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Do value stocks outperform glamour stocks?

In-dept analysis on the S&P 500 stocks

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Abstract

There are many types of investors and strategies. Some investors prefer value strategies and therefore focusses on buying value stocks. Other investors prefer buying glamour stocks and apply so-called naïve investment strategies. Scholars and investment professionals argue that value strategies outperform the market, and glamour stocks underperform the market. The question is if this is true for the S&P 500 stocks and if this is still the case in the modern financial markets. This paper proves evidence that glamour stocks underperform the S&P 500 and are undervalued. The value stocks seem to outperform the S&P 500 but the results are insignificant.

Contents

1. Introduction	3
2. Literature review	6
2.1 Stock prices and stock returns	6
2.2 Characteristics of Value investing	6
2.3 Characteristics of naïve investment strategies (Growth investing)	7
2.4 Characteristics of the S&P 500 Index	7
2.5 Overvaluation	8
3. Data & Methodology	9
3.1 Data Selection	9
3.2 Data transformation	10
3.3 Methodology	10
4. Empirical Results	12
4.1 Descriptive statistics	12
4.2 Value stocks vs market	13
4.3 Glamour stocks vs markets	15
4.4 Glamour stocks overvalued	18
5. Conclusion & discussion	19
6. References	22
7. Appendix A	23
8. Appendix B	26

1. Introduction

After years of investing one of the remarkable things is that there are many stocks and yet the media talks mostly about a special type of stocks, the fancy growth stocks. Those fancy growth stocks, also known as glamour stocks, are stocks that faced extreme growth in the recent years since they are expected to have huge growth potential for the coming years. Also, these stocks have relatively low earnings, cash flows and book value compared to their value in the stock markets. The glamour stocks receive more attention from the media compared to the relatively 'boring' value stocks. Value stocks are stocks that have not seen exponential growth over the recent years and are not expected to have extreme growth over the coming years. These stocks have relatively high earnings, cash flow, and book value compared to their market value. This raises the question of whether the glamour stocks deserve this extra attention based on their stock return over the next years.

There are many types of investors and strategies. Some investors prefer value strategies and therefore focusses on buying value stocks. Other investors prefer buying glamour stocks and apply so-called naïve investment strategies. Investment strategies in financial markets have been widely studied over the years. In earlier research is found that value strategies outperform the markets based on return. Value stocks are stocks with relatively low stock prices in comparison to their earnings, dividend, cash flow, and other valuation ratios. On the other hand, glamour investing is merely focused on historical data. The expectancy of the investors is that these stocks will keep growing as they did in the last few years. The naïve investors buy the stocks that performed well (glamour stocks) recently and sell the stocks that performed poorly (value stocks) over the last years (Lakonishok, Schleifer and Vishny, 1994).

A great deal of empirical research has focused on value and growth investing. After the research of Fama and French (1992) about the 'death of beta', there was more attention for the valuation ratios like book-to-market value ratio (B/M), the earnings-to-price ratio (E/P) and the cash flow-to-price ratio (C/P). Important ratios to measure if the stock is merely a value stock or glamour stock. Basu (1977) has shown that high Earnings-to-Price (E/P) stocks tend to have higher average returns than low E/P stocks. This would indicate that value stocks outperform the glamour stocks over time in terms of return. Moreover, Chan, Hamao, and Lakonishok (1991) found that a high ratio of cash flow-to-price (C/P) predicts higher returns. This also indicates that the more value characteristics a stock has, the higher the return becomes.

Additionally, De Bondt and Thaler (1985, 1987) suggest that extreme losers outperform the market over the following years. The extreme losers have lost their market capital and now the stock price is relatively low compared to its earnings for instance. This indicates that they are value stocks. They found that on average, value investing outperforms growth investing. Lakonishok, Schleifer, and Vishny (1994) studied the value stocks in comparison to the glamour stocks as well. They found that a wide range of value strategies produce higher returns than growth strategies. The value strategies are mostly focused on buying value stocks and therefore, based on this research, the value stocks probably produce higher returns than glamour stocks.

The consisting research about value and glamour investing is merely focused on great periods and the research over the recent years is limited. The question is whether the value stocks outperform glamour stocks in the more modern stock market we are in today.

This brings the following research question:

'Do value stocks outperform the glamour stocks in terms of return based on the S&P 500 companies over the period 2012-2016?'

My research is purely focused on the difference in the value and glamour stock performance. To test this, I will look at the stock prices of the S&P 500 companies, since the data of these companies are mostly complete. Also, the time span of 2012 to 2016 is the time during the economic recovery of the financial crisis where optimism starts to grow again. In this period stock markets grown significantly, and the theory says that value stocks are more defensive stocks. The defensive stocks seem to be less attractive during good economic times and times of optimism in the stock markets (Peters & Egan, 2001).

In an attempt to figure out the relationship between stock returns of value stocks and glamour stocks, three separate hypotheses are constructed to test. The first hypothesis aims to show the relation between the stock returns of value stock compared to the market return. To test the hypothesis, the average return of a value portfolio is used. There are several value portfolios created. For three valuation measures, the value portfolios are created. The S&P500 index price return is used as the market return. After testing and comparing the value stock returns to the market return, the value stocks seem to outperform the market if the value stocks are measured by the Book-to-Market ratio. The results are weaker for the cash flow-to-price ratio and the Earnings-to-price ratio.

The second hypothesis describes whether the glamour stocks underperform the S&P500 index. The expectancy is, since the glamour stocks already performed very well in the recent years and became (too) expensive compared to their fundamentals, that they will underperform the market in the coming years. To test this, the glamour portfolios are formed by using the three valuation measures. To examine the performance of the glamour stock portfolios, it is compared to the market return. The results show that the glamour stock significantly underperforms the market over 5 years.

The third hypothesis aims to find out whether the glamour stocks are overvalued. To test this, the normal returns are measured by using the market model. The actual returns minus the normal returns give the abnormal returns. The abnormal returns indicate that the glamour stocks tend to be overvalued in 2012.

Even though the research period (2012 – 2016) is covering only a good and healthy economic phase and it represents the modern stock market, by testing the hypotheses, the expectation is and turns out that the hypotheses are correct. The first expectation is that value stocks outperform the market based on stock return. Another expectation is that the glamour stocks underperform the market based on stock return. Furthermore, after applying the market model, the glamour stock prices are expected to be overvalued. The results confirm the expectations.

The rest of the paper is structured as follows. The next section briefly discusses the relevant literature on this topic and develops the hypotheses. Section 3 provides the collected data, the data transformation, and the methodology which is applied to verify the validity of the hypotheses. The results are shown and interpreted in section 4. In section 5, a brief conclusion and summary of the findings in this research are given. This is followed by a discussion about the implications and limitations of the paper.

2. Literature review

2.1 Stock prices and stock returns

In this paper, the research question and the hypotheses are related to stock returns. Stock returns are one of the key performance indicators in the world of stock investing. Stock returns are based on stock prices. Over time there have been numerous studies about how to value stocks. Sharpe (1964) came up with the Asset-Pricing model. In this model, they showed a fundamental idea about the relationship between average stock returns and risk. Later, the Efficient Market Hypothesis (EMH) was introduced by Fama (1998). The EMH holds that all the available information is already processed in the stock prices. The current stock price reveals the fair value of the stock including all the underlying values. However, the reality shows us that most of the time the EMH does not hold and stock prices are not fairly valued. One explanation for this is because not all investors are rational. If investors are not rational, they will overreact to certain events which cause mispricing of stocks.

Although there is a lot of research on stock prices and returns, there are still many scientifically unexplained events in the stock market. Those unexplained but existing phenomena are called anomalies. Many scholars try to explain the different anomalies that still exist in today's stock market. French (1980) shows that the expected returns on Monday are significantly higher than other trading days of the week. This is called the Weekend effect and, since there is no scientifically proven explanation for it, it is an anomaly. Furthermore, the seasonal stock return anomalies indicate that the average daily return is higher in January than in the other months (Van der Sar, 2003). There are many related factors to stock returns and yet not everything can be explained. This makes that explaining stock returns perfectly is almost impossible.

2.2 Characteristics of Value investing

Value investing, as seen before, contains investing strategies that focus on investing in value stocks. Value stocks are stocks with relatively low stock prices relative to their fundamentals such as dividends earnings and sales. These stocks are known to be unfavorable in the marketplace since the price is lower than the stock prices of the companies in the same sector or industry. Value stocks are stocks that have performed poorly in terms of stock return

over the last few years. Therefore, investors tend to underestimate these stocks because they think that the stock will continue to underperform as it did in recent years. The growth potential is lower for value stock and this makes it an unattractive investment. After research, it turns out that value stocks outperform the expectations. Chan and Lakonishok (2004) even show that value stocks outperform the market (S&P500 index) from 1969 to 2001. This indicates that value stocks not only outperform the expectations, they outperform the whole market including the growth stocks.

2.3 Characteristics of naïve investment strategies (Growth investing)

Naïve investment strategies are known for investing in growth stocks. Growth stocks, also known as glamour stocks, are stocks with a relatively high price relative to their fundamentals. The high stock price is based on the growth potential of those companies, which makes them attractive to investors. The expectancy is that these stocks will maintain the growth as it was in recent years. The tendency is that investors overestimate these stocks since it cannot hold on to such growth forever, but the investors are often victim to shortsighted bias. Chan and Lakonishok (2004) show that glamour stocks underperform the market (S&P500 index) over the period 1969 – 2001.

2.4 Characteristics of the S&P 500 Index

Many hedge funds and mutual funds compare their annual return to the S&P 500 Index (Daniel, Grinblatt, Titman, Wermers, 1997). They use the S&P 500 as the benchmark for their performance, trying to realize an excess return. The S&P 500 seems a good benchmark since it contains large-cap companies and wide market breadth. Furthermore, the S&P 500 companies are obliged to update their books on a quarterly basis. Also, companies must trade for at least 6 to 12 months before being considered to inclusion. However, a disadvantage might be that it only represents the large-cap companies which might not be representative for investors who also invest in small-cap companies.

Since the S&P 500 is a general and for most investors representative index. Regarding this, it is used as a benchmark in my research to test the first and second hypotheses. To answer the research question, the following hypotheses are developed:

Hypothesis 1: *Value stocks outperform the S&P 500 from 2012 to 2016.*

Hypothesis 2: *Glamour stocks underperform the S&P 500 from 2012 to 2016.*

2.5 Overvaluation

In analyzing stocks, an important part is to check whether the stock is fairly priced, overvalued or undervalued. Prices that differ from fundamental values give an indication of overvaluation or undervaluation. A share price higher than measured based on the fundamentals indicates that the stock price is probably overvalued. A share price lower than the price based on fundamentals indicates that the stock is probably undervalued. De Bondt and Thaler (1995) suggest that stock prices often differ from fundamental values. Such deviations can be used by investors to have a winning strategy. Shiller (2000) shows that behavioral factors lead to investment bubbles and documents that future prices are predictable to some extent. Value stocks are undervalued because of their recent bad performance and the glamour stocks are overvalued based on their recent good performance (Lakonishok, Schleifer and Vishny, 1994). A reason for the overvaluation of the glamour stocks might be because the market constantly overestimates the expected growth of those glamour stocks. This potential overvaluation is tested by applying the following hypothesis:

Hypothesis 3: *Glamour stocks are overvalued.*

3. Data & Methodology

3.1 Data Selection

This research focusses on the difference in return for value stock portfolios and glamour stock portfolios from 2012 to 2016. During this period, the stock market is not affected by any economic crisis. The economy was recovering from the financial crisis in these years and this period does not involve any kind of recession. The biggest stock market indexes did not face any big *crashes* (an overall drop of more than 20%) during this period. Also, most of the research concerning this subject did not cover this period yet while this period might be interesting since the stock markets seem to be more transparent than ever and the upcoming high-frequency trading might influence the stock markets as well.

By testing in this period, I test whether the results will differ from samples that do consist of all kinds of economic and financial stages (like recessions, recovery, slowdown, etc.). For now, we only know that value strategies outperform growth stocks over all types of economic moods combined.

In general, value stocks are known as so-called '*safe heavens*' during bad economic times. This means that value stocks outperform glamour stocks during *bear markets*, where the stock markets tend to move downwards. My research might show that value stocks also outperform growth stocks while only focusing on optimistic periods where the economy grows, and the stock markets tend to move upwards, also known as *bull markets*.

The sample used in this research consists of companies listed on the Standard & Poor's 500 (S&P 500) index. There might be a potential suffer from *survival bias* and *selection bias*. These biases should not be a problem since the portfolios are formed only with stocks in the S&P 500 on the first trading day of 2012. From that moment on, these companies are simply held on for five years. This means that any impact in changing companies in the S&P 500 does not affect the results of this research.

Furthermore, if a company is not listed on the S&P 500 anymore, then the price data might not be available anymore and those observations are not included in the research. Companies with missing data concerning the relevant valuation measures are also not included. These companies cannot be interpreted well to sort them as value or glamour stock.

For the remaining 456 companies, the stock price data from the first trading day in 2012 until the last trading day in 2016 is relevant. This data is retrieved from the WRDS CRSP database. Also, for hypothesis 3, the stock price data of 2010 and 2011 are collected. The accounting variables cash flow-to-price (C/P) ratio, Book-to-Market (B/M) ratio, and Earnings-to-price (E/P) ratio are retrieved from the COMPUSTAT database. Where cash flow is defined as earnings plus depreciation.

3.2 Data transformation

The data transformation follows Lakonishok, Schleifer, and Vishny (1994). The 456 company stocks will be divided into 8 portfolios. These portfolios consist of 57 companies. This dividing of stocks into different portfolios is based on the valuation ratios; E/P, B/M, and C/P. For instance, looking at the E/P ratio, the stocks with the lowest E/P ratios are grouped into the most extreme glamour portfolio. On the other hand, stocks with the highest E/P ratios are grouped into the most extreme value portfolio. This gives eight portfolios sorted from extreme glamour (1) to extreme value (8) portfolios. Besides creating portfolios based on the stock E/P ratio, this is also done for the B/M ratio and C/P ratio. This gives three extreme glamour portfolios and three extreme value portfolios.

3.3 Methodology

The methodology follows (Lakonishok, Schleifer, and Vishny, 1994) for the first and second hypothesis. To research the third hypothesis, I will additionally apply the market model. Since the research is interested in the difference between value and glamour stocks, only the extreme portfolios are relevant. After the portfolios are formed the stocks are equally weighted. Every stock receives a \$10 value on the first trading day of 2012. All the formed portfolios have a starting value of (57 stocks * \$10 value) \$570. The daily actual returns are calculated using the following formula:

$$(1) \quad R_{i,t} = \frac{P_t - P_{t-1}}{P_{t-1}}$$

Where $R_{i,t}$ is the return for firm i at time t , P_{t-1} is the stock closing price at end of the day (t-1) and P_t is the stock closing price at the end of day t .

The calculated daily return is then applied to calculate the hypothetical value of the companies after assigning a \$10 value to them. The values of the companies are summed to determine the value of the portfolio. The current portfolio value will be divided by the beginning value and gives the return of the portfolio.

After calculating the daily stock prices, the average return of the portfolio is compared with the return of the S&P 500 index. This gives enough data for the first and second hypotheses to test whether the returns are higher or lower than the S&P 500 returns. To test the credibility of the results, a t-test is applied. The t-test is used to test whether there is a difference between the daily portfolio return and the daily market return. Winsorizing is used to filter out the outliers.

Testing the third hypothesis is done by estimating normal returns. The normal returns are estimated by applying the market model. The normal return is computed by applying:

$$(2) \quad R_{i,t} = \alpha + \beta_i R_{m,t} + \varepsilon_{i,t}$$

Where $E(\varepsilon_{i,t}) = 0$ and $\text{var}(\varepsilon_{i,t}) = \sigma_{\varepsilon_{i,t}}^2$. $R_{m,t}$ is the market return (the return of the S&P500 index) and $R_{i,t}$ is the normal return on company i's stock.

The individual beta of a stock will be computed for each company by using a control period. The control period is beginning on the first trading day of 2010 until the last trading day of 2011. The estimation is done by applying Ordinary Least Squares (OLS).

To measure the abnormal returns, the estimated normal return will be applied by the following formula:

$$(3) \quad AR_{i,t} = R_{i,t}^* - R_{i,t}$$

Where $AR_{i,t}$ is the abnormal return for firm i at day t, $R_{i,t}$ is the return for firm i at time t and $R_{i,t}^*$ is the observed return of firm i at day t.

After the abnormal returns are calculated for the companies, the stocks with a negative AR indicate an overvaluation. The overvalued stocks are computed, and a t-test is applied to validate the credibility. To filter out the outliers, winsorization is used. The t-test is testing if there is a significant difference between the 5-year return of the observations (stocks) and the S&P 500 return.

4. Empirical Results

This section provides empirical results based on testing the hypotheses. The effect of purely value investing and purely investing in glamour stocks is tested. First, the descriptive statistic results are discussed in section 4.1. Secondly, in section 4.2, the value stock portfolio results are presented in comparison to the market return of the S&P 500 index. Section 4.3 gives the stock returns of glamour stock portfolios, also in comparison to the market return of the S&P 500 index. The glamour stock portfolio returns are also showing that the glamour stocks are overvalued, after applying the market model for abnormal returns. This can be seen in section 4.4.

4.1 Descriptive statistics

Three different models are tested for the three separate hypotheses. The descriptive statistics for the first model are focused on the extreme value portfolios and are shown in table 1. The variables contain 1258 observations. These are the observed trading days. The average daily return for the B/M portfolio is 0,0067%. This implies that the stocks are moving upwards. The same goes for the other extreme value portfolio's. The market has an average daily return of 0,052%, which is just below the B/M and C/P portfolios. The standard deviation of the market is lower than the portfolios standard deviations. This is probably because the S&P 500 has more stocks in its index than the portfolios. Therefore, the price of the index is less volatile.

Table 1

Descriptive statistics of the daily value stock returns.

Variable	Observations	Mean	Median	Std. Dev.	Minimum	Maximum
Value B/M	1258	0,0006797	0,001136	0,011844	-0,06205	0,039205
Value C/P	1258	0,0005521	0,00082	0,010496	-0,05148	0,037192
Value E/P	1258	0,0004104	0,000866	0,010471	-0,09889	0,036136
Market	1258	0,0005225	0,000711	0,00809	-0,0386	0,033826

Table 2 shows the descriptive statistics of the second model. The same trading days (1258) are observed for the glamour stock portfolios. The average daily stock returns of the glamour portfolios (0,028%; 0,033%; 0,044%) are all beneath the average daily stock return

of the market (0,052%). AS for the value portfolios, the market index is also less volatile than the glamour portfolios. The stock market did not gain more than 3,38% in one day and did not lose more than 3,86% in one day. The B/M glamour portfolio lost 9,54% in one day and the E/P portfolio gained 5,89% during their most positive trading day.

Table 2
Descriptive statistics of the daily glamour stock returns.

Variable	Observations	Mean	Median	Std. Dev.	Minimum	Maximum
Glamour B/M	1258	0,0002805	0,000712	0,008771	-0,09541	0,035124
Glamour C/P	1258	0,0003327	0,000883	0,010128	-0,04504	0,037017
Glamour E/P	1258	0,0004436	0,000871	0,010901	-0,05262	0,05893
Market	1258	0,0005225	0,000711	0,00809	-0,0386	0,033826

In table 3 the descriptive statistic results of the third model are shown. For this model 57 companies are considered, which is the amount the companies in a portfolio. The average abnormal returns for all the portfolios are negative. This indicates that the three glamour portfolios are overvalued on the first trading day of 2012. Moreover, the standard deviation of the extreme glamour B/M portfolio is the lowest. The highest abnormal return is 406,3% return over 5 years and the most negative abnormal return is -331,4% over 5 years. This huge negative abnormal return can be explained by looking at the market model. The expected normal return was much higher than the realized return, which makes it possible to get these extreme negative returns.

Table 3
Descriptive statistics of the 5-year abnormal glamour stock returns.

Variable	Observations	Mean	Median	Std. Dev.	Minimum	Maximum
Abnormal B/M	57	-0,2712518	-0,2712518	0,8999386	-2,12257	2,387586
Abnormal C/P	57	-0,4397782	-0,4587014	1,125456	-3,314214	3,662981
Abnormal E/P	57	-0,2655911	-0,2238694	1,37731	-3,227946	4,063231

4.2 Value stocks vs market

After the portfolios are formed based on the valuation measures, only the most extreme value stock portfolios are picked to test. First, the extreme value portfolio based on the B/M ratio is interpreted, followed by the portfolio based on the C/P ratio and the E/P ratio.

Table 4

Return and cumulative return of the value stock (B/M) portfolio and the S&P 500.

B/M	Extreme Value Portfolio		S&P500 Index	
	Return	Cumulative Return	Return	Cumulative Return
Year 1	25,62%	22,70%	17,99%	16,77%
Year 2	39,03%	62,38%	31,48%	47,36%
Year 3	14,48%	85,76%	10,99%	64,30%
Year 4	-5,32%	77,63%	-3,97%	59,21%
Year 5	14,16%	109,00%	10,98%	82,20%

Table 4 illustrates the returns and the cumulative returns over the five consecutive years after ‘buying’ the stock portfolio for the value portfolio and the market. This portfolio is formed based on the B/M ratio. For year 1, 2, 3, and 5 the return of the portfolio exceeds the market return. Only in year 4, the market return exceeds the portfolio return by a small difference. Furthermore, if the stock is held on for the 5 years, it turns out to give a 109,00% return. This return outperforms the market return of ‘only’ 82,20%. This gives a difference of 26,8% return over 5 years.

Table 5

Return and cumulative return of the value stock (C/P) portfolio and the S&P 500.

C/P	Extreme Value Portfolio		S&P500 Index	
	Return	Cumulative Return	Return	Cumulative Return
Year 1	21,11%	18,79%	17,99%	16,77%
Year 2	40,80%	59,54%	31,48%	47,36%
Year 3	6,57%	70,16%	10,99%	64,30%
Year 4	-7,78%	58,79%	-3,97%	59,21%
Year 5	11,52%	81,52%	10,98%	82,20%

Table 5 shows the returns and cumulative returns of the value portfolio based on the C/P ratio and the market return. Also, for the C/P portfolio, as well as the B/M portfolio, the returns in the years 1, 2, and 5 exceed the market return. By looking at the cumulative returns, the C/P portfolio is showing the same result after 5 years as the market.

Table 6

Return and cumulative return of the value stock (E/P) portfolio and the S&P 500.

E/P	Extreme Value Portfolio		S&P500 Index	
	Return	Cumulative Return	Return	Cumulative Return
Year 1	20,46%	18,90%	17,99%	16,77%
Year 2	35,62%	54,06%	31,48%	47,36%
Year 3	4,32%	60,84%	10,99%	64,30%
Year 4	-11,49%	43,60%	-3,97%	59,21%
Year 5	3,63%	52,42%	10,98%	82,20%

In table 6 the value portfolio is based on the E/P ratio. Year 1 and 2 shows outperform of the market return in terms of return. After the second year, the portfolio underperforms the market. Also, the cumulative return of the portfolio is 52,42% where the market has a return of 82,20%. This indicates that, based on the E/P ratio, the value stocks do not outperform the market.

In order to test the credibility, a t-test is applied. The t-test tests whether the average daily returns of the concerning portfolios are significantly different than those of the S&P 500 index. The results of this t-test can be seen in table 7. None of the average daily returns of the portfolios can be interpreted as significantly different from the average daily market return.

Table 7

Results of the t-test on the daily returns of the value stocks.

Variable	Mean	Statistic
Value B/M	0,00068	(0.1862)
Value C/P	0,000552	(0.4052)
Value E/P	0,00041	(0.7896)
Market	0,000523	

4.3 Glamour stocks vs markets

This section summarizes and interprets the results concerning the glamour stock portfolios. These results are compared to the stock market returns.

Table 8 illustrates the returns and the cumulative returns over the five consecutive years after ‘buying’ the stock portfolio for the glamour portfolio and the market. As done by the value stocks before, this portfolio is formed based on the B/M ratio. For all the 5 years the return of the glamour portfolio underperforms the market return. Moreover, if the stock is held on for the 5 years, it turns out to give only a 34,74% return. This return underperforms the market return of only 82,20%. This gives a difference of 47,46% return over 5 years. The market even doubled the return of the glamour stocks. This indicates that the glamour stocks underperform the market by far.

Table 8

Return and cumulative return of the glamour stock (B/M) portfolio and the S&P 500.

B/M	Extreme Glamour Portfolio		S&P500 Index	
	Return	Cumulative Return	Return	Cumulative Return
Year 1	10,09%	10,46%	17,99%	16,77%
Year 2	29,99%	38,06%	31,48%	47,36%
Year 3	4,43%	44,81%	10,99%	64,30%
Year 4	-11,40%	29,32%	-3,97%	59,21%
Year 5	0,42%	34,74%	10,98%	82,20%

Table 9

Return and cumulative return of the glamour stock (C/P) portfolio and the S&P 500.

C/P	Extreme Glamour Portfolio		S&P500 Index	
	Return	Cumulative Return	Return	Cumulative Return
Year 1	9,64%	8,98%	17,99%	16,77%
Year 2	21,79%	26,99%	31,48%	47,36%
Year 3	9,42%	39,56%	10,99%	64,30%
Year 4	-2,89%	36,68%	-3,97%	59,21%
Year 5	-1,33%	40,50%	10,98%	82,20%

Now, looking at table 9, the returns of the glamour portfolio are underperforming the market return in four out of the five years. Only the fourth year gives a positive difference in return between the market and the portfolio. However, this difference is relatively small in proportion to the underperforming in the other years. Overall, after the five years, the glamour portfolio gives a return of 40,50%. The market return over the same period is 82,20%. This is

more than double the return of the glamour stocks. This indicates that the glamour stocks underperform the market, which strengthens the earlier results of table 8.

Table 10
Return and cumulative return of the glamour stock (B/M) portfolio and the S&P 500.

E/P	Extreme Glamour Portfolio		S&P500 Index	
	Return	Cumulative Return	Return	Cumulative Return
Year 1	21,83%	20,83%	17,99%	16,77%
Year 2	24,02%	43,14%	31,48%	47,36%
Year 3	16,19%	66,48%	10,99%	64,30%
Year 4	-11,64%	48,67%	-3,97%	59,21%
Year 5	3,25%	60,39%	10,98%	82,20%

In Table 10 the glamour portfolio is based on the E/P ratio. For year 1 the glamour stocks outperform the market by 3,84%. After that, the market return exceeds the glamour portfolio every year. The cumulative return after the 5 years indicate that also for E/P ratio based glamour stocks, the market outperforms them. The market return after 5 years is 82,20%, which exceeds the glamour stocks return in this case by 21,81%.

For all the three portfolios, all based on another valuation measurement, the results show that the market outperforms the glamour stocks. The glamour stocks based on the B/M ratio show the lowest returns and gives the strongest indication for the hypothesis. The glamour stocks based on the E/P ratio give a weaker, but still, an indication that glamour stocks underperform the market. Also, the E/P ratio value versus glamour stocks give a small difference of 7,97% over the five years. However, by interpreting these results, it can be said that the glamour stocks give less return than the market does. The value stocks exceed the market returns, so this indicates that the value stocks do outperform the glamour stocks.

The results of the t-test on the average daily returns of the glamour portfolio are shown in table 11. The t-test tests whether the average daily returns of the glamour portfolios are significantly different than those of the S&P 500 index. Two glamour portfolios showed a significant difference. The B/M portfolio and the C/P portfolio are both significant. These significant results hold that glamour stocks that are based on B/M and C/P ratios, significantly underperform the market. For the B/M stocks the significance holds a 5% significance level and the C/P for a 10% significance level.

Table 11*Results of the t-test on the daily returns of the glamour stocks.*

Variable	Mean	Statistic
Glamour B/M	0,000281	(0.0286)**
Glamour C/P	0,000333	(0.0934)*
Glamour E/P	0,000444	(0.3227)
Market	0,000523	

Besides testing the portfolio daily returns against the S&P 500, the difference between value and glamour portfolios is also important to answer the research question. Table 12 shows the t-test to test the credibility of the difference in value and glamour stock performance. Value stocks outperform glamour stocks significantly if the B/M ratio is the measurement. The confidence level is at 5%. For the C/P and E/P portfolios, the results tested to be not significant and nothing can be concluded.

Table 12*Results of the t-test on the daily returns of the value stocks and the glamour stocks.*

Variable	Statistic
Value B/M > Glamour B/M	(0.0439)
Value C/P > Glamour C/P	(0.1171)
Value E/P > Glamour E/P	(0.5628)

4.4 Glamour stocks overvalued

To test whether the glamour stocks are overvalued, the market model is applied, and the abnormal returns are shown in the table below. If the abnormal return over the five years is negative, this indicates that the actual return is lower than the return based on the market model. They do not give the return that is expected from them. Stocks with a negative abnormal return are therefore labeled as overvalued.

Table 13*Results of the t-test on the daily returns of the value stocks.*

Glamour	Overvalued stocks	Total stocks
B/M	36	57
C/P	43	57
E/P	39	57

In table 12 is shown that for all the valuation measures, the glamour stocks are merely overvalued. The C/P portfolio consists of 43 overvalued stock out of the 57 in the portfolio. This makes that 75,44% of the portfolio stocks is overvalued. Although the B/M ratio seems to be the best valuation measure to prove that value stocks outperform the glamour stocks, it is not the case for pure overvaluation. The C/P portfolio shows more overvalued stocks than the B/M portfolio, since the B/M portfolio consists of 63,16% overvalued stocks.

Applying a t-test on the results gives three significant results. The abnormal Returns of the C/P portfolio are the most significant with a 0,0023 test statistic. This gives that the glamour stocks of the extreme glamour portfolios are significantly undervalued.

Table 14*Results of the t-test on the daily abnormal returns of the glamour stocks.*

Variable	Mean	Statistic
Abnormal Return B/M	-.2712518**	(0.0134)
Abnormal Return C/P	-.4397782***	(0.0023)
Abnormal Return E/P	-.2655911*	(0.0755)

5. Conclusion & discussion

My paper aims to analyze the relationship between value stock returns and glamour stock returns. Based on the results of Lakonishok, Schleifer, and Vishny (1994), this research aims to extend the empirical evidence to verify the relationship between value and glamour stock returns over another time slot. They find that value stocks outperform the glamour stocks from 1963 to 1990 in the US market. To find out whether this is also the case over 2012 – 2016 in specific market sentiment, two hypotheses are constructed. Moreover, Lakonishok, Schleifer, and Vishny (1994), suggested that this outperforming might be caused by the overvaluation of glamour stocks. Therefore, the third hypothesis is formed.

The first hypothesis which focuses on the relation between the stock returns of the value portfolios and the return of the S&P 500 index assumes the value stocks to outperform the S&P 500. According to the B/M portfolio value stocks outperform the S&P 500 index what reinforces the results of Lakonishok, Schleifer, and Vishny (1994). However, the E/P portfolio contradicts these results and finds that the value stocks underperform the S&P 500 index. The results found for the first hypothesis are not tested significantly after applying a t-test. Unfortunately, nothing can be concluded based on these results and so the hypothesis can neither be rejected nor confirmed.

The second hypothesis focuses on the relation between the stock returns of the glamour portfolios and the return of the S&P 500 index. The hypothesis assumes the glamour stocks to underperform the S&P 500 index. All three of the glamour portfolios underperform the S&P 500. This is in accordance with the results of Lakonishok, Schleifer, and Vishny (1994). By analyzing the credibility, the obtained results are all significant to a 10% confidence level. The output of the t-test even shows that the B/M results are significant to a 5% confidence level and the C/P results to a 1% confidence level. To sum it up, hypothesis 2 can be confirmed since the glamour stocks significantly underperform the S&P 500 from 2012 to 2016. Moreover, the daily returns over value stocks significantly outperform the glamour stocks if the portfolios are formed based on the B/M ratio valuation measure.

The purpose of the third hypothesis is to find out whether the glamour stocks are overvalued as Lakonishok, Schleifer, and Vishny (1994) suggested. After computing the abnormal returns most of the glamour stocks happen to be overvalued. The results of the t-test show that the abnormal returns of the glamour stocks are significantly smaller than zero. This indicates that the glamour stocks are overvalued as LSV suggested and it strengthens the possible explanations of value stock outperforming glamour stocks.

The implications of this paper are, to begin with, is that there is no specific line between value and glamour stocks. Therefore, this paper only concentrates on extreme portfolios. As can be seen from, even the valuation measures to indicate whether a stock is more value or more glamour, the return differs much between for instance E/P and B/M value stocks. So even if the focus is on extreme portfolios, the results still do not coincide well.

Furthermore, there are some limitations to this research. One limitation is that, due to the short period, this research only focusses on the S&P 500 index stocks, which consists of only large-cap companies. This research is not representative for medium or small cap company

stock prices. Besides that, the research is focused on buying in one specific year (2012). This gives that this paper might rely on coincidences because it might just be that the value stocks in 2012 were undervalued and glamour stocks overvalued. Moreover, some of the companies have negative E/P and C/P ratios which makes that they cannot be interpreted well.

There is room for further research regarding value and glamour investing. There is still no clear significant evidence of what valuation measures fit best for measuring the value stocks. Also, the results of a combination of several valuation measures to form a winning outperforming portfolio are not yet tested to be significant. Certain researches are expected to help investors to better their forecasts and therefore better manages their portfolios and increase their performance in terms of return and maybe even with less risk. Future studies may develop better knowledge of the value stock investment strategies.

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7. Appendix A

Table 15

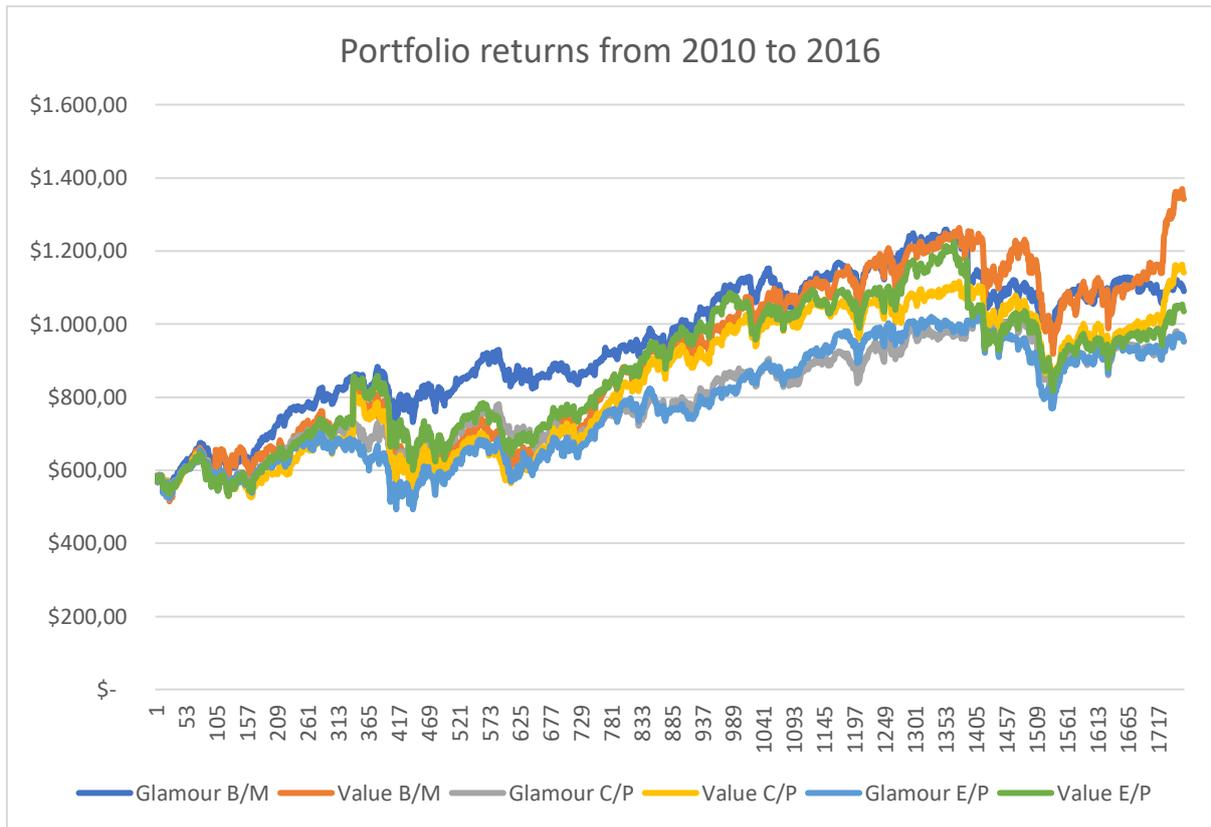
The tickers and ratios per stock per portfolio.

Extreme B/M portfolios			Extreme C/P portfolios			Extreme E/P portfolios		
Ticker	B/M ratio	Portfolio	Ticker	C/P ratio	Portfolio	Ticker	E/P ratio	Portfolio
PM	0,038	Glamour	FOH	-0,477327	Glamour	FAC	-1,0857763	Glamour
MAR	0,047	Glamour	FAC	-0,2117747	Glamour	FOH	-0,6939625	Glamour
LTD	0,058	Glamour	WLBC	-0,1363698	Glamour	CSC	-0,5714286	Glamour
NFLX	0,065	Glamour	PHM	-0,1339764	Glamour	WLBC	-0,4446421	Glamour
HSY	0,069	Glamour	GS	-0,1248595	Glamour	DF	-0,4019293	Glamour
CL	0,069	Glamour	STT	-0,1183992	Glamour	S	-0,3961965	Glamour
AMZN	0,079	Glamour	LEN	-0,076599	Glamour	SUN	-0,2718869	Glamour
CRM	0,083	Glamour	GT	-0,0412388	Glamour	MAS	-0,246063	Glamour
WU	0,084	Glamour	NTRS	-0,0268284	Glamour	PHM	-0,1382552	Glamour
YUM	0,088	Glamour	AMD	-0,0065244	Glamour	SHLD	-0,0821085	Glamour
LLTC	0,104	Glamour	DHI	0,00536829	Glamour	HCBK	-0,0757805	Glamour
IBM	0,108	Glamour	TIE	0,00536829	Glamour	GNW	-0,0674445	Glamour
PCLN	0,109	Glamour	KMX	0,00536829	Glamour	SVU	-0,0510647	Glamour
CMG	0,112	Glamour	SHLD	0,00536829	Glamour	EA	-0,0473754	Glamour
CHRW	0,113	Glamour	FTI	0,01490335	Glamour	BAC	-0,0434783	Glamour
ESRX	0,12	Glamour	CAM	0,01796138	Glamour	OI	-0,0370069	Glamour
COH	0,12	Glamour	EA	0,01897209	Glamour	RRC	-0,028512	Glamour
BA	0,133	Glamour	FAST	0,01947192	Glamour	MU	-0,0250163	Glamour
RHT	0,145	Glamour	BK	0,01962978	Glamour	AES	-0,0164577	Glamour
FAST	0,146	Glamour	RLH	0,02538715	Glamour	VMC	-0,0159599	Glamour
EL	0,146	Glamour	EW	0,02814285	Glamour	MMI	-0,0077658	Glamour
INTU	0,147	Glamour	MMI	0,03085372	Glamour	ZION	-0,0018199	Glamour
CPB	0,148	Glamour	WY	0,03138042	Glamour	EP	0,00216998	Glamour
PAYX	0,151	Glamour	ISRG	0,03159857	Glamour	CRM	0,00216998	Glamour
MA	0,151	Glamour	TIF	0,03179751	Glamour	WIN	0,00216998	Glamour
DLTR	0,152	Glamour	ADM	0,0323154	Glamour	FTR	0,00249221	Glamour
AMT	0,154	Glamour	CRM	0,03254149	Glamour	BTU	0,0068055	Glamour
ROST	0,155	Glamour	CMG	0,03339456	Glamour	VRSN	0,00809933	Glamour
TDC	0,156	Glamour	VMC	0,03468609	Glamour	AMZN	0,00977164	Glamour
SBUX	0,158	Glamour	AMZN	0,03528333	Glamour	AMT	0,01086449	Glamour
K	0,161	Glamour	PBCT	0,03543586	Glamour	SLE	0,01368139	Glamour
MCD	0,163	Glamour	VFC	0,03609717	Glamour	RHT	0,01574283	Glamour
TJX	0,164	Glamour	FLS	0,03632005	Glamour	DHI	0,01652292	Glamour
EW	0,166	Glamour	SNA	0,0366542	Glamour	CMG	0,0175067	Glamour
UPS	0,167	Glamour	SLE	0,03712642	Glamour	MAR	0,01770695	Glamour
ISRG	0,167	Glamour	GR	0,03801848	Glamour	SAI	0,01905125	Glamour
WAT	0,171	Glamour	BA	0,04004806	Glamour	THC	0,01937609	Glamour
PRGO	0,172	Glamour	RHT	0,04007213	Glamour	FHN	0,01947306	Glamour
VRSN	0,175	Glamour	ATI	0,04111673	Glamour	JCP	0,01997603	Glamour
FTI	0,176	Glamour	JEC	0,04111842	Glamour	DUK	0,02158382	Glamour
JWN	0,178	Glamour	MJN	0,0414525	Glamour	NWL	0,02165674	Glamour

FDO	0,179	Glamour	FLIR	0,04335385	Glamour	PWR	0,02175947	Glamour
MHP	0,184	Glamour	VRSN	0,04376176	Glamour	LUV	0,02192069	Glamour
WYNN	0,184	Glamour	AMT	0,04392322	Glamour	LEN	0,02233589	Glamour
CERN	0,19	Glamour	FFIV	0,04396957	Glamour	ALL	0,02391658	Glamour
COL	0,19	Glamour	CHRW	0,04454541	Glamour	XRX	0,02419374	Glamour
F	0,193	Glamour	SBUX	0,04466608	Glamour	FAST	0,02420721	Glamour
HRB	0,193	Glamour	BHI	0,04476877	Glamour	FFIV	0,02472005	Glamour
FFIV	0,197	Glamour	PCP	0,04513043	Glamour	WFM	0,02607018	Glamour
KMB	0,203	Glamour	CTSH	0,0451712	Glamour	CTXS	0,02745367	Glamour
SLE	0,204	Glamour	NKE	0,04592633	Glamour	CINF	0,02937548	Glamour
PX	0,205	Glamour	COHU	0,04679238	Glamour	SRCL	0,0299931	Glamour
CTSH	0,208	Glamour	ECL	0,04697261	Glamour	AA	0,03116818	Glamour
GILD	0,209	Glamour	PCLN	0,04702342	Glamour	AKAM	0,03133716	Glamour
SHW	0,212	Glamour	SRCL	0,04713424	Glamour	FTI	0,03208728	Glamour
JOY	0,214	Glamour	SJM	0,04836525	Glamour	ADSK	0,03250024	Glamour
VAR	0,215	Glamour	CERN	0,04838398	Glamour	RHI	0,03286339	Glamour
NI	1,24	Value	SWY	0,22941042	Value	ETR	0,11401209	Value
CTL	1,247	Value	LNC	0,232396	Value	COP	0,11449508	Value
PNW	1,248	Value	QEP	0,23419204	Value	BWA	0,11630612	Value
PHM	1,272	Value	CNP	0,2354049	Value	GME	0,11644155	Value
MRO	1,279	Value	ETR	0,2365744	Value	VLO	0,11713717	Value
COHU	1,281	Value	KR	0,2374169	Value	DO	0,11732958	Value
PNC	1,285	Value	APA	0,23952096	Value	AMAT	0,11811954	Value
RDC	1,294	Value	STZ	0,24213075	Value	CI	0,11844131	Value
VMC	1,313	Value	F	0,24307244	Value	BBY	0,11858176	Value
XRX	1,319	Value	MUR	0,24313153	Value	DV	0,11863804	Value
PBCT	1,331	Value	CMCSA	0,24820055	Value	HPQ	0,11865211	Value
LUV	1,333	Value	AEE	0,2484472	Value	WLP	0,11877895	Value
CMCSA	1,339	Value	PCG	0,249501	Value	C	0,1210947	Value
FITB	1,36	Value	CEG	0,25673941	Value	LXK	0,12235409	Value
FAC	1,363	Value	UNS	0,25700334	Value	RAI	0,12286522	Value
EIX	1,373	Value	BBT	0,2585984	Value	LLL	0,12312238	Value
R	1,378	Value	HUM	0,26301946	Value	FCX	0,12388503	Value
NDAQ	1,382	Value	FHN	0,26441036	Value	JPM	0,12573871	Value
GS	1,386	Value	HCBK	0,26546323	Value	FRX	0,12712942	Value
CEG	1,392	Value	EIX	0,26560425	Value	KEY	0,127421	Value
MU	1,398	Value	EXPE	0,27233115	Value	CVX	0,13090719	Value
DF	1,4	Value	PBI	0,27344818	Value	F	0,13446282	Value
L	1,44	Value	HBAN	0,2753304	Value	CVH	0,13535463	Value
NYX	1,456	Value	GME	0,27816412	Value	PKI	0,13594345	Value
AA	1,459	Value	HES	0,27824151	Value	BLL	0,13601741	Value
BK	1,495	Value	VZ	0,27824151	Value	HIG	0,13755158	Value
BSX	1,508	Value	COF	0,28710881	Value	MRO	0,13825522	Value
AIZ	1,511	Value	MU	0,28735632	Value	LNC	0,13835086	Value
ETR	1,512	Value	NFX	0,29394474	Value	GILD	0,1399972	Value
ALL	1,513	Value	CSC	0,29507229	Value	STZ	0,14066676	Value
CMA	1,521	Value	NRG	0,29620853	Value	FSLR	0,14402996	Value
JPM	1,525	Value	FITB	0,30703101	Value	GCI	0,14961101	Value

PFG	1,545	Value	TSO	0,31298905	Value	PPG	0,15003751	Value
FHN	1,558	Value	PFG	0,32970656	Value	TMK	0,15119444	Value
AEE	1,578	Value	PCS	0,33377837	Value	KO	0,16082342	Value
RLH	1,584	Value	HIG	0,34423408	Value	KR	0,16329197	Value
COF	1,613	Value	AES	0,34782609	Value	COF	0,16329197	Value
LM	1,615	Value	R	0,34806822	Value	GLW	0,16471751	Value
HCBK	1,668	Value	CHK	0,34965035	Value	CNP	0,17217631	Value
PRU	1,673	Value	VLO	0,35385704	Value	DVN	0,17583963	Value
POM	1,694	Value	KEY	0,35511364	Value	EMN	0,17985612	Value
TSO	1,696	Value	RRD	0,36656891	Value	NKE	0,180018	Value
KEY	1,701	Value	STI	0,37216226	Value	CLF	0,18047284	Value
ZION	1,76	Value	ZION	0,37467216	Value	TSO	0,18656716	Value
NRG	1,849	Value	FTR	0,3776435	Value	VFC	0,18800526	Value
ETFC	1,903	Value	MRO	0,37907506	Value	FISV	0,19398642	Value
AIG	2,064	Value	BBY	0,3900156	Value	FLS	0,20149103	Value
STI	2,078	Value	CVC	0,45289855	Value	TJX	0,20370748	Value
WLBC	2,107	Value	PRU	0,47415837	Value	LO	0,207555	Value
VLO	2,174	Value	JPM	0,48262548	Value	AMD	0,2086376	Value
S	2,192	Value	C	0,50175615	Value	ROST	0,21249469	Value
MS	2,316	Value	SLM	0,52966102	Value	LUK	0,2327205	Value
C	2,364	Value	BAC	0,59988002	Value	NFLX	0,25621317	Value
HIG	3,091	Value	GNW	0,63211125	Value	ICE	0,28433324	Value
LNC	3,164	Value	S	0,64061499	Value	MA	0,50125313	Value
BAC	3,398	Value	MS	0,68965517	Value	CF	0,51282051	Value
GNW	6,399	Value	SVU	0,70224719	Value	AIG	0,6116208	Value

8. Appendix B



Graph 1

Portfolio returns for the portfolios from 2010 ($T=1$) to 2016 ($T=1762$); $T=505$ is the first day of 2012 (the day that the portfolios are formed).