The Value to Shareholders of Value Reporting by Companies*

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Abstract

Extensive value reporting, i.e., maintaining a high voluntary disclosure quality (VDQ) is costly but may allow firms to achieve lower cost of capital and a more efficient allocation of capital. This paper investigates, using a unique panel dataset of VDQ, whether risk-adjusted excess returns are available to investors who select stocks according to this characteristic. We study this question in an institutional context where companies have a wide choice of disclosure quality, namely, Switzerland. We find that investors earn the highest excess returns by investing in firms with high, but not the highest VDQ, consistent with the notion that in general there is a trade-off for firms in choosing VDQ. We also document that when investing in small firms, in those with little analyst coverage, and in those not widely covered in the media, picking those with the highest VDQ is most profitable, consistent with the notion that for relatively opaque firms, VDQ provides large benefits. The relevance of voluntary disclosure quality for investment outperformance does not appear to have changed after the Enron and WorldCom scandals. Of various potential explanations for the empirical regularities, the hypothesis of a causal effect from VDQ to outperformance seems most plausible.

Keywords: *Voluntary disclosure quality, portfolio analysis, value reporting, disclosure*
JEL classification: G11, G14, G30, M41

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1 Introduction

In this paper, we show that investors can earn risk-adjusted excess returns by paying attention to the voluntary disclosure quality of companies. The study of the effects of voluntary disclosure quality on company performance and investment returns is of significant practical and academic interest. Yet, ambiguous views prevail so far. Practitioners are uncertain about the benefits and costs of value reporting: For example, according to PricewaterhouseCoopers (2006) about half of the surveyed companies believe that higher voluntary disclosure quality will have a positive impact on the firm's stock value, while half do not. Indeed, a wealth of theoretical and empirical academic work exists on the advantages and disadvantages of voluntary disclosure quality and value reporting. For example, important work has shown that better value reporting is associated with lower cost of capital and higher liquidity of the stock, but that there may also be drawbacks, such as higher direct costs or indirect costs due to loss of a competitive edge. However, little is known about whether investors ultimately benefit in terms of long-run returns available from a portfolio strategy that selects, every year, those companies with a high voluntary disclosure quality (and shorts those with a poor quality). This paper makes a step towards filling this gap.

We study this question in Switzerland, a country well suited for this purpose. First, in contrast to many other countries, Swiss listed companies can choose their accounting standard depending on their trading segment.[1] There is, thus, a broad scope of providing additional and voluntary information to investors. Other studies have also exploited this fact; see, for example, Caramanolis-Çötelli et al. (1999) for an event study on the abnormal return effects of the quality of Swiss company reports. Second, value-based management – an element of which is value reporting – has only relatively recently entered the minds of managers and investors. Therefore, it is important to study a relatively recent time period. Fortunately, a high-quality dataset of value reporting quality, spanning the recent decade for a significant portion of the Swiss stock market, is available. For other countries, including the US, such data are much harder to come by for recent time periods (or, indeed, not available to our knowledge). For example, the Association for Investment Management and Research (AIMR) index is not available for the most recent decade. A third motivation derives from the role of Switzerland in the global context. The market capitalization of Switzerland (SIX Swiss Exchange) at the end of January 2010 was US$ 1'036 billion, which is 2.22% of the world-wide market capitalization. Averaging over the past ten years, Switzerland has the 10th highest market capitalization (World Federation of Exchanges 2010). Understanding what

[1] Companies listed in the main market have the choice between the International Financial Reporting Standards (IFRS) or US GAAP. Smaller companies listed at the SIX Swiss Exchange Local Caps have the option to use the Swiss Generally Accepted Accounting Principles (Swiss GAAP FER) additionally to their accounting standard.

works for companies in the Swiss context may, therefore, subject to the general caveat of transferring empirical results from one sample to another, be of general interest.

We use standard portfolio formation techniques to analyze the (excess) returns available to investors from picking stocks according to voluntary disclosure quality. The variable on which we sort portfolios is the Annual Value Reporting Rating (AVR), an index on the quality of the value reporting of Swiss listed companies that has been compiled for more than a decade by the Swiss Banking Institute of the University of Zurich. Averaging over the years, the AVR covers 96% of the Swiss Performance Index, the overall index of the Swiss equity markets. While many other studies (discussed below) have been able to consider the short-term effects of increased disclosure, this data allow us to study long-term investment performance by using the time horizon spanning 1999-2007. The index consists of theoretically-grounded criteria (motivated from the work of Botosan (1997)) and some criteria developed from conversations with practitioners. Fortunately, great care has been taken by the Swiss Banking Institute to make the data comparable and consistent over the years, thus limiting (though of course not eliminating) the drawbacks any rating system brings with it and allowing researchers to use the data for academic work. For example, Hail (2002) uses the AVR data for one year to show that companies with higher scores face lower costs of equity. Section 2 discusses the data in more detail.

We consider individual portfolios (where the quintile "*Top Portfolio*" with the 20% of firms with the best voluntary disclosure quality is of particular interest) as well as a long-short ("*Spread*") portfolio formed by buying the firms with the best voluntary disclosure quality (best 20%) and shorting those with the worst voluntary disclosure quality (worst 20%). We adjust the returns for the standard risk-factors for the Swiss market, i.e., market risk, size, value, and momentum.

Our key findings are as follows. First, in the overall sample, the fourth quintile – containing the firms with high, but not the highest voluntary disclosure quality – perform the best. This is consistent with the notion that firms face a trade-off when choosing voluntary disclosure quality.

Second, we explore this trade-off by considering "cross-sectional" and "time-series" features of the portfolio returns. Thus, we consider the hypothesis that voluntary disclosure quality matters particularly strongly for some types of firms or in some time periods. As for the former, the analysis reveals that voluntary disclosure quality matters most when investing into companies where relatively little information may be otherwise available on the market. We uncover three pieces of evidence. First, for firms with a below-median extent of analyst following, the *Top* and *Spread Portfolios* show large positive abnormal returns. For example,

the equally-weighted (value-weighted) excess return for the *Spread Portfolio* is 13.9% (14.3%) per year, or more than one percentage point per month. On the contrary, no such outperformance is observable for companies with above-median analyst following. Second, though weaker, the same result holds for company size, a variable which also proxies for opaqueness under the assumption that larger firms are better known. The *Top Portfolio* for (relatively) small companies (those below median market value) has a significant abnormal return of 9.2% for equally-weighted and 9.5% for value-weighted portfolios. The *Spread Portfolios* for smaller companies have (significant) abnormal returns of 9.7% for the equally-weighted and 13.3% for the value-weighted method. Again, no such outperformance exists for the larger companies. Finally, in the subset of companies not widely covered in the Swiss media, investors in the *Spread Portfolio* earn excess returns on the order of 10%, depending on how media coverage is measured exactly. By contrast, the quintile *Spread Portfolio* for companies with a high level of media coverage offers insignificant and slightly negative excess returns for both weighting approaches. These three portfolio splits are, of course, not completely independent, but they capture different samples: Only about two thirds of firms that fulfill one low information environment criterion also fulfill the two others.

In sum, reliable disclosure and transparent communication seems to be important and rewarded by the market where it is most needed.

These results survive a large number of robustness tests (including tests of alternative portfolio formation techniques, alternative definitions of risk factors, and the exclusion of some special companies such as financials, etc.). The more important question concerns their economic interpretation. On the basis of additional tests, we argue that the findings are most consistent with a causal link from VDQ to outperformance. Specifically, we reject a reverse causation hypothesis based both on conceptual arguments and by observing that increases in VDQ are not, in fact, related to future outperformance, as would be expected if managers who have private information about future alpha wish to be particularly forthcoming with communication. We also find that our results do not depend on whether we consider firms in high or low enforcement environments, suggesting that this was not an omitted variable driving our results. Finally, as for the relative importance of voluntary disclosure quality in different time periods, we focus on comparing portfolio returns before and after 2002/03, the times of the Enron and WorldCom scandals. One can plausibly hypothesize that voluntary disclosure quality offers additional, profitable screening power after these scandals. However, we do not find unambiguous evidence for or against this hypothesis, suggesting that the extent that the market has priced in differences in voluntary disclosure quality has not changed due to the scandals.

The paper is organized as follows. Section 2 reviews the theoretical arguments in favor of and against value reporting / voluntary disclosure quality and puts the paper into the context of the existing empirical literature. Section 3 presents the institutional context and the data. Section 4 describes the empirical strategy. Section 5 shows the results. Section 6 offers an interpretation by considering various possible hypotheses. Section 7 concludes.

2 Voluntary Disclosure Quality and Capital Market Outcomes

Value reporting as an element of value-based management (Rappaport 1986) is a relatively new concept. It emphasizes that voluntary disclosure quality is important to reduce the gap between the internal and external views of company value.[2] This section briefly reviews advantages and disadvantages of voluntary disclosure quality.

Several reasons speak against companies putting much effort into voluntary disclosure. First, preparing and releasing information to the public is a costly process. Second, indirect costs may arise due to a reduction in firm value when a company reveals beneficial information to competitors (Verrecchia 1990). Third, potentially increasing legal costs for the firm can be a result of voluntary disclosure.

On the other hand, significant research also exists that notes that companies derive benefits from enhanced voluntary disclosure quality. We cannot review the substantial literature on the subject here, but outline the major arguments that have been brought forward (for a review, see Healy and Palepu (2001) and Beyer et al. (2009)). Early work suggested that increased disclosure quality lowers cost of equity (e.g. Barry and Brown 1984; Diamond and Verrecchia 1991). Empirical results for the negative association between voluntary disclosure quality and the firm's cost of equity exists especially for relatively opaque firms.[3] A second line of work emphasizes the benefits of voluntary disclosure in terms of improved

[2] The seminal contributions (especially as regards normative suggestions for the actual implementation for companies) in the Swiss and Anglo-American literature, respectively, are Labhart (1999) and Eccles et al. (2001).

[3] For example Botosan (1997) does not find a significant relationship in the overall sample, whereas for companies with a low analyst following an empirical relationship appears (though not very strongly). This finding is in line with Merton (1987) where investors have incomplete information about the firms in the economy. By disclosing information a less known company can make potential investors aware of them and enlarge their investor base. Botosan and Plumlee (2002) find further empirical evidence for decreasing cost of capital based on higher disclosure (but find that the timeliness of information disclosure increases cost of capital). Hail (2002), for example, also reports a negative relationship between cost of equity and the Annual Value Reporting Rating (AVR) score for Swiss companies. Sengupta (1998) provides empirical evidence that firms with high disclosure quality have lower interest cost of issuing debt. Addressing the theoretical concern that information quality is, in fact, an idiosyncratic risk factor that should be diversified away; Armstrong et al. (2009) consider a model with both variance and covariance risk. They show that the overall effect of increasing information quality on expected returns is non-linear and is negative only for firms with sufficiently high betas; they also provide empirical evidence in line with this prediction (though with measures of information quality based on earnings and analysts forecasts). Mouselli and Hussainey (2009) also suggest that disclosure quality is a systematic risk factor and show that it is priced in the cross-section of UK stock returns.

stock liquidity.[4] For the purposes of this study, decreased liquidity risk for investors may, in turn, be reflected in higher market valuation.[5] A third reason why firms should care about how they are perceived by investors derive from the general notion that corporate reputation is often classified as an intangible asset and as a signal about the underlying quality of a firm's products (Milgrom and Roberts (1982)). Several studies show that there is a positive relation between a firm's reputation and its financial performance (Michalisin, Kline, and Smith (2000), Roberts and Dowling (2002)).

In the light of this rich but ambivalent set of evidence, it is surprising that only few papers address directly the question of the effect of voluntary disclosure quality on market valuations (stock prices) and returns. Healy, Hutton and Palepu (1999) find that companies with an increase in voluntary disclosure quality show significant progress in stock performance during the publication and the subsequent year. Bloomfield and Wilks (2000) find that higher disclosure quality leads to higher prices and greater liquidity in a laboratory financial market. While we are primarily interested in the long-term investment returns that are available from a trading strategy that adjusts portfolios every year, other studies focus on a shorter timeframe. Fernandes et al. (2010) find that upon implementation of a rule that made it easier for foreign firms to deregister with the U.S. SEC and thereby terminate their U.S. disclosure obligations, the market reacted especially negatively for firms from countries with weak disclosure and governance regimes. Caramanolis-Çötelli et al. (1999) provide empirical evidence for abnormal returns driven by the disclosure quality during the announcement timeframe. However, especially in this context, the question of defining the precise event date is particularly critical. Portfolio analysis can, therefore, provide added value over and above short-term event studies. This is what this paper adds to the literature.

[4] Amihud and Mendelson (1986) argue that the investors' demands have to be compensated with an additional return for bearing the liquidity risk. More liquid stocks need to offer a lower supplementary liquidity premium, resulting in lower expected returns cost of equity. For example, Welker (1995) finds a significant negative relationship between bid-ask spreads (as a proxy for information asymmetries) and disclosure quality. See also Healy, Hutton and Palepu (1999) and Leuz and Verrecchia (2000).

[5] Greater voluntary disclosure quality can also allow companies to attain increased information intermediation. According to Lang and Lundholm (1993, 1996) mandatory disclosure does not fully reveal the companies private information. Furthermore, voluntary disclosure decreases the cost of acquiring information for analysts. Hence the analysts will increase their information supply on the market. Lang and Lundholm (1993) find that the disclosure quality is higher for those companies issuing securities in current or future periods. Lang and Lundholm (1996) find that stocks from companies with high disclosure quality have higher analyst following, less variation in analyst forecasts and less volatility in forecast revisions.

3 Measuring Voluntary Disclosure Quality, Sample, and Data

3.1 *The Annual Value Reporting Rating as a measure of voluntary disclosure quality*

We use a direct measure of the voluntary disclosure quality that a company adopts.[6] Since 1999 the Swiss Banking Institute (SBI) of the University of Zurich conducts the Annual Value Reporting Rating (AVR). The main aim of the analysis is to determine the actual situation of value reporting in annual reports of Swiss companies. The voluntary disclosure quality is assessed using a scorecard with 35items within 9 subindices/categories, which are thought to be important for the decision-making process of an investor, based on Botosan (1997) and conversations with practitioners. The total score of the ranking is a straightforward summation of the checklist with 35 items, which are graded (1 = no information; 6 = very high information quality) based on the information content and quality. On the checklist that assessors use to rate companies, the currently required disclosure level is exactly specified. Summary statistics and further information are available in Table 1. The detailed checklist is in the Supplementary Appendix.

[Insert Table 1 about here]

The numbers suggest that voluntary disclosure quality is relatively stable overall in Switzerland, as measured by the ratio of the median number of points over the total reachable number of points, shown at the bottom of Panel B in Table 1. (The absolute rating numbers are, of course, not to be interpreted cardinally.) Although the median/average AVR score in 2002 is low due to a general shift in voluntary disclosure quality (perhaps in response to the Enron and WorldCom scandals), this does not affect the validity of sorting on the relative ranking. There appears to be an increasing disparity between the high and low rated companies since 2003, as measured by the spread of quintile 4 and 1. By contrast, the difference among the companies with good voluntary disclosure quality is decreasing since 2003, as can be seen in the difference between the maximum and the fourth quintile.

Any rating system has some degree of subjectivity attached to it, and this rating is no exception. A number of features suggest a high reliability of the rating, though. The SBI carefully recruits every year around eight assessors to perform the AVR. A team consists of two independent assessors, allowing double checking. The study head gives a preparatory training and screens the ratings and compares them with previous results to maintain consistency. One can reasonably disagree with both the voluntary disclosure attributes the

[6] Other important work has instead used indirect measures. For example, Francis et al. (2004, 2005) use accruals quality (and find that it has significant explanatory power for the cross section of expected returns).

SBI focuses on and with the index we compute. Just like good governance, good voluntary disclosure quality comes down to a lot more than a point system (as Jack and Suzy Welch argue in a Business Week article[7]). However, if the index were to convey no information, we would simply find that the index we use is not related to investment performance. A final reason to hope for undistorted quality, even if there may be some noise, is that the SBI does not sell the data or provide paid consulting services to the companies that are being studied. Therefore, there is no reason to expect a systematic bias in which certain companies get the best scores.

3.2 *The Swiss stock market and sample selection*

At the end of November 2009 the Swiss stock market (SIX Swiss Exchange) contained 345 listed (domestic 279; foreign 66) companies with a market capitalization of US$ 1'052 billion, which is 2.2% of the world-wide market capitalization. The yearly value of shares traded is US$ 67'863 million. Averaging over the past ten years, Switzerland has the 10th highest market capitalization in the world.

The coverage of AVR is excellent. Specifically, 278 Swiss companies have been rated by the SBI since 1999. For this analysis we exclude all companies which have never been listed during the sample period. We further exclude five companies due to the lack of market data. Our final sample size is 196 companies. The sample contains 124 continuously listed and 73 continuously rated companies. 37 companies enter the sample during the analysis and are still listed. 30 companies are disappearing due to mergers, acquisitions or going privates. Three companies went bankrupt. Two companies have been listed and delisted during the sample period. In contrast to other research (e.g, Botosan 1997) the sample is not limited to one industry. Table 2 summarizes the sample.

[Insert Table 2 about here]

To eliminate potential survivorship bias, we do not exclude companies which have been delisted during the sample period. Companies which are newly listed or went public are included as soon as possible if an AVR score is available.

3.3 *Data*

We use the AVR (1999-2007) voluntary disclosure quality score as the sorting variable for our portfolios. On the financial side, this paper uses for the basic set end-of-month market

[7] "A dangerous division of labor," by Jack and Suzy Welch, Business Week, November 6, 2006.

data from October 1999 to October 2008. We obtain data on stock returns (adjusted for splits, dividends with the return index (RI)), market value (MV) and data from the financial statements from Thomson Reuters Datastream.[8] As a proxy for the extent of analyst following, we use the number of stock recommendations from the I/B/E/S as well as the number of earnings forceasts. Specifically, we calculate the average number of recommendations in a year by averaging over the monthly number of recommendations within each calendar year. For media coverage, we consider the primary two daily newspapers (Neue Zürcher Zeitung (NZZ) and Tages-Anzeiger), the leading weekly investors magazine (Handelszeitung) and the Swiss equivalent of the Associated Press (Schweizerische Depeschenagentur). To obtain the number of relevant articles we follow standard procedures as in Fang and Peress (2009). As the source for our searches, we use LexisNexis and the database of NZZ (which is not covered in LexisNexis, even though it is the leading Swiss newspaper that is relevant also for international investors). In the main analysis, we use the four Swiss Carhart risk factors as calculated by Ammann and Steiner (2008). To be consistent with the methodology and their factors we use the call money rate (from the Swiss National Bank) as the risk free rate. We determine the cross-listing status (ADR level) using the Edgar database. Descriptive statistics are in Table 3.

[Insert Table 3 about here]

4 Empirical strategy

To examine the relationship between voluntary disclosure quality and returns, we follow standard portfolio analysis approaches as conducted, for example, in Gompers, Ishii and Metrick (2003). The results of each rating are published in the business magazine Bilanz in September of the corresponding year. Therefore, we set the starting date of the primary portfolio analysis in October (but consider alternative starting dates in the robustness tests). We construct both an equally-weighted (EW) and value-weighted (VW) set of quintile portfolios. The VW portfolios are rebalanced monthly based on the actual market value weight. We sort the stocks based on their score in the AVR and group them into five portfolios (but consider other sorts/cutoff points in the robustness tests). The portfolio containing the stocks below the first quintile of the AVR is called *Bottom Portfolio* P0020, whereas the *Top Portfolio* (P8000) includes the stocks above the fourth quintile. Additionally, we build a long-short *Spread Portfolio*, where the investor buys the *Top Portfolio* and sells

[8] As we work with individual return data from Thomson Reuters Datastream, we screened our dataset for the problems described in Ince and Porter (2006). We did not find any signs of errors in the data.

the *Bottom Portfolio*. For the baseline analysis with quintile portfolios this *Spread Portfolio* is called LS8020.

Portfolio Return Contribution. Part of any observed differences in portfolio returns is probably driven by the exposure to several risk factors. To address this fact, we calculate the abnormal portfolio return alpha (α) based on three different models: (i) the Capital Asset Pricing Model (CAPM) introduced by Sharpe (1964) and Lintner (1965); (ii) three-factor model of Fama and French (1993), and (iii) the Carhart (1997) portfolio analysis regression model. For example, the portfolio attribution regression for the full model (iii) is:

$$R_{it} - R_{ft} = \alpha + \beta_1 RMRF_t + \beta_2 SMB_t + \beta_3 HML_t + \beta_4 WML_t + e_t \quad (1)$$

where $R_{it} - R_{ft}$ is the time series of excess returns of portfolio i, $RMRF_t$ is the excess return over the risk free rate of the market, SMB_t is the premium return of "Small Minus Big", (size risk factor; measured by market capitalization), HML_t is the premium return of "High Minus Low", (value risk factor; measured by the book-to-market ratio), and WML_t is the premium return of "Winners Minus Losers," (momentum risk factor; measured by the one-year past returns without the most recent month).

Fama and French (1998) and Griffin (2002) find that the Fama-French risk factors are country-specific. Therefore, we take the appropriate Swiss risk factors, which are provided by Ammann and Steiner (2008).

From the calculated alpha, we can infer whether a particular investment strategy yields risk-adjusted excess returns for investors. Note that this methodology, while standard, is based on inefficient markets. If voluntary disclosure quality matters for firm performance and this relationship is fully incorporated by the market, then stock prices should quickly adjust to any relevant change in voluntary disclosure quality. (In this case a simple event study would find expected returns to be unaffected beyond the event window. Furthermore, no difference in returns should be observable.) Only if the change or level of voluntary disclosure quality is not immediately reflected in the stock prices will the realized returns of the respective companies be systematically different from other similar equities.

5 Empirical Results

This section presents our empirical results. We first examine the portfolio analysis for the full sample for equally-weighted (EW) and value-weighted (VW) portfolio returns. Then we present the analysis for a sample split based on the number of analysts following the company the company size, and press coverage. Further, we check our results for robustness. Finally, we summarize our results.

5.1 *Full Sample/Total Index Score*

We present the results of this analysis in Table 4 for equally-weighted portfolios and in Table 5 for value-weighted portfolios.[9] Each column represents one portfolio in Panels A, B, and C. Panel A shows the mean excess returns and the annualized alphas from the estimated regressions with one, three and four risk factors. The corresponding *t*-statistic is in parenthesis below the alphas. Panel B reports the estimated factor loadings on the four (Carhart) risk factors, which provide relevant insight into the constitution of the portfolios. Panel C contains common portfolio summary statistics, such as the annualized portfolio standard deviation or mean market value. Finally, the mean portfolio members and the portfolio's Sharpe ratio are reported.

The key findings are threefold. First, while the mean excess return of the *Spread Portfolios* and that from adjusting for market risk (CAPM alpha) are negative (and, in the case of value-weighting, even significantly so), controlling for the other risk factors (size, value, and momentum) changes the picture. Looking at the 4-factor alphas in Panel A, we find insignificant evidence for the *Spread Portfolios* depending on the weighting approaches (EW-alpha: 0.9% / VW-alpha: -3.9%). Second, we observe significant outperformance of *Top Portfolio* P6080 for both weighting approaches (EW-alpha: 8.7% / VW-alpha: 13.8%). One possible interpretation of this finding is that the market takes a high voluntary disclosure quality level to be valuable, but does not reward "excess" quality. Thus, voluntary disclosure quality offers benefits (such as lower expected cost of equity capital and, thus, tends to increase alpha, but it also implies costs, which decrease performance. Third, insights can be gleaned from studying the loadings on the four factors as reported in Panel B. For value-weighted *Top Portfolio P8000* the factor loading on SMB is negative because size is positively related to voluntary disclosure quality; see also the mean market values provided in Panel C. This echoes previous studies, e.g., Lang and Lundholm (1993).

[9] Under the VW approach, highly capitalized stocks may strongly influence the portfolio returns. For example in Portfolio P8000 six stocks (Novartis, Roche, Nestlé, UBS, ABB and Swiss Re) are responsible for 94% of the weights due to their high market value in contrast with the size of the other 13 smaller stocks within the portfolio for the first year of the analysis. Therefore, EW returns may provide more robust insights.

[Insert Table 4 about here]

[Insert Table 5 about here]

Overall, greater voluntary disclosure quality is not monotonically associated with superior performance for investors forming portfolios based on this characteristic. However, it is possible that for particular subsets of companies or at particular times, voluntary disclosure quality matters more. This is what we investigate next.

5.2 *Sample Split, part 1: Extent of Analyst Following*

For firms about which (relatively) little is known, enhanced voluntary disclosure quality may bring about larger benefits for given costs, in terms of lower costs of equity, implying higher alphas. Therefore, we expect that a company's effort in terms of voluntary disclosure quality in a low information environment will have a more positive impact on performance than for a company in a high information environment. To operationalize this idea, we draw on the notion of Botosan (1997) that analysts may act as information multipliers and intermediaries who reduce the power and importance of voluntary disclosure quality.[10] Based on the average number of stock recommendations per company in each year, we split the sample into two parts, above-median and below-median analyst following. Panel A in Table 6 provides the result from this analysis.

[Insert Table 6 about here]

Strikingly, the equally-weighted (value-weighted) excess return for the (quintile-based) *Spread Portfolio* for the low analyst following split is 13.9% (14.3%) per year. For high followed companies the alphas of *Top* and *Spread Portfolios* are mainly negative. As one might expect, these alphas are not statistically significant from zero at high significance levels for all combinations. However, as is evident from visual inspection of Table 6, there is a marked difference between companies with little analyst following (on the left-hand side of the table) compared to those with a high analyst following (in the middle of the table). More formally, we perform a trading strategy which takes a long position in the *LS Spread Portfolio* based on companies with a low extent of analyst following and a short position in the same *LS Spread Portfolio* but for companies with high analyst coverage. The results can be found on the right-hand side of the table. For example, the equally-weighted (value-weighted) excess

[10] See also, for example, Leuz and Verrecchia (2000) and Hail (2002) for evidence that the economic consequences of improved disclosure quality are better detectable in a low disclosure environment.

return for the strategy based on quintile portfolios is 14.8% (12.1%) per year. For some portfolios, the outperformance is remarkable. For example, when this strategy is applied to the decile *Spread Portfolios, it* yields risk-adjusted excess returns of 23.8% (EW) and 33.2% (VW).

5.3 *Sample Split, part 2: Company Size*

Many investors are arguably focusing their attention on large companies because these are more visible. Instead, information for smaller companies tends to be scarce. Will those among the small firms that voluntarily increase their transparency and enhance their voluntary disclosure quality be rewarded for doing so by the market? To check for this possibility, we split the sample into two parts around the corresponding median market value of the current year and then perform the portfolio analysis. The results are presented in Panel B in Table 6.

Generally, the extra returns that investors earn by picking smaller companies with good voluntary disclosure quality compared to worse disclosure quality are higher than the extra returns they earn by paying attention to voluntary disclosure quality for firms above the median market value size. Again, this is not a result that holds for each possible portfolio one can construct, but again the alphas on the left-hand side of the table look strikingly different from those in the middle. For example, the equally-weighted (value-weighted) excess return for the (quintile-based) *Spread Portfolio* based on the smaller companies is 9.7% (13.3%) per year. The corresponding portfolios based on large companies yield -2.3% (-0.9%) per year. Moreover, the difference between the strategies based on small and large companies (on the right-hand side of the table) for the same *Spread Portfolios* suggests a systematic difference in the economic effect of voluntary disclosure quality.

5.4 *Sample Split, part 3: Media Coverage*

A third proxy for the degree to which information asymmetries exist between firms and investors is the (lack of) press coverage. It is possible that within the set of those companies about which relatively few articles are written, investors benefit from enhanced voluntary disclosure quality more than within the set of companies for which media coverage is strong. To evaluate this hypothesis, we split the sample based on the yearly media coverage of the rated companies in relevant Swiss media.

Panel C in Table 6 presents the result of the portfolio analysis based on the split of the sample by the media coverage in the NZZ, whereas Panel D does this for the media outlets covered by LexisNexis. Notably, the equally-weighted (value-weighted) excess return for the (quintile-based) *Spread Portfolio* for the companies with low media coverage in NZZ is

9.30% (11.48%) per year. The same portfolio strategy based on other newspapers from LexisNexis yields in an equally-weighted (value-weighted) excess return of 10.63% (4.71%). Strategies based on other portfolio cutoffs also indicate - especially for with the equally-weighted approach – abnormal returns that are not explained by the four standard factors. By contrast, the quintile *Spread Portfolio* for companies with a high level of media coverage provides negative and insignificant excess returns for both weighting approaches. To combine these results, consider a trading strategy which takes a long position in the quintile *LS Spread Portfolio* for little-covered companies and a short position in the same *LS Spread Portfolio* but for companies with a high extent of press coverage. When investors go by the coverage in the NZZ, the risk-adjusted trading profit is 13.4% (12.1%) for the equally-weighted (value-weighted) approach. The significance of these results is not very high, and different portfolios offer significant alphas, depending on whether media coverage is measured from LexisNexis or from the NZZ. In sum, though, our results suggest that companies with low level of investor recognition but high voluntary disclosure quality have larger returns than well known firms. As such, they complement the findings of Bodnaruk and Ostberg (2009).

5.4 *Time Dimension Split, part 1: Before and after governance scandals or stability over time*

Is there a systematic change in the value of voluntary disclosure quality due to the Enron and WorldCom accounting and governance scandals in 2002/2003? In the context of our analysis, it is conceivable that voluntary disclosure quality was not priced before the scandals.

To investigate this possibility, we conducted two separate portfolio analyses: one for the period from October 1999 to September 2003 and one for the period from October 2003 to September 2008. We present in Table 7 the results for the LS8020 *Spread Portfolios* for the full sample and for sample splits with respect to analyst following, company size and media coverage. (Results for other portfolios are not presented to conserve space but generally exhibit similar patterns.)

[Insert Table 7 about here]

For the full sample, we are not able to detect a (significant) pattern for either weighting approach. The high excess returns for *Spread Portfolios* with low analyst coverage tend to decrease slightly in the period from 2003-2008 compared to the pre-scandal-period for both weighting schemes. On the other hand, the negative excess returns for high followed companies disappear after the accounting scandals with the equally-weighted portfolio approach. For example, the significant negative risk-adjusted excess return for equally-

weighted *quartile Spread Portfolio* in the pre-scandal-period changed to a slightly positive insignificant alpha in the post-scandal-period. A similar excess return pattern is obtained based on the sample split on media press coverage. The excess returns for the *Spread Portfolio* for highly covered companies are positive in the post-scandal-period whereas they are negative in the pre-scandal-period. This effect is again limited to equally-weighted portfolios. In contrast, the Spread Portfolio tends to convey higher alphas in the post-scandal-period for smaller companies instead of larger companies.

5.5 *Time Dimension Split, part 2: Stability over time*

Equity markets experienced a variety of changes over our sample period, not only related to governance scandals. In this section, we explore whether our results are period-specific and how they vary over time. We focus on our *quintile Spread Portfolios* and consider a trading strategy over rolling 48 months periods.[11]

[Insert Figure 1 about here]

The four panels in Figure 1 are organized in identical ways. They show the four-factor alphas for equal- and value-weighted portfolios (solid lines), plotting also the 90% confidence intervals (dashed lines). For the full sample we see in Figure 1 in Panel A that despite the slight increase in monthly alphas for both weighting approaches, at no point in time did a trading strategy based on voluntary disclosure quality for the full sample yield significant excess returns. Alphas are also stable over time – but significantly positive for equally-weighted portfolios – for companies with a low analyst following (Panel B), though there is a hint of a downward trend over time. This significant result does not hold for value-weighted portfolios. The same pattern is observable for the trading strategy based on companies with low media coverage in Panel D. A somewhat stronger trend is found in Panel C for the small size sample split, for the value-weighted portfolio. While the equal-weighted Spread Portfolio implies significant alphas virtually over the complete sample period, the value-weighted portfolio offers significant excess returns only towards the end of the period. Overall, however, despite this last exception, this analysis suggests that our findings on the cross-sectional dimension are fairly stable over time.

[11] For an application of this approach in a different context, also using portfolio analysis, see Boehmer et al. (2010).

5.6 *Robustness checks*

Before turning to the interpretation of the results, it is worthwhile noting that they are robust to several variations in methods. These results are largely tabulated in the Supplementary Appendix (not intended for publication in print).

Portfolios based on other percentiles. We first want to verify that our main results are not driven by the choice of the portfolio building process. Panels A, B and C, and D in Table A-1 show the adjusted equally-weighted (value-weighted) portfolio returns based on other percentiles.

We obtain a small, but largely insignificant positive outperformance for all equally-weighted *Spread Portfolios* based on other portfolio cutoff points. For value-weighted portfolios, the outperformance is negative (and insignificant). These results are in line with the results of the main analysis, namely, that forming portfolios based on voluntary disclosure quality does not offer significantly positive or negative excess returns.[12]

We perform the same specification tests for the sample splits with respect to the number of analyst following (Panel A in Table 6) and the company size (Panel B in Table 6). The high outperformance of the *Spread Portfolio* is again observable for both weighting approaches for companies with low analyst following. For example, the equally-weighted (value-weighted) excess return for the *Spread Portfolio LSP9010* for the low analyst following split is 17.8% (25.4%) per year. Generally, the excess return declines for portfolios with a lower threshold. Taken together, we are able to present robust outperformance for the high voluntary disclosure quality portfolio for the subsample with low analyst following. The analysis for the highly followed companies is in line with the previous mixed findings. Usually, the excess returns are (insignificant) negative. Surprisingly, the equally-weighted *Spread Portfolio* containing all stocks above the median AVR score in a long position and the stocks below the median AVR score in a short position has a significant excess return of 6.7%. The corresponding value-weighted portfolio has a negative performance of -1.8%.

As we can see in Panel B in Table 6, the results for the specification tests with respect to company size are in line with previous findings for quintile portfolios. For example, the equally-weighted (value-weighted) excess return for the *Spread Portfolio LSP7525* for the subsample with small companies is 8.7% (8.6%) per year. Focused on the large companies

[12] What is noteworthy is the equally-weighted (value-weighted) excess returns for the Spread Portfolio LSP9505, which is 12.6% (7.7%) per year, respectively. This result is mainly driven by the large underperformance of the corresponding Bottom Portfolio P0005. This indicates that companies with low voluntary disclosure are punished by the market. According to a rule of thumb, portfolios should contain at least five companies (Vaihekoski 2004). This standard is fulfilled in this analysis, even for the year with the smallest sample size. The equally-weighted (value-weighted) portfolio containing the stocks below the 2.5% threshold has a negative excess return of -16.2% (-18.6%).

we find no outperformance for *Spread Portfolios*. In other words, voluntary disclosure quality seems to pay off only for small and/or low followed companies.

Alternative risk factors. Ammann and Steiner (2008) use Factset to construct their risk factors. We rerun our analysis with the risk factors provided by Schmidt and von Arx (2010) which are based on Thomson Reuters Datastream. With the four (Carhart) risk factors our results for the *Spread Portfolios* LS8020 (first reported in Tables 4, 5, and 6) are similar as before. Solely the results in the sample split for small companies (for both weighting approaches) do not remain on a conventional significance level. We observe the same effect for the value-weighted *Spread Portfolio* focused on low media covered stocks. Replacing the momentum factor with a liquidity factor leads to somewhat less pronounced results. Still, equally-weighted *Spread Portfolios* based on low analyst following and media coverage are significant on a 5 percent and 10 percent level, respectively. Therefore, lack of liquidity of the low information environment stocks is not driving the results. (See Table A-2 in the Supplementary Appendix.)

Other sample splitting methods. Previously, we concentrate on sample splits based on the median number of the corresponding proxy for information environment. To test the robustness of our results we split the sample in three parts and compare the low with high level of information environment. Apart from one exception[13] we find similar results for the sample splits. In an additional analysis we apply our trading strategies only to the companies that have a below the median analyst and media coverage and company size. The significant abnormal returns for the *Spread Portfolio* are 9.22% p.a (EW) and 15.07% p.a (VW).

Industry-Adjusted Scores. Industries have diverse reporting quality standards. One might reasonably assume that the difference to the companies' peers is particularly important for our investor and that the result that VDQ in the overall sample is not related to alpha may be due to the fact that this was up to now not considered. To address this, we adjust the companies' scores relative to those of their peers and rerun our analysis. Specifically, we use the Industry Classification Benchmark (ICB) to determine the companies industry.[14] The total score from AVR is adjusted for industry effects by dividing the score by the average score of the industry if the industry contains at least five stocks. (Only the telecommunication industry with Swisscom and the company EG Laufenburg of the utilities industry in 1999 are excluded from this analysis.)

[13] The abnormal return for the value-weighted portfolio based on media coverage by NZZ is not remaining significant.

[14] Due to the small sample size the use of supersector or sector classification is not possible although it might provide a better insight into the different portfolios.

Panel A of Table A-3 in the Supplementary Appendix shows the results. We find a positive excess return of 2.92% for the equally-weighted *Spread Portfolio LS8020*. This is higher than the excess return (0.88%) with unadjusted scores, but it is still insignificantly different from zero, confirming the earlier result. Portfolios based on different cut-off points show generally comparable results as for the unadjusted score and have a positive yield. Portfolios based on value-weighted returns tend to have an underperformance of the *Spread Portfolios*.

Portfolio Starting Specification. The portfolio starting date could be crucial for the analysis. If the short-term effect of good voluntary disclosure is already incorporated in stock prices, we would not be able to find positive returns based on our analysis. Therefore, we decided to examine the analysis with starting date April instead of October. This helps increase the likelihood that the voluntary disclosure quality is captured by the right portfolio.[15] The results from this analysis provided in Panel B in Table A-3. For example the equally-weighted (value-weighted) excess return for the *Spread Portfolio LS8020* is -.01% (-5.2%) per year. For further analysis, we examine the analysis for other months and see that in the early half of the year, especially in April, May, and June, the highest alpha for the corresponding portfolios occurs. This may indicate that voluntary disclosure quality is quickly reflected into stock prices. However, in none of the cases do we find statistically significant outperformance of the high voluntary disclosure quality sample.

Subsample without Financials. Disclosure practices of financial institutions are heavily regulated and different from the disclosure practice of other industries. Consequently, the exclusion of financials is a common robustness check in disclosure-related research. Therefore, we exclude the companies from the financial industry (based on the "Industry Classification Benchmark" number; ICB: 8000) and redo the analysis. The results are available in Panel C in Table A-3. The equally-weighted (value-weighted) excess return for the *Spread Portfolio LS8020* is 3.9% (2.1%) per year. Untabulated results for low the splits based on the information environment are similar to the analysis including the financial companies. In general, we obtain higher abnormal returns low analyst split, where the *Spread Portfolio (LS8020)* is significant for both weighting approaches. The trading strategy focused on smaller companies has significant abnormal return if we use the value-weighted approach.

[15] Imagine a company with normal disclosure practice would be in Portfolio P3. The management or the board of directors decides to enhance the value reporting and disclosure practice in the next annual report which will be published in April one year later. As a result, the stock would be placed in the Top Portfolio P8000. If the short-term market reaction will be positive and the portfolio building date is later than April the effect would be captured by the wrong portfolio.

The *Spread Portfolio (LS8020)* yields positive significant abnormal returns for low covered companies by LexisNexis, whereas the NZZ-Split yields in positive (insignificant) results.

Further robustness checks. The results are slightly stronger if we exclude the stocks that went bankrupt. We also exclude one potential "Penny-Stock" (Swisslog) from the sample. The results remained robust. Moreover, we use the number of analyst recommendation as proxy for number of analysts. Our results are similar to those with the number of one year EPS forecasts.

6 Interpretation

We have established an empirical relationship of voluntary disclosure quality with returns. A positive, monotonic relationship between VDQ and outperformance holds for firms about which relatively little is otherwise known; no significant relationship exists for firms that are followed by many analysts; in the overall sample, there is a hump-shaped relationship, i.e., firms with VDQ in the fourth quintile perform best. Since firms did not adopt voluntary disclosure quality randomly, this evidence does not necessarily imply a causal relationship.

A perfect, natural experiment is, unfortunately, not available. However, we can explore the implications and assess the supportive evidence for several causal hypotheses. Three candidate explanations for the findings are as follows. First, high VDQ may lead, especially for firms operating in an opaque information environment to lower cost of equity and better performance, resulting in higher alpha. Large companies may destroy value by putting too much effort on voluntary disclosure quality or by providing investors with information overflow. This is the causal effects hypothesis. Second, managers may anticipate future alpha and may, therefore, already today adjust their companies' value reporting. This is the reverse causality hypothesis. Finally, the omitted variables hypothesis is that factors not considered in the portfolio formation are actually driving differential returns.

Consider first the reverse causality hypothesis. If we had found a monotonic relationship between VDQ and returns, a possible interpretation would be that a lack of voluntary disclosure quality does not cause higher agency costs, but managers who forecasted poor performance for their firms in the coming year(s) decreased VDQ, and those who forecasted strong performance increased VDQ.

There are several conceptual problems with this argument. First, it is equally possible that companies with previous bad performance would increase their voluntary disclosure in order to explain their poor performance. Second, it is not clear that managers are indeed

capable of predicting the company's abnormal excess returns to the Carhart four factor model. Third, we question if managers have an incentive to increase voluntary disclosure ahead of time if they expect that the company will outperform the market. These arguments notwithstanding, if managers were increasing voluntary disclosure quality if the performance in the subsequent year was expected to be positive, a trading strategy based on the difference in VDQ would show positive abnormal returns. But we find no significant abnormal returns for companies that improved their ratings even for the sample splits.

Additionally, note that we do not, in fact, observe such a monotonic relationship in the overall sample. If the reverse causality hypothesis were true, we would expect the highest alphas in the highest VDQ-portfolios, but we do not. Further, we do observe a monotonic relationship between VDQ and performance in the low analyst portfolio. But it is not clear why the reverse causality hypothesis should hold for them but not for the high analyst portfolios.

Second, it is possible that VDQ does not cause better capital allocation and lower cost of equity, but its presence is correlated with other characteristics that earned abnormal returns in the time period under consideration. While omitted variables can, of course, be a problem, a generic omitted variables argument has no bite here. Rather, what is needed is an omitted variable that has differential effects between the low information and high information samples. Enforcement could be such a variable. If high analyst coverage (or any other information intensity measure) is correlated with the firm being subject to stringent enforcement, then one might expect that little excess returns can be earned by trading on the quality of the report. That is, within the high analyst following sample, we may be capturing firms which do not have much choice in their disclosure quality because these are firms under such close scrutiny or because they are active in other jurisdictions as well and thus are heavily regulated. However, the standard deviation of AVR is, in fact, *greater* in the high analyst following sub-sample than in the low analyst following group, and the same is true for the other opaqueness measures. See Table A-5 in the Supplementary Appendix for details.

Another version of the enforcement argument is that cross-listed companies may need to fulfill so many requirements that there is little room to maneuver in terms of voluntary disclosure quality. For these firms, therefore, we would not expect any outperformance from paying attention to VDQ, and if these firms are those with many analysts, large size, and high media coverage, then this may be driving our results. To address this issue, we exclude those cross-listed companies (American Depositary Receipt - ADR level 2 and 3) and rerun our analysis. The results are two-fold. First, we detect slightly higher but insignificant abnormal

returns on the trading strategy for the full sample. The cross-listed companies are not determining for the results in the analysis provided in Table 4 and 5. Second, we find lower abnormal returns for the trading strategy based on companies with a high analyst following. Strategies based on companies from a low information environment are not affected by the exclusion of cross-listed companies. Therefore, cross-listing cannot be the only explanation for the low abnormal returns for companies in a high information environment.

In the same vein, another potential explanation for the systematic difference between the trading strategies between low and high information environment may be the accounting standard adopted by the companies. International accounting standards like IFRS and US GAAP have a higher enforcement than companies using local standards as for example Swiss GAAP FER or the Swiss Code of Obligations. Generally, companies with an international accounting standard (IFRS or US GAAP) have a higher *voluntary* disclosure quality than companies with a local standard. Because companies adopted IFRS or US GAAP standards have larger analyst and media coverage and market capitalization we would expect that this could explain the low excess returns for the full sample. If only the accounting standard were driving our results, we would expect outperformance for the non-IFRS and non-US GAAP firms for an investment strategy based on VDQ. But we do not in fact find that this trading strategy performs differently for these firms than for those that adopted IFRS and US GAAP. Table A-4 in the Supplementary Appendix shows these results. Thus, the level of enforcement due to the accounting standard is not the sole driver of the results. .

In sum, the most plausible explanation for the empirical findings is that in low information environments, high voluntary disclosure quality causes more efficient allocation of capital, lower costs of capital, and, ultimately, higher risk-adjusted returns for shareholders.

7 Concluding remarks

This study shows that investors are able to earn abnormal returns on trading strategies based on voluntary disclosure quality, at least in the sample and time period under consideration. The effect is more pronounced for relatively opaque firms, as measured by their analyst following, size, and media coverage. While we do not have a perfect, natural experiment to firmly establish causality, alternative hypotheses (positing reverse causality or omitted variables) do not appear as plausible as the idea that value reporting drives outperformance where little information is available about a firm. To our knowledge, this is the first systematic evidence on the long-run investment performance implications of voluntary disclosure quality. As such, this paper complements the large literature that exists on short-run

effects on increased voluntary disclosure quality and on the correlation of voluntary disclosure quality with cost of capital and liquidity.

There are also other empirical strategies one could employ to address the research question of this paper. For example, future research might examine whether companies with better disclosure are assigned higher valuations by the market, as measured by Tobin's Q.

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9 Appendix

Table 1: Summary Statistics AVR

This table summarizes the AVR total score for the years 1999–2007. Panel A shows the total coverage of AVR and the companies that had been listed in this period. Panel B summarizes the total AVR scores over the years. Q4 - Q1 is the difference between the 4th quintile and 1st quintile in percentage points.

	1999	2000	2001	2002	2003	2004	2005	2006	2007
Panel A. Companies in the AVR Sample									
Rated companies	111	151	151	166	177	187	202	200	203
Listed companies	89	115	112	129	136	130	137	138	143
Listed companies in%	80	76	74	78	77	70	68	69	70
Panel B. AVR Total Score									
Reachable points	48	50	50	58	210	210	210	210	210
Min	5	8	7	1	49	49	43	46	51
1st quintile	13	16	17	10	68	67	71	72	80
2nd quintile	17	21	23	11	76	78	83	88	92
Average	18.1	22.9	23.5	14.6	83.5	86.4	91	95.6	101
Median	18	22	24	13	79	83	89	91	96
3rd quintile	20	24	26	15	84	90	96	101	104
4th quintile	24	29	29	19	100	103	111	120	123
Max	30	44	42	38	158	153	153	164	170
Standard deviation	5.7	7.8	7	7	19.9	21.9	23.4	26.3	24
Skewness	0	0.4	-0.1	1	1.1	0.7	0.4	0.3	0.4
Max – Q4	13%	30%	26%	33%	28%	24%	20%	21%	22%
Q4 - Q1	23%	26%	24%	16%	15%	17%	19%	23%	20%
Median / Reachable points	38%	44%	48%	22%	38%	40%	42%	43%	46%
Panel C. Industries in Sample									
Basic materials	7	9	9	13	13	12	13	12	13
Industrials	29	39	41	42	41	41	41	39	41
Consumer goods	8	15	13	14	16	14	16	15	15
Health care	11	12	13	15	14	12	13	15	15
Consumer services	12	14	13	12	15	16	19	18	18
Telecommunications	0	1	1	1	1	1	1	1	1
Utilities	1	0	0	5	5	5	5	5	5
Financials	20	23	21	24	32	32	33	32	37
Technology	5	7	7	9	9	7	6	7	6
Panel D. Sample Split Overlapping									
In all three subsamples	31	40	39	39	45	42	45	46	44
Low Analyst, Small Size but not in low Media (NZZ)	4	7	7	10	10	9	8	9	7
Low Analyst and Media but not small Size	5	7	7	14	12	14	13	11	16
Small Size and low Media but not in low Analyst	3	4	6	8	10	9	8	8	11
Only in low Analyst	5	6	6	4	6	5	7	5	6
Only in small Size	8	7	5	9	6	7	10	6	11
Only in low Media	7	8	7	6	6	4	4	6	2

Table 2: Sample Attrition

The panel on the left presents the sample breakdown. The panel on the right provides further sample information

Sample Breakdown		Sample Information	
Unique companies in AVR	278	Continuously listed	124
Not listed at all	-75	Continuously rated	73
Subtotal	203	Listed new in sample	37
Companies not listed in Switzerland	-2	Delisted	30
No data available	-5	Listed & delisted	2
Total in sample	196	Bankruptcy	3

Table 3: Summary Statistics

This table presents the summary statistics for key variables we use in this study.

	Minimum	Mean	Median	Maximum	Standard Deviation
Returns	-1	0.0061	0	2.1368	0.045
Market Value	0	5212	466.5	211473	20449
Analysts	0	8.263321	5.708333	45.67	8.81
Media Coverage (NZZ)	0	76.9	18	1844	157.21

Table 4: Voluntary Disclosure Quality Index-Sorted Stock Portfolios (Equally-Weighted)

All stocks are sorted based on the companies' AVR scores. We construct 5 portfolios based on quintile cutoffs. This table presents the results from regressions of equally-weighted excess returns over the market on a constant, market return (RMRF), as well as three (RM, SMB, HML) Fama-French and four (RMRF, SMB, HML, WML) Carhart factor regressions. The first portfolio building date is 10/99 and the portfolios are rebalanced monthly and reformed every year. The sample period is 10/99-10/08. Panel A shows monthly alphas (in annualized percentages) from these regressions and the corresponding values of t-statistics (in parentheses). Panel B shows loadings on the four risk factors and the corresponding *t*-statistics (in parentheses) from the Carhart four-factor regression. Panel C reports annualized standard deviation and monthly skewness of portfolio returns, mean market value (MV), market-to-book ratio (MBR) and mean portfolio stock numbers and Sharpe ratios for each portfolio. * denotes significance at 10%, ** denotes significance at 5%, *** denotes significance at 1%.

Reporting Quality	(low)				(high)	
Quintile Portfolio	P0020	P2040	P4060	P6080	P8000	LS8020
			Panel A. Portfolio Alphas			
Mean excess return	7.22	5.45	5.99	14.72**	3.31	-3.66
	(1.228)	(0.874)	(1.003)	(1.994)	(0.548)	(-1.016)
CAPM alpha	6.07	4.10	4.75	13.11***	1.86	-3.99
	(1.499)	(1.111)	(1.262)	(2.851)	(0.741)	(-1.178)
3-factor alpha	0.19	-1.37	-1.12	6.56*	-0.85	-1.04
	(0.061)	(-0.496)	(-0.416)	(1.863)	(-0.388)	(-0.322)
4-factor alpha	0.12	-1.03	-1.39	8.67**	1.01	0.88
	(0.036)	(-0.343)	(-0.482)	(2.288)	(0.432)	(0.253)
			Panel B. Four-Factor Regression Coefficients			
RMRF	1.0667***	1.1997***	1.1626***	1.2673***	1.1354***	0.0687
	(12.825)	(16.426)	(16.455)	(14.307)	(20.118)	(0.815)
SMB	0.8359***	0.7816***	0.8362***	0.8562***	0.3782***	-0.4577***
	(8.146)	(8.673)	(9.592)	(7.834)	(5.431)	(-4.399)
HML	0.2575**	0.4907***	0.5528***	0.6649***	0.2964***	0.0389
	(2.104)	(4.567)	(5.319)	(5.102)	(3.570)	(0.314)
WML	0.0050	-0.0248	0.0199	-0.1400	-0.1316***	-0.1366
	(0.057)	(-0.320)	(0.265)	(-1.488)	(-2.194)	(-1.525)
			Panel C. Portfolio Characteristics			
Portfolio stdev	0.171	0.183	0.174	0.208	0.179	0.110
Portfolio skewness	-0.116	-0.647	-0.844	0.289	-0.837	-0.9048
Mean market value	1119.38	2473.87	2316.10	6067.69	29951.02	
Mean market to book ratio	2.13	2.32	2.82	2.48	3.25	
Mean number of portfolio constituents	30	27	28	27	25	
Sharpe ratio	0.423	0.298	0.343	0.708	0.186	

Table 5: Voluntary Disclosure Quality Index-Sorted Stock Portfolios (Value-Weighted)

All stocks are sorted based on the companies' AVR scores. We construct 5 portfolios based on quintile cutoffs. This table presents the results from regressions of value-weighted excess returns over the market on a constant, market return (RMRF), as well as three (RM, SMB, HML) Fama-French and four (RMRF, SMB, HML, WML) Carhart factor regressions. The first portfolio building date is 10/99 and the portfolios are rebalanced monthly and reformed every year. The sample period is 10/99-10/08. Panel A shows monthly alphas (in annualized percentages) from these regressions and the corresponding values of t-statistics (in parentheses). Panel B shows loadings on the four risk factors and the corresponding t-statistics (in parentheses) from the Carhart four-factor regression. Panel C reports annualized standard deviation and monthly skewness of portfolio returns, mean market value (MV), market-to-book ratio (MBR) and mean portfolio stock numbers and Sharpe ratios for each portfolio. * denotes significance at 10%, ** denotes significance at 5%, *** denotes significance at 1%.

Reporting Quality	(low)				(high)	
Quintile Portfolio	P0020	P2040	P4060	P6080	P8000	LS8020
			Panel A. Portfolio Alphas			
Mean excess return	9.51	5.88	3.09	12.26	0.39	-8.38*
	(1.43)	(0.83)	(0.41)	(1.43)	(0.08)	(-1.77)
CAPM alpha	8.25*	4.39	1.40	10.40*	-0.79	-8.40*
	(1.72)	(1.01)	(0.34)	(1.96)	(-0.46)	(-1.77)
3-factor alpha	4.86	0.86	1.14	8.33	-0.03	-4.68
	(1.04)	(0.21)	(0.27)	(1.61)	(-0.02)	(-1.00)
4-factor alpha	4.81	-0.54	1.61	13.77**	0.72	-3.92
	(0.95)	(-0.12)	(0.35)	(2.49)	(0.38)	(-0.77)
			Panel B. Four-Factor Regression Coefficients			
RMRF	1.025***	1.291***	1.260***	1.192***	0.850***	-0.1754
	(8.56)	(12.09)	(11.35)	(9.44)	(18.81)	(-1.40)
SMB	0.468***	0.507***	0.0422	0.2373	-0.113**	-0.582***
	(3.17)	(3.85)	(0.31)	(1.52)	(-2.03)	(-3.76)
HML	0.1573	0.329**	-0.2204	0.519***	-0.1072	-0.2646
	(0.89)	(2.09)	(-1.35)	(2.79)	(-1.61)	(-1.43)
WML	0.0033	0.0989	-0.0325	-0.350**	-0.0524	-0.0557
	(0.03)	(0.87)	(-0.28)	(-2.61)	(-1.09)	(-0.42)
			Panel C. Portfolio Characteristics			
Portfolio stdev	0.1916	0.2058	0.2256	0.2446	0.1444	0.1476
Portfolio skewness	-0.3067	-1.0018	-0.5771	-0.8049	-0.6721	-0.233
Mean market value	1119.4	2473.9	2316.1	6067.7	29951	
Mean market to book ratio	2.1	2.3	2.8	2.5	3.3	
Mean number of portfolio constituents number	30	27	28	27	25	
Sharpe ratio	0.496	0.286	0.137	0.501	0.027	

Table 6: Cross-sectional Sample Splits

This table summarizes the four factor alphas of the portfolio analysis with a sample split based on the median extent of analyst following from I/B/E/S in Panel A, based on median company size in Panel B, based on median coverage in the NZZ in Panel C, and based on median coverage in other relevant Swiss newspapers (Tages-Anzeiger, Handelszeitung, Sonntagszeitung and Schweizerische Depeschenagentur) in Panel D. The LS8020 portfolio is our standard Spread Portfolio based on quintile cutoffs. Other portfolios are based on different percentiles. For example, the portfolios based on quartiles result in P7500 as the Top Portfolio and LS7525 as the corresponding Spread Portfolio which buys the Top Portfolio P7500 and sells the corresponding Bottom Portfolio P0025. All results are from regressions of equally-weighted (EW) and value-weighted (VW) excess returns over the market on a constant (alpha), and the four (RMRF, SMB, HML, WML) Carhart factor regressions. The first portfolio building date is 10/99 and the portfolios are rebalanced monthly and reformed every year. The sample period is 10/99-10/08. * denotes significance at 10%, ** denotes significance at 5%, *** denotes significance at 1%.

Panel A. Results based on Sample Split on Analyst Coverage

Analysts Following:	Low (Below Median)				High (Above Median)				Difference (Low – High)	
Weighting:	Equally-Weighted		Value-Weighted		Equally-Weighted		Value-Weighted		EW	VW
Portfolio:	Top	LS	Top	LS	Top	LS	Top	LS	LS	LS
P9000 | LS9010	5.1	17.75***	11.15	25.4**	0.12	-4.95	-0.64	-6	23.77**	33.21**
	(1.303)	(2.743)	(1.257)	(2.192)	(0.037)	(-0.602)	(-0.219)	(-0.821)	(2.163)	(2.248)
P8000 | LS8020	9.26***	13.86***	17.26*	14.32	-1.7	-0.82	0.11	1.81	14.80**	12.31
	(2.681)	(3.111)	(1.768)	(1.429)	(-0.616)	(-0.170)	(0.046)	(0.360)	(2.122)	(1.045)
P7500 | LS7525	6.42**	9.99**	13.59	9.83	-1.94	-4.37	0.15	-0.32	14.96**	10.18
	(2.188)	(2.522)	(1.565)	(1.106)	(-0.644)	(-0.927)	(0.061)	(-0.066)	(2.199)	(0.959)
P6600 | LS6633	4.97*	6.82**	11.82	7.54	1.2	0.44	0.89	2.27	6.35	5.16
	(1.694)	(2.044)	(1.496)	(0.981)	(0.466)	(0.125)	(0.448)	(0.540)	(1.259)	(0.598)

Panel B. Results based on Sample Split on Company Size

Company Size:	Small (Below Median)				Large (Above Median)				Difference (Small – Large)	
P9000 | LS9010	4.70	10.33	3.53	10.65	1.15	-3.40	0.74	-8.35	14.17	20.57*
	(1.007)	(1.330)	(0.646)	(1.104)	(0.400)	(-0.590)	(0.282)	(-1.301)	(1.422)	(1.679)
P8000 | LS8020	9.24***	9.65	9.51**	13.26*	-1.55	-2.27	-0.01	-0.91	12.18*	14.29
	(2.816)	(1.626)	(2.138)	(1.682)	(-0.534)	(-0.597)	(-0.004)	(-0.185)	(1.840)	(1.612)
P7500 | LS7525	9.66***	8.67*	8.96**	8.56	0.17	-0.41	0.52	0.71	9.12	7.80
	(2.929)	(1.802)	(2.083)	(1.351)	(0.064)	(-0.110)	(0.236)	(0.140)	(1.585)	(0.950)
P6600 | LS6633	2.67	1.73	3.59	5.03	0.01	0.69	0.64	0.30	1.03	4.71
	(0.876)	(0.456)	(0.971)	(0.944)	(0.005)	(0.202)	(0.343)	(0.067)	(0.216)	(0.676)

Panel C. Results based on Sample Split on Media Coverage (NZZ)

Media Coverage:	Low (Below Median)				High (Above Median)				Difference	
P9000 | LS9010	4.72	9.76	6.65	13.49*	0.37	2.77	-0.97	-10.67	6.83	26.77**
	(1.346)	(1.508)	(1.483)	(1.636)	(0.123)	(0.342)	(-0.337)	(-1.586)	(0.730)	(2.434)
P8000 | LS8020	8.22**	9.30**	11.2***	11.48	-2.35	-3.61	-0.99	-0.52	13.35*	12.06
	(2.598)	(2.227)	(2.666)	(1.650)	(-0.842)	(-0.645)	(-0.414)	(-0.094)	(1.948)	(1.340)
P7500 | LS7525	9.14***	7.20*	10.6**	9.61	-0.03	-0.32	0.50	-0.09	7.54	9.71
	(2.800)	(1.865)	(2.584)	(1.608)	(-0.012)	(-0.068)	(0.230)	(-0.016)	(1.209)	(1.208)
P6600 | LS6633	6.03*	4.86	6.74*	4.11	0.40	0.75	0.85	0.83	4.08	3.25
	(1.883)	(1.392)	(1.724)	(0.797)	(0.155)	(0.197)	(0.452)	(0.180)	(0.769)	(0.456)

Panel D. Results based on Sample Split on LexisNexis

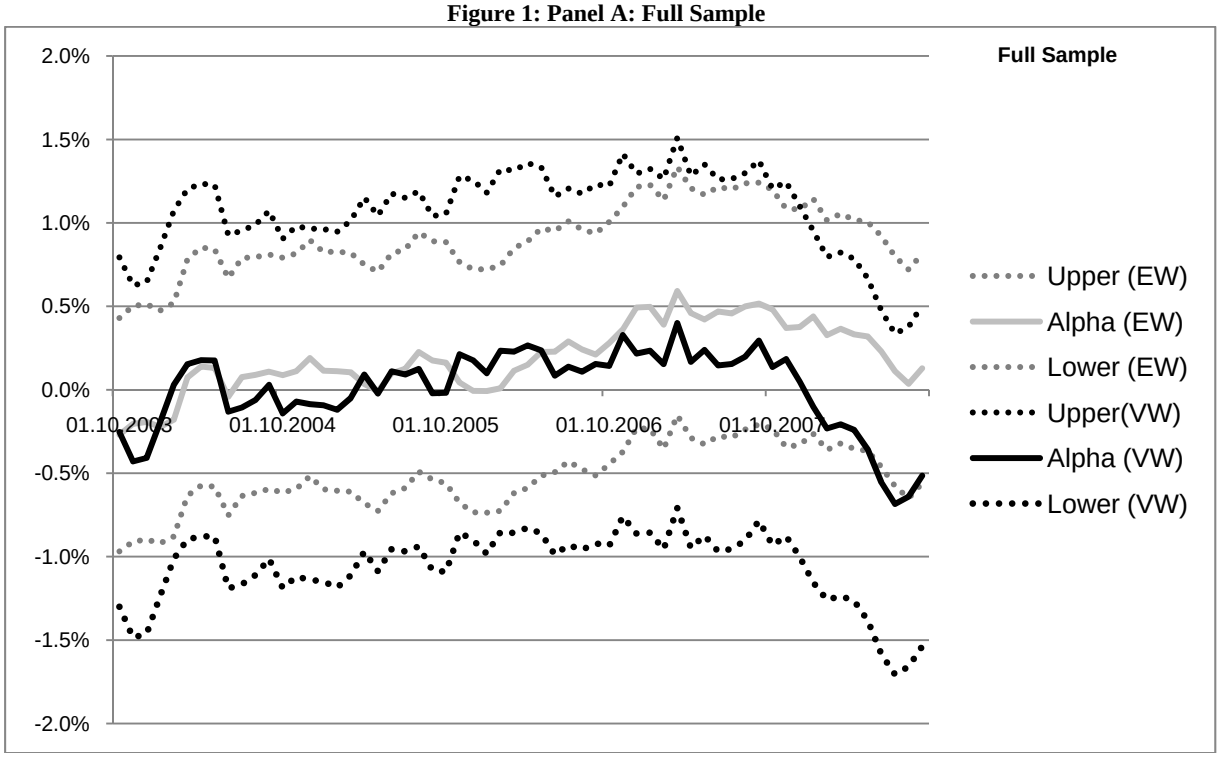
P9000 | LS9010	3.39	13.92**	0.76	11.73	-0.60	3.15	-1.09	-8.49	10.47	21.92*
	(0.812)	(2.057)	(0.116)	(1.334)	(-0.202)	(0.510)	(-0.376)	(-1.259)	(1.191)	(1.908)
P8000 | LS8020	7.83**	10.63**	12.3**	4.71	-2.37	-3.80	-0.83	0.88	14.95**	3.80
	(2.267)	(2.552)	(2.111)	(0.678)	(-0.788)	(-0.689)	(-0.352)	(0.147)	(2.029)	(0.441)
P7500 | LS7525	8.30**	8.61**	12.5**	8.15	-1.25	-1.73	0.45	3.14	10.51	4.88
	(2.496)	(2.108)	(2.228)	(1.163)	(-0.461)	(-0.346)	(0.201)	(0.567)	(1.443)	(0.578)
P6600 | LS6633	7.58**	7.22*	11.4**	7.37	1.28	2.87	0.85	1.39	4.24	5.90
	(2.432)	(1.917)	(2.266)	(1.213)	(0.477)	(0.773)	(0.449)	(0.320)	(0.756)	(0.807)

Table 7: Time-series sample splits

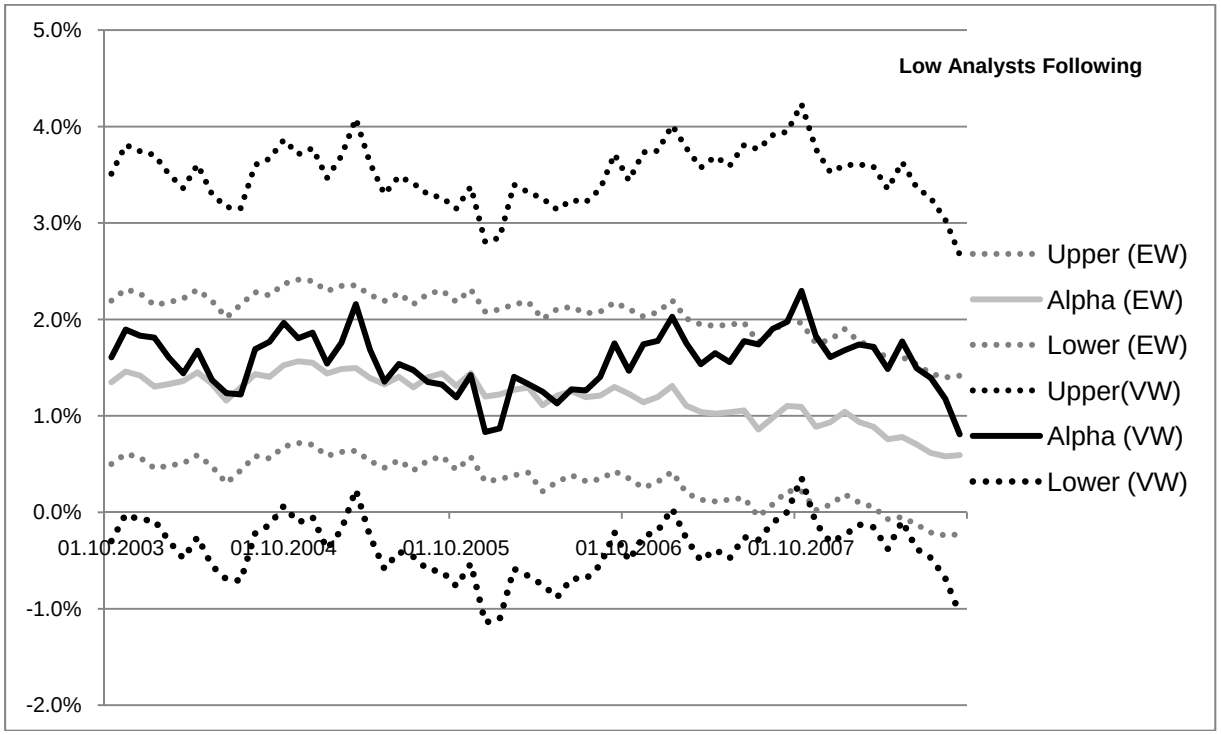
This table summarizes the four factor alphas of the LS8020 portfolio in different time periods for the full sample and based on a sample splits with respect to analyst following, company size and media coverage. We focus on the period before and after the accounting scandals of Enron and WorldCom in 2002/2003. The LS8020 portfolio is our standard Spread Portfolio based on quintile cutoffs. All results are from regressions of equally-weighted (EW) and value-weighted (VW) excess returns over the market on a constant (alpha), market return (RMRF), as well as four (RMRF, SMB, HML, WML) Carhart factor regressions. The first portfolio building date is 10/99 and the portfolios are rebalanced monthly and reformed every year. The sample period is 10/99-10/08. * denotes significance at 10%, ** denotes significance at 5%, *** denotes significance at 1%.

		Equally-Weighted		Value-Weighted	
		1999-2003	2003-2008	1999-2003	2003-2008
Full Sample		-3.18	4.10	-3.00	-4.62
		(-0.639)	(0.902)	(-0.402)	(-0.706)
Analyst Coverage	Low	17.43***	11.20*	21.08	9.38
		(2.639)	(1.969)	(1.401)	(0.739)
	High	-7.01	4.17	3.40	0.61
		(-1.024)	(0.654)	(0.459)	(0.094)
Company Size	Small	3.47	14.62*	-0.55	24.99**
		(0.412)	(1.873)	(-0.051)	(2.370)
	Large	-3.60	-1.25	0.03	-1.63
		(-0.650)	(-0.252)	(0.005)	(-0.256)
Media Coverage	Low	15.86**	4.51	29.58**	-0.78
(NZZ)		(2.547)	(0.861)	(2.768)	(-0.093)
	High	-12.08	3.37	-1.71	0.40
		(-1.554)	(0.455)	(-0.213)	(0.056)
Media Coverage	Low	14.27**	7.92	3.05	5.99
(LexisNexis)		(2.310)	(1.491)	(0.302)	(0.663)
	High	-12.13	3.07	0.81	0.93
		(-1.584)	(0.421)	(0.093)	(0.121)

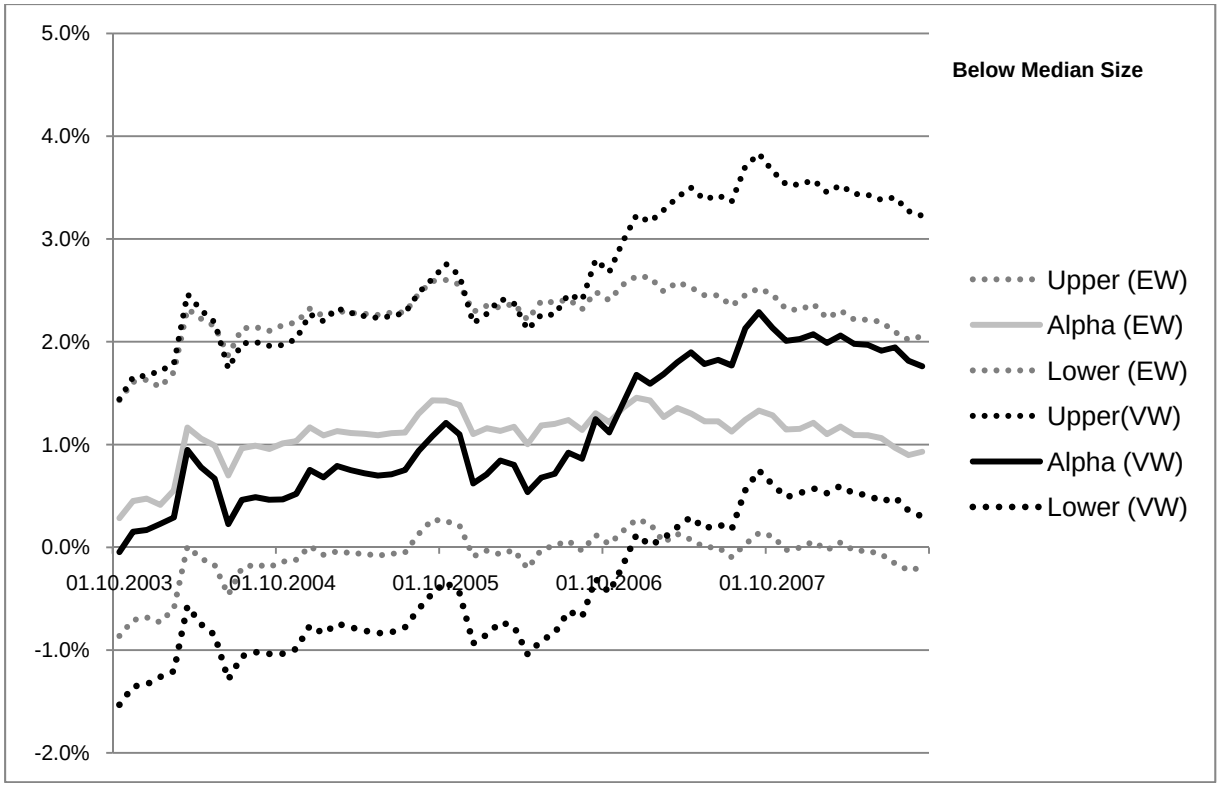
Figure 1: Panel A: Full Sample



Panel B: Low Analyst Following



Panel C: Below Median Size



Panel D: Below Media Coverage

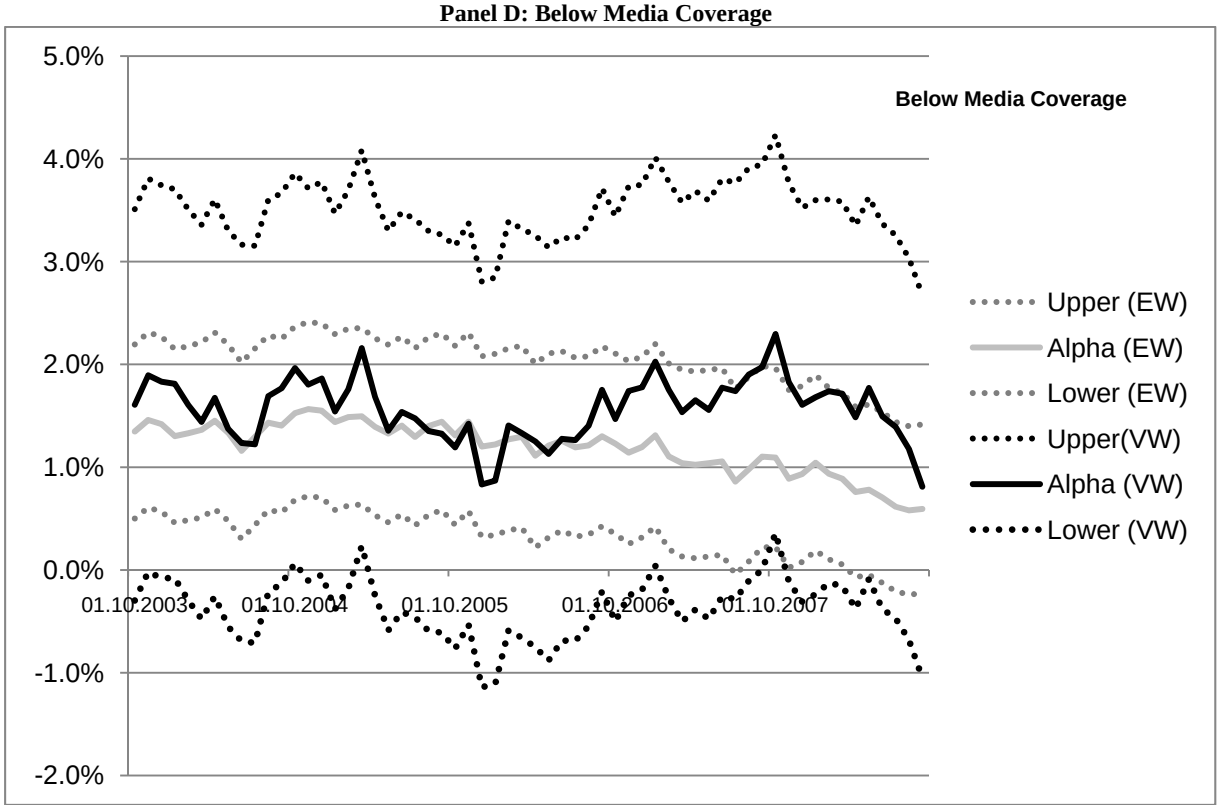


Figure 1 contains monthly Carhart-alphas (monthly abnormal returns) for long-short-portfolios LS8020 formed on the AVR score. The estimation is based on rolling 48-month intervals from October 2003 until September 2008.This figure shows the intercept (alpha) and the 90% confidence interval for equally-weighted and value-weighted portfolios. Panel A shows the result for the full sample. Panels B, C, and D present the results for the low analyst, small size, and low media coverage sample, respectively.

Supplementary Appendix

to “The Value to Shareholders of Value Reporting by Companies”

(Not intended for publication in print)

Annual Value Reporting Index (AVR)

The nine subindices are: i) impression, ii) background information, iii) important non-financials, iv) trend analysis, v) risk information, vi) value based management, vii) management-discussion and analysis of annual financial statements, viii) goals and credibility and ix) sustainability

1	**Impression**
1.1	Structure, usability
1.2	Style, comprehensibility, language, illustrations

2	**Background Information**
2.1	Discussion of important products
2.2	Discussion of important markets and market share
2.3	Strategy, critical success factors
2.4	Corporate Governance I: Organisation
2.5	Corporate Governance II: Governance

3	**Important Non-Financials**
3.1	Publication of future investments
3.2	Publication of investments in education of staff
3.3	Discussion of innovation rate and process of development
3.4	Discussion of customer satisfaction
3.5	Discussion of employee satisfaction
3.6	Process improvement
3.7	Brand introduction

4	**Trend Analysis**
4.1	Revenue trend by region/segment
4.2	Profit trend by region/segment
4.3	Investment trend by region/segment
4.4	Total shareholder return

5	**Risk Information**
5.1	Implementation of risk management
5.2	Publication of quantitative data of risk management

6	**Value Based Management**
6.1	Application of Value Based Management
6.2	Publication of quantitative data
6.3	System of management compensation
6.4	Quantitative data of management compensation

7	**Management-Discussion and Analysis of Annual Financial Statements**
7.1	Reasons for change in revenue / market share and provisions
7.2	Reasons for change in profit and provisions
7.3	Reasons for change in future investments and provisions

8	**Goals and Credibility**
8.1	Target rentability or profit
8.2	Target growth (revenue/ market share)

9	**Sustainability**
9.1	Illustration of enterprise and product ecology
9.2	Quantitative statements to the environmental impact
9.3	Discussion of environmental issues
9.4	Illustration of social policy
9.5	Quantitative statements to the social policy
9.6	Discussion of social policy

Table A-1: Robustness to other portfolio formation approaches

This table contains some robustness and specification tests for the full sample. (Table 4 and Table 5)
Panel A and C shows the Carhart four-factor regression alpha for portfolio based on other cutoffs. For example, the Portfolio P0005 includes all stocks with an AVR score in the range from the minimum to the 5%-percentile. All Panels contain also the long-short portfolios for matching portfolios. Panel B and D contains the four-factor alphas for different portfolio formation periods

Panel A. Four-Factor Alphas for Different Portfolio Cutoff Points (Equally-Weighted)

Bottom Portfolio	P0005	P0010	P0015	P0025	P0033	P0050
4-factor alpha	-11.41**	-3.23	-0.60	0.35	1.03	0.58
	(-2.584)	(-0.765)	(-0.152)	(0.115)	(0.359)	(0.226)
Top Portfolio	P9500	P9000	P8500	P7500	P6600	P5000
4-factor alpha	-0.17	-1.35	-0.38	3.55	5.38**	2.31
	(-0.057)	(-0.483)	(-0.154)	(1.368)	(2.055)	(0.971)
Spread Portfolio	LS9505	LS9010	LS8515	LS7525	LS6633	PMedian
4-factor alpha	12.55**	1.93	0.22	3.19	4.32	1.73
	(2.050)	(0.401)	(0.051)	(0.998)	(1.552)	(0.795)

Panel B. Four-Factor Alphas for Different Portfolio Formation Periods (Equally-Weighted)

Quintile Portfolio Alphas	P0020	P2040	P4060	P6080	P8000	LS8020
4-factor alpha (2 year)	-3.92	2.30	-0.38	8.30**	3.04	7.22*
	(-1.140)	(0.792)	(-0.120)	(2.428)	(0.981)	(1.728)
4-factor alpha (3 year)	-2.63	2.77	-0.66	7.19*	2.99	5.76
	(-0.600)	(1.017)	(-0.197)	(1.866)	(1.176)	(1.270)
4-factor alpha (5 year)	1.61	1.79	2.53	1.38	5.50*	3.84
	(0.370)	(0.565)	(0.732)	(0.380)	(1.956)	(0.960)
4-factor alpha (Buy & Hold)	-1.99	-1.27	3.50	-0.01	6.13**	8.28*
	(-0.445)	(-0.394)	(0.935)	(-0.003)	(2.166)	(1.995)

Panel C. Four-Factor Alphas for Different Portfolio Cutoff Points (Value-Weighted)

Bottom Portfolio	P0005	P0010	P0015	P0025	P0033	P0050
4-factor alpha	-8.00	7.78	8.79	2.46	4.72	-0.25
	(-1.01)	(1.32)	(1.59)	(0.53)	(1.06)	(-0.07)
Top Portfolio	P9500	P9000	P8500	P7500	P6600	P5000
4-factor alpha	-0.87	-0.69	1.18	0.93	1.75	2.44
	(-0.30)	(-0.27)	(0.58)	(0.51)	(0.99)	(1.40)
Spread Portfolio	LS9505	LS9010	LS8515	LS7525	LS6633	PMedian
4-factor alpha	7.69	-7.91	-7.04	-1.49	-2.84	2.69
	(0.81)	(-1.32)	(-1.26)	(-0.31)	(-0.65)	(0.74)

Panel D. Four-Factor Alphas for Different Portfolio Formation Periods (Value-Weighted)

Quintile Portfolio	P0020	P2040	P4060	P6080	P8000	LS8020
4-factor alpha (2 year)	-2.08	2.93	1.69	10.68**	2.55	4.71
	(-0.38)	(0.64)	(0.35)	(2.03)	(1.23)	(0.76)
4-factor alpha (3 year)	-3.25	1.84	0.13	6.14	2.46	5.89
	(-0.59)	(0.44)	(0.02)	(1.05)	(1.15)	(0.92)
4-factor alpha (5 year)	-6.03	8.18	3.47	1.02	2.60	9.14
	(-1.23)	(1.65)	(0.64)	(0.20)	(1.26)	(1.48)
4-factor alpha (Buy & Hold)	-5.97	4.61	4.63	2.54	2.88	9.37
	(-1.22)	(0.82)	(0.83)	(0.47)	(1.33)	(1.58)

Table A-2: Robustness to the use of other risk factors

This table presents the results of Table 4/5/6 with other risk factors.

Factor:	Carhart Factors: Schmidt and von Arx				Liquidity Factors: Schmidt and von Arx			
Weighting:	Equally-Weighted		Value-Weighted		Equally-Weighted		Value-Weighted	
Portfolio:	Top	LS	Top	LS	Top	LS	Top	LS
Panel A. Full Sample (Table 3/4)								
P9000 | LS9010	-4.88	1.09	-4.32	-6.56	-4.86	0.13	-3.76	-9.01
	(-1.806)	(0.238)	(-2.127)	(-1.094)	(-1.713)	(0.031)	(-1.944)	(-1.695)
P8000 | LS8020	-2.63	-0.79	-3.42	-4.68	-3.12	-2.47	-2.90	-7.29
	(-1.151)	(-0.230)	(-2.987)	(-0.923)	(-1.350)	(-0.756)	(-2.646)	(-1.548)
P7500 | LS7525	1.76	4.28	-2.98	-2.19	0.06	0.93	-2.57	-5.93
	(0.709)	(1.366)	(-2.930)	(-0.460)	(0.021)	(0.306)	(-2.616)	(-1.357)
P6600 | LS6633	3.25	4.97	-1.97	-2.71	1.44	2.20	-1.92	-5.24
	(1.289)	(1.834)	(-2.335)	(-0.616)	(0.526)	(0.817)	(-2.390)	(-1.249)
P5000 | LSMedian	0.91	2.69	-1.15	2.79	0.14	1.11	-1.28	1.30
	(0.379)	(1.276)	(-1.710)	(0.768)	(0.056)	(0.545)	(-1.937)	(0.368)
Panel B. Low Analyst Coverage								
P9000 | LS9010	1.61	15.83	9.21	23.30	2.42	14.26	12.70	20.85
	(0.412)	(2.487)	(1.036)	(2.009)	(0.621)	(2.383)	(1.469)	(1.862)
P8000 | LS8020	5.85	11.98	15.40	15.20	5.72	9.11	16.37	10.20
	(1.677)	(2.614)	(1.618)	(1.511)	(1.660)	(2.059)	(1.809)	(1.062)
P7500 | LS7525	4.61	9.89	12.56	11.47	5.23	7.48	15.37	8.48
	(1.583)	(2.470)	(1.493)	(1.294)	(1.797)	(1.929)	(1.909)	(0.996)
P6600 | LS6633	3.24	7.13	10.69	9.56	4.42	5.10	14.82	7.21
	(1.134)	(2.076)	(1.404)	(1.229)	(1.524)	(1.532)	(2.037)	(0.974)
P5000 | LSMedian	1.74	4.14	2.17	-2.06	3.49	3.34	8.64	-1.60
	(0.751)	(1.647)	(0.329)	(-0.324)	(1.419)	(1.388)	(1.324)	(-0.259)
Panel C. High Analyst Coverage								
P9000 | LS9010	-1.63	-2.60	-3.81	-4.69	-2.63	-1.30	-3.67	-5.34
	(-0.526)	(-0.325)	(-1.495)	(-0.645)	(-0.845)	(-0.173)	(-1.529)	(-0.785)
P8000 | LS8020	-5.62	-2.07	-4.07	0.47	-5.81	-0.66	-3.78	1.13
	(-2.185)	(-0.448)	(-2.209)	(0.091)	(-2.166)	(-0.150)	(-2.245)	(0.228)
P7500 | LS7525	-5.69	-4.96	-4.09	-1.80	-6.55	-4.30	-3.99	-1.52
	(-1.926)	(-1.090)	(-2.356)	(-0.361)	(-2.186)	(-0.965)	(-2.490)	(-0.316)
P6600 | LS6633	-2.38	-0.48	-3.07	2.06	-3.75	0.11	-2.75	3.06
	(-0.991)	(-0.139)	(-2.578)	(0.485)	(-1.447)	(0.035)	(-2.488)	(0.746)
P5000 | LSMedian	3.11	7.05	-1.81	-2.23	0.98	6.59	-1.90	0.55
	(1.172)	(2.368)	(-2.173)	(-0.559)	(0.336)	(2.293)	(-2.462)	(0.146)

Panel D. Small Companies								
P9000 | LS9010	0.62	8.73	0.48	10.22	0.11	10.30	-0.08	12.15
	(0.136)	(1.157)	(0.092)	(1.089)	(0.025)	(1.394)	(-0.016)	(1.341)
P8000 | LS8020	5.63	8.36	6.31	11.23	3.65	5.69	3.52	6.31
	(1.538)	(1.445)	(1.359)	(1.447)	(0.987)	(1.024)	(0.792)	(0.854)
P7500 | LS7525	5.56	6.87	4.92	5.52	4.50	5.78	3.46	3.75
	(1.602)	(1.444)	(1.144)	(0.869)	(1.272)	(1.253)	(0.834)	(0.614)
P6600 | LS6633	0.24	2.26	0.29	3.60	-0.41	1.85	-1.14	0.96
	(0.074)	(0.580)	(0.076)	(0.649)	(-0.124)	(0.496)	(-0.314)	(0.181)
P5000 | LSMedian	1.73	4.46	0.78	3.41	1.14	4.53	0.22	2.12
	(0.597)	(1.507)	(0.225)	(0.873)	(0.383)	(1.573)	(0.065)	(0.576)
Panel E. Large Companies								
P9000 | LS9010	-0.77	-1.83	-3.18	-8.98	-1.38	-7.53	-2.70	-12.41
	(-0.266)	(-0.314)	(-1.355)	(-1.385)	(-0.484)	(-1.403)	(-1.196)	(-2.090)
P8000 | LS8020	-5.29	-3.80	-4.46	-2.71	-5.85	-8.56	-4.05	-4.92
	(-1.765)	(-0.985)	(-2.486)	(-0.545)	(-1.949)	(-2.329)	(-2.382)	(-1.066)
P7500 | LS7525	-3.01	-0.91	-3.49	-0.37	-4.25	-5.83	-3.36	-2.42
	(-1.158)	(-0.239)	(-2.249)	(-0.073)	(-1.630)	(-1.576)	(-2.265)	(-0.500)
P6600 | LS6633	-3.19	-0.06	-3.45	-0.86	-4.28	-4.51	-2.94	-2.54
	(-1.274)	(-0.018)	(-3.070)	(-0.190)	(-1.672)	(-1.339)	(-2.744)	(-0.581)
P5000 | LSMedian	3.04	6.05	-1.93	-3.92	1.05	0.93	-2.01	-4.32
	(1.211)	(1.768)	(-2.411)	(-1.086)	(0.385)	(0.276)	(-2.625)	(-1.277)
Panel F. Low Media Coverage (NZZ)								
P9000 | LS9010	4.06	12.84	6.68	17.04	4.67	10.19	6.59	8.74
	(1.071)	(1.948)	(1.451)	(2.064)	(1.239)	(1.636)	(1.497)	(1.133)
P8000 | LS8020	6.21	9.57	9.03	9.85	5.95	6.87	8.92	4.08
	(1.915)	(2.315)	(2.197)	(1.433)	(1.900)	(1.725)	(2.332)	(0.639)
P7500 | LS7525	6.13	6.29	7.58	7.41	6.97	6.05	9.53	4.28
	(1.871)	(1.631)	(1.926)	(1.241)	(2.213)	(1.623)	(2.597)	(0.759)
P6600 | LS6633	3.76	5.13	4.17	2.96	4.56	4.34	5.48	-0.76
	(1.194)	(1.477)	(1.168)	(0.579)	(1.518)	(1.311)	(1.640)	(-0.161)
P5000 | LSMedian	3.06	5.20	2.81	0.58	4.42	4.55	4.40	-3.78
	(1.165)	(1.768)	(0.891)	(0.157)	(1.689)	(1.620)	(1.443)	(-1.078)
Panel G. High Media Coverage (NZZ)								
P9000 | LS9010	-1.82	5.02	-4.50	-8.22	-2.29	4.54	-3.90	-7.97
	(-0.615)	(0.635)	(-1.737)	(-1.219)	(-0.780)	(0.633)	(-1.579)	(-1.253)
P8000 | LS8020	-6.00	-4.20	-4.86	-2.06	-6.18	-3.62	-3.92	-2.30
	(-2.242)	(-0.777)	(-2.584)	(-0.386)	(-2.214)	(-0.735)	(-2.177)	(-0.458)
P7500 | LS7525	-3.99	-1.03	-3.51	-1.73	-4.76	-1.17	-3.35	-2.98
	(-1.455)	(-0.227)	(-2.259)	(-0.334)	(-1.729)	(-0.274)	(-2.261)	(-0.601)
P6600 | LS6633	-3.54	-0.40	-3.26	-0.24	-4.99	-0.93	-2.87	-0.92
	(-1.451)	(-0.106)	(-2.907)	(-0.051)	(-1.933)	(-0.262)	(-2.683)	(-0.206)
P5000 | LSMedian	1.75	5.81	-1.23	2.24	-0.67	4.04	-1.37	2.34
	(0.595)	(1.743)	(-1.521)	(0.545)	(-0.206)	(1.276)	(-1.748)	(0.596)

Panel I. Low Media Coverage (LexisNexis)								
P9000 | LS9010	1.23	14.49	0.47	11.15	-1.36	9.02	-3.35	3.09
	(0.267)	(2.119)	(0.070)	(1.232)	(-0.308)	(1.392)	(-0.515)	(0.356)
P8000 | LS8020	4.26	9.02	9.87	4.39	3.57	7.05	7.78	-1.34
	(1.192)	(2.143)	(1.744)	(0.634)	(1.038)	(1.749)	(1.425)	(-0.212)
P7500 | LS7525	5.08	7.80	10.46	8.40	4.36	5.59	8.24	2.02
	(1.485)	(1.888)	(1.917)	(1.195)	(1.311)	(1.406)	(1.560)	(0.307)
P6600 | LS6633	5.34	7.06	9.71	7.65	5.21	5.57	9.24	3.04
	(1.654)	(1.864)	(2.031)	(1.262)	(1.699)	(1.527)	(2.016)	(0.536)
P5000 | LSMedian	4.67	6.25	5.88	2.31	5.65	5.35	6.29	-1.90
	(1.699)	(2.117)	(1.407)	(0.521)	(2.050)	(1.889)	(1.541)	(-0.448)
Panel H. High Media Coverage (LexisNexis)								
P9000 | LS9010	-2.75	4.09	-4.56	-6.06	-3.46	4.52	-4.03	-7.02
	(-0.950)	(0.665)	(-1.737)	(-0.897)	(-1.197)	(0.788)	(-1.607)	(-1.087)
P8000 | LS8020	-6.10	-4.51	-4.81	-1.23	-5.61	-4.63	-3.99	-2.92
	(-2.111)	(-0.837)	(-2.601)	(-0.211)	(-1.916)	(-0.924)	(-2.259)	(-0.538)
P7500 | LS7525	-4.95	-2.38	-3.60	1.37	-5.33	-2.60	-3.44	-0.74
	(-1.948)	(-0.491)	(-2.276)	(0.258)	(-2.079)	(-0.575)	(-2.270)	(-0.148)
P6600 | LS6633	-2.46	1.54	-3.28	0.10	-3.13	1.33	-2.83	-0.72
	(-1.003)	(0.429)	(-2.902)	(0.022)	(-1.229)	(0.393)	(-2.610)	(-0.171)
P5000 | LSMedian	1.25	6.11	-1.46	2.62	-0.78	4.10	-1.74	1.37
	(0.434)	(1.818)	(-1.839)	(0.663)	(-0.246)	(1.254)	(-2.234)	(0.363)

Table A-3: Further robustness checks

This table summarizes further robustness and specification tests. The LS8020 portfolio is our standard Spread Portfolio based on quintile cutoffs. Other portfolios are based on different percentiles. For example, the portfolios based on quartiles result in P7500 as the *Top Portfolio* and *(LS7525)* as the corresponding *Spread Portfolio* which buys the *Top Portfolio P7500* and sells the corresponding *Bottom Portfolio P0025*. All results are from regressions of equally-weighted (EW) and value-weighted (VW) excess returns over the market on a constant (alpha), market return (RMRF), as well as four (RMRF, SMB, HML, WML) Carhart factor regressions. The first portfolio building date is: 10/99 and the portfolios are rebalanced monthly and reformed every year. The sample period is 10/99-10/08.. * denotes significant at 10%, ** denotes significant at 5%, *** denotes significant at 1%.

Panel A: Total Sample: Industry-Adjusted Score

Weighting:	Equally-Weighted		Value-Weighted	
Portfolio:	Top	LS	Top	LS
P9000 | LS9010	-2.53	-2.18	0.09	-4.45
	(-0.842)	(-0.504)	(0.036)	(-0.794)
P8000 | LS8020	0.87	2.92	-0.25	-4.28
	(0.311)	(0.961)	(-0.135)	(-1.021)
P7500 | LS7525	2.50	3.17	0.59	-2.89
	(0.855)	(0.998)	(0.322)	(-0.706)
P6600 | LS6633	2.61	2.95	1.03	2.74
	(0.966)	(1.066)	(0.585)	(0.696)
P5000 | LSMedian	2.01	1.27	2.47	1.52
	(0.834)	(0.609)	(1.398)	(0.436)

Panel B: Total Sample: Portfolio Starting in April

Weighting:	Equally-Weighted		Value-Weighted	
Portfolio:	Top	LS	Top	LS
P9000 | LS9010	3.16	0.40	-0.63	-9.20
	(1.066)	(0.074)	(-0.244)	(-1.469)
P8000 | LS8020	3.45	-0.01	1.31	-5.22
	(1.532)	(-0.002)	(0.647)	(-1.058)
P7500 | LS7525	4.52*	0.01	1.34	-7.23
	(1.677)	(0.004)	(0.675)	(-1.568)
P6600 | LS6633	4.07	0.75	1.72	-4.40
	(1.512)	(0.263)	(0.881)	(-1.020)
P5000 | LSMedian	2.90	0.12	2.93	0.20
	(1.142)	(0.053)	(1.627)	(0.060)

Panel C: Without Financial Companies

Weighting:	Equally-Weighted		Value-Weighted	
Portfolio:	Top	LS	Top	LS
P9000 | LS9010	-3.35	0.71	-0.49	-4.28
	(-1.010)	(0.126)	(-0.161)	(-0.560)
P8000 | LS8020	2.56	3.89	1.27	2.12
	(0.958)	(0.954)	(0.531)	(0.317)
P7500 | LS7525	3.22	5.27	1.25	0.63
	(1.074)	(1.369)	(0.531)	(0.104)
P6600 | LS6633	4.83	4.57	1.41	-3.12
	(1.595)	(1.413)	(0.629)	(-0.598)
P5000 | LSMedian	0.71	0.93	2.45	3.05
	(0.260)	(0.354)	(1.135)	(0.611)

Table A-4: Accounting standards

This table presents the result of the analysis with a sample split based on the accounting standard adopted by the companies. We rerun our analysis based on companies adopted a high level standard as IFRS or US GAAP and those with a local low level standard.

Accounting Standards:	**IFRS / US GAAP**				**Low Level Standards**			
Weighting:	Equally-Weighted		Value-Weighted		Equally-Weighted		Value-Weighted	
Portfolio:	Top	LS	Top	LS	Top	LS	Top	LS
P9000 | LS9010	0.58	5.26	-1.77	-7.91	-6.41	-2.41	-1.25	-7.08
	(0.210)	(0.706)	(-0.592)	(-1.109)	(-1.251)	(-0.364)	(-0.192)	(-0.884)
P8000 | LS8020	1.23	4.62	0.63	-2.53	3.03	-1.80	3.44	-5.80
	(0.445)	(1.062)	(0.278)	(-0.454)	(0.891)	(-0.405)	(0.589)	(-0.871)
P7500 | LS7525	3.64	4.56	1.69	-0.76	4.60	-0.20	5.61	-3.96
	(1.432)	(1.040)	(0.811)	(-0.142)	(1.435)	(-0.048)	(0.988)	(-0.665)
P6600 | LS6633	4.37	4.49	1.04	2.90	3.23	-0.38	5.10	0.41
	(1.386)	(1.047)	(0.497)	(0.634)	(0.994)	(-0.102)	(0.914)	(0.064)
P5000 | LSMedian	5.89	7.12	2.59	2.27	2.56	1.47	4.42	1.35
	(1.922)	(2.230)	(1.273)	(0.548)	(0.850)	(0.410)	(0.860)	(0.211)

Table A-5: Summary statistics of sample splits

	1999	2000	2001	2002	2003	2004	2005	2006	2007	99-07
Panel A. Low Analyst Coverage										
Minimum	0.146	0.160	0.160	0.052	0.248	0.252	0.248	0.257	0.290	0.052
Average	0.342	0.403	0.448	0.222	0.365	0.396	0.414	0.435	0.456	0.388
Median	0.333	0.400	0.460	0.207	0.357	0.388	0.410	0.424	0.438	0.386
Max	0.583	0.760	0.660	0.431	0.524	0.590	0.576	0.733	0.714	0.760
Standard Deviation	0.113	0.127	0.104	0.082	0.056	0.066	0.071	0.100	0.089	0.113
Panel B. High Analyst Coverage										
Minimum	0.167	0.260	0.240	0.086	0.290	0.310	0.324	0.290	0.367	0.086
Average	0.424	0.547	0.546	0.300	0.451	0.480	0.505	0.528	0.547	0.482
Median	0.438	0.520	0.540	0.267	0.433	0.471	0.486	0.529	0.548	0.480
Max	0.625	0.880	0.840	0.655	0.752	0.729	0.729	0.781	0.810	0.880
Standard Deviation	0.109	0.146	0.121	0.136	0.102	0.106	0.106	0.110	0.102	0.138
Panel C. Small Company Size										
Minimum	0.146	0.160	0.240	0.052	0.248	0.252	0.295	0.267	0.290	0.052
Average	0.360	0.408	0.465	0.227	0.374	0.404	0.424	0.438	0.451	0.396
Median	0.354	0.400	0.480	0.207	0.362	0.400	0.424	0.424	0.438	0.400
Max	0.625	0.760	0.660	0.483	0.529	0.548	0.614	0.652	0.686	0.760
Standard Deviation	0.118	0.133	0.094	0.085	0.065	0.071	0.074	0.092	0.081	0.113
Panel D. Large Company Size										
Minimum	0.146	0.240	0.160	0.086	0.286	0.300	0.248	0.257	0.329	0.086
Average	0.408	0.540	0.525	0.294	0.440	0.468	0.493	0.523	0.552	0.473
Median	0.417	0.520	0.530	0.259	0.421	0.433	0.476	0.533	0.548	0.471
Max	0.625	0.880	0.840	0.655	0.752	0.729	0.729	0.781	0.810	0.880
Standard Deviation	0.113	0.146	0.138	0.137	0.104	0.109	0.111	0.120	0.104	0.142
Panel E. Low Media Coverage (NZZ)										
Minimum	0.146	0.160	0.160	0.052	0.248	0.252	0.248	0.257	0.290	0.052
Average	0.362	0.423	0.453	0.221	0.369	0.402	0.414	0.432	0.448	0.392
Median	0.365	0.400	0.480	0.207	0.362	0.400	0.410	0.424	0.438	0.395
Max	0.583	0.760	0.660	0.466	0.548	0.543	0.576	0.648	0.686	0.760
Standard Deviation	0.113	0.134	0.105	0.081	0.058	0.065	0.069	0.088	0.077	0.111
Panel F. High Media Coverage (NZZ)										
Minimum	0.167	0.200	0.240	0.086	0.295	0.300	0.329	0.267	0.324	0.086
Average	0.406	0.525	0.541	0.301	0.447	0.472	0.501	0.532	0.554	0.478
Median	0.396	0.500	0.540	0.276	0.433	0.462	0.498	0.536	0.555	0.476
Max	0.625	0.880	0.840	0.655	0.752	0.729	0.729	0.781	0.810	0.880
Standard Deviation	0.120	0.156	0.124	0.137	0.104	0.111	0.107	0.117	0.104	0.142

Panel G. Low Media Coverage (LexisNexis) (Table continued)										
Minimum	0.146	0.160	0.220	0.052	0.248	0.281	0.248	0.257	0.290	0.052
Average	0.362	0.422	0.464	0.223	0.379	0.407	0.416	0.430	0.446	0.394
Median	0.354	0.420	0.480	0.190	0.367	0.402	0.405	0.419	0.438	0.395
Max	0.542	0.760	0.700	0.517	0.576	0.590	0.581	0.671	0.705	0.760
Standard Deviation	0.096	0.131	0.105	0.099	0.068	0.069	0.071	0.095	0.084	0.113
Panel H. High Media Coverage (LexisNexis)										
Minimum	0.146	0.160	0.160	0.103	0.290	0.252	0.314	0.290	0.400	0.103
Average	0.406	0.520	0.521	0.298	0.437	0.468	0.503	0.530	0.558	0.475
Median	0.396	0.500	0.520	0.276	0.424	0.452	0.505	0.524	0.550	0.476
Max	0.625	0.880	0.840	0.655	0.752	0.729	0.729	0.781	0.810	0.880
Standard Deviation	0.133	0.158	0.129	0.126	0.104	0.112	0.107	0.111	0.096	0.141
Panel I. No IFRS/ US GAAP Companies										
Minimum	0.146	0.160	0.160	0.052	0.248	0.252	0.248	0.257	0.319	0.052
Average	0.353	0.436	0.468	0.235	0.380	0.395	0.422	0.446	0.469	0.395
Median	0.354	0.420	0.480	0.207	0.362	0.400	0.412	0.438	0.467	0.390
Max	0.604	0.740	0.780	0.534	0.714	0.671	0.695	0.648	0.686	0.780
Standard Deviation	0.119	0.138	0.111	0.108	0.076	0.068	0.086	0.113	0.094	0.125
Panel J. IFRS/ US GAAP Companies										
Minimum	0.229	0.200	0.220	0.086	0.271	0.290	0.305	0.267	0.290	0.086
Average	0.431	0.520	0.526	0.282	0.429	0.468	0.474	0.494	0.515	0.463
Median	0.417	0.500	0.520	0.259	0.410	0.467	0.457	0.486	0.500	0.457
Max	0.625	0.880	0.840	0.655	0.752	0.729	0.729	0.781	0.810	0.880
Standard Deviation	0.099	0.159	0.128	0.124	0.099	0.105	0.102	0.113	0.108	0.133