund's portfolio invested in long positions (69 and 64%), in short positions (67 and 62%), by industry sector (45 and 23%), by geographic region (30 and 11%), and by market capitalization (14 and 11%). Dimensions of the fund's historical risk, such as the fund's distribution of returns and volatility of returns, are reported in monthly and quarterly letters but more frequently in monthly letters. The correlation between the fund's returns and the benchmark's returns is reported in 36 and 17% of monthly and quarterly letters.

Discussions of the future, manager skill with regard to performance, and other aspects of performance are not uncommon, but other textual descriptions of performance are less common such as discussing past performance or discussing peer funds. However, discussions of performance are more common in quarterly letters than in monthly letters. The lower frequency of return and holdings information and the higher frequency of discussions of performance in quarterly letters than in monthly letters and our reading of the letters suggest that the lower

frequency, quarterly letters and the higher frequency, monthly letters may be aimed at different objectives. In particular, reading through the letters suggest that lower frequency letters are often used to discuss performance, highlight the quality and performance of the fund and generally provide a type of marketing role by trying to persuade investors to view the fund favorably. Additionally, these letters appear to provide an outlet for managers to discuss the economic and operating environment surrounding the fund. Because of the differences in the types of information included in monthly and quarterly letters and the differences in their frequencies, we expect different aspects of economic theories to apply differently to the types of letters. Accordingly, in our empirical analyses, we perform tests together and separately for monthly and quarterly letters.

In contrast to the generally common reporting by funds of many of the disclosure items, the percentage of funds that change whether they do or do not disclose any particular item is low, ranging between 0% and 13% and being highest for textual descriptions about fund performance. Thus, with the exception of textual descriptions about fund performance, the general disclosures that hedge funds make in their investor letters are stable over time. We interpret this descriptive evidence as being consistent with hedge fund managers choosing to disclose certain information and not vary from it because of the disclosure precedent that would be set. The lack of variation in the fund level time series of disclosure choice is particularly evident for disclosures that are most likely to set a costly precedent (e.g. hard numbers containing specific data about fund performance, holdings, or risk) while there is more variation for disclosures that are less likely to set a costly precedent (e.g. textual descriptions of fund performance).

Although we have broadly grouped disclosure items into classifications that have a reasonable interpretation, many of these disclosure items could easily be grouped differently. For example, although we have classified providing a history of returns as a performance disclosure,

this disclosure could also reasonably be classified as providing risk information. Similar arguments can be made for many of the disclosure items. Additionally, there may be correlations between the disclosure items such that some items are always provided together or some items substitute for other items⁵. Most important to understanding hedge fund disclosures and to tests of disclosure theories, we are most interested in the underlying information that is being disclosed rather than a particular way in which that disclosure is being made. To incorporate into our analysis the correlations among disclosures and to gain a better understanding of the types of disclosures that are being made, we perform a factor analysis of sets of disclosure items. In particular we perform a factor analysis of disclosure items that reflect important aspects of performance, holdings, and risk and separately we also perform a factor analysis of disclosure items that reflect the presentation of performance. Specifically, in the first factor analysis, we include all performance, holdings, and risk related disclosure items except for whether returns were reported in a table or the text (because it is about the presentation of the performance). We also exclude whether the most recent periods' returns were disclosed because this items is provided in virtually all letters and we use the reported return as a determinant in our analysis. We select these disclosure variables because these relate to topics that are most commonly discussed by regulators, researchers, and investors. In the second factor analysis we include all of the textual discussions of performance and whether performance was reported in a table or text. We select these disclosure variables because they all relate to the way in which performance is presented in the letters.

In the first step of the factor analysis, and because all of the disclosure variables are binary, we calculate a tetrachoric correlation matrix. We then use this correlation matrix to extract factors from the disclosures using an unweighted least squares method. We retain factors with eigenvalues

⁵ We are grateful to a reviewer for recommending that we consider the correlations among the disclosures.

greater than one. For interpretability of the factors, we rotate the factors using the varimax procedure. This approach attempts to uncover the latent traits within disclosures, revealed through the disclosure variables (Bishop, Fienberg, and Holland, 1975; Loehlin, 1999). For the first set of variables this procedure results in six factors. This procedure produces four factors with the second set of variables. The factor patterns for these variables and factors are provided in Table 3.

Following an examination of the variables that load most strongly on each factor produces some intuition about what the factors capture about the investor letters. Panel A of Table 3 presents the first factor analysis. Nine disclosure variables load most strongly on the first factor. These variables are primarily disclosures that present descriptions or analysis of returns. For example, volatility of returns, historical returns, and the correlation of returns with a benchmark all strongly load positively on this first disclosure factor. We label this factor *Return analysis*. The second factor captures variation in variables that describe portfolio holdings and we label this factor *Holdings composition*. The third and the fifth factors, *Return source* and *return compositions* are related in that both capture the variation in disclosures that decompose returns along several dimensions. However, not all disclosures are positively related as the information ratio negatively loads on the third factor. One possible interpretation of this negative loading is that there are some substitute relations between some of the disclosure variables. Benchmark disclosures positively load on the fourth factor. Again as with the third factor, there are negatively loadings for two disclosure variables. Finally, disclosures that provide individual winning or losing positions load positively on the sixth factor. With the exception of a few negative loadings, the factor loadings and factors lead to reasonably intuitive factors. Letters vary in their provision of return analysis disclosures (*Return analysis*), their disclosure about the source and composition of returns (*Return source*, *Return composition*), their disclosure of portfolio holdings information (*Holdings*

composition), their disclosure of benchmarks (*Benchmarks*), and whether they identify individual winning or losing positions (*Highlights*). In the analysis that follows, we use these factors as our measures of disclosure that we use to test economic theories of voluntary disclosure.

Panel B reports the factor patterns for how performance is presented within investor letters. The four factors that result from the factor analysis also capture intuitive aspects of the presentation of performance (*Attribution*). Disclosures that discuss how managers achieve returns load positively on the first factor. The second factor captures variation in disclosures about the operating environment of the fund (*Explain*). Disclosures that relate to how current performance is emphasized in the letter with higher values meaning less emphasize on current performance (*Demphasize*). Note that for this factor positive and negative loadings are intuitive. Disclosure in the text loads positively on this factor while disclosure in a table loads negatively on this factor and discussions about the future load positively on this factor. The last factor is from the disclosure of whether performance is described as extreme in the letter. Similar to the other factors, we use this factors in our analysis of disclosure in investor letters. However, because these disclosures relate to disclosures that vary more over time than do the other disclosures, we also consider changes in these disclosure rather than the focus with the other disclosures in focusing on cross-sectional variation in the disclosures.

To illustrate the importance of using a broad set of disclosures in our analysis of voluntary disclosure, in Table 4, we describe the first set of disclosure factors separately for letters from funds that voluntarily report to a commercial database. If the decision to voluntarily report to a commercial database⁶ is a sufficient measure of the voluntary disclosure decision we should see that funds reporting to a commercial database have higher disclosure factors (a negative difference

⁶ To determine whether funds report to a commercial database, we search for fund names that match in HFR and Lipper-TASS two large and commonly used commercial databases.

value in the table). As presented in Table 4, letters from funds that report to commercial database do have more return analysis disclosures, more return composition disclosures, and more highlight disclosures. However, letters from funds that report to commercial databases also have lower holdings composition, return source, and benchmark disclosures. These differences are statistically significant with t-values ranging in absolute value from 5.0 to 12.4.

We provide this description of the data because prior academic research has equated the voluntary reporting by a hedge fund to one or more commercial databases as a commitment by the hedge fund to voluntarily provide its current investors with adequate disclosure (Agarwal, Fos and Jiang, 2013; Aiken, Clifford and Ellis, 2013, p.212). However, because hedge funds are not permitted to undertake any form of general solicitation or advertising to the general public (ABA, 2005), they likely choose to report their returns to commercial databases at least in part to attract new investors.

The descriptive evidence provided in Table 4 suggests that a single proxy for disclosure (commercial database reporting) is unlikely to be sufficient for understanding the broader set of disclosures that managers voluntarily make to their investors. This is the case because disclosure of one item does not necessarily imply disclosure of another item.

Table 5 reports descriptive statistics for the returns reported in investor letters by the periodicity of the letter, namely annual returns for annual letter periodicity and monthly returns for monthly letter periodicity. Because reported returns are reported at different frequencies, in tests that include letters of more than one frequency (monthly and quarterly letters), returns are standardized to a mean of zero and a standard deviation of one by the frequency of the letter.

Because fund size is an important feature of a fund and also likely important to a funds' disclosure decisions, and as shown in Table 2 only 39% of monthly letters disclose assets-under-

management, we fit a model of assets-under-management on other known variables. Table 6 reports the estimated coefficients of the natural log of assets-under-management when available on indicator variables for whether a fund reports to a commercial database (*commer*) and whether a management company files form 13-F with the SEC (*SEC13F*) and on a time variable (the number of months since January 1990) and the time variable squared and strategy indicators. The model fit is good (adjusted r-squared = 95%) and suggests that if non-disclosing funds are similar, using the model to estimate fund size should be reasonably good. The coefficients reported in Table 6 also fit properties of the hedge fund industry. The size of funds has increased over time (a positive coefficient on *time*). The negative coefficient on *commer* shows that funds that disclose to a commercial database tend to be smaller consistent with the use of commercial databases to raise capital. The positive coefficient on *SEC13F* is consistent with larger funds meeting the requirement to file form 13-F with the SEC which coincides with the size-based requirement that triggers the 13F filing requirement. These coefficients are used for all funds with available independent variables as the measure of fund size in subsequent tests.

5. Empirical determinants of disclosures made in hedge fund investor letters

5.1 Empirical design

Our empirical design is to estimate regressions of disclosure factors on determinants of disclosure in investor letters and in particular including determinants based on theories of voluntary disclosure. Our regressions take the following general form.

$$Disclosure\ Factor_t = \alpha + \beta_1 ret_t + \beta_2 ret_t^2 + \sum Controls_t + \varepsilon_t \quad (1)$$

In equation (1), *Disclosure Factor* is one of the disclosure factors described in Table 3, *ret* is the

reported return in the investor letter standardized by letter frequency. Control variables are *size*, the estimated assets-under-management from Table 6, *SEC13F* an indicator equal to one if the letter is from a management company that files form 13-F with the SEC, *commer* an indicator variable equal to one if the letter is from a fund that discloses information to a commercial database, *month* an indicator equal to one for monthly letters and equal to zero for quarterly letters, and *time* a time and a squared time variable where time is the number of months from January 1990 until the month of the letter. In regressions in which we are concerned with changing levels of disclosure, the disclosure factors based on disclosures that change more frequently over time, we include the lagged dependent variable as an additional control variable so that coefficients on other variables may be interpreted as the marginal effects of those variables after controlling for the prior level of disclosure. We estimate the regression for each disclosure factor and together and separately for monthly and quarterly letters. We estimate the equation using pooled OLS regressions and the significance of the estimate coefficients use standard errors clustered by fund because funds may have multiple letters in the sample.

As a summary of our hypotheses, we expect a negative estimated β_1 when proprietary costs restrict the disclosure of funds with good performance (primarily for monthly letters) and a positive coefficient for disclosure variables that indicate more disclosure if funds present disclosures in a self-interested way with more disclosure or more discussion and highlighting of performance when returns are higher (primarily for quarterly letters). We expect a negative estimated β_2 if risky funds disclose less information following agency concerns about disclosure (monthly and quarterly letters) and if funds deemphasize performance and risk for risky funds (primarily quarterly letters). Additionally, because concern about transparency in the hedge fund industry by academics, regulators, and investors has increased over time, we expect positive

estimate coefficient on time for disclosure factors that make hedge funds more transparent (primarily monthly letters).

5.2 Results

Table 7 presents the results from estimating equation (1) with the first set of disclosure factors. Panel A of table seven shows the results when the dependent variable is the return analysis factor. The estimated coefficient on *time* for the combined and the monthly letters is significantly positive evidencing increased return analysis disclosures over time. This suggests that the increasing focus over time on transparency in the hedge fund industry has led to more transparency with respect to return analysis disclosures. A positive coefficient also appears in Panels B and C for the holdings composition and return source factors suggesting the increased transparency over time also applies to these disclosures. The positive coefficient on *Monthly* shows that monthly letters are more likely to have these disclosures consistent with the descriptive evidence that monthly letters and quarterly letters differ in their purpose and content. None of the estimated coefficients on *ret* are significant suggesting that performance is not related to these disclosures but the negative coefficient on squared returns is consistent with agency concerns that riskier funds disclose less return analysis information.

The dependent variable in Panel B is the holdings composition factor. The coefficient on *Monthly* is significantly negative and is also negative for the return source factor, and the benchmarks factor. The negative coefficient suggests that although quarterly letters tend to focus on describing and promoting the fund, they also tend to decompose holding more so than monthly letters-perhaps because even though these disclosures could generate some proprietary cost concerns, the low frequency of quarterly letters mitigate this concern. Consistent with the

proprietary costs theory, the estimated coefficient for monthly letters on *ret* is significantly negative consistent with managers concerns about disclosing proprietary information when disclosing holdings at a somewhat high frequency. For all letters, the concerns that agency problems lead to less disclosure by risky funds, the estimated coefficient on squared returns is negative. Similar results are shown in Panel C for the return source factor.

There is very little in Panel D that explains the benchmarks factor. Panel E reports the results for the return composition factor. Again consistent with agency cost concerns, return composition disclosures are less common for riskier funds in quarterly letters, but these disclosures have become more common over time. Finally, Panel F displays the results for the highlights factor. Similar to the holdings composition factor, in monthly letters, better performing funds disclose less information about highlights from the portfolio holdings consistent with proprietary cost concerns. In quarterly letters, riskier funds disclose less information about highlights from the portfolio holdings.

Together the results in Table 7 are most consistent with proprietary cost concerns limiting disclosure, particularly for the more frequent monthly letters and with the concern about agency costs limiting the disclosures of risky funds. The findings also highlight generally increasing transparency over time in investor letters.

Table 8 turns to the four disclosure factors derived from disclosures about how performance is discussed and presented. Because one of the purposes of quarterly letters seems to be the discussion and promotion of the fund, we expect theories about managers' self-interest in disclosure to be stronger for quarterly letters. In these regressions we include the lagged dependent variable so that estimated coefficients on the other variables represent the marginal effect of a variable after controlling for the prior level of disclosure. Panel A reports the results

for the attribution factor. This factor is larger when investor letters attribute performance to their own efforts and skill or to other factors. Because the disclosure of other factors and the management aspect of disclosures are positively correlated with both loading strongly on this factor, it seems reasonable to expect this factor to capture when letters discuss details about how performance occurred. The results in panel A show a strong negative coefficient on *ret* suggesting that better performing funds are less willing to disclose this information, but riskier funds in quarterly letters are more willing to provide this information. These results raise the possibility that agency concerns lead to more of this type of disclosure. Whether this is desirable or not, it is hard to determine from these results. The negative coefficient on monthly, similar across panels of Table 8 shows that these type of presentation issues are less common in monthly letters.

Little beyond the lagged dependent variable load when using the explain disclosure factor as shown in Panel B. Panel C presents results for the deemphasize factor. Higher values of this factor are for disclosures that seek to deemphasize performance results by reporting the return in the text and not in tables and focusing on discussions of the future. For quarterly letters there is a significantly positive estimated coefficient on *ret* consistent with an attempt to deemphasize performance when it is low. Similarly, the positive coefficient on squared returns also suggests that there is an attempt to deemphasize performance fund risk is high. Similar results apply to Panel D where lower returns are described more as extreme and riskier funds describe performance more as extreme.

Together the results across the panels in Table 8 suggest that, primarily for quarterly letters, disclosures driven by self-interest seek to deemphasize and excuse poor and risky performance. Across Tables 7 and 8 our results highlight the concerns raised by regulators that risky or poorly performing hedge funds are less transparent and seek to portray performance in such a way that deemphasizes poor or risky performance. We also find some evidence consistent with proprietary costs limiting

disclosures. We also find that transparency has increased along some dimensions over time. There is little prima facie evidence that investors are able to contract or incentivize managers in such a way that voluntary disclosures mitigate agency concerns that yield low disclosure for funds where the demand for transparency ought to be the highest.

7. Robustness and Limitations

Although we provide new evidence on voluntary disclosure using a setting in which disclosure is entirely, not just partially, voluntary, there are limitations to the inferences and the analysis we have performed. First, the behavior of hedge fund managers with regard to disclosure decisions may not generalize to other types of managers, particularly those engaged in real rather than financial decisions. Moreover, disclosures through investor letters may not generalize to other types of disclosure vehicles. Second, data availability issues mean that we are unable to control in our regressions for some factors that might be important determinants of hedge funds' voluntary disclosures. At the same time, however, untabulated analyses indicate that the bulk of our regression results remain unchanged if we include the lagged dependent variable in all of our analyses (most results get stronger), if we use the standard deviation of returns as the measure of fund risk; we do not use these as our primary analyses because doing so leads to a substantial loss of observations. Our results are also similar if we estimate the regressions at the fund level.

Finally, although our findings indicate that agency cost concerns are not the primary determinant of cross-sectional variation in hedge funds' voluntary disclosures, we acknowledge that hedge fund disclosures are equilibrium choices that are likely to reflect agency costs. Although our evidence does not suggest a dominance of agency cost concerns, we cannot observe the disclosure choice that would have been made in the absence of agency costs. Thus, it may be that

more risky funds disclose more than they would otherwise because of agency costs, but we infer that they do not because even after these concerns more risky funds still disclose less than less risky funds.

8. Conclusions

In this paper, we study the voluntary disclosures made by hedge funds to their investors in the form of periodic letters. Contrary to the industry's reputation for opacity, we find that hedge funds voluntarily provide their investors with a wide and rich array of content including data related to current and past performance, fund risk, fund investment positions, forward looking information about the investment environment, and discussion and attribution of past performance. However, our results also validate the concerns about transparency as the evidence most strongly points to disclosure concerns for funds with poor or risky performance. However, our results also seem to echo managers' concerns about proprietary costs as better performing funds tend to disclose less return and holdings composition information in monthly letters. Finally, our results suggest that the increasing awareness and concerns about hedge fund opacity over time have yielded increased transparency along several dimensions of disclosure.

Our findings also point to the value of studying multiple aspects of disclosure as single aspects of disclosure that may be widely available (disclosure to commercial databases) may not be correlated with the overall level of disclosure in an unambiguous way.

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Appendix A.1

Disguised example of a terse, numbers-oriented hedge fund investor letter

RED BRIDGE
ASSET MANAGEMENT LP



502 Burberry Street, Suite 701 | San Francisco, CA 92115
Tel: 415.865.3758 | Fax: 415.865.3744

December 2009 Monthly Update

Montrana Sound LP
Delaware Limited Partnership

2009	Montrana Sound	Russell 2000	NASDAQ	S&P 500
December	6.38%	8.05%	5.87%	1.93%
YTD	60.12%	27.17%	45.36%	26.47%

% Long	130.1%
% Short	24.8%
Fund AUM	\$32.3 million
Total Firm AUM	\$106.1 million

* The information in this letter relates solely to the performance of Montrana Sound LP, which opened on February 10, 2003 with assets contributed by Red Bridge's principals. Returns for the indices (which Red Bridge obtained from publicly available sources) include reinvestment of dividend income, but do not reflect the deduction of any transaction or management costs. Index performance information is included solely to show market performance generally during the period for which returns are presented, and does not reflect a belief by Red Bridge that investing in an index is a viable investment alternative or is in any way comparable to the Fund's performance. Indices are unmanaged and diversified (across companies, industries and sectors). The Fund may concentrate its investments in relatively few stocks, industries, or sectors, may invest in stocks with smaller or larger market capitalizations, may trade actively, and may be more or less volatile than these indices. Returns for the Fund are net of transaction costs and investment management fees and reflect the subtraction of the performance-based allocation that would have been paid if a performance fee were payable as of the end of the relevant period. Fund returns do not reflect the deduction of the following Fund expenses: administration and audit fees, and organizational costs, all of which have been paid for by Red Bridge. Performance results include the reinvestment of all income. The performance data included in this report were not compiled, reviewed or audited by an independent accountant, and data may be adjusted as a result of a subsequent audit. It should not be assumed that recommendations made in the future will be profitable or will equal the performance set forth in this report. Individual account results may vary. Past performance is not indicative of future results. Investment losses are possible.

Sarah Kennett skennett@redbridgelp.com

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Appendix A.2

Disguised example of a short, words-oriented hedge fund investor letter



Quality Modulus Corporation

558 Cedar Grove Extension • Sanford • North Carolina 28540
Phone 704.652.1800 • Fax 704.652.1800 • Email qualmodcorp@mindspring.com

Sandy Smith
President

April 8, 1999

Dear Investor,

For the quarter ended March 31, 1999, Quality Modulus was down approximately 2.4% net. As you know, the quarter saw the price of crude oil plummet to decade-low levels. As one measure of volatility, in the month of March the average daily net (not intraday) change in the oilfield service index, the OSX, was 2.3%, equivalent to the Dow moving up or down about 200 points every day. The oil service group for the quarter was the worst performing sector of the market - save the tobacco stocks. Some company.

On an inflation adjusted basis, the oil price collapse equaled historical low levels, comparable to the \$3 per barrel in 1972 and the low prices of the 1980's. Investing in energy at each of these periods provided the opportunity for excellent returns and I believe that the risk/reward of the group at present is compelling and look forward to the balance of the year for the following reasons:

1. Fundamentals - supply and demand: We do not expect the level of near term oil surplus to continue. A number of well-documented exceptional events have combined to cut short-term demand, most notably the recent severe Asian problems and the record mild winter. However, global demand for oil continues to grow and as the economies of southeastern Asia pick back up and with a more normal cooling and heating season in North America and Europe, we expect to see a heightened acceleration of demand. Current depletion rates and the absence of any significant shut in production (as opposed to the early 1980's) lead us to believe that meeting demand over the next several years will cause continued upward earnings momentum for oil service companies.

2. Commodity prices: While oil price volatility will doubtless continue, the recent price agreement between OPEC and non-OPEC countries underscores producers' commitment to get oil prices into the corridor where they have been trading in the 1990's. As investors become more convinced that a commodity price floor has been put in place, they will look beyond the very near term and focus instead on the growth and earnings for this group. This group should then represent an attractive investment opportunity, both on a relative and absolute basis. With all the attention focused on oil, the strong price of natural gas has escaped widespread notice. Gas futures for May are now trading around \$2.50 per mcf, despite the very mild winter and despite record levels of drilling activity. Gas prices at these levels will continue to spur strong production activity.



Quality Modulus Corporation

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Sandy Smith
President

3. Valuation: As oil prices spiraled downwards, investors discounted the earnings of virtually all stocks in the sector, including those with less or little exposure to short term oil price fluctuations. These stocks include deep-water construction and drilling companies, seismic companies and the more gas related plays. While I am very encouraged by the outlook for the balance of the year, it is unclear how long the current Asian currency/economic and related commodity storms will last. Our approach for the coming quarter will continue to be to try and mitigate volatility while maintaining core positions in those stocks we feel have the best risk/reward profiles. As I look at the industry fundamentals, I am excited for opportunities ahead. At the same time, I feel that some patience and hedging is needed in the near term. Given some reasonable time and some commodity support, we should be well rewarded for investing in energy service.

As always, this letter is meant as an overview and I welcome your thoughts or questions.

Best personal regards.

Sandy Smith
President

Appendix A.3

Disguised example of a hedge fund investor letter that contains a high quantity and quality of information

Jazzan Capital Management
Five Times Square
Suite 119
New York, NY 10130
(212)223-3850

Global Bond Fund
June 2004
Performance Report

Page 1 of 2

FUND OBJECTIVE

The Fund seeks to produce attractive real rates of return by building the highest yielding portfolio of global fixed income securities with appealing low risk characteristics. The strategy utilizes the full spectrum of fixed income securities, and is specifically constructed to *outperform in steady or rising rate environments*. Moderate leverage and short selling are employed. The Fund has strictly adhered to its mandate for nine years. Jazzan Capital Management is an SEC registered investment advisor that serves as advisor to the Total Bond Fund.

RECENT PERFORMANCE – CURRENT STRATEGY

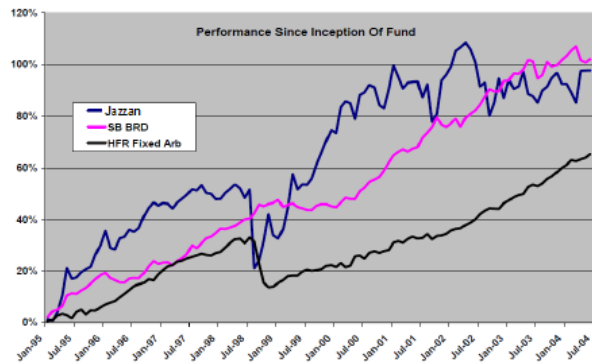
Treasuries rallied in the final hours of the quarter, making the short portfolio a slight drag on performance. The drivers of return were spread and income from a diversified portfolio of relatively high quality agencies, corporates and sovereign debt. Our belief is that the curve will flatten with long rates rising less than short rates from current levels. In June, the long portfolio consisted of 20% pass throughs, 40% investment grade credits, 20% emerging markets and 20% currency forwards. The Fund's short portfolio consists of select treasury & agency maturities skewed toward the short end of the curve. The strategy currently has a slightly positive net duration.

PERFORMANCE – NET

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
2004	-0.03%	-1.70%	-2.08%	6.68%	0.10%	0.16%							2.93%
2003	3.79%	-1.72%	0.58%	2.97%	-4.24%	-0.48%	-1.32%	2.67%	0.86%	1.74%	1.05%	-1.98%	3.68%
2002	1.58%	3.24%	0.69%	0.85%	-1.14%	-2.43%	-4.59%	0.77%	-6.63%	2.92%	5.14%	-3.80%	-4.01%
2001	4.87%	-2.22%	-2.13%	1.20%	0.19%	0.17%	-3.19%	2.88%	-7.54%	1.66%	7.21%	1.16%	3.48%
2000	-0.60%	5.87%	1.23%	-0.39%	-3.25%	5.38%	0.62%	1.63%	-0.54%	-3.53%	-0.67%	4.20%	9.87%
1999	-0.89%	2.74%	6.48%	8.83%	-3.74%	1.35%	-0.09%	1.66%	3.54%	2.84%	2.92%	2.51%	31.35%
1998	0.11%	1.66%	1.08%	1.21%	-0.97%	-2.39%	2.27%	-20.02%	2.59%	6.02%	8.11%	-5.77%	-8.79%
1997	0.76%	-0.09%	-1.20%	1.61%	1.09%	1.09%	1.47%	-0.32%	1.45%	-1.90%	-0.25%	-1.34%	2.30%
1996	4.13%	-4.73%	-0.47%	3.36%	0.46%	2.12%	-0.54%	1.12%	3.49%	2.34%	1.42%	-0.72%	12.27%
1995	1.34%	-0.57%	3.42%	6.25%	9.61%	-3.48%	0.56%	1.73%	1.07%	0.81%	4.10%	2.96%	30.86%

PERFORMANCE

Cumulative Return 109.7%
Compounded Ann Ret 8.11%
Mean Annual Ret 8.39%
Mean Mo Ret 0.72%
Median Mo Ret 0.95%
Percent Positive Mo.s 63.2%
Best Month 9.61%
Worst Month -20.02%



RISK

Monthly Std Dev 3.6%
Annualized Mo Std Dev 12.6%
Sharpe (5% RF) 0.27

Past performance is not necessarily indicative of future results.

Jazzan Capital Management
Five Times Square
Suite 119
New York, NY 10130
(212)223-3850

Global Bond Fund
June 2004
Performance Report

Page 2 of 2

KEY TERMS

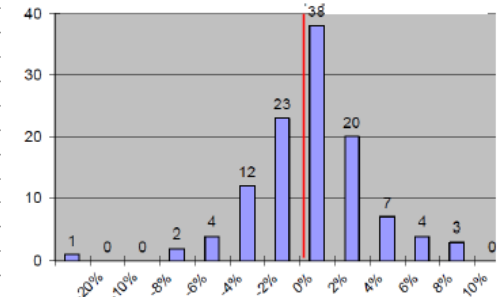
Jurisdiction	Bermuda, United States
Start Date	Oct. 1, 1996
Counsel	Conyers, Dill & Pearman, Bermuda Orrick Coudert, U.S.
Subscriptions	Monthly
Prime Broker	Merrill Lynch
Mgmt Fee	1.5%
Auditor	KPMG

Minimum	USD 1,000,000
AUM (6/30/04)	\$85.3M
Registrar & Transfer Agent	Meridian Corporate Services, Ltd. Bermuda
Withdrawals	Semi-annually
High Water Mark	Yes
Incentive Fee	20%
Lock Up	6 months

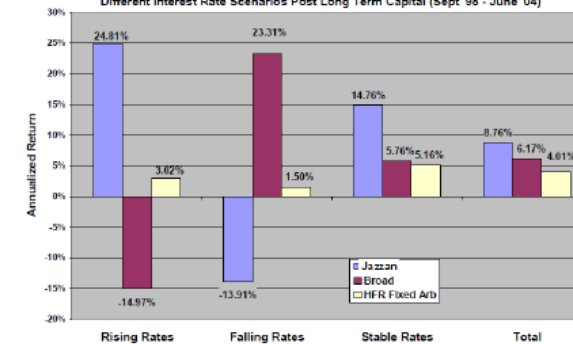
CORRELATION WITH NON-TRADITIONAL

Jazzan Global Bond Fund	1
HFRI Macro Index	0.3016
HFRI Convertible Arbitrage	0.4536
HFRI Distressed Securities	0.5728
HFRI Equity Market Neutral	0.0853
HFRI Event Driven	0.6930
HFRI Merger Arbitrage	0.5802
HFRI Short Selling	-0.4859
HFRI Equity Hedge	0.5622
HFRI Fixed Income Arbitrage	-0.0015
HFRI High Yield	0.5639
HFRI Fixed Income Convertible Bond	0.5621
HFRI Fixed Income Diversified	0.1439
HFRI Fixed Income Mortgage Backed	0.1229

Global Bond Fund - Distribution of Monthly Returns (Jan '95 - June '04)



Different Interest Rate Scenarios Post Long Term Capital (Sept '98 - June '04)



CORRELATION WITH TRADITIONAL STRATEGIES

Global Bond Fund	1
S&P 500	0.5351
Salomon Broad	0.0465
3 Month T-Bills	0.0889
High Yield	0.5354
Emerging Mrkt Bond	0.7428
Global Govt Invest Grd	-0.0047

Appendix A.4

Disguised example of an email-formatted and email-communicated hedge fund investor letter

BMN Monthly Newsletters – April 2007

Page 1 of 2

Page 2 of 2

Taylor Pridgeon

From: info@bestmncapman.com
Sent: Wednesday, May 16, 2007 10:51 AM
To: Kwame Ghrand
Subject: BMN Monthly Newsletters – April 2007

BMN Monthly Newsletters – April 2007

Dear Investors and Friends,

Monthly performance figures for April 2007 are now available for all BMN Funds. Monthly performance updates for The Scillo Fund and the SCILLO Global Special Situations Fund will follow shortly. For your convenience we will be providing links to each funds newsletter on a monthly basis going forward. Please click on the appropriate fund name in the table below to view the selected funds monthly Newsletter;

Fund Performance Highlights for April 2007:

Fund (Euro Class)	April 2007 (%)	YTD (%)	Since Inception (%)	Sharpe Ratio	Open / Closed	Down Months
Beste Return Asia Fund	0.63%	3.31%	114.63%	2.33	Open	3 out of 62
Beste Asian Catalyst Fund	0.82%	5.87%	95.11%	1.90	Open	5 out of 43
Beste Germany Fund	3.82%	12.59%	96.76%	3.21	Open	3 out of 40
Beste West East Fund	1.73%	4.91%	45.95%	3.09	Open	2 out of 22
Beste Activist Fund	1.34%	3.88%	85.85%	2.25	Closed	1 out of 22
Beste Large Cap Fund	2.16%	5.77%	26.65%	2.47	Open	2 out of 13
Beste China Fund	3.34%	6.63%	15.10%	4.19	Open	0 out of 10
Beste Value Fund	1.92%	7.60%	27.81%	4.24	Open	1 out of 10

Please click on the fund name above to open the monthly report. Hyperlinks are listed at the bottom of this email if you are viewing as plain text.

If you would like further information on any of the Group's range of funds please contact our Investor Relations department in Nice.

Best regards,

Beste Market Neutral Capital Management

Nice Office Contact Details
Beste Market Neutral Holdings Limited, George Town, Cayman Islands, Nice Branch
150b Plage Place
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06570 Nice
France

Tel : +33 6 82 28 63 19
Fax : +33 6 82 28 63 20
Email : info@bestmncapman.com

BRA <http://www.bestmncapman.com/Reports/April/BRA FUND APR 2007.pdf>
BAC <http://www.bestmncapman.com/Reports/April/BAC FUND APR 2007.pdf>
BGF <http://www.bestmncapman.com/Reports/April/BGF FUND APR 2007.pdf>
BWE <http://www.bestmncapman.com/Reports/April/BWE FUND APR 2007.pdf>
BAF <http://www.bestmncapman.com/Reports/April/BAF FUND APR 2007.pdf>
BLC <http://www.bestmncapman.com/Reports/April/BLC FUND APR 2007.pdf>
BCF <http://www.bestmncapman.com/Reports/April/BCF FUND APR 2007.pdf>
BVF <http://www.bestmncapman.com/Reports/April/BVF FUND APR 2007.pdf>

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Table 1: Descriptive statistics on hedge fund investor letters

This table describes the sample of investor letters. Panel A presents the distribution of letter periodicities, pages per letter, letters per fund, and funds per management company. Panel B tabulates letters and funds by investment strategy. Panel C reports the number of investor letters by the year of fund inception and by the year the performance discussed in the investor letter pertains to. Panel D reports the number of funds that voluntarily report to a commercial database among the funds in our database and the number of management companies that file for 13-F with the SEC.

Panel A: Hedge fund investor letter periodicities, pages per letter, letters per fund, and funds per management company

Periodicity	# letters	%		# pages per letter	# letters per fund	# funds per management company
Annual	26	0.8%	Min.	1	1	1
Semi-annual	24	0.7%	Q1	1	2	1
Quarterly	487	15.1%	Median	2	4	1
Monthly	2,639	81.6%	Mean	3.3	7.6	1.7
Biweekly	22	0.7%	Q3	4	9	2
Unknown	36	1.1%	Max.	37	58	16
Total	3,234	100.0%	Std.dev.	2.8	9.3	1.6

Panel B: Investment strategies

Strategy	# letters	# funds
Commodities	30	7
Convertible arbitrage	29	8
Emerging markets	82	12
Equity long bias	177	29
Equity long/short	1,525	188
Event driven	228	32
Fixed income	83	14
Macro	173	20
Multi-strategy	654	87
Unknown	253	37
Total	3,234	434

Panel C: Hedge fund year-of-inception and year of fund performance discussed in letter

Year	# funds	# letters	Year	# funds	# letters	Year	# funds	# letters
1990	2	0	1998	6	12	2006	24	339
1991	1	1	1999	8	2	2007	13	340
1992	1	0	2000	17	5	2008	16	372
1993	2	0	2001	28	77	2009	10	311
1994	2	0	2002	19	244	2010	5	275
1995	4	2	2003	28	242	2011	1	127
1996	10	2	2004	29	257	Unknown	170	7
1997	2	15	2005	36	604	Total	434	3,234

Panel D: Funds that report to commercial databases and management companies that file 13-F

	N	Total	Percent
Funds disclosing to commercial database	224	434	52%
Mgmt companies filing SEC 13-F	140	265	53%

Table 2: Frequency with which certain information items are disclosed in hedge fund investor letters and the frequency of changes in those disclosures

This table presents the percentage of the 2,639 and 487 monthly and quarterly letters that disclose certain information items or go from not disclosing an item to disclosing an item + or from disclosing to not disclosing – (note that to measure changes in disclosure a fund must have at least two letters of a particular frequency [2,269 monthly and 368 quarterly letters meet this criteria]).

	<i>Monthly letters (2,639/2,269)</i>			<i>Quarterly letters (487/368)</i>		
	<i>% letters</i>	<i>% +</i>	<i>% -</i>	<i>% letters</i>	<i>% +</i>	<i>% -</i>
<i>Fund-related</i>						
Management company assets-under-management	22.00%	1.50%	1.10%	9.20%	2.70%	3.30%
Fund assets-under-management	39.00%	1.40%	1.30%	9.00%	1.90%	3.00%
Net asset value	9.10%	0.31%	0.13%	0.21%	0.00%	0.27%
Fund flows	0.53%	0.04%	0.00%	0.41%	0.00%	0.27%
<i>Performance</i>						
Most recent return	97.00%	0.79%	0.84%	98.00%	0.82%	1.10%
Most recent return shown in a table	91.00%	0.48%	0.44%	65.00%	1.60%	0.82%
Most recent return shown in the text	51.00%	2.20%	1.70%	77.00%	1.40%	1.90%
Historical returns	84.00%	0.57%	0.53%	61.00%	4.30%	5.20%
Returns to long positions	27.00%	2.10%	1.70%	50.00%	2.70%	3.50%
Returns to short positions	26.00%	2.00%	1.70%	50.00%	3.00%	3.80%
Returns by industry sector	10.00%	0.53%	0.53%	9.20%	1.60%	1.40%
Returns by geography	5.70%	0.35%	0.18%	4.10%	0.00%	0.27%
Other return decomposition	40.00%	1.90%	1.50%	54.00%	3.00%	3.30%
<i>Asset holdings</i>						
Percent held long	69.00%	0.97%	0.66%	64.00%	3.80%	4.10%
Percent held short	67.00%	0.93%	0.53%	62.00%	3.30%	3.30%
Percent by industry sector	45.00%	1.80%	1.40%	23.00%	3.00%	2.20%
Percent by geography	30.00%	1.10%	1.00%	11.00%	0.54%	0.54%
Percent by market capitalization	14.00%	1.20%	0.84%	11.00%	0.82%	0.82%
Identify some best performing investment	6.50%	1.70%	1.70%	7.60%	0.27%	0.54%
Identify some worst performing investment	3.90%	1.50%	1.40%	6.60%	1.60%	0.82%
Other holdings decomposition	25.00%	1.30%	1.10%	14.00%	2.20%	1.40%
<i>Risk</i>						
Distribution of returns	10.00%	0.31%	0.09%	0.82%	0.54%	0.54%
Volatility of returns	42.00%	1.40%	0.71%	14.00%	1.10%	1.40%
Worst month's return	18.00%	0.84%	0.53%	2.50%	1.60%	1.60%
Sharpe ratio	26.00%	0.79%	0.35%	7.80%	0.82%	0.82%
Correlation with benchmark	36.00%	1.40%	0.84%	17.00%	1.40%	2.20%
Downside risk	30.00%	1.20%	0.93%	4.70%	1.40%	2.20%
Information ratio	1.70%	0.09%	0.04%	0.62%	0.27%	0.00%
Other ratio	19.00%	0.31%	0.09%	1.00%	0.27%	0.54%

	<i>Monthly letters (2,639/2,269)</i>			<i>Quarterly letters (487/368)</i>		
	<i>% letters</i>	<i>% +</i>	<i>% -</i>	<i>% letters</i>	<i>% +</i>	<i>% -</i>
<i>Benchmarks</i>						
Identifies a benchmark	71.00%	1.10%	0.88%	83.00%	2.20%	1.60%
Identifies a hedge fund index as a benchmark	9.40%	0.13%	0.26%	5.50%	1.10%	0.54%
Identifies a large market index as a benchmark	41.00%	1.30%	1.00%	71.00%	1.90%	1.90%
<i>Text-based performance discussions</i>						
Refers to changes in the fund or strategy	5.80%	2.60%	3.20%	33.00%	12.00%	13.00%
Discusses past performance	6.30%	3.00%	3.00%	18.00%	7.30%	6.30%
Discusses the future	30.00%	3.70%	3.30%	60.00%	4.60%	3.30%
Discusses performance as extreme	5.20%	3.20%	3.20%	13.00%	7.10%	6.00%
Refers to peer funds	2.30%	0.71%	0.62%	3.70%	1.90%	1.40%
Discusses manager skill related to performance	28.00%	6.80%	6.60%	50.00%	8.20%	7.30%
Discusses some other aspect of performance	43.00%	4.10%	4.00%	71.00%	6.00%	4.10%

Table 3: Factor patterns of disclosure variables

This table presents the factor loadings from rotated factors of fund disclosure items. The factors are derived from a latent trait analysis of binary disclosure variables from in hedge fund investor letters.

Panel A:

	<i>Variable</i>	<i>Factor1</i>	<i>Factor2</i>	<i>Factor3</i>	<i>Factor4</i>	<i>Factor5</i>	<i>Factor6</i>
<i>Return analysis</i>	Volatility of returns	0.95	0.05	0.05	-0.01	0.02	-0.17
	Sharpe ratio	0.88	-0.30	0.30	0.10	0.06	0.06
	Downside risk	0.87	-0.06	0.05	-0.17	0.03	0.02
	Historical returns	0.87	0.21	-0.01	0.07	0.13	0.03
	Worst month's return	0.83	-0.21	-0.24	0.20	0.05	0.13
	Distribution of returns	0.77	0.01	-0.43	0.41	0.22	0.19
	Other ratio	0.69	0.11	-0.33	0.29	0.18	0.00
	Correlation with benchmark	0.66	0.13	0.13	0.58	0.22	-0.12
Identifies a hedge fund index as a benchmark		0.56	-0.29	0.00	0.26	0.27	0.07
<i>Holdings composition</i>	Percent held short	-0.10	0.93	0.25	0.04	-0.05	-0.01
	Percent held long	-0.12	0.93	0.24	0.00	-0.06	0.00
	Percent by industry sector	0.10	0.74	-0.21	-0.31	0.09	-0.08
	Percent by market capitalization	0.02	0.74	0.23	-0.05	0.18	0.18
<i>Return source</i>	Returns to short positions	-0.02	0.35	0.90	0.22	0.18	0.16
	Returns to long positions	-0.01	0.35	0.90	0.22	0.17	0.18
	Information ratio	0.37	0.22	-0.83	0.62	-0.51	-0.65
<i>Benchmarks</i>	Identifies a benchmark	0.31	0.06	0.02	1.01	0.12	0.03
	Identifies a large market index as a benchmark	0.02	-0.19	0.45	0.69	-0.22	0.12
	Other holdings decomposition	-0.05	0.18	0.04	-0.36	0.06	0.35
	Percent by geography	-0.09	0.48	-0.22	-0.65	0.12	-0.05
<i>Return composition</i>	Returns by geography	0.21	0.03	-0.06	-0.18	1.04	0.13
	Returns by industry sector	0.31	0.02	0.22	-0.02	0.88	0.17

	Other return decomposition	0.07	0.29	0.61	0.29	0.82	0.11
<i>Highlights</i>	Identify some worst performing investment	-0.05	0.09	0.19	0.03	0.02	0.98
	Identify some best performing investment	0.22	-0.10	0.09	0.10	0.29	0.93

Panel B:

	<i>Variable</i>	<i>Factor1</i>	<i>Factor2</i>	<i>Factor3</i>	<i>Factor4</i>
<i>Attribution</i>	Discusses manager skill related to performance	0.74	0.13	0.06	0.10
	Discusses some other aspect of performance	0.65	0.17	0.17	0.23
<i>Explain</i>	Refers to peer funds	0.04	1.00	-0.04	0.05
	Discusses past performance	0.39	0.41	0.04	0.09
	Refers to changes in the fund or strategy	0.16	0.26	0.11	-0.01
<i>Demphasize</i>	Most recent return shown in the text	0.54	0.06	0.74	-0.14
	Discusses the future	0.36	0.13	0.40	0.06
	Most recent return shown in a table	0.04	-0.01	-0.53	-0.13
<i>Extreme</i>	Discusses performance as extreme	0.24	0.06	0.13	0.96

Table 4: Disclosure to commercial databases and disclosure factors

This table describes the disclosure factors for letters from funds that report to commercial databases versus letters from funds that do not report to commercial databases.

	<i>Commer</i> = <i>N</i>	<i>Commer</i> = <i>Y</i>	<i>N - Y</i>	<i>T value</i>
Return analysis	3.01	3.78	-0.78	-10.2
Holdings composition	2.76	2.34	0.42	6.4
Return source	0.93	0.75	0.18	9.1
Benchmarks	1.67	1.12	0.55	11.2
Return composition	0.20	0.43	-0.23	-12.4
Highlights	-0.30	-0.24	-0.06	-5.0

Table 5: Reported returns

This table describes the reported returns for letters of different periodicities.

	<i>N</i>	<i>Mean</i>	<i>Std Dev</i>	<i>Min</i>	<i>P25</i>	<i>Median</i>	<i>P75</i>	<i>Max</i>
ANNUAL	26	20.5%	22.5%	-51.0%	10.7%	20.5%	35.7%	61.6%
BIMONTHLY	22	1.1%	2.4%	-3.4%	-0.3%	0.8%	1.8%	8.5%
MONTH	2639	0.9%	4.1%	-42.0%	-0.5%	0.9%	2.5%	29.6%
QTR	487	3.0%	10.0%	-35.3%	-0.9%	2.7%	6.2%	75.5%
SEMIANN	24	4.4%	6.5%	-9.3%	2.2%	4.8%	8.1%	16.1%

Table 6: Hedge fund assets under management

This table summarizes the results from a pooled OLS regression using monthly letters of hedge fund assets-under-management (*aum*) non strategy fixed effects (not reported), whether a fund reports to a commercial database (*commer*), whether a management company files form 13-F with the SEC, and *time* (the number of months since January 1990 until the month of the letter) and *timesq* (*time x time*). T values are reported beneath the coefficient estimates. The estimated coefficients from this regression are used to estimate *aum* for letters without data on assets-under-management.

<i>commer</i>	<i>SEC13F</i>	<i>time</i>	<i>time x time</i>	<i>N Obs</i>	<i>Adj. Rsq.</i>
-1.2401	1.2202	0.1811	-0.0004	836	94.8%
-12.7	13.0	7.8	-7.3		

Table 7: Disclosure factors and tests of disclosure theories

This table reports the results from estimating a pooled OLS regressions of disclosure factors as a function of performance, risk, and other controls. The factor patterns for the disclosure factors are presented in Table 3. *ret* is the return reported in investor letters standardized to mean zero and unit standard deviation by periodicity, *size* is the natural log of assets-under-management estimated using the coefficients reported in Table 6, *SEC13F* is an indicator variable equal to one if the letter is from a management company that files form 13F with the SEC, *commer* is an indicator variable equal to one if the letter is from a fund that voluntarily reports to a commercial database, *time* is the number of months from January 1990 until the month of the letter, *monthly indicator* is an indicator equal to one if the letter is at the monthly frequency and equal to zero for quarterly letters. Standard errors are clustered by fund.

Panel A

	<i>DepVar = Return analysis factor</i>								
	<i>QTR & MO</i>			<i>MO</i>			<i>QTR</i>		
	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>
Intercept	-10.70	-2.58	0.01	-13.30	-2.68	0.01	2.92	0.59	0.56
<i>ret</i>	-0.03	-0.92	0.36	-0.03	-0.74	0.46	0.02	0.25	0.81
<i>ret x ret</i>	-0.03	-1.04	0.30	-0.03	-0.86	0.39	-0.05	-2.96	0.00
<i>size</i>	-0.47	-1.70	0.09	-0.58	-1.91	0.06	0.28	0.86	0.39
<i>SEC13F</i>	-0.13	-0.28	0.78	-0.05	-0.10	0.92	-0.47	-0.88	0.38
<i>commer</i>	0.26	0.65	0.52	0.35	0.76	0.45	-0.01	-0.03	0.98
<i>time</i>	0.14	2.83	0.00	0.18	3.16	0.00	-0.02	-0.34	0.74
<i>time x time</i>	0.00	-2.78	0.01	0.00	-3.10	0.00	0.00	0.38	0.71
<i>Monthly</i>	1.24	6.08	0.00						
N letters		3,034			2,576			458	
Adj R-squared		14.4%			11.1%			8.8%	

Panel B

	<i>DepVar = Holdings composition factor</i>								
	<i>QTR & MO</i>			<i>MO</i>			<i>QTR</i>		
	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>
Intercept	-5.34	-1.57	0.12	-5.61	-1.49	0.14	-9.67	-1.45	0.15
<i>ret</i>	-0.06	-1.69	0.09	-0.07	-1.97	0.05	0.07	0.74	0.46
<i>ret x ret</i>	-0.03	-3.05	0.00	-0.03	-2.47	0.01	-0.08	-4.35	0.00
<i>size</i>	-0.55	-2.65	0.01	-0.58	-2.62	0.01	-0.74	-1.74	0.09
<i>SEC13F</i>	0.72	2.10	0.04	0.65	1.83	0.07	1.47	1.92	0.06
<i>commer</i>	-0.86	-2.74	0.01	-0.87	-2.52	0.01	-1.24	-2.22	0.03
<i>time</i>	0.09	2.22	0.03	0.08	1.92	0.06	0.15	1.78	0.08
<i>time x time</i>	0.00	-1.90	0.06	0.00	-1.57	0.12	0.00	-1.71	0.09
<i>Monthly</i>	-0.73	-3.30	0.00						
N letters		3,034			2,576			458	
Adj R-squared		8.8%			7.0%			7.6%	

Panel C

	<i>DepVar = Return source factor</i>								
	<i>QTR & MO</i>			<i>MO</i>			<i>QTR</i>		
	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>
Intercept	-2.92	-2.32	0.02	-4.07	-2.78	0.01	0.47	0.15	0.88
<i>ret</i>	-0.01	-0.67	0.50	-0.02	-2.11	0.04	0.09	1.95	0.05
<i>ret x ret</i>	-0.02	-3.04	0.00	-0.02	-2.88	0.00	-0.03	-3.82	0.00
<i>size</i>	-0.19	-2.66	0.01	-0.23	-3.22	0.00	0.01	0.04	0.97
<i>SEC13F</i>	0.14	1.05	0.30	0.14	1.01	0.32	0.31	0.82	0.42
<i>commer</i>	-0.25	-1.87	0.06	-0.26	-1.91	0.06	-0.27	-0.84	0.40
<i>time</i>	0.04	2.93	0.00	0.05	3.18	0.00	0.00	0.06	0.95
<i>time x time</i>	0.00	-2.75	0.01	0.00	-2.95	0.00	0.00	-0.05	0.96
<i>Monthly</i>	-0.26	-2.97	0.00						
N letters		3,034			2,576			458	
Adj R-squared		3.5%			3.7%			5.7%	

Panel D

	<i>DepVar = Benchmarks factor</i>								
	<i>QTR & MO</i>			<i>MO</i>			<i>QTR</i>		
	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>
Intercept	0.01	0.00	1.00	1.61	0.47	0.64	-0.47	-0.14	0.89
<i>ret</i>	0.01	0.63	0.53	0.02	0.73	0.47	-0.04	-0.76	0.45
<i>ret x ret</i>	-0.02	-0.87	0.39	-0.02	-0.84	0.40	-0.01	-0.55	0.59
<i>size</i>	-0.15	-0.99	0.32	-0.21	-1.20	0.23	0.04	0.16	0.87
<i>SEC13F</i>	0.57	2.36	0.02	0.59	2.25	0.03	0.28	0.64	0.53
<i>commer</i>	0.17	0.74	0.46	0.16	0.64	0.52	-0.08	-0.24	0.81
<i>time</i>	0.02	0.46	0.65	-0.01	-0.14	0.89	0.02	0.48	0.63
<i>time x time</i>	0.00	-0.43	0.67	0.00	0.21	0.83	0.00	-0.64	0.52
<i>Monthly</i>	-0.58	-4.09	0.00						
N letters		3,034			2,576			458	
Adj R-squared		9.0%			6.9%			7.5%	

Panel E

	<i>DepVar = Return composition factor</i>								
	<i>QTR & MO</i>			<i>MO</i>			<i>QTR</i>		
	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>
Intercept	-0.53	-0.54	0.59	0.26	0.21	0.83	-3.49	-2.09	0.04
<i>ret</i>	0.00	-0.37	0.72	0.00	-0.03	0.98	0.00	-0.20	0.84
<i>ret x ret</i>	-0.01	-1.92	0.06	-0.01	-1.52	0.13	-0.02	-3.54	0.00
<i>size</i>	-0.06	-0.98	0.33	-0.04	-0.56	0.57	-0.22	-1.99	0.05
<i>SEC13F</i>	0.20	2.01	0.04	0.19	1.72	0.09	0.28	1.71	0.09
<i>commer</i>	-0.23	-2.49	0.01	-0.18	-1.78	0.08	-0.52	-3.62	0.00
<i>time</i>	0.02	1.50	0.13	0.01	0.70	0.48	0.06	2.64	0.01
<i>time x time</i>	0.00	-1.57	0.12	0.00	-0.75	0.45	0.00	-2.67	0.01
<i>Monthly</i>	0.10	1.80	0.07						
N letters		3,034			2,576			458	
Adj R-squared		5.5%			4.5%			16.4%	

Panel F

	<i>DepVar = Highlights factor</i>								
	<i>QTR & MO</i>			<i>MO</i>			<i>QTR</i>		
	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>
Intercept	-4.23	-1.44	0.15	-4.23	-1.16	0.25	-3.72	-0.74	0.46
<i>ret</i>	-0.06	-1.78	0.08	-0.06	-2.02	0.04	0.03	0.35	0.73
<i>ret x ret</i>	0.00	0.12	0.91	0.01	0.36	0.72	-0.04	-2.23	0.03
<i>size</i>	-0.30	-1.56	0.12	-0.30	-1.40	0.16	-0.28	-0.84	0.41
<i>SEC13F</i>	0.48	1.77	0.08	0.49	1.69	0.09	0.43	0.76	0.45
<i>commer</i>	-0.78	-2.68	0.01	-0.77	-2.34	0.02	-0.77	-1.78	0.08
<i>time</i>	0.07	1.93	0.05	0.07	1.71	0.09	0.06	1.00	0.32
<i>time x time</i>	0.00	-1.80	0.07	0.00	-1.60	0.11	0.00	-0.89	0.38
<i>Monthly</i>	0.32	1.85	0.06						
N letters		3,034			2,576			458	
Adj R-squared		7.3%			6.5%			8.0%	

Table 8: Factors for the presentation of performance and tests of disclosure theories

This table reports the results from estimating a pooled OLS regressions of disclosure factors as a function of performance, risk, and other controls. The factor patterns for the disclosure factors are presented in Table 3. *lag dep var* is the one-letter-lagged dependent disclosure factor variable, *ret* is the return reported in investor letters standardized to mean zero and unit standard deviation by periodicity, *size* is the natural log of assets-under-management estimated using the coefficients reported in Table 6, *SEC13F* is an indicator variable equal to one if the letter is from a management company that files form 13F with the SEC, *commer* is an indicator variable equal to one if the letter is from a fund that voluntarily reports to a commercial database, *time* is the number of months from January 1990 until the month of the letter, *monthly indicator* is an indicator equal to one if the letter is at the monthly frequency and equal to zero for quarterly letters. Standard errors are clustered by fund.

Panel A

	<i>DepVar = Attribution factor</i>								
	<i>QTR & MO</i>			<i>MO</i>			<i>QTR</i>		
	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>
Intercept	1.12	2.64	0.01	1.33	2.64	0.01	0.81	1.07	0.29
<i>lag dep var</i>	0.82	40.59	0.00	0.83	36.25	0.00	0.74	15.99	0.00
<i>ret</i>	-0.02	-2.76	0.01	-0.02	-2.58	0.01	-0.05	-2.12	0.04
<i>ret x ret</i>	0.00	0.10	0.92	0.00	-1.19	0.24	0.02	3.41	0.00
<i>size</i>	0.03	1.38	0.17	0.03	1.11	0.27	0.03	0.67	0.50
<i>SEC13F</i>	-0.14	-3.24	0.00	-0.14	-3.05	0.00	-0.10	-0.96	0.34
<i>commer</i>	0.05	1.60	0.11	0.03	1.04	0.30	0.10	1.36	0.18
<i>time</i>	-0.01	-1.77	0.08	-0.01	-2.17	0.03	0.00	-0.43	0.67
<i>time x time</i>	0.00	1.77	0.08	0	2.22	0.03	0	0.32	0.75
Monthly	-0.16	-5.55	0.00						
N letters		2570			2221			349	
Adj R-squared		74.0%			73.1%			55.8%	

Panel B

	<i>DepVar = Explain factor</i>								
	<i>QTR & MO</i>			<i>MO</i>			<i>QTR</i>		
	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>
Intercept	0.37	2.11	0.04	0.41	2.07	0.04	-0.08	-0.19	0.85
<i>lag dep var</i>	0.72	15.34	0.00	0.75	15.02	0.00	0.57	5.54	0.00
<i>ret</i>	-0.01	-1.62	0.11	0.00	-1.26	0.21	-0.02	-1.47	0.15
<i>ret x ret</i>	0.00	-0.96	0.34	0.00	-1.10	0.27	0.00	0.94	0.35
<i>size</i>	0.01	1.27	0.20	0.01	1.15	0.25	-0.01	-0.41	0.68
<i>SEC13F</i>	-0.04	-1.99	0.05	-0.04	-1.84	0.07	0.01	0.09	0.93
<i>commer</i>	0.04	2.65	0.01	0.03	2.52	0.01	0.00	-0.01	0.99
<i>time</i>	0.00	-1.29	0.20	0.00	-1.77	0.08	0.00	0.67	0.51
<i>time x time</i>	0.00	1.23	0.22	0.00	1.75	0.08	0.00	-0.65	0.52
Monthly	-0.08	-4.03	0.00						
N letters		2570			2221			349	
Adj R-squared		57.1%			57.5%			30.8%	

Panel C

	<i>DepVar = Demphasize factor</i>								
	<i>QTR & MO</i>			<i>MO</i>			<i>QTR</i>		
	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>
Intercept	0.38	1.43	0.15	0.44	1.27	0.21	0.06	0.18	0.86
<i>lag dep var</i>	0.92	66.16	0.00	0.92	57.52	0.00	0.90	34.07	0.00
<i>ret</i>	-0.01	-1.53	0.13	-0.01	-1.57	0.12	-0.02	-2.40	0.02
<i>ret x ret</i>	0.00	-0.54	0.59	0.00	-1.32	0.19	0.01	5.13	0.00
<i>size</i>	0.01	1.02	0.31	0.02	1.10	0.27	-0.01	-0.38	0.70
<i>SEC13F</i>	-0.05	-1.94	0.05	-0.06	-1.85	0.07	-0.01	-0.32	0.75
<i>commer</i>	0.02	0.74	0.46	0.01	0.58	0.57	0.03	0.90	0.37
<i>time</i>	0.00	-1.07	0.29	0.00	-1.10	0.27	0.00	0.07	0.94
<i>time x time</i>	0.00	0.99	0.32	0.00	1.02	0.31	0.00	-0.05	0.96
Monthly	-0.04	-2.91	0.00						
N letters		2570			2221			349	
Adj R-squared		87.5%			86.1%			84.8%	

Panel D

	<i>DepVar = Extreme factor</i>								
	<i>QTR & MO</i>			<i>MO</i>			<i>QTR</i>		
	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>	<i>Coeff. Est</i>	<i>T value</i>	<i>Prob t</i>
Intercept	0.63	2.04	0.04	0.78	2.21	0.03	-0.57	-0.97	0.33
<i>lag dep var</i>	0.49	14.51	0.00	0.49	11.95	0.00	0.45	7.39	0.00
<i>ret</i>	-0.03	-3.29	0.00	-0.03	-4.52	0.00	-0.10	-5.94	0.00
<i>ret x ret</i>	0.00	3.16	0.00	0.00	0.32	0.75	0.04	7.67	0.00
<i>size</i>	0.02	1.43	0.15	0.04	1.93	0.05	-0.06	-1.52	0.13
<i>SEC13F</i>	-0.06	-2.63	0.01	-0.07	-3.03	0.00	0.03	0.47	0.64
<i>commer</i>	0.02	1.10	0.27	0.03	1.28	0.20	-0.02	-0.43	0.67
<i>time</i>	-0.01	-1.64	0.10	-0.01	-2.20	0.03	0.01	1.20	0.24
<i>time x time</i>	0.00	1.66	0.10	0.00	2.17	0.03	0.00	-1.13	0.26
Monthly	-0.12	-5.83	0.00						
N letters		2570			2221			349	
Adj R-squared		30.9%			26.5%			41.8%	

