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ANALYST RECOMMENDATIONS ACROSS SECTORS

- Analyzing the performance of analyst coverage of stocks publicly traded on the Stockholm Stock Exchange

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Abstract

In this thesis we evaluate whether analysts covering stocks on the Stockholm Stock Exchange are able to consistently add investment value through their stock picking ability. The method employed to evaluate performance is to construct weekly rebalanced portfolios based on consensus recommendations for each covered company. These are then separated into sector specific portfolios which are adjusted with appropriate benchmarks to examine if any statistically significant market adjusted returns exist. To make results more realistic we also adjust for potential transaction costs. Finally we investigate the existence of any profitable trading strategies. Based on our empirical results we find that stock analysts are in fact able to add value through stock recommendations. Furthermore, we find that analysts seem to prevail in the Consumer Services, Basic Materials, Technology and Health Care sectors. When also analyzing market adjusted returns series net of transaction costs we conclude that analysts seem not to be able to generate any significant positive returns.

Key words: analyst recommendations, portfolio construction, trading strategies, sectors

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1. Introduction

1.1 Background

The ability to realize monetary value from following stock analyst recommendations has been discussed for many years. Are the recommendations fair and objective or are they just a way for brokers to induce their customers to trade and generate commissions? It has been the focus of several academic research reports and a topic in media that generates heated debates. Cowles (1933) was one of the first academic articles within the subject, drawing the conclusion that stock recommendations fail to yield a positive return. Furthermore, the efficient market hypothesis (EMH) states that it is theoretically impossible to consistently surpass the performance of the market by solely using information that is available to everyone.

A number of studies have followed Cowles (1933) arguing both in favor of and against the value of analyst coverage. Among them, Stickel (1995) propagates that analyst recommendations not only do add value in terms of abnormal returns but that they also can through their recommendations influence stock prices. This implies that variables such as the reputation of the analyst and the size of the brokerage house can affect stock prices in a self-fulfilling manner. What is also interesting in the academic world of finance is that the amount of research that studies the area more in-depth is still fairly limited, i.e. most of the discussion so far has only revolved around the ability of analysts to generate abnormal returns or not. However, what is more intriguing is to draw the analysis further, examining analysts' ability to e.g. select stocks in certain sectors, across certain firm sizes or other firm characteristics.

1.2 Purpose and contribution

As authors we have two aims with this thesis given what is currently accomplished within this area. Firstly, we want to investigate whether analysts for Swedish stocks have a statistically significant ability to separate high performers from low performers across different sectors. Secondly, we want to from a practitioner's perspective evaluate whether active trading strategies can be applied based on our results. Finally, we hope that our results will open up for further research within this field, for example in the area of analysts' stock picking ability across other firm characteristics such as firm size or other descriptive figures.

Previous research has focused mainly on US data, but also on the G7 countries and certain single countries. There has not been any substantial research on the stock exchanges in the Nordic region, and specifically the OMX Stockholm Stock Exchange (SSE).

The most significant contribution of this paper will come from the method for evaluating recommendations across 1) sectors and 2) the capability of constructing any trading strategies. We will, in other words, center on evaluating whether an investor should focus on following analyst recommendations from certain sectors only as well as analyze if one can put together certain trading strategies to capitalize on the recommendations that analysts generate. Previous research has not focused on recommendations across sectors. However, we believe that analysts may be better at predicting certain sectors. One could imagine that sectors that are mature and not fast growing may be easier to predict compared to new industries. Thus, we believe that our thesis will add value to existing research.

1.3 Results

Based on analysis made we find that analysts are in fact able to consistently over time add value through stock recommendations through either outperforming or underperforming a specified benchmark. Our empirical results suggest furthermore that analysts are relatively speaking better at predicting stocks in Consumer Services, Basic Materials, Technology and Health Care. Also, when analyzing market adjusted return series net of transaction costs we conclude that analysts seem not to be able to generate positive returns once adjustments for transaction costs have been taken into consideration.

1.4 Outline

The overarching structure of our paper as follow is to firstly present relevant theoretical background and previous research in section two. That will be preceded by a segment introducing the method of research. Section four covers the data set accompanied with relevant descriptive statistics and is followed by the fifth section that deals with portfolio characteristics; examining whether abnormal market adjusted returns can be generated by analysts, the impact of transaction costs and if results vary across sub-samples. Further elaboration of results are made in section six testing for if potential trading strategies can be

applied based on results from previous sections. Summarizing remarks and areas for further research are presented in section seven.

2. Theoretical framework

2.1 Literature review

In the world of finance, the semi-strong-form of the efficient market hypothesis (EMH) is commonly accepted. The semi-strong EMH assert that all publicly available information regarding any firm must already be reflected in its stock price, thus making it hard or next to impossible to make easy profits based on readily available information on a regular basis (Bodie et al. 2008). However, analysts working for brokerages aim to do exactly that; use publically available information to help their clients find investments that can outperform the market on a regular basis.

This phenomenon has been picked up by the academic world, and there has been a lot of research covering the subject around analyst recommendations and their performance.

Cowles (1933) is one of the first research reports that covered this area. Cowles studied sixteen financial services companies during the period 1928 to 1932, and twenty fire insurance companies during the period 1928 to 1931. He found that the average return was 1.43 to 1.20 percent lower on an annual basis compared to the average common stock. Statistical testing showed that even the best individual records failed to demonstrate that the results were due to skill rather than chance.

Jegadeesh et al. (2004) use data from the Zack's Investment Research recommendations database for the period 1985 through 1998, and find that analyst recommendations provide little incremental investment value compared to other investment signals. After grouping their stocks into quintiles, they find that buying the quintile with the highest recommended stocks and selling the quintile with the lowest recommended stocks generates a return of 2.3 percent over a holding period of six months. Recent changes in the recommendations do, however, have value. Change in analyst recommendation is a better and more consistent predictor of return than the absolute level of a recommendation, largely due to the fact that recommendation changes are not as contaminated by an inclination towards growth firms. They also find, in contrast to previous research, a negative but statistically insignificant relationship between book-to-price ratio and future returns, indicating that value firms did not

outperform growth firms. Furthermore, Jegadeesh et al. (2004) show that the analysts show a strong preference for positive momentum stocks, firms with recent upward earnings forecast revisions and positive earnings surprises.

Desai & Jain (1995) analyzed the performance of the money managers who participate in Barron's Annual Roundtable. Each year, Barron's invites a small group of successful and reputed money managers, stock analysts, proprietors of private money management firms and successful private investors. Examining buy and hold abnormal returns for the recommendations made from its inception in 1968 until 1991, Desai & Jain (1995) find that the abnormal returns for buy recommendations range from 0.33 to -0.71 percent. These results are statistically insignificant for all examined holding periods. The results suggest that, on average, the so-called "superstar" money managers do not have superior skills in recommending common stocks. Approximately nine percent of the entire sample is sell recommendations. The sell recommendations actually earn large negative abnormal returns (-8.12 percent on average). However, due to the small proportion of sell recommendations, these results are less general.

In Barber et al. (2001) the conclusion is that the most highly recommended stocks earn positive abnormal gross returns while the opposite holds for the least favorably recommended stocks. Constructing calendar-time portfolios, they place all covered stocks into portfolios numbered one to five depending on each firm's average rating. Portfolio one constitutes the stocks with a strong buy recommendation, while portfolio five constitutes the stocks with a strong sell recommendation. The difference between the returns of the most highly rated and lowest rated stocks is even more evident for small and medium-sized firms. The authors account this difference to the fact that publicly available information is less likely to be disseminated for small- and medium-sized firms. Furthermore, only six percent are sell recommendations. The reason why this ratio is so low may be due to the fact that sell-side firms, such as brokerages and investment banks, prefer dropping coverage of a stock rather than issuing a sell recommendation. Issuing a sell recommendation may prevent the issuing firm from being awarded investment banking business in the future. The returns diminish when taking trading

costs into account, as purchasing the most favorable rated stocks and selling short the least favorable rated stocks yields negative net returns. Thus, due to frequent rebalancing and thereby incurring trading costs, the available market inefficiencies will not be exploited. Furthermore, as Lin & McNichols (1998) and Michaely & Womack (1999) discuss it may not only be the issue of coverage or not but the recommendations themselves that can be clouded by potential banking relationships. Given sell-side incentives of investment banks this would intuitively not come as a surprise that analyst objectivity might in some cases deteriorate when they have to prioritize the bank's clientele and relations.

To make the case more relevant for the Nordic region one can conclude from Anderson & Martinez (2007) who study analyst recommendations on stocks listed on the Nordic stock exchanges that stock recommendations that are revised upward, produce in fact positive abnormal profits. The same pattern does not seem to hold though for negative revisions.

A critical aspect of the performance evaluation is whether analysts manage through an active investment strategy to generate excess returns. To make predications more realistic one also has to take into consideration the effects of transaction costs and their impact on returns. Barber et al. (2001) and Jegadeesh et al. (2004) both discuss the effects of transaction costs concluding that high trading activity is needed in order to correctly track analyst recommendations which in turn leads to high costs. Implications are that excess returns net of fees are substantially reduced. Looking closer at historical data Carhart (1997) applies a total annual transaction cost of 9.32 percent for a strategy that by Barber et al. (2001) would generate an average abnormal return of 11.8 percent before adjusting for transaction costs. This strategy would net of costs yield a return of approximately 2.5 percent. Nonetheless, as Fleming, Ostdiek & Whaley (1996) describes, one can also utilize derivates markets to lower trading costs substantially by holding positions in futures or options.

Focusing on more recent research within this field we find e.g. that Wåghäll et al. (2008) come to the conclusion that analysts providing recommendations on European bourses are in fact able to generate investment value. The methodology they use resembles the one used by Barber et al. (2001) with the construction of portfolios containing stocks within certain

consensus boundaries. They note, however, that when adjusting for trading costs the analysts are not able to generate positive net returns, mainly due to high rebalancing of stocks within each respective portfolio. In contrast considering obtained results by Gylling et al. (2008) they suggest that recommendations on companies traded at SSE in fact generate value and that analysts in fact possess stock picking capability. Interestingly, the authors conclude that this ability is strongest for well performing large cap stocks and weak performing small cap stocks. Notably, even adjusting for trading costs yields a positive net return both for institutional as well as private investors.

2.2 Hypotheses

Based on previous research conducted on this topic we postulate the following hypotheses:

Hypothesis 1: Analysts do add value through stock recommendations and are able to outperform appropriate benchmarks consistently over time.

Hypothesis 2: Analysts are better at predicting the continuum of recommendations, from outperform down to sell recommendations, in certain sectors relative others. This will be tested to a certain extent through our trading strategies.

Hypothesis 3: Analysts are not able to generate excess returns that are statistically significant once adjustments for potential transaction costs have been taken into consideration.

3. Method

3.1 Portfolio construction across sectors

In order to evaluate the performance of analyst recommendations, we first sort our data into covered and uncovered stock for each time period. We then create five calendar time portfolios that contain those covered stocks that have an average consensus recommendation within a specific range at time τ (see also section 4.2 for an introduction to the data set). Each weekly observation of the stock price (which is the average price of the full week) is then used to compute the equally weighted return for that portfolio. The portfolios are also rebalanced every week if necessary to only carry those stocks that have a recommendation that is within the specified range. Stocks with average rating of 1 to 1.5 are grouped into *portfolio 1*, which thus consists of stocks with the most favorable recommendation. *Portfolio 2* consists of stocks with average rating of $1.5 < \text{RECCON}_{it} <= 2$ (RECCON is the command for consensus recommendations in Datastream). *Portfolio 3* and *portfolio 4* consists of stocks with average rating between $2 < \text{RECCON}_{it} <= 2.5$ and $2.5 < \text{RECCON}_{it} <= 3$, respectively. Finally, *portfolio 5* consists of ratings between $3 < \text{RECCON}_{it} <= 5$. The reason why we have used a wider range predominately for the fifth portfolio is because strong sell recommendations appear relatively infrequently. Thus, setting the boundaries in this manner will yield a better distribution of our stocks. Another possible method would be to group recommendations using quintiles. However, such a method would be quite difficult and impractical to follow. For example, one could picture an extreme case where all stocks have a recommendation between 1 and 2. This would mean that the stock with a rating of 2, i.e. "Overweight", would be placed in *portfolio 5*. This would make the performance evaluation difficult. As an investor, you want to know if a recommendation has any value, regardless of how many recommendations that has a certain rating.

Once the data has been sorted accordingly we analyze each portfolio individually sorting the data based on which sector they belong to, i.e. financial stocks in *portfolio 1* will be in one sample, technology in another one etc. The aim is to see whether certain sectors are in relative

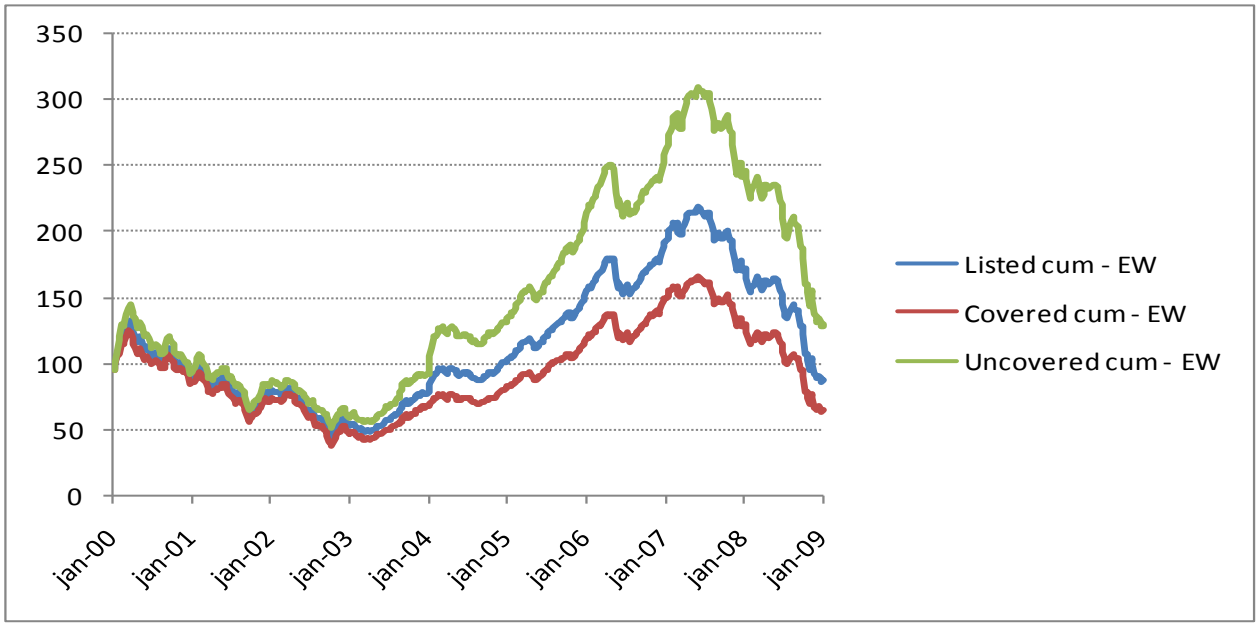
terms able to outperform other sectors in the same portfolio given analyst recommendations. This method is then repeated for the remaining four portfolios.

3.2 Construction and choice of benchmarks

To be able to determine whether the portfolios generate abnormal market adjusted returns, we have to create benchmarks that track the portfolios as closely as possible. One common characteristic of our benchmarks is that they are all calculated with an equally weighted (EW) return. A lot of previous academic papers calculate both equally weighted and value weighted returns. However, the aim of this thesis is to evaluate whether analysts have any predictive power *overall*. By definition, calculating value weighted returns will yield results that emphasize stocks with a higher market value more than those with a lower market value.

Figure 1 below shows the equally weighted cumulative indices for all listed, covered and uncovered stocks at SSE. It is interesting to see that the stocks that are not covered by analysts actually outperform the benchmark consisting of covered stocks. This indicates that analysts have a poor ability in choosing what stocks to cover. However, table 3 in section 4.2 indicates that most of the stocks with a high market capitalization are covered by analysts. Thus, one can conclude that the uncovered stocks are mainly stocks with a low market capitalization. Therefore, we have a strong indication that low capitalization stocks outperform large capitalization stocks in our data sample.

Figure 1. Equally weighted cumulative indices for listed, covered and uncovered stocks on SSE



For our analysis across sectors we have chosen to use sector-specific benchmarks. Each sector is assigned its own equally weighted index of all covered stocks within that sector. As we have classified ten different sectors we will thus have ten indices. In terms of coverage, all stocks that are currently covered by at least one analyst for any given time period (i.e. if coverage is dropped this will be captured instantaneously) is included. This is achieved by using dummy variables. We only use covered stocks because we want to distinguish the performance of the analyst from the overall performance of the market. For example, if an uncovered stock performs very well then the analyst will be penalized if we had instead used all listed stocks. By also constructing our own benchmark we are able to more accurately track the performance of the portfolios. Furthermore as we are constructing sector-specific benchmarks we have the possibility to capture solely the skill of the analyst covering the stock and eliminate any potential "free-riding" due to a certain sector performing better than another.

The benchmark index is given by the following equation:

$$R_{b\tau}^{ew} = \sum_{i=1}^{n\tau} \frac{R_{i\tau}}{n_{b\tau}}$$

where n_τ is the number of covered stocks at close at week τ and $R_{i\tau}$ is the return of each individual stock.

Once we have computed the benchmark returns, we are able to compare them to the returns of our portfolios. This will yield the market adjusted return and allow us to draw conclusions regarding the performance.

3.3 Calculation of trading costs

To make our results as realistic as possible and create trading strategies that investors can follow, we have also chosen to take trading costs into account. Barber et al. (2001) states that trading costs are incurred from the bid-ask spread, commission to dealers and the market impact from trading. However, the size of the total trading cost depends on what type of investor you are. To calculate the trading costs for our portfolio we will apply the same method as Wåghäll et al. (2008). The approach is to calculate the turnover of each portfolio. This number allows us to estimate the frequency of rebalancing and is computed as the sum of the absolute value of the difference between the weights of each stock between time period $\tau - 1$ and τ plus the return during this time period. More formally the turnover is defined as:

$$PT = \sum_{i=1}^{n_{p,\tau}} |w_{i\tau-1}(1 + R_{i\tau}) - w_{i\tau}|$$

Furthermore, as each portfolio is equally weighted the specific weight for any given stock i is expressed as:

$$W_{i\tau=\frac{1}{n_{p\tau}}}$$

To convert the turnover into actual trading cost we have to multiply the weekly turnover by the commission. Cooper (2005) emphasizes that a good proxy for trading costs can be hard to estimate since it differs substantially across investors, investment styles and stock exchanges. Nonetheless an acceptable approach is to apply the same method as Barber et al. (2001) and use a weighted average of total round-trip transaction costs based on firm size estimated for Nasdaq stocks (a study originally made by Keim & Madhavan (1998)). In our case we apply the

fixed percentage fees given in the articles on the weighted average of small, mid and large cap stocks in our sample. The estimated costs in the article are 0.727 percent for large companies, 1.94 percent for mid-sized and 4.12 percent for small companies. Multiplying these with the weighted average of companies in our data set we arrive at a total percentage fee of 2.514 percent.

3.4 Performance evaluation

Once we have computed the weekly returns of our portfolios and benchmarks we can evaluate the value of analyst recommendations. In this thesis we will focus on mean weekly returns. Previous research such as Gylling et al. (2008) has also calculated Jensen's alpha from the CAPM. We have chosen not to do so for several reasons. First of all, to calculate alphas one has to assume that CAPM holds. Even though researchers have not yet found a better model for asset pricing, there has been a lot of critique against CAPM. Thus, we do not find it necessary to calculate alphas to estimate possible abnormal returns. Furthermore, it is mathematically proven that the alpha converges to the mean market adjusted return when the number of observations is high which implies that running CAPM regressions will not add any significant explanatory value to our thesis. To verify this we analyzed results given in Wåghäll et al. (2008) concluding that the difference in alpha and mean market adjusted returns truly are insignificant when the sample size is immense.

Therefore the method we use is to calculate the raw, market adjusted and trading cost adjusted returns generated by each portfolio. The market adjusted returns will be computed by subtracting our portfolio returns with its respective benchmarks:

$$MAR_{p\tau}^{ew} = R_{p\tau}^{ew} - R_{b\tau}^{ew}$$

We will also perform numerical t-tests to evaluate the statistical significance of our findings. The t-test performed will test if the returns of our portfolios are significantly different from zero. Depending on the portfolio number and the sign of the return, significant t-values can indicate that analysts add value.

We have used the market adjusted returns to show an example of how our hypothesis and test statistic will formally look like:

$$H_0: w\overline{MAR}_p = 0 \; against \; H_1: w\overline{MAR}_p \neq 0$$

$$\frac{\mathrm{w\overline{MAR}_p} - 0}{\mathrm{s_{wMARp}}/\sqrt{\mathrm{n}}} \sim \mathrm{t_{n-1,\propto}}$$

where $\mathrm{w\overline{MAR}_p}$, is the weekly market adjusted return for any given portfolio and $\mathrm{s_{wMARp}}$ represents the standard error. To check the validity of our tests we firstly control for that the Central Limit Theorem holds. In this case as we have more than thirty observations we are guaranteed that our t-tests will hold. Nonetheless as we realize that there might be heteroskedasticity in our data set as well as auto correlation violating the assumption of normality we decide to run a constant-only regression. This will enable us to utilize Newey-West robust standard errors which effectively correct for these issues. The same method has been applied when deriving t-statistics for raw returns and market adjusted returns net of trading costs.

To shed further light on analyst recommendations we will also evaluate the coverage for sub periods. By analyzing the return of the market index, we will be able to distinguish periods with rising prices from periods with falling prices. This will enable us to perform our t-tests for bull and bear markets and investigate if there is a pattern to the performance of the analysts. The period that we account for as a bull period is January 2003 to July 2007 and for bear periods we look at the periods January 2000 to December 2002 and August 2007 to December 2008.

Finally, to put related findings into perspective we will analyze whether any potential trading strategies can be formed. We apply two trading strategies which are chosen based on what we think would give the most convincing investment cases. Our first approach is to form long legs consisting of stocks in portfolio 1 *(*strong buy) and form a short leg consisting of stocks with recommendations equaling portfolio *5* (sell). Our second strategy consists of going long in portfolio 1 and portfolio 2 and short stocks in *portfolio 4* and *portfolio 5*. The weighting of each leg will be based on the number of contained stocks in each portfolio, i.e. if portfolio 1 holds

nine stocks whereas portfolio 5 only has one stock at a given point in time then nine-tenth of the investments will be put into the long leg. This is done in order to make the weightings equal across stocks. Nonetheless, we also tested using equal weighting between each portfolio concluding that the difference in results was insignificant. Therefore, we feel comfortable using our method. For the purpose of being able to compare our results we calculate weekly Sharpe ratios, S.

$$S = \frac{R_s - R_f}{\sigma_{R_s}}$$

Where $\mathrm{R_s}$, is the weekly return from strategy, $\mathrm{R_f}$ is an adequate benchmark or the risk free rate and σ_{R_s} is the volatility of the return of the strategy. The weekly Sharpe ratios are then annualized and taken an average of to capture the performance of the strategies across the whole period.

3.5 Survivorship bias

The data we have used was downloaded April 1st, 2009. At that point, 293 companies were listed on the OMX Stockholm Stock Exchange. The database we used, Thomson Datastream, do not, however, provide data for stocks that have previously been listed on OMX Stockholm Exchange. Thus, our data does not cover stocks that have been de-listed during the time span of our study (January 2000 to December 2008). A company can get de-listed for various reasons. During 2004 and 2007 several companies were de-listed due to buy-outs from private equity firms and other investors. A company can also be de-listed if it goes bankrupt or decides to change listing, i.e. transferring to a smaller exchange that is not covered by OMX Stockholm. As we see below this survivorship bias will lead to our results being biased to the upside.

Figure 2. OMX Index versus a value weighted index of all listed stocks in our data sample

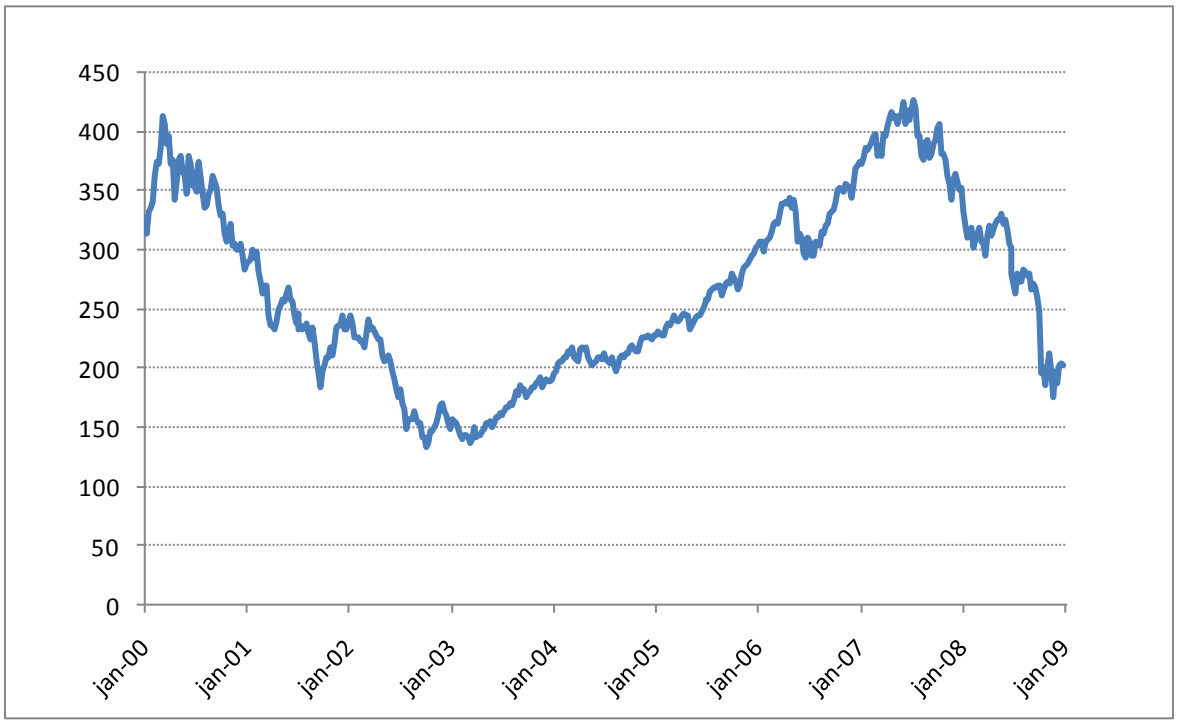


4. Data Description

4.1 Introduction to the data

The data used in this thesis comes from Thomson Datastream. We have downloaded daily data of all the constituent stocks of OMX Stockholm Exchange from the period January 1st, 2000 to December 31st, 2008. The data has been transformed into weekly data by calculating average values for each week. The reason for this has been to smoothen out the data series and minimize effects of time delay between stock movements and releases of stock recommendations.

Figure 3. OMX Index (OMXSPI) for the sample period



As per the graph above the OMX Stockholm Stock Exchange has experienced significant swings and is as of December 2008 lower than it was in January 2000. During the late 1990's, equity markets across the globe soared. The burst of the bubble, mainly attributed to technology companies, led to a sharp decline in the early 2000's. Equity markets sky-rocketed once again between 2004 and 2007, but as of 2008 the world is in the midst of recession caused by a credit crisis.

4.2 Analyst recommendations

Thomson Datastream is a database managed by the company Thomson Reuters, one of the biggest providers in the world of information to businesses and professionals. It contains a wide variety of company data, among others analyst consensus recommendations and estimates of company key figures. Almost all of the world's major financial advisors and agencies provide information and estimates to the database. Thus, we consider the reliability to be high.

The analyst recommendations in Datastream are reported according to the system in table 1, which can be found below. Each individual recommendation is available only to institutional buy-side firms (mutual funds etc.), while only the average recommendation for each firms is available to other parties as well. As a consequence, we have used the average rating for each firm. The recommendations range from 1 to 5, where 1 corresponds to strong buy and 5 corresponds to strong sell. Certain firms only use a 3-stage scale. If this is the case, then the recommendation is adjusted so that it fits the scaling in Datastream.

When an analyst submits its recommendations it passes through a screening test to make sure that the recommendation does not differ greatly from previous recommendations or from the current consensus view. A preliminary estimate will appear in the database within a few hours and it is then included in the consensus recommendation of the specific company. A recommendation remains in the database for 180 days. After that, the recommendation has to be updated or confirmed. Thus, the recommendation has to be either confirmed or changed within 180 days or that specific recommendation will be excluded from the consensus figure.

In certain cases Thomson has to contact the analyst to confirm the recommendation or estimate figure. This slight delay of the recommendations and estimates will not affect our results significantly, since we have recorded daily data over a time span of nine years. Hence, we believe the data to be reliable.

Table 1. Thomson Reuters's recommendations scale

Number	Recommendation
1	Strong buy
2	Buy
3	Hold
4	Sell
5	Strong sell

The data series that have been downloaded from Datastream are the following: Analyst consensus recommendations (RECCON), stock prices (P) stated in SEK, market value (MV) in million SEK, price-earnings ratio (PE) and sector classification (SECTOR) expressed through ten different industries for the 293 stocks listed on the OMX Stockholm Exchange (see table 2).

Table 2. Sector classification for the stocks in our data sample

Sector	Number of Companies
Basic Materials	19
Consumer Goods	31
Consumer Services	29
Financials	60
Health Care	25
Industrials	76
Oil & Gas	3
Technology	44
Telecommunications	5
Utilities	1

Table 3. Descriptive statistics of the data set

			Covered firms					
Date	Listed firms	Total MV (mil.)	Covered firms	Covered firm MV	% of Listed firms	% of MV	Mean P/E (EW)	Mean MV (Mil.)
1999-12-31		3 730 197					76	8 885
2000-12-29	214	3 860 984	109	2 566 218	51%	66%	36	8 819
2001-12-31	222	3 309 807	116	2 068 970	52%	63%	36	7 110
2002-12-31	223	2 134 303	121	1 352 930	54%	63%	36	4 649
2003-12-31	236	2 670 463	127	1 845 637	54%	69%	31	6 342
2004-12-31	245	2 890 641	132	2 243 143	54%	78%	29	7 735
2005-12-30	252	3 921 648	148	2 938 487	59%	75%	41	10 133
2006-12-29	272	4 768 887	173	4 339 471	64%	91%	40	14 861
2007-12-31	269	5 465 887	184	5 053 166	68%	92%	23	17 305
2008-12-31	286	3 249 831	189	3 011 847	66%	93%	10	10 279

4.3 Descriptive summary of the data

In table 3 above we present some statistics over our data set. Covered stocks are defined as stocks that during a specific week have at least one analyst covering it and total market cap is denoted in million SEK and is a snapshot of aggregated listed firms for the given time frame.

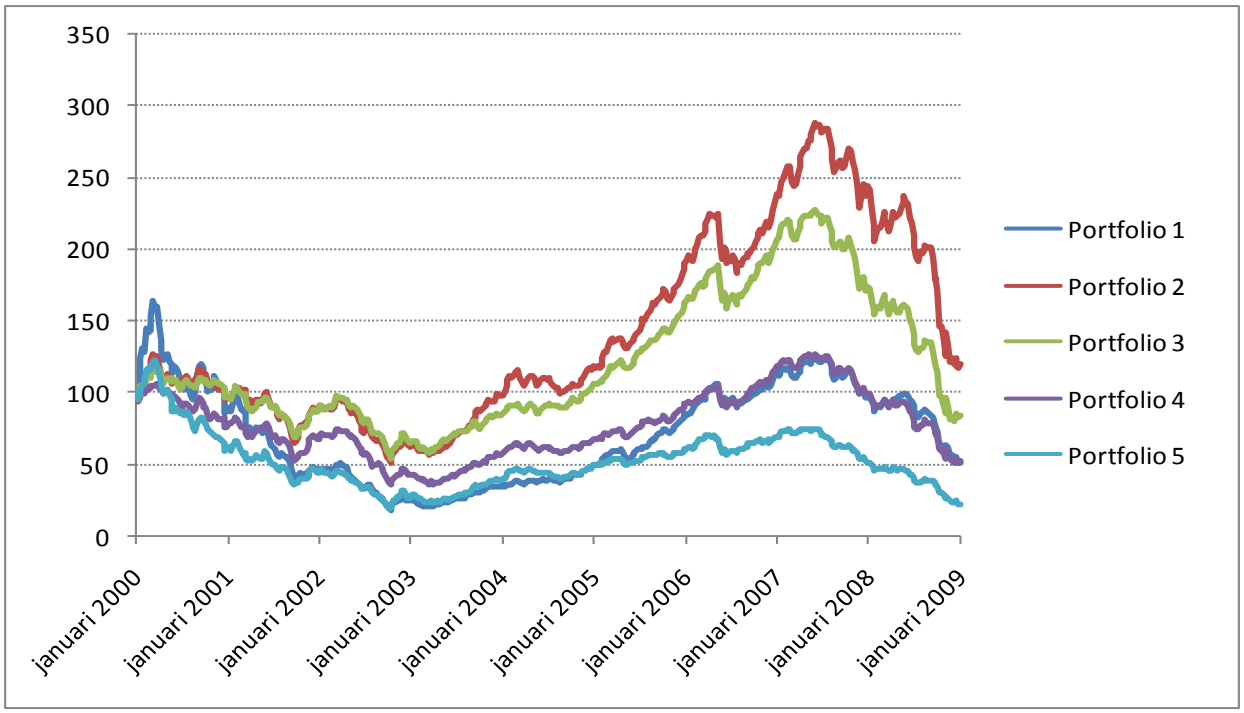
We can see that the percentage of covered firms out of the listed firms range from 51 percent in the beginning of our dataset to a high of 68 percent in the end of our dataset. The percentage of covered firms out of market cap is significantly higher; ranging from 66 percent to a high of 93 percent. This makes us confident that general conclusions can be made, since a majority of the market capital is covered by at least one analyst. We also see that the price-earnings ratio has declined steadily from 76 in the beginning of our data sample to a low of 10 in the end of the sample. The reason why the mean price-earnings ratio is extremely high in the beginning is due to the fact that a bull market was coming to an end. During that bull market, several companies' stock prices soured, however earnings did not. Thus, several companies had extremely high price-earnings ratios. The low mean price-earnings ratio in the end of our sample is due to the bear market caused by the credit crisis and the global recession.

5. Portfolio characteristics and returns

5.1 Portfolios grouped by consensus recommendation

Initially our hypothesis was that stock analysts are able to consistently add value over time through recommendations and outperform appropriate benchmarks. Viewing figure 4 below with cumulative raw returns from the aggregate portfolios, we can see that analysts seem to have some stock picking ability. Portfolio 2 generates a return of 21 percent over the period. However, portfolio 1 generates a negative return which is an unexpected sign since it contains stocks with a "strong buy" recommendation. We find that portfolio 4 and 5 generates negative returns, which is anticipated. Portfolio 5 actually manages to generate a negative return of 77 percent. This gives us a first indication that analysts are better at picking underperforming stocks.

Figure 4. Equally weighted cumulative returns for portfolios based on analyst recommendations



5.2 Portfolios sorted by sectors

5.2.1 Raw returns

Analyzing the data closer focusing on sector-specific data we can see as per table 1A in the appendix that few of the constructed portfolios' raw returns are significant even on a 10 percent significance level. Starting with portfolio 1, containing the highest rated stocks, the sectors generate an average weekly return ranging from 0.27 percent for Consumer Services to -0.40 percent for Technology. Only two out of ten portfolios show returns that are positive on a 10 percent significance level; Basic Materials (0.19 percent) and Industrials (0.22 percent). We find our results to be most significant in portfolio five where the stocks with the lowest rating are found. Here, returns range from 0.12 percent for Oil & Gas to -0.52 percent for Consumer Services. Interestingly, this could partially be explained by the fact that analysts are relatively reluctant to issue sell recommendations and only do that when there is a strong conviction that the stock is an unfavorable investment. As Desai & Jain (1995) state stock analysts also prefer to cease coverage instead of consistently releasing sell recommendations, which may prevent the brokerage firm from getting investment banking business in the future. This could also to some extent explain why portfolio 5 recommendations are more significant as the sample is fairly small, only consisting of convincing sell recommendations.

Ignoring statistical significance, practical implications are that we can see that the portfolio returns do not follow the pattern indicated by the recommendations; that portfolio 1 should yield the highest returns and the rest of the portfolio returns sizes follow in descending order (table 1A). This only holds for the Industrials sector. Contrarily, we find several sectors where portfolio 2 or portfolio 3 outperforms portfolio 1, examples of these sectors are Financials, Health Care and Technology.

When using Newey-West standard errors, and thereby adjusting for autocorrelation and heteroscedasticity in the return series, we find fewer of our portfolios to be significant on a 10 percent significance level. Only three sectors in portfolio 5 remain significant, namely Basic Materials, Consumer Goods and Consumer Services (table 2A).

5.2.2 Market adjusted returns

Interpreting results, this might at a first glance imply that analysts are not able to generate statistically significant market adjusted returns different from zero. However, to make that conclusion one also has to compare the returns to the appropriate benchmark. Turning to the market adjusted returns we see that the mean weekly returns for portfolio one across the different sectors range from 0.42 percent to -0.21 percent. For portfolio 5 the returns range from 0.15 percent to -0.49 percent. Interestingly, as per tables 3A and 4A in the appendix the mean returns of the portfolios do not follow the order of consensus recommendations. Portfolio 1 e.g. only yields the highest return for Basic Materials, Consumer Services and Industrials. In some instances, such as for Financials and Telecommunications, portfolio 1 actually shows the lowest cumulative return. For Financials, this may be explained by the credit crisis that occurred during late 2007 and throughout 2008. Even though the credit crisis has led to a worldwide recession, it has hurt financial stocks the most as well as rearranged the order slightly between the five different portfolios. A practical conclusion from the tested sample is that analysts in some occasions been better at picking losing stocks than winners. This seems the case particularly for Financials, Oil & Gas and Telecommunications where portfolio five outperforms relatively speaking other portfolios in the same category.

One can also note in the figures 1A and 2A in the appendix that portfolio 2 outperform portfolio 1 in several cases. Even though this result is hard to motivate, it is not unexpected since Wåghäll et al. (2008) and Gylling et al. (2008) have both found similar results.

In terms of statistical significance only a few of the portfolios fulfill this criterion. For portfolio 1 only Basic Materials and Consumer Goods show significant positive mean returns. Moreover, we find that in portfolio 5 only Basic Materials, Consumer Goods and Consumer Services are significantly negative. Interestingly, for portfolios 2 to portfolio 4, no obvious pattern emerges for the mean returns which makes us believe that only analyst recommendations at the extremes of the scale, i.e. strong buy (portfolio 1) and strong sell (portfolio 5) where the conviction is particularly high, divert sufficiently from the benchmark to be significant. Nonetheless, for these portfolios containing high conviction stocks, the strength or the

weakness of a company may be extremely obvious, even for the common man. Thus, the fact that the analysts manage to single these stocks out does not necessary have to be attributed to the analysts' specific skills. Furthermore, looking at the graphs, we find that Consumer Services generate the best cumulative returns for portfolio 1 and 2. Meanwhile, Technology and Health Care generate the worst returns for portfolio 4 and 5. Thus, a pattern emerges, indicating that analysts are better at finding outperforming stocks within Consumer Services and underperforming stocks within Technology and Health Care.

5.2.3 Transaction cost adjusted returns

To make our results more realistic it is critical to look at returns adjusted for potential transaction costs. As part of the process we have to analyze the turnovers which indicate the amount of rebalancing within each portfolio. In table 4 below, we can see that the yearly turnover rates for our portfolios average around 300%. Barber et al. (2001) find their turnover rates to be a bit higher, ranging from 433% to 478%. However, one should bear in mind that Barber et al. (2001) rebalance their portfolio on a daily basis and should therefore have higher turnover rates. We are thus satisfied with our results.

Table 4. Average yearly turnover rates for the individual portfolios and trading strategies

	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil & Gas	Technology	Telecommunications	Utilities
Portfolio 1	101%	231%	300%	204%	234%	366%	57%	405%	64%	9%
Portfolio 2	209%	421%	441%	375%	395%	356%	57%	437%	51%	7%
Portfolio 3	537%	370%	504%	499%	470%	375%	17%	541%	187%	11%
Portfolio 4	403%	451%	471%	371%	456%	319%	30%	545%	191%	21%
Portfolio 5	341%	485%	440%	380%	343%	387%	7%	414%	62%	14%
Portfolio 1-5	328%	396%	379%	352%	450%	321%	64%	432%	126%	23%
Portfolio (1+2)-(4+5	896%	1104%	484%	587%	638%	417%	142%	591%	708%	53%

As we can see the turnover rates are the lowest for Oil & Gas, Telecommunications and Utilities. This is probably due to the fact that there were no stocks within the Oil & Gas and the Utilities sector being covered until 2005 and 2003, respectively. Furthermore, we see that the turnover rates are the highest for the trading strategies, i.e. portfolio 1-5 and (1+2)-(4+5). This seems reasonable since trading activity should be higher the more portfolios one has to maintain.

Once we have calculated the turnover rates we can evaluate the trading cost and adjust our returns for those. In table 5A, it shows that the returns adjusted for benchmark and trading costs are mostly negative. These findings are in accordance with previous research and our hypothesis. Also, this should indicate that the semi-strong form of the efficient market hypothesis holds, since it seems to be hard to surpass the performance of the market on a consistent basis using readily available information. Moreover, we find more statistically significant results in this category compared to previous returns. This especially holds for portfolio 3 to 5, which show mainly negative returns ranging from -0.07 percent to -0.73 percent. A few portfolios manage to yield positive returns; for portfolio 1 it is Basic Materials (0.21 percent) and Consumer Services (0.26 percent). For portfolio 2 and 4 it is Utilities. Thus, the analysts' ability to find outperforming stocks in the Consumer Services sector persists after adjusting for trading costs.

Turning to our Newey-West adjusted figures in table 6A, we can see that none of the portfolios now show statistically significant positive returns. Apart from that, the overall negative returns persist.

Our findings for our market and trading cost adjusted portfolios are confirmed by the results of earlier work, such as Barber et al. (2001), Desai & Jain (1995), Stickel (1995) and Womack (1996) who all find that analysts are better at picking underperforming stocks.

5.3 Sub-period analysis

5.3.1 Bull market returns

To shed further light on our results, we analyzed results breaking it down into sub-samples (see section 3.4). Ideally we were hoping to increase the robustness of our results through these tests to see if any trends emerged.

Firstly examining bull returns it is evident from table 7A that the raw returns are in most cases significantly positive. The only portfolio showing negative returns is surprisingly portfolio 1 for Utilities, which has a return of -0.1 percent. For portfolio 1, the mean positive raw returns, range from 1.35 percent for Consumer Services to 0.1 percent for Financials. Furthermore, we

find several cases where a portfolio with a lower consensus recommendation than portfolio 1 actually has higher returns. This was also found in our results for the full sample. For example, there are several sectors for which portfolio 2 or 3 has a higher mean raw return; Basic Materials, Consumer Goods, Financials and Health Care are a few examples. Also, portfolio 5 has positive returns for all sectors, of which six sectors show statistical significance. The figures calculated with Newey-West standard errors in table 8A confirm this picture. These positive returns are not surprising, since they have occurred during an upward swing in the market. Wåghäll et al. (2008) also find their raw returns during the bull market to be positive; ranging from 4.1 percent for portfolio 1 to 5.1 percent for portfolio 5. It is interesting to note that also Wåghäll et al. (2008) find that several portfolios with lower consensus recommendations outperform portfolio 1; implying that analysts are not necessarily able to predict the best performing companies in a bull market.

For the market adjusted returns in table 9A, we find less significant portfolios. We would expect the portfolios with buy recommendations (portfolio 1 to 3) to outperform their respective benchmarks while the portfolios with sell recommendations (portfolio 4 and 5) to underperform their respective benchmarks. This does not hold entirely. For portfolio 1, the mean return ranges from 0.76 percent to -0.35 percent per week, with seven out of ten returns being negative. Again, we find that analysts' are able to find the outperforming stocks within Consumer Services. Portfolio 2 actually shows more cases of positive returns than portfolio 1. However, few of these are statistically significant which makes it hard to draw a general conclusion. Portfolio 5 shows mainly negative returns, which is in line with expectations since the analysts then have managed to single out stocks that will underperform their respective index. However, only three of the returns are significant which show that they are not statistically consistent.

When taking trading costs into account, as in table 11A, we see that most returns are negative. The returns become more negative the lower the recommendation, which is also expected. The mean returns for portfolio 1 range from 0.61 percent to -0.47 percent per week (two sectors are positive), to -0.12 percent to -0.6 percent for portfolio 5.

When observing the Newey-West adjusted figures in table 12A, we see that most of the sectors within portfolio 3 to 5 that were significant using unadjusted standard errors remain so when taking autocorrelation and heteroscedasticity into account.

5.3.2 Bear market returns

For our bear sample raw returns we see that all portfolios show negative returns, regardless of consensus figure. The mean returns range from -0.02 percent to -1.23 percent for portfolio 1 and -0.09 percent to -1.27 percent for portfolio 5. Moreover, most of the portfolios are significant. These results are expected since stock prices usually follow the overall market swings.

When adjusting for the relevant benchmark indices we find that portfolio 1 manages to show positive returns for seven out of ten sectors, even though the returns are statistically insignificant. Utilities yield the most with 0.49 percent. Portfolio 2 to 4 shows returns of 0.62 percent to -0.18 percent, 0.37 percent to -0.05 percent and 0.5 percent to -0.15 percent, respectively. Portfolio 5 shows a mixture of positive and negative returns, ranging from 0.48 percent to -0.89 percent. Only one sector (with a negative mean) shows a statistical significance. Practical implications according to our data set seem to be that analysts are better at issuing buy recommendations in bear markets, if we disregard the significance of our mean returns. Conversely, they seem to be better at issuing sell recommendations during bull markets.

Finally, when adjusting for trading costs we find that a few of the portfolios with buy recommendations, such as Basic Materials, Consumer Goods, Telecommunications and Utilities for portfolio 1, still yield positive returns. The same holds for Consumer Services, Health Care and Oil & Gas for portfolio 2. This should indicate once again that analysts have an ability to pick out winning stocks in a bear market, even when taking trading costs into account. All sectors in portfolio 5 except from Oil & Gas, Telecommunications and Utilities yield negative returns.

6. Trading strategies

We have chosen to examine our trading strategies by both analyzing the returns and by calculating Sharpe ratios. We will report both cumulative and mean returns to get an understanding for how different sectors have behaved on an absolute level. However, the analysis will not be complete without adjusting for the risk, i.e. volatility in the returns. The Sharpe ratios will provide us with this adjustment, since it is a measure of excess return per unit of risk.

6.1 Market adjusted returns for the trading strategies

Looking at figure 6A and 7A in the appendix with the market adjusted returns for each sector, we can see that several portfolios generated negative cumulative returns for the sample period. For trading strategy 1, i.e. portfolio 1-5 for each sector, we see that Financials, Health Care, Oil & Gas and Telecommunications generated a negative excess return. The returns for Financials may be easily explained since the credit crisis has caused severe losses to banks. The returns for Oil & Gas and Telecommunications may be biased since the portfolios consist of very few companies. Oil & Gas has three companies and Telecommunications has five companies. The highest positive cumulative return is for Consumer Services with an astounding 664 percent over the sample period. Health Care did worst with a return of -85 percent. Table 3A shows that the mean weekly market adjusted returns range from 0.57 to -0.27 percent. Gylling et al. (2008) find a mean monthly market abnormal return of 0.98 percent. The results are not perfectly comparable since our benchmarks are constructed differently and we have a more frequent rebalancing. Nonetheless, our results seem to be somewhat in line with Gylling et al. (2008).

For trading strategy 2, i.e. portfolio (1+2)-(4+5), we find that the cumulative returns are lower than strategy 1 in five out of ten cases. Moreover, one can see in the graphs that the volatility in returns is quite similar between strategies within the same sector. Strategy 2 is negative for Basic Materials, Financials, Health Care, Industrials, Oil & Gas and Telecommunications. The biggest underperformance comes from Oil & Gas at -92 percent. Meanwhile, the positive returns range from 389 percent for Technology to 35 percent for Utilities. The reason why we do not see a clear pattern when comparing strategy 1 and 2 is that the ranking between the

portfolios within each sector is inconsistent. For some sectors portfolio 2 shows the highest return but in some other sectors, portfolio 2 shows the lowest return. However, we draw the conclusion that strategy 2 generates a negative cumulative return whenever strategy 1 does so. The average weekly market adjusted returns for our sectors range from 0.53 to -0.42 percent. Gylling et al. (2008) find a mean weekly market abnormal return of 1.16 percent.

The results from the bull and bear market for our trading strategies can be found in table 7A to 18A. When analyzing these returns we notice an interesting pattern. For the bull market, we observe that both strategy 1 and 2 generate weekly negative market adjusted returns that are all statistically significant. The returns for strategy 1 range from -0.35 percent to -0.92 percent, and the returns from strategy 2 range from -0.50 percent to -0.82 percent. Looking at Newey West adjusted figures; we find that the pattern is the same, except from three returns that are insignificant for strategy 1. These results are also visible in the graphs, where one can see that the graphs show a downturn in the bull market period for all sectors.

Contrarily, for the bear market we find that almost all market adjusted returns are positive and significant. For strategy 1, the returns range from 0.02 percent to 1.59 percent. For strategy 2, the returns range from 0.00 percent to 1.59 percent. The picture is almost the same when looking at Newey West adjusted figures in table 16A.

The results for the sub samples are quite intriguing since one would expect the reverse result; over performance in bull markets and underperformance in bear markets. However, these results are not surprising considering our results in section 5.3.1 and 5.3.2. This point out that analysts are better at making recommendations in bear markets compared to bull markets. Gylling et al. (2008) also find that their portfolios over perform their benchmarks more frequently in bear markets than bull markets. Contrarily, Wåghäll et al. (2008) find positive mean market adjusted returns and alphas in both bull and bear markets. However, both Gylling et al. (2008) and Wåghäll et al. (2008) define bull and bear markets different compared to us. According to them, a bear market prevails when the monthly benchmarks show negative returns, while a bull market prevails when the monthly benchmarks show a positive return. Meanwhile, we have chosen to define our bear and bull markets by graphically analyzing figure

3 in section 4.1. This may explain the difference in results. Furthermore, Desai & Jain (1995), Stickel (1995) and Womack (1996) find results that confirm our conclusion.

6.2 Trading cost and market adjusted returns for trading strategies

As can be seen in table 4 in section 5.2.3, the turnover rate for strategy 1 is quite similar to the simple portfolios. However, the turnover rates for strategy 2 are significantly larger, ranging from 1104 percent per year for Consumer Goods to 53 percent for Utilities. Once again, the low turnover rate for Utilities is attributed the fact that the sector only consists of one company. The relatively high turnover rates for strategy 2 are reasonable since it requires more transactions to maintain more portfolios.

For strategy 1 with returns adjusted for both trading cost and benchmarks, we find that Basic Materials, Consumer Services, Technology and Utilities show positive returns ranging from 0.37 to 0.13 percent. However, only the figure for Consumer Services is significant. This figure becomes insignificant when adjusting for Newey West standard errors. However, it confirms our earlier indications that analysts' have an ability to predict performance of stocks within this sector. The returns for strategy 2 range from 0.22 to -0.54 percent. Again, Consumer Services, Technology and Utilities generate positive but insignificant returns. Thus, we can draw the conclusion that strategy 2 usually generates a positive return whenever strategy one does so. The only exception to this rule is Basic Materials. Gylling et al. (2008) distinguish individual investors from institutional investors and find that the best strategy would be to simply sell short portfolio 5. This is also found by Desai & Jain (1995), Stickel (1995) and Womack (1996), suggesting that analysts are better at picking underperforming stocks. We find indications of this as well, since some of the sectors show negative returns for portfolio five. However, Gylling et al. (2008) also find that trading strategy 1 is profitable on an annual basis for both types of investors when portfolios are weighted equally. Even though our findings are similar, they are less convincing since only five out ten sectors show positive returns. Again, this might be due to the fact of differences in methodology, where Gyllings' returns are annualized while our returns are the cumulative returns over the entire data sample.

During the bull market we find that all sectors, for both strategies, show significant negative mean returns. For strategy 1, the mean returns range from -0.44 percent for Utilities to -1.10 percent for Technology. For strategy 2, the mean returns range from -0.56 percent for Utilities to -1.08 percent for Consumer Goods. This picture is confirmed when looking at figure 6A and 7A in the appendix, where we find that the strategies seem to have mostly yielded negative returns in bull markets.

During the bear market, we find the exact opposite to the results in the bull market. All sectors show positive returns, except from Oil & Gas (both trading strategies) and trading strategy one for Telecommunications. Excluding the negative figures, the returns for trading strategy one ranges from 1.38 percent for Technology to 0.02 percent for Health Care. Interestingly, Consumer Services show a high return again with 1.32 percent. All of the positive returns are significant except from Financials and Health Care. When adjusting the figures for Newey West standard errors, we find that the return figure for Industrials become insignificant. For strategy 2, the positive returns range from 1.27 percent for Technology to 0.01 percent for Consumer Goods. The degree of significance is lower here compared to trading strategy 1. It is striking that we once again see that Consumer Services has a significant positive return of 1.05 percent.

The fact that the bear market returns are mainly positive, while the opposite holds for the bull market returns, indicates once again that analysts' that are better at picking stocks during bear markets. One possible explanation for this may be that stocks trade more on psychological factors during bull markets due to general euphoria. This would cause all stocks to go up in value irrespective of fundamental factors and thus making it harder to put a specific rating on a stock. During bear markets however, when the market participants are less enthusiastic, an analyst may have more value added since it can indicate which company actually has strong or weak fundamental prerequisites.

6.3 Sharpe ratios for trading strategies

As can be viewed in table 5 below, the positive Sharpe ratios for strategy 1 range from 0.0178 for utilities to 0.0002 for Oil & Gas. Consumer Services, which has showed strong returns in

previous sections, has a Sharpe ratio of 0.0057. There are five negative Sharpe ratios ranging from -0.0007 for Consumer Goods to -0.0357 for Financials.

Table 5. Sharpe ratios for each sector and trading strategy

	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil & Gas	Technology	Telecommunications	Utilities
Portfolio 1-5	0.0042	-0.0007	0.0057	-0.0357	-0.0245	-0.0009	0.0002	0.0006	-0.0158	0.0178
Portfolio (1+2)-(4+5)	-0.0186	-0.0088	-0.0019	-0.0183	0.0032	-0.0166	0.0452	0.0013	-0.0022	0.0397

For strategy two, we find positive Sharpe ratios for Health Care, Oil & Gas, Technology and Utilities. The negative Sharpe ratios range from -0.0019 for Consumer Services to -0.0186 for Basic Materials. It is interesting to see, that some of the sectors that show negative cumulative returns also have positive Sharpe ratios. This can be explained by the fact that the Sharpe ratios are the average of the weekly calculated Sharpe ratios. However, the cumulative returns can be heavily affected by one large negative return. Thus, we may get negative cumulative returns but positive Sharpe ratios, and of course the reverse may occur as well. Furthermore, we find that the sectors that had the highest returns in earlier sections do not have the best Sharpe ratios. This suggests that an investor has to be able to handle a relatively higher volatility to obtain a higher overall return.

Based on this, we can draw the conclusion that profitable trading strategies based on analyst recommendations and across sectors actually exist. As our results above show, the main focus for investors should be on buying portfolio 1 and selling portfolio 5 for each sector, when we are in a bear market environment. As mentioned above, previous research has indicated that analyst seem to be better at picking underperforming stocks and picking stocks in general in a bear market environment. Consumer Services, Technology and Basic Materials are the sectors that have had the best returns during bear markets. The strong performance of the technology sector is mostly due to the internet boom that occurred during the late 1990s and early 2000s. Thus, we would advice an investor to only focus on Consumer Services and Basic Materials as we do not expect the technology sector to show similar returns in upcoming bear markets.

7. Concluding Remarks

7.1 Conclusion

The aim of the thesis was to examine the predictive power of analysts when issuing recommendations on stocks traded at the SSE. We defined three hypotheses as per section 2.3 where we wanted to both investigate if analysts consistently over time are able to add value through recommendations, if analysts are proficient in setting recommendations in certain sectors relative others and whether they are able to generate positive market adjusted returns net of transaction costs.

Firstly, we conclude that analysts in fact seem to have the ability to consistently over time generate recommendations that either outperform or underperform their respective benchmark depending on if it is a buy or a sell recommendation. We note, however, that there are no clear trends that analysts are able to issue recommendations that follow the stated order of having e.g. "outperforming" stocks show superior returns compared to stocks with "hold" or "sell" recommendations. Interestingly, our results actually imply that analysts in some occasions are relatively better at picking losing stocks than winners. Furthermore, based on results from sub samples we come to the conclusion that analysts in fact are better at issuing buy recommendations in bear markets disregarding the significance of our mean returns and conversely proficient at issuing sell recommendations in bull markets.

Secondly, when analyzing recommendations on a sector level our results were slightly more challenging to interpret and more ambiguous to draw any conclusions from. Nonetheless, our results suggest that analysts are better at finding outperforming stocks within Consumer Services and Basic Materials and underperforming stocks within Technology and Health Care. This should, however, be put in contrast to extreme market conditions that can make certain sectors be particularly difficult to predict such as Financials during the current credit crisis and Technology during the years of the internet boom.

Thirdly, when analyzing market adjusted return series net of transaction costs we conclude that our results are in line with previous research such as Wåghäll et al (2008) that analysts generally are not able to generate positive returns once adjustments for transaction costs have

been taken into consideration. Nonetheless, we find a few examples of portfolios yielding positive returns; mainly Basic Materials (0.21 percent) and Consumer Services (0.28 percent) for portfolio 1, implying that analysts' ability to find outperforming stocks in these sectors indeed exist.

Finally, as we also examined various trading strategies our results pointed towards that profitable trading approaches based on analyst recommendations and across sectors actually exist. The prevailing strategy is to buy portfolio 1 and short sell portfolio 5 for each sector, when we are in a bear market environment. The sectors a potential investor would focus on are mainly Consumer Services and Basic Materials.

7.2 Critical evaluation

When conducting this study we have aimed at using a method and a data sample that is as generic as possible with limited bias in order to increase the robustness of our results and to be able to draw conclusions from them. Nonetheless we realize that the reliability of our tests could have been affected by a number of factors. Firstly, when using Thomson the software uses different equity codes for stocks listed on multiple exchanges. This leads to less outstanding recommendations at certain time periods in the sample.

Secondly, when we have created our benchmarks we have solely used equally weighted benchmarks as we strictly wanted to assess the quality of a recommendation, isolating any effects of company size. As we are confident that this method strictly speaking is better than a value weighted benchmark we nonetheless realize that this could have increased the robustness of our conclusions by examining whether any trends or patterns emerged when comparing the results between the two applications. This would make our results more comparable to previous research. Also, we could have compiled benchmarks using all listed stocks as opposed to all covered stocks to contrast our results further.

Thirdly, the compilation of sub samples and how we have decided the cut off points for the different periods may lead to some uncertainty in our results as we have not had a clear definition of when bull and bear markets start and finish.

7.3 Suggestions for further research

The focus of this thesis has been on returns for analyst recommendations across sectors with weekly rebalancing. Since there might be a link between returns and rebalancing, it would be interesting to see what the results would have looked like with monthly rebalancing. Moreover, conducting the same type of research on data from another stock exchange would give a more balanced picture. It would also be interesting to investigate to which extent certain firm characteristics are linked to analyst recommendations and their returns. If there is a strong link, then maybe investors could use that information. To give an indication of the type of patterns that may prevail and create an opening for further research, we decided to conduct a smaller analysis ourselves. The firm characteristics we chose were the price-earnings ratio and market value. We grouped the stocks in our sample into quartiles depending on the size of the corresponding characteristic and then grouped each quartile into portfolios according to the consensus recommendations as we did with the sectors. Quartile one consists of stocks with a low price-earnings ratio while quartile four consists of stocks with a high price-earnings ratio. The same holds for the sorting according to market value.

We find that quartile one for the price-earnings ratio does not always yield the best returns, even though theory suggests that stocks with low price-earnings ratios should have higher returns than stocks with higher price-earnings ratios. However, we find that the returns for quartile four are always negative, but hardly any figures are significant. We also find that portfolio five only has negative returns. Looking at market adjusted returns we find that quartile one outperforms quartile four in all cases but one. Thus, our results are in line with Basu (1977) who conclude that stocks with low price-earnings ratios outperform high price-earnings stocks. However, they contradict the results from Nicholson (1968) who finds the exact opposite result. When also taking trading cost into account we find that all portfolios show negative returns and most of them are significant. Again, this confirms previous research that transaction costs stop market participants from exploiting otherwise profitable trading strategies.

For the portfolios grouped after quartiles of market value, we find that the raw returns are higher for quartile four than quartile one. This indicates that high market value companies outperform companies with a small market value. The same holds when adjusting for benchmarks. Here we also see that quartile four always has positive returns while quartile one always has negative returns for the individual portfolios. Conversely, the trading strategies for quartile one generate higher returns than the strategies for quartile four. This indicates that analysts are better at giving recommendations for smaller stocks, since the difference between the returns of the most highly rated and lowest rated stocks is more significant. Barber et al. (2001) found similar results and accounted this difference to the fact that publicly available information is less likely to be disseminated for small- and medium-sized firms. When adjusting for trading costs, almost all portfolios show negative returns. Again, we find that quartile one usually has the worst return while quartile four has the best return for the individual portfolios. Thus, our results contradict the results from Fama et al. (1992) since we find that larger firms tend to outperform smaller firms. Meanwhile, our results indicate that it is easier to generate trading strategies for smaller firms since the returns across recommendations are more dispersed for the lower quartiles.

Our results for price-earnings and market value portfolios indicate that there are certain patterns that can be exploited by investors. It would be interesting with more research regarding how the returns of the sectors and the returns of the firm characteristics relate to each other.

It would also be interesting to evaluate how stocks perform when analysts drop them from their coverage. Since we have found indications in our results that analysts rather drop stocks than issue sell recommendations, one should find that stocks with sell recommendations perform worse than stocks that have been dropped from coverage. Research related to how incentives affect recommendations from brokerages and investment banks would thus be very interesting.

REFERENCES

Academic references

Anderson A., Martinez J., 2007, *Vice or Advice? Profits from Brokerage-Firm Trading around Recommendation Revision Dates*, Working Paper, Stockholm School of Economics

Barber B., Lehavy R., McNichols M., Trueman B., 2001, *Can investors profit from the prophets? Consensus analyst recommendations and stock returns*, Journal of finance 2, 531-564.

Basu S., 1977, *Investment performance of common stocks in relation to their price-earnings ratio: A test of the efficient market hypothesis*, Journal of Finance 32, 663-682

Bodie Z., Kane A., Marcus A.,2008, *Investments*, McGraw-Hill , 7th Edition

Carhart M., 1997, *On persistence in mutual fund performance*, Journal of Finance 52, 57–82

Cooper M., Gutierrez R., Marcum B., 2005, *On the Predictability of Stock Returns in Real Time*, Journal of Business 78, 469-499

Cowles A., 1933, Can *Stock Market Forecasters Forecast?*, Econometrica, vol. 1, no. 3 (July), 309-324

Desai H., Jain P., 1995, *An analysis of the Recommendations of the Superstar Money Managers at Barron's Annual Roundtable*, Journal of finance 50, 1257-1273

Fama E., French K., 1992, *The cross-section of expected stock returns*, Journal of Finance 47, 427-465

Fleming, Ostdiek, Whaley, 1996, *Trading Costs and the relative Rates of Price Discovery in Stock, Futures and Options Markets*, The Journal of Futures Markets 16,

Gylling K., Larsson A., Tobieson J., 2008, *Evaluating the performance of analysts covering stocks publicly traded on the Stockholm Stock Exchange*, Stockholm School of Economics

Jegadeesh N., Kim J., Krische S., Lee C., 2004, *Analyzing the analysts: When do recommendations add value?, Journal of Finance*, Jun 2004, Vol. 59 Issue 3, (p. 1083-1124).

Keim D., Madhavan A., 1998*, The cost of institutional equity trades*, Financial Analysts Journal 54, 50-69.

Lin, McNichols, 1998, *Underwriting relationships, analysts' earnings forecasts and investment recommendations*, Journal of Acconting and Economics, 25, (p. 101-127).

Michaely R., Womack K., 1999, *Conflict of interest and the credibility of underwriter analyst recommendations*, Review of Financial Studies, 12, (p. 653-686).

Nicholson F., 1968, *Price ratios on relation to investment results*, Financial Analysts Journal 24, 105-109

Stickel S., 1995, *The anatomy of the performance of buy and sell recommendations*, Financial Analysts Journal 51, pp 25–39.

Womack K., 1996, Do *brokerage analysts' recommendations have investment value?*, Journal of Finance 51, pp 137–167.

Wåghäll C., Lystedt E., 2008, *Do analyst recommendations yield profitable trading strategies? Evaluation of analysts covering European stocks*, Stockholm School of Economics

Electronic sources

Thomson Datastream (stock prices, consensus recommendations, market capitalizations, sector classifications, price-earnings ratios, OMX Stockholm index return) retrieved at 2009-04-01

APPENDIX

Table 1A. Raw returns for portfolios based on sectors, full sample

The table shows the raw returns for portfolios based on analyst recommendations and grouped according to sector. The results are based on the entire data sample.

	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil & Gas	Technology	Telecommunications	Utilities
Portfolio 1										
Mean	0,19%	0,11%	0,27%	-0,15%	-0,22%	0,22%	-0,13%	-0,40%	-0,22%	-0,06%
st. error	0,0015	0,0015	0,0023	0,0018	0,0023	0,0015	0,0017	0,0026	0,0025	0,0004
t-value	1,29	0,70	1,18	-0,88	-0,99	1,49	-0,73	-1,55	-0,89	-1,50
p-value > 0	0,10	0,24	0,12	0,81	0,84	0,07	0,77	0,94	0,81	0,93
p-value = 0	0,20	0,49	0,24	0,38	0,32	0,14	0,47	0,12	0,37	0,14
p-value < 0	0,90	0,76	0,88	0,19	0,16	0,93	0,23	0,06	0,19	0,07
Portfolio 2										
Mean	-0,26%	0,15%	0,18%	0,20%	0,18%	0,11%	-0,15%	-0,12%	0,03%	0,07%
st. error	0,0016	0,0014	0,0016	0,0014	0,0021	0,0013	0,0012	0,0022	0,0012	0,0005
t-value	-1,64	1,04	1,08	1,42	0,87	0,84	-1,23	-0,52	0,23	1,54
p-value > 0	0,95	0,15	0,14	0,08	0,19	0,20	0,89	0,70	0,41	0,06
p-value = 0	0,10	0,30	0,28	0,16	0,39	0,40	0,22	0,61	0,82	0,12
p-value < 0	0,05	0,85	0,86	0,92	0,81	0,80	0,11	0,30	0,59	0,94
Portfolio 3										
Mean	0,11%	0,18%	-0,19%	0,07%	-0,05%	0,01%	-0,09%	-0,29%	0,02%	-0,12%
st. error	0,0016	0,0014	0,0017	0,0013	0,0020	0,0013	0,0006	0,0024	0,0017	0,0005
t-value	0,68	1,30	-1,09	0,58	-0,25	0,05	-1,50	-1,19	0,10	-2,24
p-value > 0	0,25	0,10	0,86	0,28	0,60	0,48	0,93	0,88	0,46	0,99
p-value = 0	0,50	0,19	0,28	0,57	0,80	0,96	0,13	0,23	0,92	0,03
p-value < 0	0,75	0,90	0,14	0,72	0,40	0,52	0,07	0,12	0,54	0,01
Portfolio 4										
Mean	0,07%	0,02%	-0,08%	-0,03%	-0,13%	-0,02%	0,13%	-0,45%	0,01%	0,07%
st. error	0,0014	0,0014	0,0015	0,0012	0,0022	0,0013	0,0011	0,0026	0,0015	0,0007
t-value	0,53	0,11	-0,53	-0,24	-0,60	-0,15	1,15	-1,75	0,07	1,09
p-value > 0	0,30	0,46	0,70	0,59	0,73	0,56	0,13	0,96	0,47	0,14
p-value = 0	0,60	0,91	0,60	0,81	0,55	0,88	0,25	0,08	0,94	0,28
p-value < 0	0,70	0,54	0,30	0,41	0,27	0,44	0,87	0,04	0,53	0,86
Portfolio 5										
Mean	-0,30%	-0,45%	-0,52%	0,12%	0,00%	-0,17%	0,10%	-0,45%	0,06%	-0,11%
st. error	0,0016	0,0019	0,0023	0,0012	0,0023	0,0015	0,0006	0,0024	0,0009	0,0009
t-value	-1,85	-2,41	-2,21	1,00	-0,01	-1,14	1,68	-1,92	0,65	-1,25
p-value > 0	0,97	0,99	0,99	0,16	0,50	0,87	0,05	0,97	0,26	0,89
p-value = 0	0,07	0,02	0,03	0,32	0,99	0,25	0,09	0,06	0,52	0,21
p-value < 0	0,03	0,01	0,01	0,84	0,50	0,13	0,95	0,03	0,74	0,11
Portfolio 1-5										
Mean	0,26%	0,25%	0,42%	-0,22%	-0,23%	0,15%	-0,23%	0,05%	-0,27%	0,05%
st. error	0,0015	0,0013	0,0016	0,0011	0,0019	0,0009	0,0018	0,0019	0,0026	0,0010
t-value	1,77	1,90	2,68	-1,96	-1,21	1,60	-1,25	0,23	-1,03	0,50
p-value > 0	0,04	0,03	0,00	0,97	0,89	0,05	0,89	0,41	0,85	0,31
p-value = 0	0,08	0,06	0,01	0,05	0,23	0,11	0,21	0,81	0,30	0,62
p-value < 0	0,96	0,97	1,00	0,03	0,11	0,95	0,11	0,59	0,15	0,69
Portfolio (1+2)-(4+5)										
Mean	-0,02%	0,09%	0,19%	0,00%	0,05%	0,09%	-0,38%	0,21%	-0,07%	0,05%
st. error	0,0010	0,0007	0,0009	0,0007	0,0011	0,0005	0,0018	0,0012	0,0019	0,0013
t-value	-0,19	1,33	2,19	-0,01	0,48	1,74	-2,13	1,72	-0,38	0,37
p-value > 0	0,57	0,09	0,01	0,50	0,31	0,04	0,98	0,04	0,65	0,35
p-value = 0	0,85	0,18	0,03	0,99	0,63	0,08	0,03	0,09	0,71	0,71
p-value < 0	0,43	0,91	0,99	0,50	0,69	0,96	0,02	0,96	0,35	0,65

Table 2A. Raw returns for portfolios based on sectors with Newey West standard errors, full sample

The table shows the raw returns for portfolios based on analyst recommendations and grouped according to sector. The results are based on the entire data sample.

	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil & Gas	Technology	Telecommunications	Utilities
Portfolio 1										
Coef.	0,19%	0,11%	0,27%	-0,15%	-0,22%	0,22%	-0,13%	-0,40%	-0,22%	-0,06%
NW standard error	0,0016	0,0016	0,0026	0,0019	0,0025	0,0016	0,0019	0,0028	0,0026	0,0005
t-value	1,18	0,66	1,05	-0,83	-0,88	1,38	-0,65	-1,41	-0,87	-1,32
P-value	0,24	0,51	0,30	0,41	0,38	0,17	0,51	0,16	0,38	0,19
95% lower CI	-0,0013	-0,0021	-0,0024	-0,0052	-0,0072	-0,0009	-0,0050	-0,0095	-0,0073	-0,0015
95% higher CI	0,0051	0,0043	0,0077	0,0021	0,0028	0,0054	0,0025	0,0016	0,0028	0,0003
Portfolio 2										
Coef.	-0,26%	0,15%	0,18%	0,20%	0,18%	0,11%	-0,15%	-0,12%	0,03%	0,07%
NW standard error	0,0017	0,0016	0,0018	0,0015	0,2313	0,0014	0,0014	0,0026	0,0013	0,0005
t-value	-1,52	0,95	1,00	1,33	0,77	0,75	-1,10	-0,45	0,21	1,46
P-value	0,13	0,34	0,32	0,18	0,44	0,45	0,27	0,65	0,84	0,15
95% lower CI	-0,0061	-0,0016	-0,0017	-0,0010	-0,0028	-0,0017	-0,0042	-0,0062	-0,0024	-0,0003
95% higher CI	0,0008	0,0046	0,0052	0,0050	0,0063	0,0039	0,0012	0,0039	0,0029	0,0017
Portfolio 3										
Coef.	0,11%	0,18%	-0,19%	0,07%	-0,05%	0,01%	-0,09%	-0,29%	0,02%	-0,12%
NW standard error	0,0018	0,0015	0,0019	0,0014	0,0022	0,0014	0,0007	0,0027	0,0019	0,0006
t-value	0,60	1,18	-0,97	0,51	-0,23	0,04	-1,27	-1,08	0,09	-1,96
P-value	0,55	0,24	0,33	0,61	0,82	0,97	0,20	0,28	0,93	0,05
95% lower CI	-0,0025	-0,0012	-0,0057	-0,0021	-0,0048	-0,0028	-0,0023	-0,0081	-0,0036	-0,0023
95% higher CI	0,0047	0,0049	0,0019	0,0036	0,0038	0,0029	0,0005	0,0024	0,0039	0,0000
Portfolio 4										
Coef.	0,07%	0,02%	-0,08%	-0,03%	-0,13%	-0,02%	0,13%	-0,45%	0,01%	0,07%
NW standard error	0,0015	0,0015	0,0017	0,0013	0,0026	0,0014	0,0012	0,0029	0,0016	0,0007
t-value	0,48	0,11	-0,48	-0,22	-0,51	-0,13	1,07	-1,55	0,07	1,03
P-value	0,64	0,92	0,63	0,83	0,61	0,90	0,28	0,12	0,95	0,31
95% lower CI	-0,0023	-0,0027	-0,0041	-0,0029	-0,0065	-0,0029	-0,0011	-0,0103	-0,0030	-0,0007
95% higher CI	0,0037	0,0030	0,0025	0,0023	0,0038	0,0026	0,0036	0,0012	0,0032	0,0021
Portfolio 5										
Coef.	-0,30%	-0,45%	-0,52%	0,12%	0,00%	-0,17%	0,10%	-0,45%	0,06%	-0,11%
NW standard error	0,0018	0,0020	0,0027	0,0013	0,0026	0,0016	0,0007	0,0027	0,0010	0,0010
t-value	-1,67	-2,22	-1,95	0,95	-0,01	-1,05	1,48	-1,68	0,60	-1,09
P-value	0,10	0,03	0,05	0,34	0,99	0,29	0,14	0,09	0,55	0,28
95% lower CI	-0,0065	-0,0085	-0,0104	-0,0013	-0,0052	-0,0049	-0,0003	-0,0099	-0,0014	-0,0031
95% higher CI	0,0005	-0,0005	0,0000	0,0038	0,0051	0,0015	0,0024	0,0008	0,0025	0,0009
Portfolio 1-5										
Coef.	0,26%	0,25%	0,42%	-0,22%	-0,23%	0,15%	-0,23%	0,05%	-0,27%	0,05%
NW standard error	0,0017	0,0014	0,0018	0,0012	0,0021	0,0010	0,0020	0,0021	0,0027	0,0011
t-value	1,59	1,75	2,33	-1,90	-1,13	1,51	-1,12	0,21	-1,00	0,44
P-value	0,11	0,08	0,02	0,06	0,26	0,13	0,26	0,83	0,32	0,66
95% lower CI	-0,0006	-0,0003	0,0006	-0,0046	-0,0063	-0,0005	-0,0063	-0,0037	-0,0079	-0,0017
95% higher CI	0,0059	0,0052	0,0077	0,0001	0,0017	0,0034	0,0017	0,0046	0,0026	0,0027
Portfolio (1+2)-(4+5)										
Coef.	-0,02%	0,09%	0,19%	0,00%	0,05%	0,09%	-0,38%	0,21%	-0,07%	0,05%
NW standard error	0,0011	0,0007	0,0010	0,0007	0,0013	0,0006	0,0020	0,0014	0,0021	0,0014
t-value	-0,17	1,30	1,92	-0,01	0,42	1,54	-1,88	1,52	-0,35	0,33
P-value	0,86	0,19	0,06	0,99	0,68	0,12	0,06	0,13	0,72	0,74
95% lower CI	-0,0023	-0,0004	0,0000	-0,0014	-0,0020	-0,0002	-0,0077	-0,0006	-0,0048	-0,0023
95% higher CI	0,0019	0,0022	0,0039	0,0014	0,0030	0,0020	0,0002	0,0049	0,0033	0,0033

Table 3A. Market adjusted returns for portfolios based on sectors, full sample

The table shows the market adjusted returns for portfolios based on analyst recommendations and grouped according to sector. The results are based on the entire data sample.

	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil & Gas	Technology	Telecommunications	Utilities
Portfolio 1										
Mean	0,26%	0,06%	0,42%	-0,19%	-0,21%	0,18%	-0,17%	-0,08%	-0,13%	0,08%
st. error	0,0015	0,0013	0,0019	0,0014	0,0018	0,0011	0,0013	0,0017	0,0021	0,0013
t-value	1,69	0,48	2,26	-1,35	-1,21	1,66	-1,29	-0,47	-0,61	0,62
p-value > 0	0,05	0,32	0,01	0,91	0,89	0,05	0,90	0,68	0,73	0,27
p-value = 0	0,09	0,63	0,02	0,18	0,23	0,10	0,20	0,64	0,54	0,54
p-value < 0	0,95	0,68	0,99	0,09	0,11	0,95	0,10	0,32	0,27	0,73
Portfolio 2										
Mean	-0,19%	0,11%	0,33%	0,17%	0,19%	0,07%	-0,19%	0,20%	0,12%	0,22%
st. error	0,0013	0,0010	0,0012	0,0009	0,0016	0,0006	0,0015	0,0013	0,0020	0,0013
t-value	-1,49	1,05	2,70	2,00	1,20	1,12	-1,31	1,51	0,61	1,66
p-value > 0	0,93	0,15	0,00	0,02	0,12	0,13	0,90	0,07	0,27	0,05
p-value = 0	0,14	0,29	0,01	0,05	0,23	0,26	0,19	0,13	0,55	0,10
p-value < 0	0,07	0,85	1,00	0,98	0,88	0,87	0,10	0,93	0,73	0,95
Portfolio 3										
Mean	0,18%	0,14%	-0,04%	0,04%	-0,04%	-0,04%	-0,13%	0,03%	0,11%	0,03%
st. error	0,0010	0,0010	0,0013	0,0008	0,0016	0,0005	0,0017	0,0016	0,0015	0,0013
t-value	1,85	1,38	-0,26	0,52	-0,25	-0,71	-0,77	0,18	0,73	0,22
p-value > 0	0,03	0,08	0,60	0,30	0,60	0,76	0,78	0,43	0,23	0,41
p-value = 0	0,07	0,17	0,79	0,61	0,80	0,48	0,44	0,86	0,47	0,83
p-value < 0	0,97	0,92	0,40	0,70	0,40	0,24	0,22	0,57	0,77	0,59
Portfolio 4										
Mean	0,14%	-0,03%	0,07%	-0,06%	-0,12%	-0,06%	0,09%	-0,14%	0,10%	0,22%
st. error	0,0009	0,0009	0,0010	0,0005	0,0015	0,0004	0,0016	0,0015	0,0017	0,0012
t-value	1,66	-0,33	0,68	-1,16	-0,86	-1,40	0,55	-0,93	0,60	1,80
p-value > 0	0,05	0,63	0,25	0,88	0,80	0,92	0,29	0,82	0,27	0,04
p-value = 0	0,10	0,74	0,50	0,25	0,39	0,16	0,58	0,35	0,55	0,07
p-value < 0	0,95	0,37	0,75	0,12	0,20	0,08	0,71	0,18	0,73	0,96
Portfolio 5										
Mean	-0,23%	-0,49%	-0,37%	0,09%	0,01%	-0,21%	0,06%	-0,14%	0,15%	0,03%
st. error	0,0011	0,0016	0,0017	0,0008	0,0018	0,0011	0,0017	0,0015	0,0019	0,0011
t-value	-2,03	-3,11	-2,22	1,15	0,04	-2,02	0,36	-0,96	0,78	0,30
p-value > 0	0,98	1,00	0,99	0,12	0,48	0,98	0,36	0,83	0,22	0,38
p-value = 0	0,04	0,00	0,03	0,25	0,97	0,04	0,72	0,34	0,43	0,76
p-value < 0	0,02	0,00	0,01	0,88	0,52	0,02	0,64	0,17	0,78	0,62
Portfolio 1-5										
Mean	0,34%	0,20%	0,57%	-0,26%	-0,22%	0,11%	-0,27%	0,36%	-0,17%	0,19%
st. error	0,0025	0,0017	0,0024	0,0018	0,0027	0,0016	0,0017	0,0032	0,0025	0,0020
t-value	1,34	1,16	2,34	-1,38	-0,81	0,67	-1,61	1,12	-0,69	0,95
p-value > 0	0,09	0,12	0,01	0,92	0,79	0,25	0,95	0,13	0,75	0,17
p-value = 0	0,18	0,24	0,02	0,17	0,42	0,51	0,11	0,26	0,49	0,34
p-value < 0	0,91	0,88	0,99	0,08	0,21	0,75	0,05	0,87	0,25	0,83
Portfolio (1+2)-(4+5)										
Mean	0,05%	0,04%	0,34%	-0,03%	0,06%	0,05%	-0,42%	0,53%	0,02%	0,19%
st. error	0,0021	0,0013	0,0019	0,0016	0,0022	0,0014	0,0021	0,0028	0,0028	0,0023
t-value	0,26	0,33	1,82	-0,20	0,28	0,32	-2,00	1,88	0,07	0,83
p-value > 0	0,40	0,37	0,03	0,58	0,39	0,37	0,98	0,03	0,47	0,20
p-value = 0	0,80	0,74	0,07	0,84	0,78	0,75	0,05	0,06	0,94	0,40
p-value < 0	0,60	0,63	0,97	0,42	0,61	0,63	0,02	0,97	0,53	0,80

Table 4A. Market adjusted returns for portfolios based on sectors with Newey West standard errors, full sample

The table shows the market adjusted returns for portfolios based on analyst recommendations and grouped according to sector. The results are based on the entire data sample.

	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil & Gas	Technology	Telecommunications	Utilities
Portfolio 1										
Coef.	0,26%	0,06%	0,42%	-0,19%	-0,21%	0,18%	-0,17%	-0,08%	-0,13%	0,08%
NW standard error	0,0017	0,0014	0,0021	0,0015	0,0019	0,0011	0,0014	0,0019	0,0022	0,0015
t-value	1,53	0,45	2,05	-1,28	-1,10	1,60	-1,16	-0,43	-0,59	0,55
P-value	0,13	0,65	0,04	0,20	0,27	0,11	0,25	0,67	0,56	0,58
95% lower CI	-0,0007	-0,0020	0,0002	-0,0047	-0,0059	-0,0004	-0,0045	-0,0045	-0,0056	-0,0021
95% higher CI	0,0060	0,0033	0,0082	0,0010	0,0017	0,0040	0,0011	0,0029	0,0031	0,0037
Portfolio 2										
Coef.	-0,19%	0,11%	0,33%	0,17%	0,19%	0,07%	-0,19%	0,20%	0,12%	0,22%
NW standard error	0,0014	0,0011	0,0013	0,0009	0,0018	0,0006	0,0015	0,0015	0,0021	0,0015
t-value	-1,39	0,96	2,46	1,85	1,07	1,03	-1,24	1,36	0,57	1,48
P-value	0,16	0,34	0,01	0,06	0,29	0,31	0,22	0,18	0,57	0,14
95% lower CI	-0,0046	-0,0011	0,0007	-0,0001	-0,0016	-0,0006	-0,0049	-0,0009	-0,0030	-0,0007
95% higher CI	0,0008	0,0032	0,0059	0,0035	0,0054	0,0019	0,0011	0,0049	0,0054	0,0050
Portfolio 3										
Coef.	0,18%	0,14%	-0,04%	0,04%	-0,04%	-0,04%	-0,13%	0,03%	0,11%	0,03%
NW standard error	0,0011	0,0010	0,0014	0,0009	0,0018	0,0005	0,0019	0,0017	0,0016	0,0014
t-value	1,65	1,33	-0,24	0,47	-0,22	-0,68	-0,69	0,16	0,69	0,20
P-value	0,10	0,18	0,81	0,64	0,82	0,50	0,49	0,87	0,49	0,84
95% lower CI	-0,0003	-0,0007	-0,0032	-0,0014	-0,0039	-0,0014	-0,0051	-0,0031	-0,0021	-0,0025
95% higher CI	0,0040	0,0034	0,0025	0,0022	0,0031	0,0007	0,0024	0,0037	0,0043	0,0031
Portfolio 4										
Coef.	0,14%	-0,03%	0,07%	-0,06%	-0,12%	-0,06%	0,09%	-0,14%	0,10%	0,22%
NW standard error	0,0009	0,0010	0,0012	0,0006	0,0016	0,0005	0,0018	0,0016	0,0018	0,0014
t-value	1,53	-0,31	0,61	-1,07	-0,76	-1,30	0,49	-0,86	0,57	1,59
P-value	0,13	0,76	0,54	0,29	0,45	0,20	0,62	0,39	0,57	0,11
95% lower CI	-0,0004	-0,0022	-0,0016	-0,0017	-0,0045	-0,0015	-0,0026	-0,0046	-0,0026	-0,0005
95% higher CI	0,0033	0,0016	0,0030	0,0005	0,0020	0,0003	0,0043	0,0018	0,0046	0,0049
Portfolio 5										
Coef.	-0,23%	-0,49%	-0,37%	0,09%	0,01%	-0,21%	0,06%	-0,14%	0,15%	0,03%
NW standard error	0,0012	0,0017	0,0018	0,0009	0,0019	0,0011	0,0019	0,0015	0,0021	0,0012
t-value	-1,84	-2,90	-2,03	1,07	0,04	-1,88	0,32	-0,92	0,73	0,28
P-value	0,07	0,00	0,04	0,28	0,97	0,06	0,75	0,36	0,46	0,78
95% lower CI	-0,0047	-0,0083	-0,0072	-0,0008	-0,0036	-0,0044	-0,0032	-0,0044	-0,0026	-0,0020
95% higher CI	0,0002	-0,0016	-0,0001	0,0026	0,0037	0,0001	0,0044	0,0016	0,0056	0,0026
Portfolio 1-5										
Coef.	0,34%	0,20%	0,57%	-0,26%	-0,22%	0,11%	-0,27%	0,36%	-0,17%	0,19%
NW standard error	0,0028	0,0019	0,0028	0,0019	0,0031	0,0017	0,0019	0,0038	0,0027	0,0023
t-value	1,20	1,06	2,01	-1,31	-0,71	0,61	-1,44	0,96	-0,65	0,84
P-value	0,23	0,29	0,05	0,19	0,48	0,54	0,15	0,34	0,52	0,40
95% lower CI	-0,0021	-0,0017	0,0001	-0,0064	-0,0083	-0,0024	-0,0063	-0,0038	-0,0070	-0,0026
95% higher CI	0,0089	0,0058	0,0112	0,0013	0,0039	0,0045	0,0010	0,0110	0,0035	0,0065
Portfolio (1+2)-(4+5)										
Coef.	0,05%	0,04%	0,34%	-0,03%	0,06%	0,05%	-0,42%	0,53%	0,02%	0,19%
NW standard error	0,0023	0,0014	0,0022	0,0017	0,0026	0,0016	0,0024	0,0033	0,0031	0,0026
t-value	0,23	0,30	1,56	-0,18	0,24	0,29	-1,77	1,61	0,07	0,74
P-value	0,82	0,77	0,12	0,85	0,81	0,77	0,08	0,11	0,95	0,46
95% lower CI	-0,0040	-0,0023	-0,0009	-0,0037	-0,0045	-0,0027	-0,0088	-0,0012	-0,0058	-0,0031
95% higher CI	0,0051	0,0031	0,0078	0,0031	0,0058	0,0036	0,0005	0,0117	0,0063	0,0070

Table 5A. Trading cost and market adjusted returns for portfolios based on sectors, full sample

The table shows the trading cost and market adjusted returns for portfolios based on analyst recommendations and grouped according to sector. The results are based on the entire data sample.

	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil & Gas	Technology	Telecommunications	Utilities
Portfolio 1										
Mean	0,21%	-0,06%	0,26%	-0,29%	-0,34%	-0,01%	-0,20%	-0,29%	-0,16%	0,08%
st. error	0,0015	0,0013	0,0019	0,0014	0,0018	0,0011	0,0013	0,0017	0,0021	0,0013
t-value	1,36	-0,46	1,42	-2,12	-1,91	-0,12	-1,52	-1,69	-0,77	0,58
p-value > 0	0,09	0,68	0,08	0,98	0,97	0,55	0,94	0,95	0,78	0,28
p-value = 0	0,18	0,65	0,15	0,03	0,06	0,91	0,13	0,09	0,44	0,56
p-value < 0	0,91	0,32	0,92	0,02	0,03	0,45	0,06	0,05	0,22	0,72
Portfolio 2										
Mean	-0,30%	-0,11%	0,10%	-0,03%	-0,02%	-0,12%	-0,22%	-0,03%	0,09%	0,21%
st. error	0,0013	0,0010	0,0012	0,0009	0,0016	0,0006	0,0015	0,0013	0,0020	0,0013
t-value	-2,31	-1,15	0,79	-0,30	-0,11	-2,07	-1,52	-0,22	0,47	1,63
p-value > 0	0,99	0,87	0,21	0,62	0,55	0,98	0,94	0,59	0,32	0,05
p-value = 0	0,02	0,25	0,43	0,77	0,91	0,04	0,13	0,82	0,64	0,10
p-value < 0	0,01	0,13	0,79	0,38	0,45	0,02	0,06	0,41	0,68	0,95
Portfolio 3										
Mean	-0,10%	-0,06%	-0,30%	-0,22%	-0,29%	-0,23%	-0,14%	-0,25%	0,01%	0,02%
st. error	0,0010	0,0010	0,0013	0,0008	0,0016	0,0005	0,0017	0,0016	0,0015	0,0013
t-value	-0,97	-0,57	-2,23	-2,65	-1,80	-4,44	-0,83	-1,62	0,09	0,17
p-value > 0	0,83	0,71	0,99	1,00	0,96	1,00	0,80	0,95	0,47	0,43
p-value = 0	0,33	0,57	0,03	0,01	0,07	0,00	0,41	0,11	0,93	0,86
p-value < 0	0,17	0,29	0,01	0,00	0,04	0,00	0,20	0,05	0,53	0,57
Portfolio 4										
Mean	-0,07%	-0,27%	-0,17%	-0,25%	-0,36%	-0,23%	0,07%	-0,42%	0,00%	0,21%
st. error	0,0009	0,0010	0,0011	0,0005	0,0015	0,0004	0,0016	0,0015	0,0017	0,0012
t-value	-0,74	-2,77	-1,65	-4,81	-2,49	-5,16	0,45	-2,81	0,03	1,71
p-value > 0	0,77	1,00	0,95	1,00	0,99	1,00	0,33	1,00	0,49	0,04
p-value = 0	0,46	0,01	0,10	0,00	0,01	0,00	0,65	0,01	0,98	0,09
p-value < 0	0,23	0,00	0,05	0,00	0,01	0,00	0,67	0,00	0,51	0,96
Portfolio 5										
Mean	-0,41%	-0,75%	-0,60%	-0,11%	-0,17%	-0,42%	0,06%	-0,36%	0,12%	0,02%
st. error	0,0011	0,0016	0,0016	0,0008	0,0018	0,0011	0,0017	0,0015	0,0020	0,0011
t-value	-3,58	-4,59	-3,63	-1,33	-0,97	-3,90	0,34	-2,45	0,62	0,23
p-value > 0	1,00	1,00	1,00	0,91	0,83	1,00	0,37	0,99	0,27	0,41
p-value = 0	0,00	0,00	0,00	0,19	0,33	0,00	0,74	0,01	0,54	0,82
p-value < 0	0,00	0,00	0,00	0,09	0,17	0,00	0,63	0,01	0,73	0,59
Portfolio 1-5										
Mean	0,17%	0,00%	0,37%	-0,44%	-0,46%	-0,06%	-0,30%	0,13%	-0,24%	0,18%
st. error	0,0025	0,0017	0,0024	0,0018	0,0027	0,0016	0,0017	0,0032	0,0025	0,0020
t-value	0,66	-0,03	1,52	-2,38	-1,67	-0,39	-1,81	0,42	-0,95	0,89
p-value > 0	0,26	0,51	0,06	0,99	0,95	0,65	0,96	0,34	0,83	0,19
p-value = 0	0,51	0,98	0,13	0,02	0,10	0,70	0,07	0,68	0,34	0,37
p-value < 0	0,74	0,49	0,94	0,01	0,05	0,35	0,04	0,66	0,17	0,81
Portfolio (1+2)-(4+5)										
Mean	-0,41%	-0,54%	0,09%	-0,34%	-0,27%	-0,17%	-0,49%	0,22%	-0,35%	0,16%
st. error	0,0021	0,0013	0,0019	0,0016	0,0022	0,0014	0,0021	0,0028	0,0029	0,0023
t-value	-1,93	-4,03	0,48	-2,13	-1,22	-1,19	-2,36	0,78	-1,22	0,71
p-value > 0	0,97	1,00	0,32	0,98	0,89	0,88	0,99	0,22	0,89	0,24
p-value = 0	0,05	0,00	0,63	0,03	0,22	0,24	0,02	0,44	0,22	0,48
p-value < 0	0,03	0,00	0,68	0,02	0,11	0,12	0,01	0,78	0,11	0,76

Table 6A. Trading cost and market adjusted returns for portfolios based on sectors with Newey West standard errors, full sample

The table shows the trading cost and market adjusted returns for portfolios based on analyst recommendations and grouped according to sector. The results are based on the entire data sample.

	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil & Gas	Technology	Telecommunications	Utilities
Portfolio 1										
Coef.	0,21%	-0,06%	0,26%	-0,29%	-0,34%	-0,01%	-0,20%	-0,29%	-0,16%	0,08%
NW standard error	0,0017	0,0013	0,0020	0,0015	0,0019	0,0011	0,0014	0,0019	0,0022	0,0015
t-value	1,23	-0,44	1,29	-2,00	-1,74	-0,11	-1,37	-1,56	-0,74	0,52
P-value	0,22	0,66	0,20	0,05	0,08	0,91	0,17	0,12	0,46	0,60
95% lower CI	-0,0012	-0,0032	-0,0014	-0,0058	-0,0072	-0,0023	-0,0048	-0,0066	-0,0060	-0,0021
95% higher CI	0,0054	0,0021	0,0067	-0,0001	0,0004	0,0021	0,0009	0,0008	0,0027	0,0037
Portfolio 2										
Coef.	-0,30%	-0,11%	0,10%	-0,03%	-0,02%	-0,12%	-0,22%	-0,03%	0,09%	0,21%
NW standard error	0,0014	0,0011	0,0013	0,0009	0,0018	0,0006	0,0015	0,0015	0,0021	0,0015
t-value	-2,17	-1,05	0,73	-0,27	-0,10	-1,89	-1,44	-0,20	0,45	1,45
P-value	0,03	0,30	0,47	0,79	0,92	0,06	0,15	0,84	0,66	0,15
95% lower CI	-0,0057	-0,0033	-0,0017	-0,0021	-0,0037	-0,0025	-0,0052	-0,0032	-0,0032	-0,0007
95% higher CI	-0,0003	0,0010	0,0036	0,0016	0,0033	0,0000	0,0008	0,0026	0,0051	0,0050
Portfolio 3										
Coef.	-0,10%	-0,06%	-0,30%	-0,22%	-0,29%	-0,23%	-0,14%	-0,25%	0,01%	0,02%
NW standard error	0,0011	0,0010	0,0015	0,0009	0,0018	0,0006	0,0019	0,0018	0,0016	0,0014
t-value	-0,86	-0,55	-2,05	-2,41	-1,60	-4,23	-0,74	-1,45	0,08	0,16
P-value	0,39	0,58	0,04	0,02	0,11	0,00	0,46	0,15	0,94	0,88
95% lower CI	-0,0032	-0,0026	-0,0058	-0,0040	-0,0063	-0,0034	-0,0052	-0,0060	-0,0031	-0,0026
95% higher CI	0,0013	0,0015	-0,0001	-0,0004	0,0006	-0,0012	0,0023	0,0009	0,0033	0,0030
Portfolio 4										
Coef.	-0,07%	-0,27%	-0,17%	-0,25%	-0,36%	-0,23%	0,07%	-0,42%	0,00%	0,21%
NW standard error	0,0010	0,0010	0,0012	0,0006	0,0016	0,0005	0,0018	0,0016	0,0018	0,1367
t-value	-0,68	-2,63	-1,48	-4,40	-2,23	-4,78	0,40	-2,59	0,03	1,51
P-value	0,49	0,01	0,14	0,00	0,03	0,00	0,69	0,01	0,98	0,13
95% lower CI	-0,0026	-0,0046	-0,0041	-0,0037	-0,0068	-0,0032	-0,0028	-0,0074	-0,0035	-0,0006
95% higher CI	0,0012	-0,0007	0,0006	-0,0014	-0,0004	-0,0013	0,0042	-0,0010	0,0036	0,0047
Portfolio 5										
Coef.	-0,41%	-0,75%	-0,60%	-0,11%	-0,17%	-0,42%	0,06%	-0,36%	0,12%	0,02%
NW standard error	0,0012	0,0017	0,0018	0,0009	0,0019	0,0012	0,0019	0,0015	0,0021	0,0012
t-value	-3,26	-4,29	-3,32	-1,25	-0,92	-3,61	0,30	-2,37	0,58	0,21
P-value	0,00	0,00	0,00	0,21	0,36	0,00	0,76	0,02	0,56	0,83
95% lower CI	-0,0065	-0,0109	-0,0095	-0,0027	-0,0054	-0,0064	-0,0032	-0,0065	-0,0029	-0,0020
95% higher CI	-0,0016	-0,0040	-0,0024	0,0006	0,0020	-0,0019	0,0043	-0,0006	0,0053	0,0025
Portfolio 1-5										
Coef.	0,17%	0,00%	0,37%	-0,44%	-0,46%	-0,06%	-0,30%	0,13%	-0,24%	0,18%
NW standard error	0,0028	0,0019	0,0028	0,0019	0,0031	0,0017	0,0019	0,0038	0,0027	0,0023
t-value	0,59	-0,02	1,30	-2,26	-1,47	-0,35	-1,62	0,36	-0,90	0,79
P-value	0,56	0,98	0,19	0,02	0,14	0,72	0,17	0,72	0,37	0,43
95% lower CI	-0,0039	-0,0038	-0,0019	-0,0082	-0,0107	-0,0040	-0,0067	-0,0061	-0,0076	-0,0027
95% higher CI	0,0072	0,0037	0,0092	-0,0006	0,0015	0,0028	0,0007	0,0087	0,0029	0,0063
Portfolio (1+2)-(4+5)										
Coef.	-0,41%	-0,54%	0,09%	-0,34%	-0,27%	-0,17%	-0,49%	0,22%	-0,35%	0,16%
NW standard error	0,0024	0,0015	0,0022	0,0017	0,0026	0,0016	0,0024	0,0033	0,0031	0,0026
t-value	-1,73	-3,66	0,41	-1,96	-1,03	-1,07	-2,09	0,66	-1,11	0,64
P-value	0,08	0,00	0,68	0,05	0,30	0,29	0,04	0,51	0,27	0,52
95% lower CI	-0,0088	-0,0082	-0,0034	-0,0068	-0,0078	-0,0049	-0,0095	-0,0043	-0,0097	-0,0034
95% higher CI	0,0006	-0,0025	0,0052	0,0000	0,0024	0,0014	-0,0003	0,0086	0,0027	0,0067

Table 7A. Raw returns for portfolios based on sectors, bull market sample

The table shows the raw returns for portfolios based on analyst recommendations and grouped according to sector. The results are based on the bull market sample.

	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil & Gas	Technology	Telecommunications	Utilities
Portfolio 1										
Mean	0,74%	0,27%	1,35%	0,10%	0,32%	0,69%	0,16%	0,42%	0,16%	-0,10%
st. error	0,0019	0,0019	0,0025	0,0012	0,0018	0,0012	0,0014	0,0024	0,0011	0,0007
t-value	3,95	1,47	5,31	0,84	1,75	5,70	1,10	1,76	1,42	-1,37
p-value > 0	0,00	0,07	0,00	0,20	0,04	0,00	0,14	0,04	0,08	0,91
p-value = 0	0,00	0,14	0,00	0,40	0,08	0,00	0,27	0,08	0,16	0,17
p-value < 0	1,00	0,93	1,00	0,80	0,96	1,00	0,86	0,96	0,92	0,09
Portfolio 2										
Mean	0,28%	0,54%	0,78%	0,73%	0,55%	0,64%	-0,01%	0,73%	0,13%	0,04%
st. error	0,0018	0,0017	0,0018	0,0014	0,0019	0,0013	0,0003	0,0020	0,0013	0,0005
t-value	1,56	3,24	4,26	5,40	2,91	4,98	-0,42	3,58	1,05	0,90
p-value > 0	0,06	0,00	0,00	0,00	0,00	0,00	0,66	0,00	0,15	0,19
p-value = 0	0,12	0,00	0,00	0,00	0,00	0,00	0,68	0,00	0,30	0,37
p-value < 0	0,94	1,00	1,00	1,00	1,00	1,00	0,34	1,00	0,85	0,81
Portfolio 3										
Mean	0,88%	0,62%	0,53%	0,42%	0,34%	0,56%	-0,07%	0,22%	0,36%	0,02%
st. error	0,0019	0,0014	0,0016	0,0015	0,0024	0,0013	0,0009	0,0023	0,0015	0,0004
t-value	4,58	4,56	3,29	2,82	1,40	4,31	-0,74	0,96	2,45	0,41
p-value > 0	0,00	0,00	0,00	0,00	0,08	0,00	0,77	0,17	0,01	0,34
p-value = 0	0,00	0,00	0,00	0,01	0,16	0,00	0,46	0,34	0,02	0,68
p-value < 0	1,00	1,00	1,00	1,00	0,92	1,00	0,23	0,83	0,99	0,66
Portfolio 4										
Mean	0,36%	0,25%	0,61%	0,48%	0,39%	0,52%	0,25%	0,40%	0,24%	0,16%
st. error	0,0015	0,0013	0,0014	0,0011	0,0024	0,0013	0,0022	0,0021	0,0017	0,0013
t-value	2,35	1,90	4,30	4,23	1,58	3,99	1,15	1,92	1,44	1,23
p-value > 0	0,01	0,03	0,00	0,00	0,06	0,00	0,13	0,03	0,08	0,11
p-value = 0	0,02	0,06	0,00	0,00	0,12	0,00	0,25	0,06	0,15	0,22
p-value < 0	0,99	0,97	1,00	1,00	0,94	1,00	0,87	0,97	0,92	0,89
Portfolio 5										
Mean	0,09%	0,33%	0,22%	0,48%	0,49%	0,33%	0,20%	0,53%	0,21%	0,10%
st. error	0,0013	0,0012	0,0026	0,0011	0,0032	0,0014	0,0012	0,0029	0,0014	0,0010
t-value	0,71	2,65	0,86	4,19	1,54	2,31	1,68	1,84	1,50	1,07
p-value > 0	0,24	0,00	0,20	0,00	0,06	0,01	0,05	0,03	0,07	0,14
p-value = 0	0,48	0,01	0,39	0,00	0,13	0,02	0,09	0,07	0,13	0,29
p-value < 0	0,76	1,00	0,80	1,00	0,94	0,99	0,95	0,97	0,93	0,86
Portfolio 1-5										
Mean	0,06%	-0,09%	0,20%	-0,42%	-0,21%	0,20%	-0,05%	-0,33%	-0,03%	-0,21%
st. error	0,0013	0,0010	0,0019	0,0009	0,0026	0,0010	0,0019	0,0020	0,0016	0,0012
t-value	0,49	-0,84	1,07	-4,44	-0,81	2,06	-0,25	-1,62	-0,16	-1,69
p-value > 0	0,31	0,80	0,14	1,00	0,79	0,02	0,60	0,95	0,56	0,95
p-value = 0	0,62	0,40	0,28	0,00	0,42	0,04	0,81	0,11	0,87	0,09
p-value < 0	0,69	0,20	0,86	0,00	0,21	0,98	0,40	0,05	0,44	0,05
Portfolio (1+2)-(4+5)										
Mean	-0,12%	-0,07%	-0,03%	-0,22%	-0,15%	0,03%	-0,32%	0,01%	-0,19%	-0,33%
st. error	0,0012	0,0007	0,0010	0,0006	0,0013	0,0006	0,0022	0,0011	0,0016	0,0019
t-value	-1,02	-1,04	-0,34	-3,68	-1,16	0,40	-1,49	0,11	-1,20	-1,76
p-value > 0	0,85	0,85	0,63	1,00	0,88	0,34	0,93	0,46	0,88	0,96
p-value = 0	0,31	0,30	0,73	0,00	0,25	0,69	0,14	0,92	0,23	0,08
p-value < 0	0,15	0,15	0,37	0,00	0,12	0,66	0,07	0,54	0,12	0,04

Table 8A. Raw returns for portfolios based on sectors with Newey West standard errors, bull market sample

The table shows the raw returns for portfolios based on analyst recommendations and grouped according to sector. The results are based on the bull market sample.

	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil & Gas	Technology	Telecommunications	Utilities
Portfolio 1										
Coef.	0,74%	0,27%	1,35%	0,10%	0,32%	0,69%	0,16%	0,42%	0,16%	-0,10%
NW standard error	0,0023	0,0020	0,0028	0,0013	0,0020	0,0013	0,0015	0,0028	0,0013	0,0009
t-value	3,28	1,39	4,75	0,77	1,59	5,19	1,05	1,54	1,28	-1,20
P-value	0,00	0,17	0,00	0,44	0,11	0,00	0,29	0,13	0,20	0,23
95% lower CI	0,0030	-0,0011	0,0079	-0,0016	-0,0008	0,0043	-0,0014	-0,0012	-0,0009	-0,0027
95% higher CI	0,0119	0,0066	0,0191	0,0037	0,0072	0,0096	0,0045	0,0097	0,0041	0,0007
Portfolio 2										
Coef.	0,28%	0,54%	0,78%	0,73%	0,55%	0,64%	-0,01%	0,73%	0,13%	0,04%
NW standard error	0,0019	0,0018	0,0019	0,0015	0,0022	0,0014	0,0003	0,0023	0,0015	0,0005
t-value	1,46	2,93	4,01	5,03	2,54	4,62	-0,40	3,25	0,88	0,91
P-value	0,15	0,00	0,00	0,00	0,01	0,00	0,69	0,00	0,38	0,36
95% lower CI	-0,0010	0,0018	0,0040	0,0045	0,0012	0,0037	-0,0007	0,0029	-0,0016	-0,0005
95% higher CI	0,0065	0,0090	0,0117	0,0102	0,0098	0,0092	0,0004	0,0118	0,0043	0,0013
Portfolio 3										
Coef.	0,88%	0,62%	0,53%	0,42%	0,34%	0,56%	-0,07%	0,22%	0,36%	0,02%
NW standard error	0,0021	0,0015	0,0017	0,0017	0,0028	0,0014	0,0011	0,0026	0,0015	0,0002
t-value	4,23	4,21	3,07	2,50	1,23	3,99	-0,63	0,87	2,44	0,62
P-value	0,00	0,00	0,00	0,01	0,22	0,00	0,53	0,39	0,02	0,54
95% lower CI	0,0047	0,0033	0,0019	0,0009	-0,0020	0,0028	-0,0028	-0,0028	0,0007	-0,0003
95% higher CI	0,0130	0,0091	0,0087	0,0076	0,0089	0,0084	0,0014	0,0073	0,0065	0,0006
Portfolio 4										
Coef.	0,36%	0,25%	0,61%	0,48%	0,39%	0,52%	0,25%	0,40%	0,24%	0,16%
NW standard error	0,0016	0,0014	0,0016	0,0013	0,0028	0,0014	0,0024	0,0023	0,0018	0,0014
t-value	2,24	1,84	3,78	3,82	1,36	3,67	1,07	1,72	1,31	1,16
P-value	0,03	0,07	0,00	0,00	0,17	0,00	0,28	0,09	0,19	0,25
95% lower CI	0,0004	-0,0002	0,0029	0,0023	-0,0017	0,0024	-0,0021	-0,0006	-0,0012	-0,0011
95% higher CI	0,0067	0,0052	0,0093	0,0073	0,0094	0,0080	0,0072	0,0086	0,0060	0,0044
Portfolio 5										
Coef.	0,09%	0,33%	0,22%	0,48%	0,49%	0,33%	0,20%	0,53%	0,21%	0,10%
NW standard error	0,0014	0,0013	0,0029	0,0012	0,0035	0,0015	0,0014	0,0032	0,0014	0,0011
t-value	0,65	2,48	0,75	3,84	1,38	2,15	1,49	1,64	1,44	0,98
P-value	0,52	0,01	0,45	0,00	0,17	0,03	0,14	0,10	0,15	0,33
95% lower CI	-0,0019	0,0007	-0,0036	0,0023	-0,0021	0,0003	-0,0007	-0,0010	-0,0008	-0,0011
95% higher CI	0,0038	0,0059	0,0080	0,0072	0,0118	0,0064	0,0047	0,0116	0,0049	0,0031
Portfolio 1-5										
Coef.	0,06%	-0,09%	0,20%	-0,42%	-0,21%	0,20%	-0,05%	-0,33%	-0,03%	-0,21%
NW standard error	0,0014	0,0011	0,0022	0,0010	0,0028	0,0010	0,0020	0,0022	0,0017	0,0014
t-value	0,45	-0,78	0,93	-4,11	-0,74	1,99	-0,23	-1,47	-0,15	-1,52
P-value	0,66	0,44	0,35	0,00	0,46	0,05	0,82	0,14	0,88	0,13
95% lower CI	-0,0022	-0,0031	-0,0023	-0,0062	-0,0076	0,0000	-0,0045	-0,0076	-0,0035	-0,0047
95% higher CI	0,0035	0,0013	0,0063	-0,0022	0,0034	0,0039	0,0035	0,0011	0,0030	0,0006
Portfolio (1+2)-(4+5)										
Coef.	-0,12%	-0,07%	-0,03%	-0,22%	-0,15%	0,03%	-0,32%	0,01%	-0,19%	-0,33%
NW standard error	0,0012	0,0007	0,0012	0,0007	0,0014	0,0007	0,0025	0,0013	0,0017	0,0020
t-value	-0,95	-1,01	-0,30	-3,30	-1,03	0,36	-1,31	0,09	-1,10	-1,64
P-value	0,34	0,32	0,76	0,00	0,31	0,72	0,19	0,93	0,27	0,10
95% lower CI	-0,0036	-0,0021	-0,0026	-0,0036	-0,0043	-0,0011	-0,0081	-0,0024	-0,0053	-0,0072
95% higher CI	0,0013	0,0007	0,0019	-0,0009	0,0013	0,0016	0,0016	0,0026	0,0015	0,0007

Table 9A. Market adjusted returns for portfolios based on sectors, bull market sample

The table shows the market adjusted returns for portfolios based on analyst recommendations and grouped according to sector. The results are based on the bull market sample.

	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil & Gas	Technology	Telecommunications	Utilities
Portfolio 1										
Mean	0,27%	-0,16%	0,76%	-0,40%	-0,18%	0,15%	-0,35%	-0,10%	-0,21%	-0,32%
st. error	0,0020	0,0016	0,0023	0,0011	0,0019	0,0010	0,0020	0,0022	0,0017	0,0017
t-value	1,33	-0,95	3,35	-3,76	-0,92	1,47	-1,77	-0,47	-1,26	-1,86
p-value > 0	0,09	0,83	0,00	1,00	0,82	0,07	0,96	0,68	0,90	0,97
p-value = 0	0,18	0,34	0,00	0,00	0,36	0,14	0,08	0,64	0,21	0,06
p-value < 0	0,91	0,17	1,00	0,00	0,18	0,93	0,04	0,32	0,10	0,03
Portfolio 2										
Mean	-0,20%	0,11%	0,20%	0,23%	0,05%	0,10%	-0,51%	0,21%	-0,24%	-0,18%
st. error	0,0018	0,0012	0,0016	0,0009	0,0015	0,0007	0,0023	0,0012	0,0017	0,0018
t-value	-1,08	0,89	1,26	2,58	0,31	1,34	-2,19	1,68	-1,41	-0,97
p-value > 0	0,86	0,19	0,11	0,01	0,38	0,09	0,99	0,05	0,92	0,83
p-value = 0	0,28	0,38	0,21	0,01	0,75	0,18	0,03	0,09	0,16	0,33
p-value < 0	0,14	0,81	0,89	0,99	0,62	0,91	0,01	0,95	0,08	0,17
Portfolio 3										
Mean	0,41%	0,19%	-0,06%	-0,08%	-0,16%	0,02%	-0,57%	-0,31%	-0,01%	-0,21%
st. error	0,0012	0,0010	0,0012	0,0011	0,0021	0,0006	0,0022	0,0017	0,0014	0,0019
t-value	3,47	1,84	-0,47	-0,74	-0,76	0,29	-2,64	-1,76	-0,10	-1,11
p-value > 0	0,00	0,03	0,68	0,77	0,78	0,39	1,00	0,96	0,54	0,87
p-value = 0	0,00	0,07	0,64	0,46	0,45	0,77	0,01	0,08	0,92	0,27
p-value < 0	1,00	0,97	0,32	0,23	0,22	0,61	0,00	0,04	0,46	0,13
Portfolio 4										
Mean	-0,12%	-0,18%	0,03%	-0,02%	-0,12%	-0,02%	-0,25%	-0,12%	-0,14%	-0,06%
st. error	0,0008	0,0008	0,0010	0,0005	0,0015	0,0005	0,0015	0,0014	0,0012	0,0014
t-value	-1,53	-2,17	0,27	-0,46	-0,78	-0,50	-1,66	-0,91	-1,14	-0,43
p-value > 0	0,94	0,98	0,39	0,68	0,78	0,69	0,95	0,82	0,87	0,67
p-value = 0	0,13	0,03	0,79	0,64	0,44	0,62	0,10	0,37	0,26	0,67
p-value < 0	0,06	0,02	0,61	0,32	0,22	0,31	0,05	0,18	0,13	0,33
Portfolio 5										
Mean	-0,38%	-0,10%	-0,36%	-0,02%	-0,01%	-0,21%	-0,30%	0,00%	-0,17%	-0,12%
st. error	0,0010	0,0011	0,0020	0,0007	0,0024	0,0010	0,0020	0,0020	0,0015	0,0016
t-value	-3,99	-0,94	-1,81	-0,36	-0,06	-2,21	-1,48	0,00	-1,14	-0,72
p-value > 0	1,00	0,83	0,96	0,64	0,52	0,99	0,93	0,50	0,87	0,76
p-value = 0	0,00	0,35	0,07	0,72	0,95	0,03	0,14	1,00	0,26	0,47
p-value < 0	0,00	0,17	0,04	0,36	0,48	0,01	0,07	0,50	0,13	0,24
Portfolio 1-5										
Mean	-0,41%	-0,52%	-0,38%	-0,92%	-0,71%	-0,35%	-0,55%	-0,85%	-0,40%	-0,43%
st. error	0,0024	0,0015	0,0027	0,0017	0,0037	0,0017	0,0029	0,0034	0,0025	0,0024
t-value	-1,74	-3,36	-1,41	-5,31	-1,91	-2,09	-1,92	-2,52	-1,57	-1,77
p-value > 0	0,96	1,00	0,92	1,00	0,97	0,98	0,97	0,99	0,94	0,96
p-value = 0	0,08	0,00	0,16	0,00	0,06	0,04	0,06	0,01	0,12	0,08
p-value < 0	0,04	0,00	0,08	0,00	0,03	0,02	0,03	0,01	0,06	0,04
Portfolio (1+2)-(4+5)										
Mean	-0,59%	-0,50%	-0,62%	-0,73%	-0,65%	-0,52%	-0,82%	-0,51%	-0,56%	-0,55%
st. error	0,0023	0,0013	0,0020	0,0015	0,0027	0,0015	0,0041	0,0025	0,0029	0,0033
t-value	-2,53	-3,87	-3,05	-4,90	-2,42	-3,37	-2,01	-2,04	-1,94	-1,66
p-value > 0	0,99	1,00	1,00	1,00	0,99	1,00	0,98	0,98	0,97	0,95
p-value = 0	0,01	0,00	0,00	0,00	0,02	0,00	0,05	0,04	0,05	0,10
p-value < 0	0,01	0,00	0,00	0,00	0,01	0,00	0,02	0,02	0,03	0,05

Table 10A. Market adjusted returns for portfolios based on sectors with Newey West standard errors, bull market sample

The table shows the market adjusted returns for portfolios based on analyst recommendations and grouped according to sector. The results are based on the bull market sample.

	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil & Gas	Technology	Telecommunications	Utilities
Portfolio 1										
Coef.	0,27%	-0,16%	0,76%	-0,40%	-0,18%	0,15%	-0,35%	-0,10%	-0,21%	-0,32%
NW standard error	0,0023	0,0017	0,0025	0,0012	0,0022	0,0010	0,0022	0,0024	0,0018	0,0018
t-value	1,18	-0,91	3,05	-3,40	-0,83	1,45	-1,55	-0,43	-1,18	-1,78
P-value	0,24	0,37	0,00	0,00	0,41	0,15	0,12	0,67	0,24	0,08
95% lower CI	-0,0018	-0,0049	0,0027	-0,0063	-0,0061	-0,0005	-0,0078	-0,0058	-0,0057	-0,0068
95% higher CI	0,0071	0,0018	0,0126	-0,0017	0,0025	0,0035	0,0009	0,0037	0,0014	0,0004
Portfolio 2										
Coef.	-0,20%	0,11%	0,20%	0,23%	0,05%	0,10%	-0,51%	0,21%	-0,24%	-0,18%
NW standard error	0,0019	0,0014	0,0017	0,0010	0,0017	0,0008	0,0026	0,0013	0,0018	0,0020
t-value	-1,02	0,79	1,19	2,39	0,29	1,24	-1,98	1,56	-1,33	-0,91
P-value	0,31	0,43	0,24	0,02	0,78	0,22	0,05	0,12	0,19	0,36
95% lower CI	-0,0058	-0,0016	-0,0013	0,0004	-0,0028	-0,0006	-0,0102	-0,0005	-0,0060	-0,0057
95% higher CI	0,0018	0,0038	0,0053	0,0042	0,0037	0,0026	0,0000	0,0047	0,0012	0,0021
Portfolio 3										
Coef.	0,41%	0,19%	-0,06%	-0,08%	-0,16%	0,02%	-0,57%	-0,31%	-0,01%	-0,21%
NW standard error	0,0013	0,0011	0,0012	0,0012	0,0024	0,0006	0,0024	0,0019	0,0015	0,0020
t-value	3,15	1,67	-0,46	-0,67	-0,66	0,28	-2,42	-1,58	-0,10	-1,03
P-value	0,00	0,10	0,65	0,51	0,51	0,78	0,02	0,12	0,92	0,31
95% lower CI	0,0015	-0,0003	-0,0030	-0,0032	-0,0064	-0,0010	-0,0104	-0,0069	-0,0030	-0,0060
95% higher CI	0,0066	0,0041	0,0019	0,0016	0,0032	0,0013	-0,0011	0,0008	0,0027	0,0019
Portfolio 4										
Coef.	-0,12%	-0,18%	0,03%	-0,02%	-0,12%	-0,02%	-0,25%	-0,12%	-0,14%	-0,06%
NW standard error	0,0008	0,0008	0,0012	0,0005	0,0016	0,0005	0,0017	0,0015	0,0012	0,0015
t-value	-1,41	-2,15	0,24	-0,45	-0,70	-0,45	-1,50	-0,83	-1,09	-0,41
P-value	0,16	0,03	0,81	0,65	0,48	0,65	0,13	0,41	0,28	0,69
95% lower CI	-0,0029	-0,0035	-0,0020	-0,0011	-0,0044	-0,0012	-0,0058	-0,0042	-0,0038	-0,0035
95% higher CI	0,0005	-0,0002	0,0026	0,0007	0,0021	0,0008	0,0008	0,0017	0,0011	0,0023
Portfolio 5										
Coef.	-0,38%	-0,10%	-0,36%	-0,02%	-0,01%	-0,21%	-0,30%	0,00%	-0,17%	-0,12%
NW standard error	0,0010	0,0012	0,0023	0,0007	0,0026	0,0011	0,0022	0,0021	0,0016	0,0017
t-value	-3,66	-0,90	-1,59	-0,34	-0,06	-1,98	-1,34	0,00	-1,04	-0,68
P-value	0,00	0,37	0,11	0,73	0,96	0,05	0,18	1,00	0,30	0,50
95% lower CI	-0,0059	-0,0033	-0,0081	-0,0017	-0,0052	-0,0042	-0,0074	-0,0042	-0,0049	-0,0046
95% higher CI	-0,0018	0,0012	0,0009	0,0012	0,0049	0,0000	0,0014	0,0042	0,0015	0,0022
Portfolio 1-5										
Coef.	-0,41%	-0,52%	-0,38%	-0,92%	-0,71%	-0,35%	-0,55%	-0,85%	-0,40%	-0,43%
NW standard error	0,0025	0,0017	0,0031	0,0019	0,0042	0,0018	0,0032	0,0038	0,0027	0,0026
t-value	-1,63	-3,07	-1,22	-4,79	-1,67	-1,99	-1,69	-2,23	-1,49	-1,66
P-value	0,11	0,00	0,22	0,00	0,10	0,05	0,09	0,03	0,14	0,10
95% lower CI	-0,0091	-0,0085	-0,0100	-0,0130	-0,0154	-0,0069	-0,0119	-0,0161	-0,0093	-0,0094
95% higher CI	0,0009	-0,0018	0,0023	-0,0054	0,0013	0,0000	0,0009	-0,0010	0,0013	0,0008
Portfolio (1+2)-(4+5)										
Coef.	-0,59%	-0,50%	-0,62%	-0,73%	-0,65%	-0,52%	-0,82%	-0,51%	-0,56%	-0,55%
NW standard error	0,0025	0,0014	0,0023	0,0017	0,0031	0,0017	0,0046	0,0029	0,0031	0,0035
t-value	-2,38	-3,55	-2,67	-4,38	-2,07	-3,09	-1,78	-1,78	-1,81	-1,56
P-value	0,02	0,00	0,01	0,00	0,04	0,00	0,08	0,08	0,07	0,12
95% lower CI	-0,0108	-0,0078	-0,0107	-0,0106	-0,0126	-0,0085	-0,0174	-0,0108	-0,0118	-0,0124
95% higher CI	-0,0010	-0,0022	-0,0016	-0,0040	-0,0003	-0,0019	0,0009	0,0005	0,0005	0,0014

Table 11A. Trading cost and market adjusted returns for portfolios based on sectors, bull market sample

The table shows the trading cost and market adjusted returns for portfolios based on analyst recommendations and grouped according to sector. The results are based on the bull market sample.

	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil & Gas	Technology	Telecommunications	Utilities
Portfolio 1										
Mean	0,20%	-0,25%	0,61%	-0,47%	-0,25%	-0,03%	-0,36%	-0,31%	-0,22%	-0,33%
st. error	0,0020	0,0016	0,0023	0,0011	0,0019	0,0010	0,0019	0,0022	0,0017	0,0017
t-value	1,00	-1,55	2,72	-4,36	-1,29	-0,25	-1,85	-1,41	-1,32	-1,90
p-value > 0	0,16	0,94	0,00	1,00	0,90	0,60	0,97	0,92	0,91	0,97
p-value = 0	0,32	0,12	0,01	0,00	0,20	0,80	0,07	0,16	0,19	0,06
p-value < 0	0,84	0,06	1,00	0,00	0,10	0,40	0,03	0,08	0,09	0,03
Portfolio 2										
Mean	-0,25%	-0,11%	0,00%	0,06%	-0,16%	-0,09%	-0,51%	0,00%	-0,26%	-0,18%
st. error	0,0018	0,0012	0,0016	0,0009	0,0015	0,0007	0,0023	0,0012	0,0017	0,0018
t-value	-1,39	-0,87	-0,03	0,62	-1,06	-1,24	-2,20	-0,01	-1,51	-0,99
p-value > 0	0,92	0,81	0,51	0,27	0,86	0,89	0,99	0,50	0,93	0,84
p-value = 0	0,17	0,39	0,98	0,54	0,29	0,22	0,03	0,99	0,13	0,32
p-value < 0	0,08	0,19	0,49	0,73	0,14	0,11	0,01	0,50	0,07	0,16
Portfolio 3										
Mean	0,11%	0,01%	-0,28%	-0,35%	-0,45%	-0,19%	-0,58%	-0,59%	-0,05%	-0,21%
st. error	0,0012	0,0011	0,0013	0,0011	0,0021	0,0006	0,0022	0,0017	0,0014	0,0019
t-value	0,85	0,08	-2,26	-3,22	-2,11	-3,22	-2,69	-3,41	-0,39	-1,12
p-value > 0	0,20	0,47	0,99	1,00	0,98	1,00	1,00	1,00	0,65	0,87
p-value = 0	0,39	0,94	0,02	0,00	0,04	0,00	0,01	0,00	0,70	0,27
p-value < 0	0,80	0,53	0,01	0,00	0,02	0,00	0,00	0,00	0,35	0,13
Portfolio 4										
Mean	-0,35%	-0,41%	-0,17%	-0,22%	-0,32%	-0,18%	-0,28%	-0,37%	-0,23%	-0,08%
st. error	0,0008	0,0009	0,0010	0,0005	0,0015	0,0005	0,0015	0,0014	0,0012	0,0014
t-value	-4,29	-4,69	-1,66	-4,56	-2,15	-3,90	-1,86	-2,68	-1,87	-0,59
p-value > 0	1,00	1,00	0,95	1,00	0,98	1,00	0,97	1,00	0,97	0,72
p-value = 0	0,00	0,00	0,10	0,00	0,03	0,00	0,06	0,01	0,06	0,56
p-value < 0	0,00	0,00	0,05	0,00	0,02	0,00	0,03	0,00	0,03	0,28
Portfolio 5										
Mean	-0,60%	-0,30%	-0,58%	-0,20%	-0,22%	-0,40%	-0,31%	-0,20%	-0,22%	-0,12%
st. error	0,0010	0,0012	0,0020	0,0007	0,0024	0,0010	0,0020	0,0020	0,0015	0,0016
t-value	-6,02	-2,64	-2,89	-2,86	-0,89	-4,07	-1,51	-1,00	-1,47	-0,74
p-value > 0	1,00	1,00	1,00	1,00	0,81	1,00	0,93	0,84	0,93	0,77
p-value = 0	0,00	0,01	0,00	0,00	0,37	0,00	0,13	0,32	0,14	0,46
p-value < 0	0,00	0,00	0,00	0,00	0,19	0,00	0,07	0,16	0,07	0,23
Portfolio 1-5										
Mean	-0,62%	-0,69%	-0,57%	-1,08%	-0,93%	-0,49%	-0,57%	-1,10%	-0,45%	-0,44%
st. error	0,0024	0,0015	0,0027	0,0017	0,0037	0,0017	0,0029	0,0034	0,0025	0,0024
t-value	-2,59	-4,45	-2,10	-6,20	-2,52	-2,96	-1,99	-3,23	-1,78	-1,80
p-value > 0	0,99	1,00	0,98	1,00	0,99	1,00	0,98	1,00	0,96	0,96
p-value = 0	0,01	0,00	0,04	0,00	0,01	0,00	0,05	0,00	0,08	0,07
p-value < 0	0,01	0,00	0,02	0,00	0,01	0,00	0,02	0,00	0,04	0,04
Portfolio (1+2)-(4+5)										
Mean	-0,97%	-1,08%	-0,86%	-1,00%	-0,98%	-0,71%	-0,91%	-0,82%	-0,81%	-0,58%
st. error	0,0024	0,0014	0,0020	0,0015	0,0027	0,0015	0,0041	0,0025	0,0030	0,0033
t-value	-4,12	-7,61	-4,24	-6,70	-3,63	-4,61	-2,22	-3,23	-2,74	-1,76
p-value > 0	1,00	1,00	1,00	1,00	1,00	1,00	0,99	1,00	1,00	0,96
p-value = 0	0,00	0,00	0,00	0,00	0,00	0,00	0,03	0,00	0,01	0,08
p-value < 0	0,00	0,00	0,00	0,00	0,00	0,00	0,01	0,00	0,00	0,04

Table 12A. Trading cost and market adjusted returns for portfolios based on sectors with Newey West standard errors, bull market sample

The table shows the trading cost and market adjusted returns for portfolios based on analyst recommendations and grouped according to sector. The results are based on the bull market sample.

	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil & Gas	Technology	Telecommunications	Utilities
Portfolio 1										
Coef.	0,20%	-0,25%	0,61%	-0,47%	-0,25%	-0,03%	-0,36%	-0,31%	-0,22%	-0,33%
NW standard error	0,0022	0,0017	0,0025	0,0012	0,0021	0,0010	0,0022	0,0024	0,0018	0,0018
t-value	0,89	-1,48	2,48	-3,97	-1,16	-0,25	-1,62	-1,29	-1,23	-1,81
P-value	0,37	0,14	0,01	0,00	0,25	0,80	0,11	0,20	0,22	0,07
95% lower CI	-0,0024	-0,0059	0,0013	-0,0070	-0,0067	-0,0023	-0,0080	-0,0079	-0,0058	-0,0069
95% higher CI	0,0064	0,0008	0,0110	-0,0024	0,0017	0,0018	0,0008	0,0016	0,0013	0,0003
Portfolio 2										
Coef.	-0,25%	-0,11%	0,00%	0,06%	-0,16%	-0,09%	-0,51%	0,00%	-0,26%	-0,18%
NW standard error	0,0019	0,0014	0,0017	0,0010	0,0016	0,0008	0,0026	0,0014	0,0018	0,0020
t-value	-1,32	-0,78	-0,03	0,56	-0,97	-1,14	-1,98	-0,01	-1,42	-0,92
P-value	0,19	0,43	0,98	0,57	0,33	0,26	0,05	0,99	0,16	0,36
95% lower CI	-0,0063	-0,0038	-0,0033	-0,0014	-0,0048	-0,0025	-0,0103	-0,0027	-0,0062	-0,0057
95% higher CI	0,0013	0,0016	0,0032	0,0025	0,0016	0,0007	0,0000	0,0026	0,0010	0,0021
Portfolio 3										
Coef.	0,11%	0,01%	-0,28%	-0,35%	-0,45%	-0,19%	-0,58%	-0,59%	-0,05%	-0,21%
NW standard error	0,0014	0,0012	0,0013	0,0012	0,0025	0,0006	0,0024	0,0019	0,0014	0,0020
t-value	0,77	0,07	-2,20	-2,94	-1,81	-3,12	-2,46	-3,05	-0,37	-1,03
P-value	0,44	0,94	0,03	0,00	0,07	0,00	0,02	0,00	0,71	0,30
95% lower CI	-0,0016	-0,0022	-0,0054	-0,0059	-0,0094	-0,0031	-0,0105	-0,0097	-0,0034	-0,0060
95% higher CI	0,0038	0,0024	-0,0003	-0,0012	0,0004	-0,0007	-0,0012	-0,0021	0,0023	0,0019
Portfolio 4										
Coef.	-0,35%	-0,41%	-0,17%	-0,22%	-0,32%	-0,18%	-0,28%	-0,37%	-0,23%	-0,08%
NW standard error	0,0009	0,0009	0,0012	0,0005	0,0016	0,0005	0,0017	0,0015	0,0013	0,0015
t-value	-3,97	-4,50	-1,45	-4,46	-1,95	-3,58	-1,69	-2,47	-1,80	-0,55
P-value	0,00	0,00	0,15	0,00	0,05	0,00	0,09	0,01	0,07	0,58
95% lower CI	-0,0052	-0,0059	-0,0040	-0,0032	-0,0064	-0,0028	-0,0061	-0,0066	-0,0047	-0,0037
95% higher CI	-0,0018	-0,0023	0,0006	-0,0012	0,0000	-0,0008	0,0005	-0,0007	0,0002	0,0021
Portfolio 5										
Coef.	-0,60%	-0,30%	-0,58%	-0,20%	-0,22%	-0,40%	-0,31%	-0,20%	-0,22%	-0,12%
NW standard error	0,0011	0,0012	0,0023	0,0007	0,0026	0,0011	0,0022	0,0021	0,0016	0,0017
t-value	-5,59	-2,52	-2,55	-2,74	-0,84	-3,66	-1,37	-0,94	-1,35	-0,70
P-value	0,00	0,01	0,01	0,01	0,40	0,00	0,17	0,35	0,18	0,48
95% lower CI	-0,0081	-0,0054	-0,0103	-0,0035	-0,0072	-0,0062	-0,0075	-0,0061	-0,0054	-0,0046
95% higher CI	-0,0039	-0,0007	-0,0013	-0,0006	0,0029	-0,0019	0,0013	0,0022	0,0010	0,0022
Portfolio 1-5										
Coef.	-0,62%	-0,69%	-0,57%	-1,08%	-0,93%	-0,49%	-0,57%	-1,10%	-0,45%	-0,44%
NW standard error	0,0025	0,0017	0,0031	0,0019	0,0042	0,0018	0,0032	0,0038	0,0027	0,0026
t-value	-2,44	-4,05	-1,82	-5,61	-2,20	-2,82	-1,76	-2,86	-1,69	-1,68
P-value	0,02	0,00	0,07	0,00	0,03	0,01	0,08	0,01	0,09	0,09
95% lower CI	-0,0112	-0,0102	-0,0119	-0,0146	-0,0176	-0,0084	-0,0121	-0,0185	-0,0098	-0,0095
95% higher CI	-0,0012	-0,0035	0,0005	-0,0070	-0,0010	-0,0015	0,0007	-0,0034	0,0007	0,0007
Portfolio (1+2)-(4+5)										
Coef.	-0,97%	-1,08%	-0,86%	-1,00%	-0,98%	-0,71%	-0,91%	-0,82%	-0,81%	-0,58%
NW standard error	0,0025	0,0016	0,0023	0,0017	0,0031	0,0017	0,0046	0,0029	0,0031	0,0035
t-value	-3,92	-6,87	-3,71	-6,01	-3,11	-4,26	-1,96	-2,83	-2,58	-1,65
P-value	0,00	0,00	0,00	0,00	0,00	0,00	0,05	0,01	0,01	0,10
95% lower CI	-0,0146	-0,0138	-0,0132	-0,0132	-0,0159	-0,0104	-0,0182	-0,0139	-0,0143	-0,0128
95% higher CI	-0,0048	-0,0077	-0,0040	-0,0067	-0,0036	-0,0038	0,0000	-0,0025	-0,0019	0,0011

Table 13A. Raw returns for portfolios based on sectors, bear market sample

The table shows raw returns for portfolios based on analyst recommendations and grouped according to sector. The results are based on the bear market sample.

	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil & Gas	Technology	Telecommunications	Utilities
Portfolio 1										
Mean	-0,37%	-0,06%	-0,83%	-0,42%	-0,78%	-0,26%	-0,41%	-1,23%	-0,61%	-0,02%
st. error	0,0022	0,0024	0,0037	0,0033	0,0041	0,0027	0,0031	0,0045	0,0049	0,0004
t-value	-1,70	-0,26	-2,26	-1,26	-1,89	-0,96	-1,32	-2,74	-1,26	-0,59
p-value > 0	0,95	0,60	0,99	0,90	0,97	0,83	0,91	1,00	0,89	0,72
p-value = 0	0,09	0,80	0,02	0,21	0,06	0,34	0,19	0,01	0,21	0,55
p-value < 0	0,05	0,40	0,01	0,10	0,03	0,17	0,09	0,00	0,11	0,28
Portfolio 2										
Mean	-0,81%	-0,24%	-0,44%	-0,34%	-0,20%	-0,44%	-0,29%	-0,98%	-0,08%	0,10%
st. error	0,0026	0,0024	0,0027	0,0025	0,0037	0,0022	0,0024	0,0039	0,0021	0,0008
t-value	-3,08	-1,04	-1,65	-1,37	-0,54	-2,03	-1,19	-2,49	-0,38	1,26
p-value > 0	1,00	0,85	0,95	0,91	0,70	0,98	0,88	0,99	0,65	0,10
p-value = 0	0,00	0,30	0,10	0,17	0,59	0,04	0,24	0,01	0,70	0,21
p-value < 0	0,00	0,15	0,05	0,09	0,30	0,02	0,12	0,01	0,35	0,90
Portfolio 3										
Mean	-0,68%	-0,26%	-0,91%	-0,28%	-0,45%	-0,56%	-0,11%	-0,80%	-0,33%	-0,25%
st. error	0,0025	0,0024	0,0030	0,0021	0,0031	0,0022	0,0008	0,0042	0,0032	0,0010
t-value	-2,70	-1,07	-3,06	-1,37	-1,45	-2,49	-1,43	-1,90	-1,05	-2,57
p-value > 0	1,00	0,86	1,00	0,91	0,93	0,99	0,92	0,97	0,85	0,99
p-value = 0	0,01	0,29	0,00	0,17	0,15	0,01	0,15	0,06	0,30	0,01
p-value < 0	0,00	0,14	0,00	0,09	0,07	0,01	0,08	0,03	0,15	0,01
Portfolio 4										
Mean	-0,22%	-0,22%	-0,78%	-0,55%	-0,66%	-0,57%	0,00%	-1,32%	-0,22%	-0,02%
st. error	0,0023	0,0024	0,0026	0,0021	0,0037	0,0021	0,0000	0,0047	0,0025	0,0002
t-value	-0,96	-0,92	-3,01	-2,62	-1,78	-2,71	.	-2,81	-0,89	-1,00
p-value > 0	0,83	0,82	1,00	1,00	0,96	1,00	.	1,00	0,81	0,84
p-value = 0	0,34	0,36	0,00	0,01	0,08	0,01	.	0,01	0,38	0,32
p-value < 0	0,17	0,18	0,00	0,00	0,04	0,00	.	0,00	0,19	0,16
Portfolio 5										
Mean	-0,70%	-1,24%	-1,27%	-0,24%	-0,50%	-0,68%	0,00%	-1,45%	-0,09%	-0,33%
st. error	0,0030	0,0035	0,0039	0,0022	0,0034	0,0026	0,0000	0,0037	0,0012	0,0015
t-value	-2,36	-3,57	-3,28	-1,09	-1,47	-2,62	.	-3,95	-0,73	-2,22
p-value > 0	0,99	1,00	1,00	0,86	0,93	1,00	.	1,00	0,77	0,99
p-value = 0	0,02	0,00	0,00	0,28	0,14	0,01	.	0,00	0,47	0,03
p-value < 0	0,01	0,00	0,00	0,14	0,07	0,00	.	0,00	0,23	0,01
Portfolio 1-5										
Mean	0,47%	0,59%	0,63%	-0,02%	-0,26%	0,10%	-0,41%	0,42%	-0,51%	0,31%
st. error	0,0027	0,0024	0,0025	0,0021	0,0029	0,0016	0,0031	0,0033	0,0050	0,0015
t-value	1,74	2,46	2,56	-0,12	-0,89	0,63	-1,32	1,28	-1,03	2,02
p-value > 0	0,04	0,01	0,01	0,55	0,81	0,27	0,91	0,10	0,85	0,02
p-value = 0	0,08	0,01	0,01	0,91	0,37	0,53	0,19	0,20	0,31	0,04
p-value < 0	0,96	0,99	0,99	0,45	0,19	0,73	0,09	0,90	0,15	0,98
Portfolio (1+2)-(4+5)										
Mean	0,08%	0,24%	0,42%	0,23%	0,26%	0,15%	-0,43%	0,42%	0,05%	0,43%
st. error	0,0016	0,0011	0,0014	0,0012	0,0018	0,0008	0,0028	0,0022	0,0035	0,0017
t-value	0,51	2,20	2,99	1,94	1,41	1,89	-1,54	1,90	0,13	2,48
p-value > 0	0,31	0,01	0,00	0,03	0,08	0,03	0,94	0,03	0,45	0,01
p-value = 0	0,61	0,03	0,00	0,05	0,16	0,06	0,13	0,06	0,90	0,01
p-value < 0	0,69	0,99	1,00	0,97	0,92	0,97	0,06	0,97	0,55	0,99

Table 14A. Raw returns for portfolios based on sectors with Newey West standard errors, bear market sample

The table shows raw returns for portfolios based on analyst recommendations and grouped according to sector. The results are based on the bear market sample.

	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil & Gas	Technology	Telecommunications	Utilities
Portfolio 1										
Coef.	-0,37%	-0,06%	-0,83%	-0,42%	-0,78%	-0,26%	-0,41%	-1,23%	-0,61%	-0,02%
NW standard error	0,0022	0,0026	0,0041	0,0035	0,0047	0,0029	0,0035	0,0048	0,0050	0,0004
t-value	-1,73	-0,24	-2,04	-1,19	-1,67	-0,90	-1,16	-2,56	-1,23	-0,61
P-value	0,09	0,81	0,04	0,23	0,10	0,37	0,25	0,01	0,22	0,55
95% lower CI	-0,0080	-0,0057	-0,0163	-0,0110	-0,0170	-0,0082	-0,0111	-0,0217	-0,0159	-0,0009
95% higher CI	0,0005	0,0045	-0,0003	0,0027	0,0014	0,0031	0,0029	-0,0028	0,0037	0,0005
Portfolio 2										
Coef.	-0,81%	-0,24%	-0,44%	-0,34%	-0,20%	-0,44%	-0,29%	-0,98%	-0,08%	0,10%
NW standard error	0,0029	0,0025	0,0029	0,0026	0,0041	0,0024	0,0027	0,0045	0,0022	0,0009
t-value	-2,84	-0,97	-1,54	-1,31	-0,48	-1,81	-1,06	-2,17	-0,35	1,16
P-value	0,01	0,33	0,13	0,19	0,63	0,07	0,29	0,03	0,73	0,25
95% lower CI	-0,0138	-0,0074	-0,0100	-0,0085	-0,0100	-0,0092	-0,0083	-0,0187	-0,0052	-0,0007
95% higher CI	-0,0025	0,0025	0,0012	0,0017	0,0061	0,0004	0,0025	-0,0009	0,0036	0,0028
Portfolio 3										
Coef.	-0,68%	-0,26%	-0,91%	-0,28%	-0,45%	-0,56%	-0,11%	-0,80%	-0,33%	-0,25%
NW standard error	0,0028	0,0027	0,0033	0,0023	0,0034	0,0024	0,0009	0,0046	0,0035	0,0011
t-value	-2,42	-0,97	-2,73	-1,24	-1,33	-2,30	-1,23	-1,73	-0,94	-2,16
P-value	0,02	0,33	0,01	0,22	0,19	0,02	0,22	0,09	0,35	0,03
95% lower CI	-0,0123	-0,0079	-0,0157	-0,0073	-0,0111	-0,0104	-0,0030	-0,0172	-0,0102	-0,0047
95% higher CI	-0,0013	0,0027	-0,0025	0,0017	0,0022	-0,0008	0,0007	0,0011	0,0036	-0,0002
Portfolio 4										
Coef.	-0,22%	-0,22%	-0,78%	-0,55%	-0,66%	-0,57%	(dropped)	-1,32%	-0,22%	-0,02%
NW standard error	0,0026	0,0026	0,0028	0,0023	0,0044	0,0023		0,0053	0,0026	0,0002
t-value	-0,84	-0,87	-2,83	-2,42	-1,50	-2,47		-2,51	-0,85	-1,00
P-value	0,40	0,39	0,01	0,02	0,14	0,01		0,01	0,40	0,32
95% lower CI	-0,0073	-0,0073	-0,0133	-0,0099	-0,0154	-0,0102		-0,0236	-0,0073	-0,0005
95% higher CI	0,0029	0,0028	-0,0024	-0,0010	0,0021	-0,0011		-0,0028	0,0029	0,0002
Portfolio 5										
Coef.	-0,70%	-1,24%	-1,27%	-0,24%	-0,50%	-0,68%	(dropped)	-1,45%	-0,09%	-0,33%
NW standard error	0,0033	0,0037	0,0044	0,0023	0,0038	0,0028		0,0042	0,0014	0,0017
t-value	-2,14	-3,33	-2,92	-1,06	-1,31	-2,43		-3,46	-0,66	-1,91
P-value	0,03	0,00	0,00	0,29	0,19	0,02		0,00	0,51	0,06
95% lower CI	-0,0135	-0,0197	-0,0213	-0,0068	-0,0125	-0,0124		-0,0228	-0,0036	-0,0067
95% higher CI	-0,0005	-0,0050	-0,0041	0,0021	0,0025	-0,0013		-0,0062	0,0018	0,0001
Portfolio 1-5										
Coef.	0,47%	0,59%	0,63%	-0,02%	-0,26%	0,10%	-0,41%	0,42%	-0,51%	0,31%
NW standard error	0,0030	0,0026	0,0028	0,0021	0,0030	0,0017	0,0035	0,0036	0,0051	0,0018
t-value	1,56	2,28	2,23	-0,12	-0,86	0,59	-1,16	1,18	-1,00	1,75
P-value	0,12	0,02	0,03	0,91	0,39	0,56	0,25	0,24	0,32	0,08
95% lower CI	-0,0012	0,0008	0,0007	-0,0044	-0,0085	-0,0024	-0,0111	-0,0029	-0,0152	-0,0004
95% higher CI	0,0106	0,0109	0,0119	0,0039	0,0034	0,0044	0,0029	0,0113	0,0049	0,0066
Portfolio (1+2)-(4+5)										
Coef.	0,08%	0,24%	0,42%	0,23%	0,26%	0,15%	-0,43%	0,42%	0,05%	0,43%
NW standard error	0,0018	0,0011	0,0016	0,0013	0,0021	0,0009	0,0031	0,0025	0,0038	0,0020
t-value	0,46	2,18	2,62	1,81	1,22	1,67	-1,37	1,68	0,12	2,15
P-value	0,64	0,03	0,01	0,07	0,22	0,10	0,17	0,10	0,90	0,03
95% lower CI	-0,0027	0,0002	0,0010	-0,0002	-0,0016	-0,0003	-0,0105	-0,0007	-0,0069	0,0004
95% higher CI	0,0043	0,0047	0,0074	0,0047	0,0067	0,0033	0,0019	0,0090	0,0079	0,0082

Table 15A. Market adjusted returns for portfolios based on sectors, bear market sample

The table shows market adjusted returns for portfolios based on analyst recommendations and grouped according to sector. The results are based on the bear market sample.

	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil & Gas	Technology	Telecommunications	Utilities
Portfolio 1										
Mean	0,26%	0,28%	0,07%	0,03%	-0,25%	0,21%	0,02%	-0,06%	-0,04%	0,49%
st. error	0,0024	0,0020	0,0029	0,0026	0,0030	0,0019	0,0017	0,0027	0,0039	0,0020
t-value	1,08	1,43	0,24	0,12	-0,84	1,09	0,10	-0,22	-0,11	2,53
p-value > 0	0,14	0,08	0,40	0,45	0,80	0,14	0,46	0,59	0,55	0,01
p-value = 0	0,28	0,15	0,81	0,90	0,40	0,28	0,92	0,83	0,91	0,01
p-value < 0	0,86	0,92	0,60	0,55	0,20	0,86	0,54	0,41	0,45	0,99
Portfolio 2										
Mean	-0,18%	0,10%	0,46%	0,11%	0,33%	0,03%	0,14%	0,19%	0,49%	0,62%
st. error	0,0018	0,0016	0,0019	0,0015	0,0028	0,0009	0,0017	0,0023	0,0036	0,0018
t-value	-1,02	0,64	2,48	0,76	1,20	0,33	0,80	0,82	1,35	3,45
p-value > 0	0,84	0,26	0,01	0,22	0,12	0,37	0,21	0,21	0,09	0,00
p-value = 0	0,31	0,52	0,01	0,45	0,23	0,74	0,42	0,41	0,18	0,00
p-value < 0	0,16	0,74	0,99	0,78	0,88	0,63	0,79	0,79	0,91	1,00
Portfolio 3										
Mean	-0,05%	0,09%	-0,01%	0,17%	0,08%	-0,09%	0,31%	0,37%	0,24%	0,27%
st. error	0,0016	0,0017	0,0024	0,0012	0,0023	0,0009	0,0026	0,0026	0,0027	0,0017
t-value	-0,31	0,50	-0,06	1,36	0,36	-1,04	1,20	1,41	0,87	1,53
p-value > 0	0,62	0,31	0,52	0,09	0,36	0,85	0,12	0,08	0,19	0,06
p-value = 0	0,76	0,62	0,95	0,18	0,72	0,30	0,23	0,16	0,38	0,13
p-value < 0	0,38	0,69	0,48	0,91	0,64	0,15	0,88	0,92	0,81	0,94
Portfolio 4										
Mean	0,41%	0,12%	0,12%	-0,10%	-0,13%	-0,10%	0,43%	-0,15%	0,35%	0,50%
st. error	0,0016	0,0017	0,0018	0,0009	0,0025	0,0007	0,0027	0,0027	0,0033	0,0020
t-value	2,66	0,74	0,63	-1,06	-0,53	-1,34	1,56	-0,57	1,07	2,52
p-value > 0	0,00	0,23	0,27	0,85	0,70	0,91	0,06	0,72	0,14	0,01
p-value = 0	0,01	0,46	0,53	0,29	0,60	0,18	0,12	0,57	0,29	0,01
p-value < 0	1,00	0,77	0,73	0,15	0,30	0,09	0,94	0,28	0,86	0,99
Portfolio 5										
Mean	-0,07%	-0,89%	-0,37%	0,21%	0,03%	-0,21%	0,43%	-0,28%	0,48%	0,18%
st. error	0,0020	0,0030	0,0027	0,0014	0,0026	0,0019	0,0027	0,0021	0,0036	0,0013
t-value	-0,34	-2,98	-1,40	1,46	0,11	-1,13	1,56	-1,32	1,32	1,39
p-value > 0	0,63	1,00	0,92	0,07	0,46	0,87	0,06	0,91	0,09	0,08
p-value = 0	0,73	0,00	0,16	0,15	0,91	0,26	0,12	0,19	0,19	0,17
p-value < 0	0,37	0,00	0,08	0,93	0,54	0,13	0,94	0,09	0,91	0,92
Portfolio 1-5										
Mean	1,10%	0,93%	1,53%	0,42%	0,27%	0,57%	0,02%	1,59%	0,06%	0,82%
st. error	0,0044	0,0031	0,0039	0,0032	0,0040	0,0027	0,0017	0,0054	0,0043	0,0032
t-value	2,50	3,05	3,89	1,32	0,68	2,10	0,10	2,95	0,13	2,56
p-value > 0	0,01	0,00	0,00	0,09	0,25	0,02	0,46	0,00	0,45	0,01
p-value = 0	0,01	0,00	0,00	0,19	0,50	0,04	0,92	0,00	0,89	0,01
p-value < 0	0,99	1,00	1,00	0,91	0,75	0,98	0,54	1,00	0,55	0,99
Portfolio (1+2)-(4+5)										
Mean	0,71%	0,59%	1,32%	0,68%	0,79%	0,62%	0,00%	1,59%	0,61%	0,94%
st. error	0,0034	0,0021	0,0031	0,0028	0,0035	0,0024	0,0003	0,0049	0,0049	0,0031
t-value	2,11	2,81	4,32	2,45	2,24	2,58	-0,07	3,21	1,27	3,03
p-value > 0	0,02	0,00	0,00	0,01	0,01	0,01	0,53	0,00	0,10	0,00
p-value = 0	0,04	0,01	0,00	0,02	0,03	0,01	0,94	0,00	0,21	0,00
p-value < 0	0,98	1,00	1,00	0,99	0,99	0,99	0,47	1,00	0,90	1,00

Table 16A. Market adjusted returns for portfolios based on sectors with Newey West standard errors, bear market sample

The table shows market adjusted returns for portfolios based on analyst recommendations and grouped according to sector. The results are based on the bear market sample.

	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil & Gas	Technology	Telecommunications	Utilities
Portfolio 1										
Coef.	0,26%	0,28%	0,07%	0,03%	-0,25%	0,21%	0,02%	-0,06%	-0,04%	0,49%
NW standard error	0,0026	0,0021	0,0032	0,0027	0,0032	0,0020	0,0018	0,0029	0,0041	0,0023
t-value	1,00	1,36	0,22	0,12	-0,77	1,05	0,09	-0,20	-0,11	2,19
P-value	0,32	0,18	0,83	0,91	0,44	0,30	0,93	0,84	0,91	0,03
95% lower CI	-0,0025	-0,0013	-0,0057	-0,0049	-0,0088	-0,0019	-0,0033	-0,0062	-0,0085	0,0005
95% higher CI	0,0076	0,0069	0,0071	0,0056	0,0039	0,0060	0,0036	0,0051	0,0076	0,0094
Portfolio 2										
Coef.	-0,18%	0,10%	0,46%	0,11%	0,33%	0,03%	0,14%	0,19%	0,49%	0,62%
NW standard error	0,0020	0,0017	0,0021	0,0016	0,0032	0,0010	0,0016	0,0026	0,0038	0,0021
t-value	-0,93	0,59	2,22	0,70	1,05	0,30	0,85	0,73	1,28	2,96
P-value	0,35	0,56	0,03	0,48	0,29	0,76	0,40	0,47	0,20	0,00
95% lower CI	-0,0058	-0,0024	0,0005	-0,0020	-0,0029	-0,0016	-0,0018	-0,0033	-0,0026	0,0021
95% higher CI	0,0021	0,0044	0,0087	0,0042	0,0096	0,0022	0,0045	0,0071	0,0124	0,0103
Portfolio 3										
Coef.	-0,05%	0,09%	-0,01%	0,17%	0,08%	-0,09%	0,31%	0,37%	0,24%	0,27%
NW standard error	0,0018	0,0017	0,0026	0,0014	0,0025	0,0009	0,0030	0,0028	0,0029	0,0020
t-value	-0,27	0,49	-0,05	1,22	0,33	-0,99	1,06	1,29	0,82	1,32
P-value	0,79	0,62	0,96	0,22	0,74	0,32	0,29	0,20	0,41	0,19
95% lower CI	-0,0040	-0,0026	-0,0053	-0,0010	-0,0042	-0,0027	-0,0027	-0,0019	-0,0033	-0,0013
95% higher CI	0,0030	0,0043	0,0051	0,0043	0,0058	0,0009	0,0090	0,0093	0,0081	0,0066
Portfolio 4										
Coef.	0,41%	0,12%	0,12%	-0,10%	-0,13%	-0,10%	0,43%	-0,15%	0,35%	0,50%
NW standard error	0,0017	0,0017	0,0020	0,0010	0,0028	0,0008	0,0031	0,0029	0,0035	0,0023
t-value	2,49	0,70	0,57	-0,97	-0,47	-1,25	1,38	-0,53	1,01	2,17
P-value	0,01	0,48	0,57	0,33	0,64	0,21	0,17	0,59	0,31	0,03
95% lower CI	0,0009	-0,0022	-0,0028	-0,0030	-0,0070	-0,0026	-0,0018	-0,0072	-0,0033	0,0005
95% higher CI	0,0074	0,0047	0,0051	0,0010	0,0043	0,0006	0,0104	0,0041	0,0103	0,0095
Portfolio 5										
Coef.	-0,07%	-0,89%	-0,37%	0,21%	0,03%	-0,21%	0,43%	-0,28%	0,48%	0,18%
NW standard error	0,0023	0,0032	0,0028	0,0016	0,0027	0,0020	0,0031	0,0022	0,0038	0,0015
t-value	-0,31	-2,79	-1,32	1,35	0,11	-1,06	1,38	-1,31	1,25	1,19
P-value	0,76	0,01	0,19	0,18	0,92	0,29	0,17	0,19	0,21	0,23
95% lower CI	-0,0051	-0,0152	-0,0093	-0,0010	-0,0050	-0,0061	-0,0018	-0,0071	-0,0028	-0,0012
95% higher CI	0,0037	-0,0026	0,0018	0,0052	0,0056	0,0018	0,0104	0,0014	0,0124	0,0049
Portfolio 1-5										
Coef.	1,10%	0,93%	1,53%	0,42%	0,27%	0,57%	0,02%	1,59%	0,06%	0,82%
NW standard error	0,0049	0,0033	0,0046	0,0033	0,0045	0,0030	0,0018	0,0063	0,0046	0,0037
t-value	2,22	2,81	3,34	1,29	0,60	1,91	0,09	2,52	0,13	2,20
P-value	0,03	0,01	0,00	0,20	0,55	0,06	0,93	0,01	0,90	0,03
95% lower CI	0,0013	0,0028	0,0063	-0,0022	-0,0062	-0,0002	-0,0033	0,0035	-0,0085	0,0009
95% higher CI	0,0207	0,0159	0,0244	0,0107	0,0117	0,0116	0,0036	0,0284	0,0097	0,0156
Portfolio (1+2)-(4+5)										
Coef.	0,71%	0,59%	1,32%	0,68%	0,79%	0,62%	0,00%	1,59%	0,61%	0,94%
NW standard error	0,0038	0,0023	0,0035	0,0029	0,0041	0,0027	0,0003	0,0058	0,0053	0,0036
t-value	1,87	2,59	3,72	2,31	1,90	2,33	-0,07	2,75	1,16	2,60
P-value	0,06	0,01	0,00	0,02	0,06	0,02	0,94	0,01	0,25	0,01
95% lower CI	-0,0004	0,0014	0,0062	0,0010	-0,0003	0,0010	-0,0007	0,0045	-0,0043	0,0023
95% higher CI	0,0146	0,0104	0,0202	0,0125	0,0160	0,0115	0,0006	0,0272	0,0166	0,0166

Table 17A. Trading cost and market adjusted returns for portfolios based on sectors, bear market sample

The table shows trading cost and market adjusted returns for portfolios based on analyst recommendations and grouped according to sector. The results are based on the bear market sample.

	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil & Gas	Technology	Telecommunications	Utilities
Portfolio 1										
Mean	0,22%	0,14%	-0,09%	-0,11%	-0,43%	0,00%	-0,03%	-0,27%	-0,10%	0,49%
st. error	0,0024	0,0020	0,0029	0,0026	0,0030	0,0019	0,0017	0,0027	0,0039	0,0020
t-value	0,93	0,70	-0,31	-0,44	-1,44	0,00	-0,18	-1,02	-0,26	2,52
p-value > 0	0,18	0,24	0,62	0,67	0,92	0,50	0,57	0,85	0,60	0,01
p-value = 0	0,36	0,49	0,76	0,66	0,15	1,00	0,86	0,31	0,79	0,01
p-value < 0	0,82	0,76	0,38	0,33	0,08	0,50	0,43	0,15	0,40	0,99
Portfolio 2										
Mean	-0,35%	-0,12%	0,20%	-0,11%	0,13%	-0,15%	0,08%	-0,06%	0,45%	0,61%
st. error	0,0019	0,0016	0,0019	0,0015	0,0028	0,0009	0,0017	0,0024	0,0036	0,0018
t-value	-1,88	-0,77	1,07	-0,74	0,45	-1,66	0,45	-0,25	1,25	3,42
p-value > 0	0,97	0,78	0,14	0,77	0,33	0,95	0,33	0,60	0,11	0,00
p-value = 0	0,06	0,44	0,29	0,46	0,65	0,10	0,65	0,81	0,21	0,00
p-value < 0	0,03	0,22	0,86	0,23	0,67	0,05	0,67	0,40	0,89	1,00
Portfolio 3										
Mean	-0,31%	-0,12%	-0,31%	-0,08%	-0,12%	-0,28%	0,31%	0,08%	0,08%	0,26%
st. error	0,0016	0,0017	0,0024	0,0012	0,0023	0,0009	0,0026	0,0026	0,0028	0,0017
t-value	-1,92	-0,71	-1,31	-0,67	-0,50	-3,17	1,17	0,31	0,30	1,47
p-value > 0	0,97	0,76	0,90	0,75	0,69	1,00	0,12	0,38	0,38	0,07
p-value = 0	0,06	0,48	0,19	0,50	0,62	0,00	0,24	0,75	0,77	0,14
p-value < 0	0,03	0,24	0,10	0,25	0,31	0,00	0,88	0,62	0,62	0,93
Portfolio 4										
Mean	0,22%	-0,12%	-0,18%	-0,29%	-0,41%	-0,28%	0,43%	-0,48%	0,24%	0,50%
st. error	0,0016	0,0017	0,0019	0,0009	0,0025	0,0008	0,0027	0,0027	0,0033	0,0020
t-value	1,41	-0,68	-0,96	-3,05	-1,61	-3,67	1,56	-1,78	0,74	2,52
p-value > 0	0,08	0,75	0,83	1,00	0,95	1,00	0,06	0,96	0,23	0,01
p-value = 0	0,16	0,50	0,34	0,00	0,11	0,00	0,12	0,08	0,46	0,01
p-value < 0	0,92	0,25	0,17	0,00	0,05	0,00	0,94	0,04	0,77	0,99
Portfolio 5										
Mean	-0,21%	-1,20%	-0,61%	-0,01%	-0,13%	-0,43%	0,43%	-0,52%	0,46%	0,17%
st. error	0,0020	0,0030	0,0026	0,0014	0,0026	0,0019	0,0027	0,0021	0,0036	0,0013
t-value	-1,03	-3,94	-2,34	-0,05	-0,49	-2,25	1,56	-2,42	1,28	1,30
p-value > 0	0,85	1,00	0,99	0,52	0,69	0,99	0,06	0,99	0,10	0,10
p-value = 0	0,31	0,00	0,02	0,96	0,62	0,03	0,12	0,02	0,20	0,20
p-value < 0	0,15	0,00	0,01	0,48	0,31	0,01	0,94	0,01	0,90	0,90
Portfolio 1-5										
Mean	0,96%	0,69%	1,32%	0,22%	0,02%	0,38%	-0,03%	1,38%	-0,02%	0,81%
st. error	0,0044	0,0031	0,0039	0,0032	0,0040	0,0027	0,0017	0,0054	0,0044	0,0032
t-value	2,19	2,24	3,36	0,67	0,06	1,40	-0,18	2,56	-0,05	2,53
p-value > 0	0,01	0,01	0,00	0,25	0,48	0,08	0,57	0,01	0,52	0,01
p-value = 0	0,03	0,03	0,00	0,51	0,95	0,16	0,86	0,01	0,96	0,01
p-value < 0	0,99	0,99	1,00	0,75	0,52	0,92	0,43	0,99	0,48	0,99
Portfolio (1+2)-(4+5)										
Mean	0,15%	0,01%	1,05%	0,33%	0,45%	0,37%	-0,07%	1,27%	0,12%	0,92%
st. error	0,0036	0,0022	0,0031	0,0028	0,0035	0,0024	0,0004	0,0049	0,0049	0,0031
t-value	0,42	0,06	3,45	1,20	1,28	1,55	-1,81	2,57	0,24	2,99
p-value > 0	0,34	0,48	0,00	0,12	0,10	0,06	0,96	0,01	0,40	0,00
p-value = 0	0,67	0,95	0,00	0,23	0,20	0,12	0,07	0,01	0,81	0,00
p-value < 0	0,66	0,52	1,00	0,88	0,90	0,94	0,04	0,99	0,60	1,00

Table 18A. Trading cost and market adjusted returns for portfolios based on sectors with Newey West standard errors, bear market sample

The table shows trading cost and market adjusted returns for portfolios based on analyst recommendations and grouped according to sector. The results are based on the bear market sample.

	Basic Materials	Consumer Goods	Consumer Services	Financials	Health Care	Industrials	Oil & Gas	Technology	Telecommunications	Utilities
Portfolio 1										
Coef.	0,22%	0,14%	-0,09%	-0,11%	-0,43%	0,00%	-0,03%	-0,27%	-0,10%	0,49%
NW standard error	0,0026	0,0021	0,0033	0,0027	0,0032	0,0020	0,0018	0,0029	0,0041	0,0023
t-value	0,86	0,67	-0,28	-0,42	-1,32	0,00	-0,17	-0,94	-0,25	2,17
P-value	0,39	0,51	0,78	0,67	0,19	1,00	0,87	0,35	0,80	0,03
95% lower CI	-0,0029	-0,0027	-0,0073	-0,0064	-0,0106	-0,0040	-0,0038	-0,0084	-0,0091	0,0005
95% higher CI	0,0072	0,0055	0,0055	0,0042	0,0021	0,0040	0,0032	0,0030	0,0070	0,0094
Portfolio 2										
Coef.	-0,35%	-0,12%	0,20%	-0,11%	0,13%	-0,15%	0,08%	-0,06%	0,45%	0,61%
NW standard error	0,0020	0,0017	0,0021	0,0016	0,0032	0,0010	0,0016	0,0027	0,0038	0,0021
t-value	-1,72	-0,71	0,95	-0,68	0,40	-1,50	0,48	-0,22	1,19	2,94
P-value	0,09	0,48	0,34	0,50	0,69	0,13	0,63	0,83	0,24	0,00
95% lower CI	-0,0075	-0,0046	-0,0021	-0,0043	-0,0050	-0,0035	-0,0024	-0,0058	-0,0030	0,0020
95% higher CI	0,0005	0,0022	0,0061	0,0021	0,0075	0,0005	0,0039	0,0047	0,0120	0,0102
Portfolio 3										
Coef.	-0,31%	-0,12%	-0,31%	-0,08%	-0,12%	-0,28%	0,31%	0,08%	0,08%	0,26%
NW standard error	0,0018	0,0017	0,0026	0,0014	0,0025	0,0009	0,0030	0,0029	0,0029	0,0020
t-value	-1,69	-0,71	-1,19	-0,61	-0,46	-3,00	1,03	0,28	0,28	1,27
P-value	0,09	0,48	0,24	0,54	0,65	0,00	0,30	0,78	0,78	0,21
95% lower CI	-0,0066	-0,0047	-0,0083	-0,0035	-0,0062	-0,0046	-0,0028	-0,0049	-0,0050	-0,0014
95% higher CI	0,0005	0,0022	0,0021	0,0019	0,0038	-0,0009	0,0089	0,0065	0,0066	0,0065
Portfolio 4										
Coef.	0,22%	-0,12%	-0,18%	-0,29%	-0,41%	-0,28%	0,43%	-0,48%	0,24%	0,50%
NW standard error	0,0017	0,0018	0,0021	0,0011	0,0028	0,0008	0,0031	0,0029	0,0035	0,0023
t-value	1,32	-0,65	-0,87	-2,74	-1,43	-3,42	1,38	-1,64	0,70	2,17
P-value	0,19	0,52	0,39	0,01	0,15	0,00	0,17	0,10	0,49	0,03
95% lower CI	-0,0011	-0,0047	-0,0059	-0,0050	-0,0097	-0,0044	-0,0018	-0,0106	-0,0044	0,0005
95% higher CI	0,0056	0,0024	0,0023	-0,0008	0,0015	-0,0012	0,0104	0,0010	0,0092	0,0095
Portfolio 5										
Coef.	-0,21%	-1,20%	-0,61%	-0,01%	-0,13%	-0,43%	0,43%	-0,52%	0,46%	0,17%
NW standard error	0,0023	0,0032	0,0028	0,0015	0,0027	0,0020	0,0031	0,0021	0,0038	0,0015
t-value	-0,93	-3,69	-2,20	-0,05	-0,47	-2,10	1,38	-2,42	1,21	1,12
P-value	0,35	0,00	0,03	0,96	0,64	0,04	0,17	0,02	0,23	0,26
95% lower CI	-0,0065	-0,0184	-0,0117	-0,0031	-0,0066	-0,0083	-0,0018	-0,0094	-0,0029	-0,0013
95% higher CI	0,0023	-0,0056	-0,0006	0,0030	0,0041	-0,0003	0,0104	-0,0010	0,0122	0,0048
Portfolio 1-5										
Coef.	0,96%	0,69%	1,32%	0,22%	0,02%	0,38%	-0,03%	1,38%	-0,02%	0,81%
NW standard error	0,0049	0,0033	0,0046	0,0033	0,0045	0,0030	0,0018	0,0063	0,0046	0,0037
t-value	1,95	2,07	2,89	0,65	0,05	1,27	-0,17	2,19	-0,05	2,19
P-value	0,05	0,04	0,00	0,51	0,96	0,21	0,87	0,03	0,96	0,03
95% lower CI	-0,0001	0,0003	0,0042	-0,0043	-0,0087	-0,0021	-0,0038	0,0014	-0,0094	0,0008
95% higher CI	0,0194	0,0134	0,0223	0,0086	0,0092	0,0097	0,0032	0,0263	0,0089	0,0154
Portfolio (1+2)-(4+5)										
Coef.	0,15%	0,01%	1,05%	0,33%	0,45%	0,37%	-0,07%	1,27%	0,12%	0,92%
NW standard error	0,0040	0,0024	0,0035	0,0029	0,0041	0,0027	0,0004	0,0058	0,0054	0,0036
t-value	0,37	0,06	2,98	1,13	1,09	1,39	-1,77	2,21	0,22	2,57
P-value	0,71	0,96	0,00	0,26	0,28	0,16	0,08	0,03	0,83	0,01
95% lower CI	-0,0065	-0,0046	0,0036	-0,0024	-0,0036	-0,0015	-0,0014	0,0014	-0,0095	0,0021
95% higher CI	0,0095	0,0048	0,0175	0,0091	0,0126	0,0090	0,0001	0,0241	0,0119	0,0163

Figure 1A. Cumulative market adjusted returns for portfolio 1 across sectors

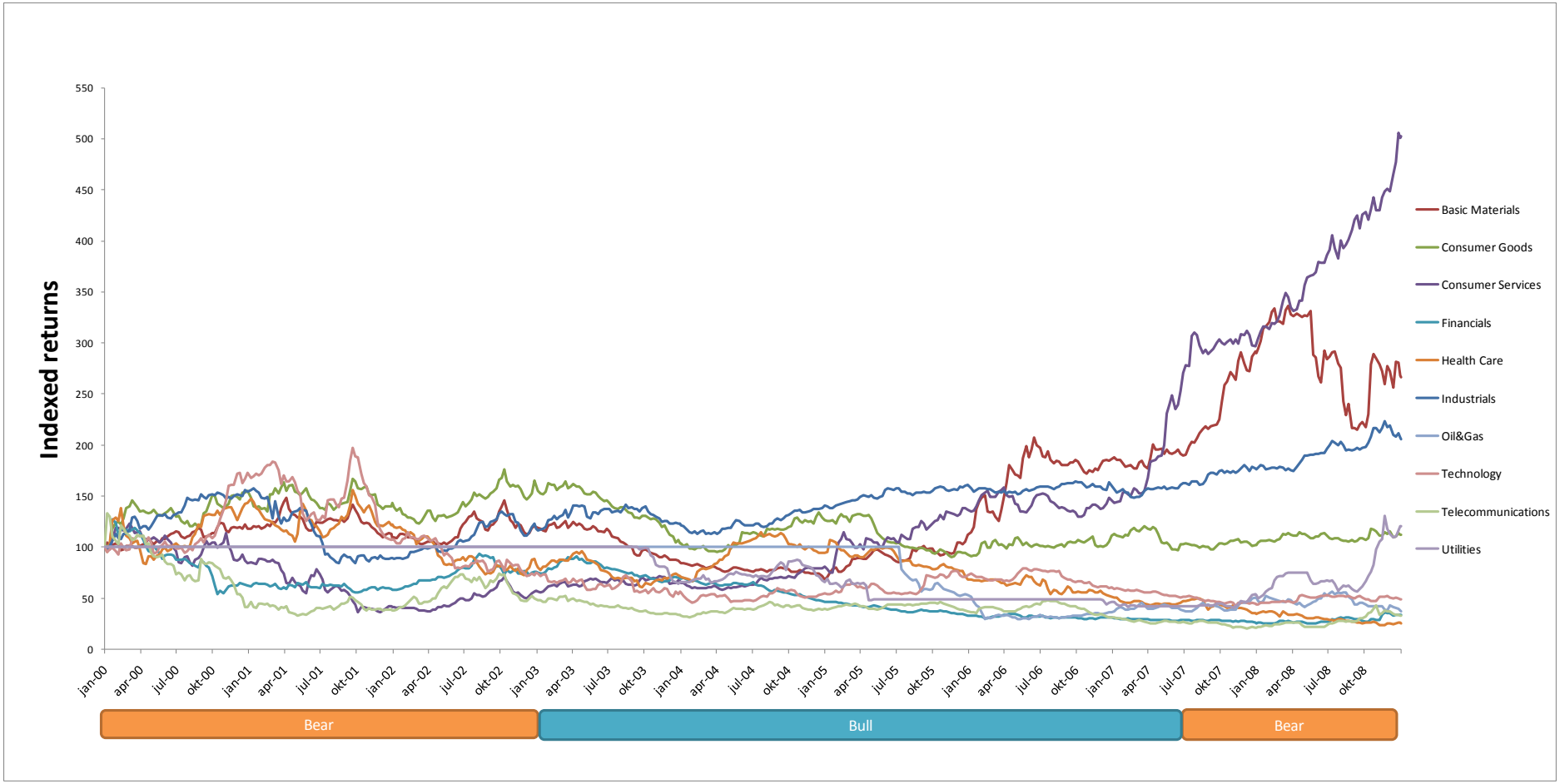


Figure 2A. Cumulative market adjusted returns for portfolio 2 across sectors

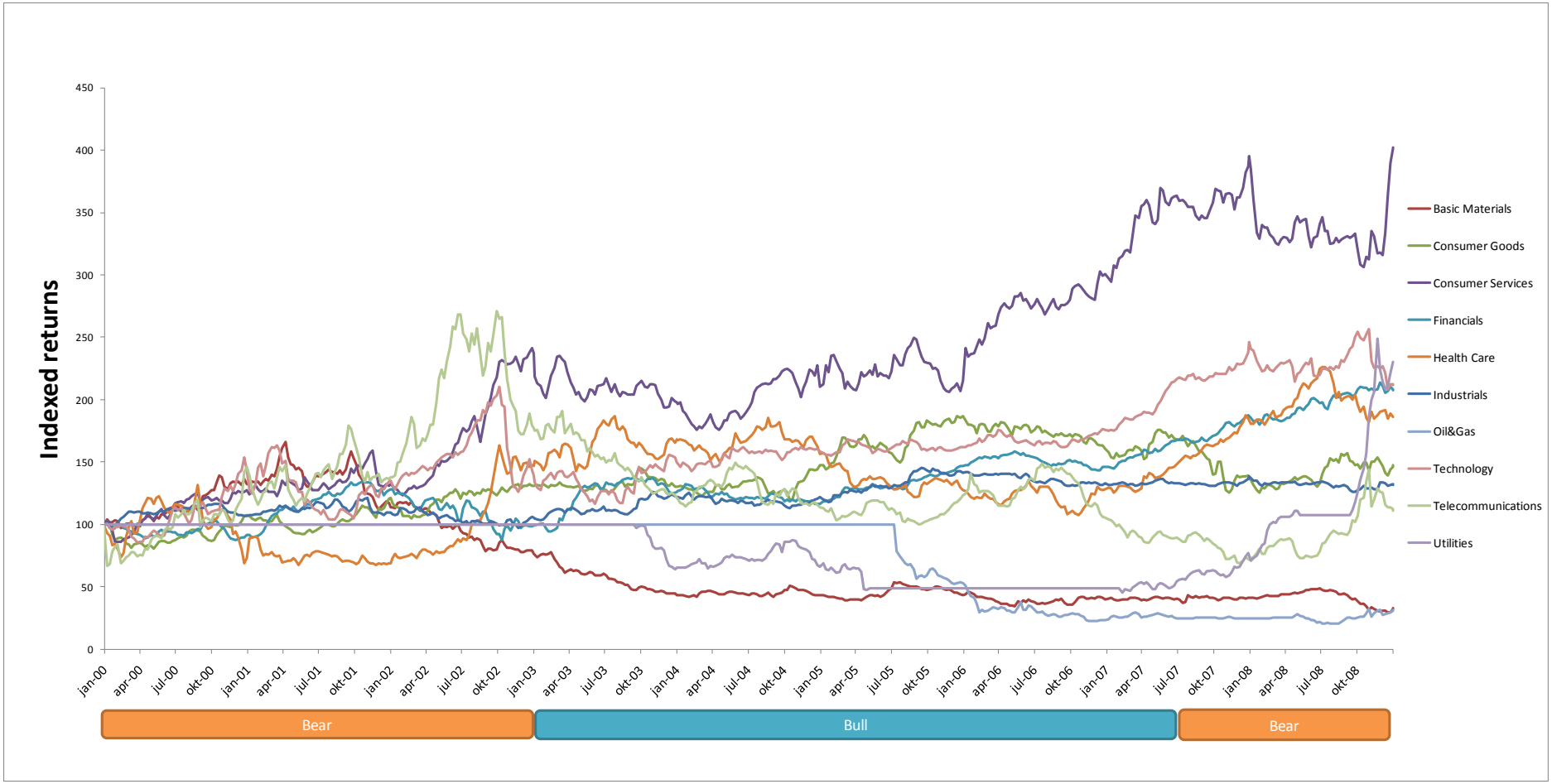


Figure 3A. Cumulative market adjusted returns for portfolio 3 across sectors

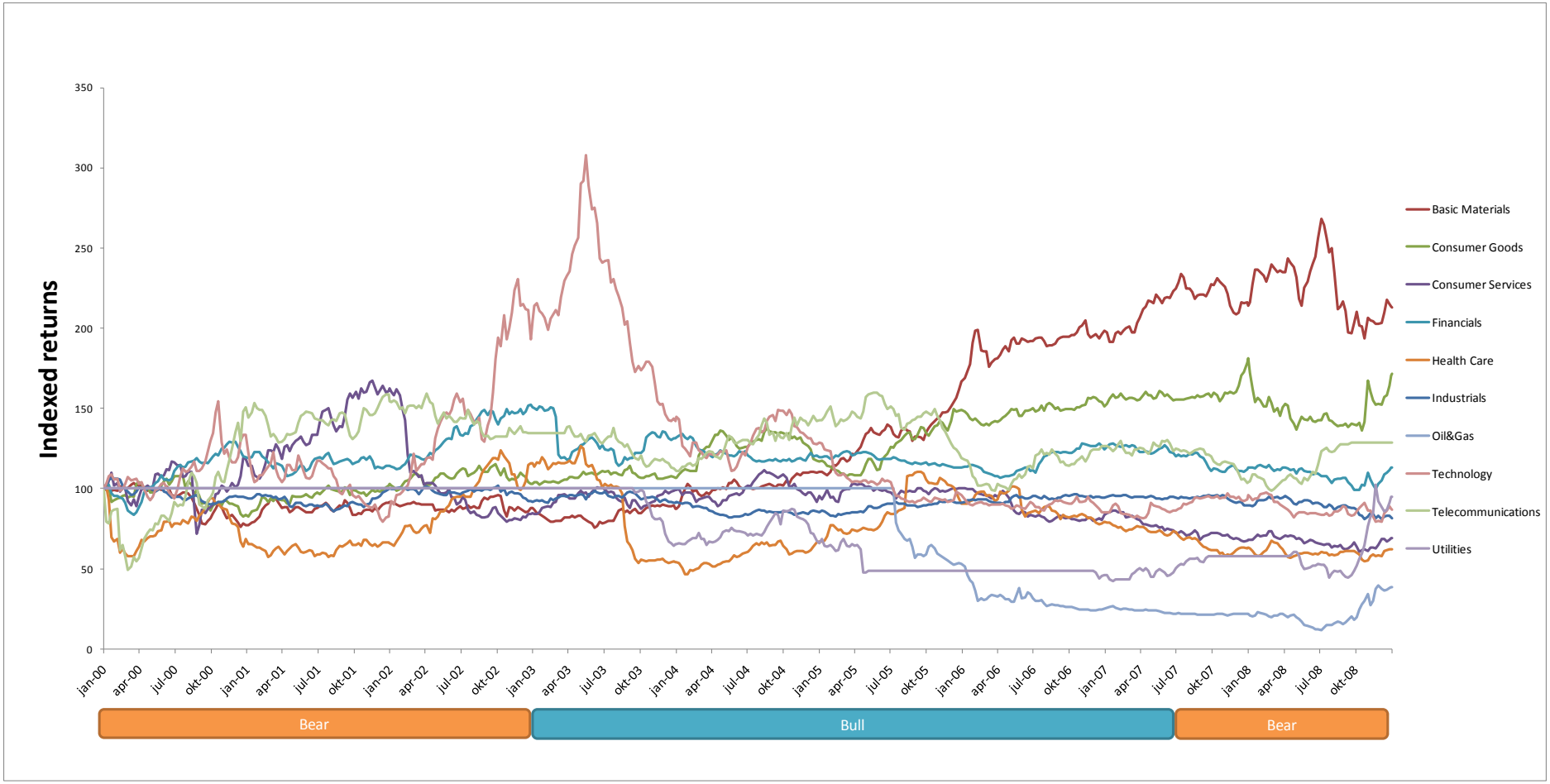


Figure 4A. Cumulative market adjusted returns for portfolio 4 across sectors

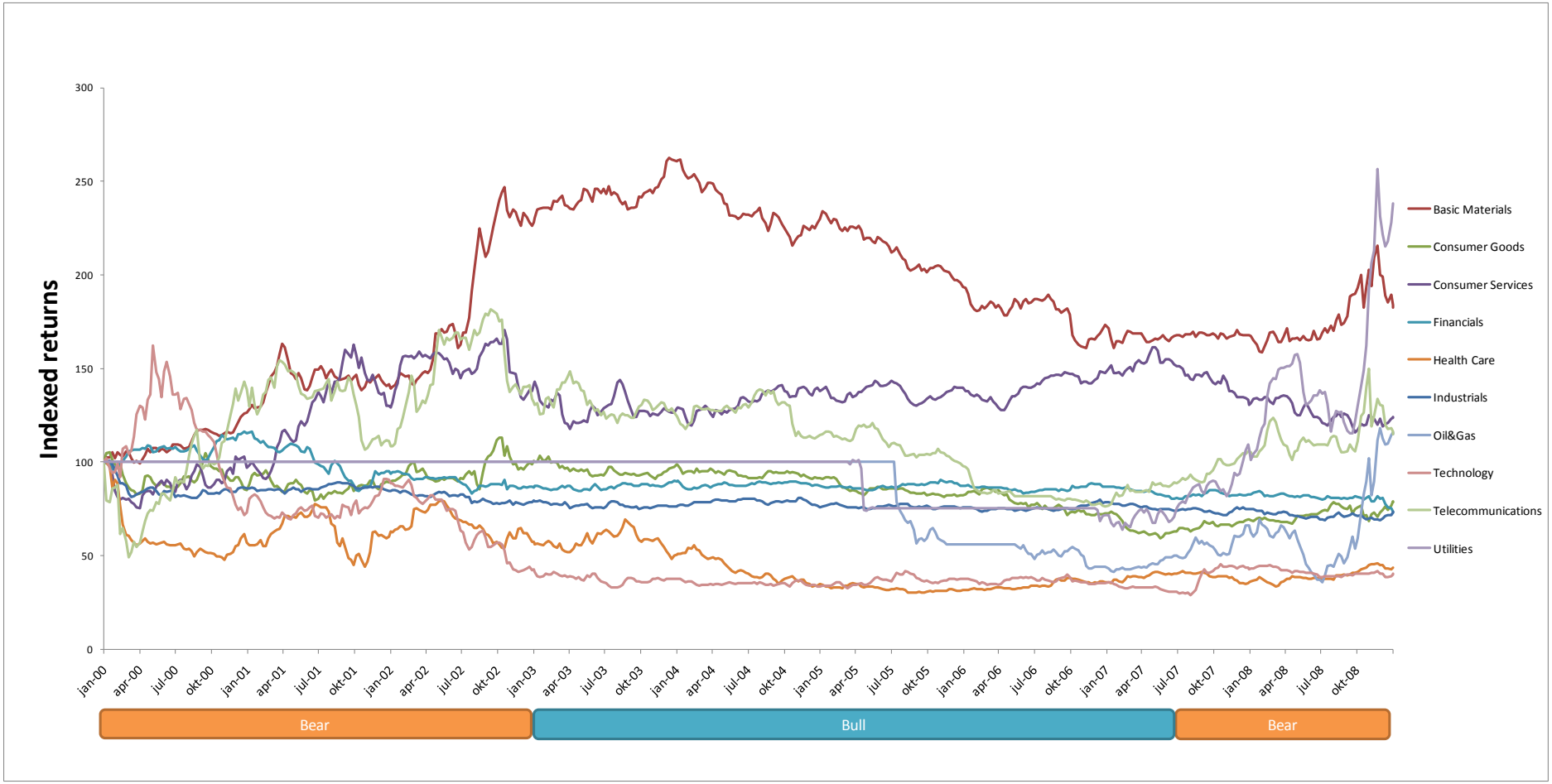


Figure 5A. Cumulative market adjusted returns for portfolio 5 across sectors

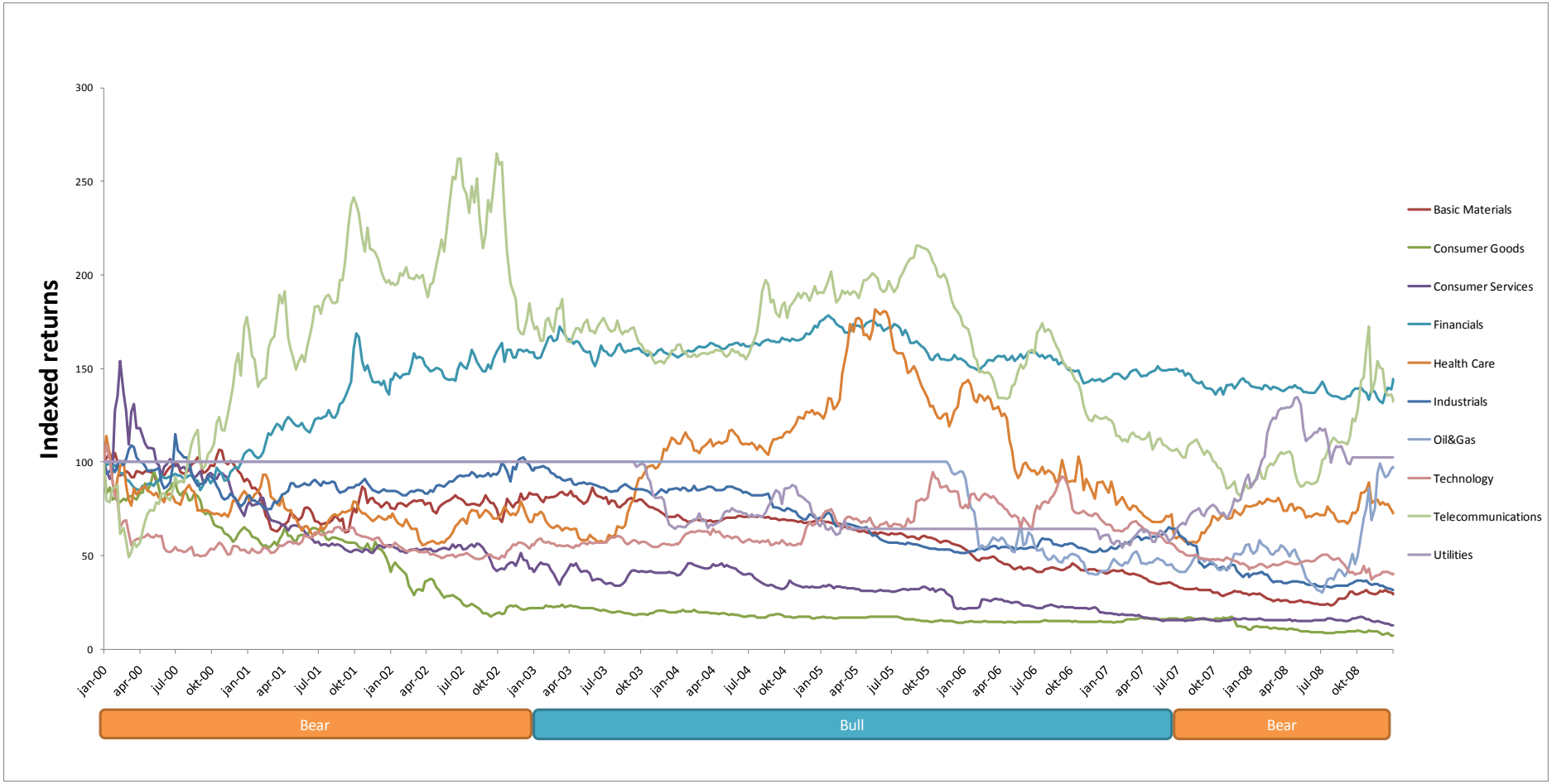


Figure 6A. Cumulative market adjusted returns for trading strategy 1 across sectors

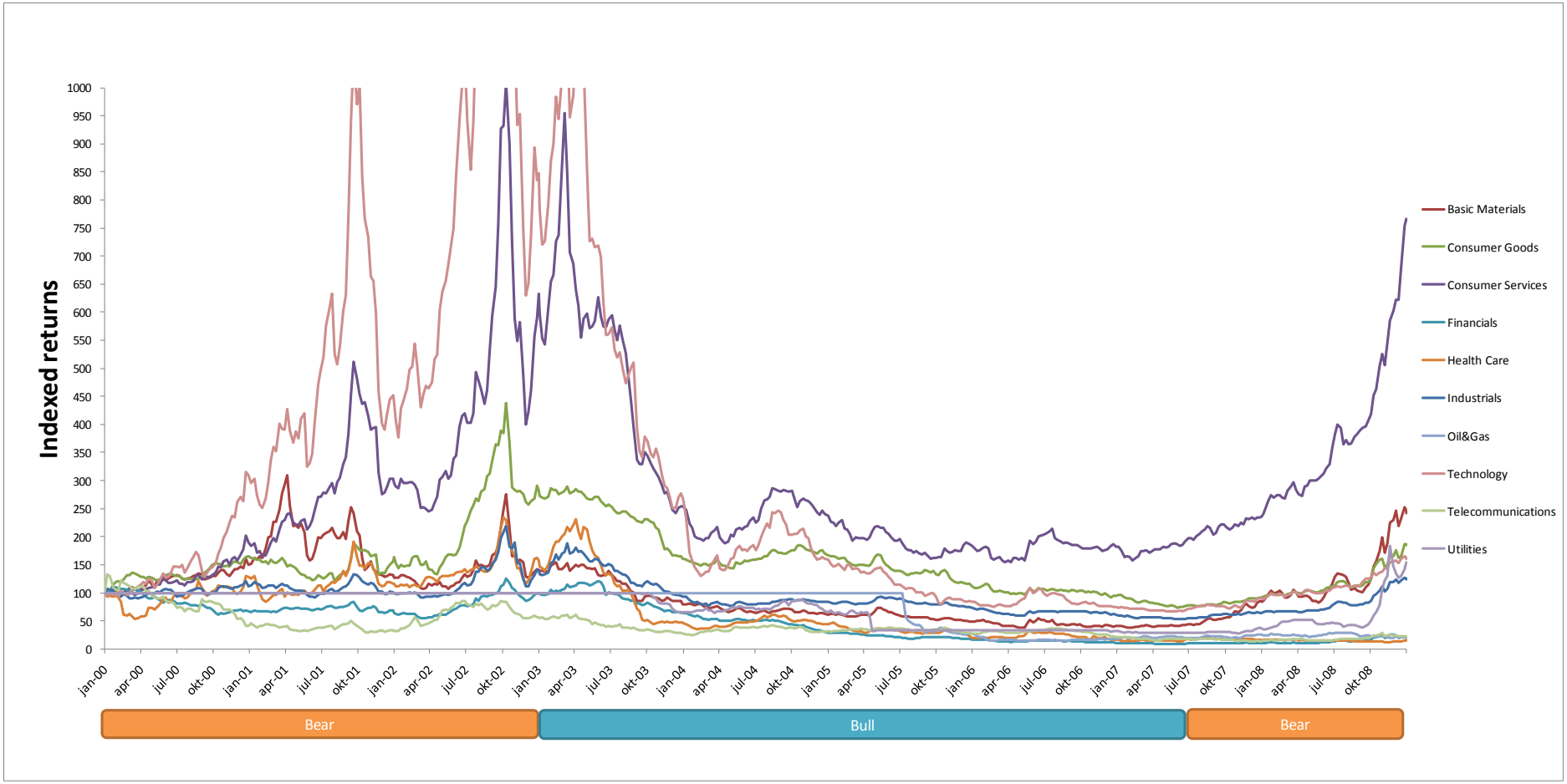


Figure 7A. Cumulative market adjusted returns for trading strategy 2 across sectors

