

Value vs. Growth Investment Strategies an Empirical Analysis in the European Context

Emanuele Teti

Università di Pisa, Via Cosimo Ridolfi, 10 - 56124 Pisa (Italy)

SDA Bocconi School of Management - Milan

Maurizio Dalocchio

Bocconi University, Via Rontgen, 1 – 20136 Milan (Italy)

Tommaso Tamburnotti

Bocconi University

Via Rontgen, 1 – 20136 Milan (Italy)

Abstract

Many studies have compared the performance of value stocks to those of growth stocks. Value investing is based on the ability to pick up the right undervalued stocks, generally mature companies, presenting though a sound business value. Instead, growth investing focuses on young companies that present high growing opportunities. This paper shows that value portfolios outperform the growth ones in all the four methodologies specifically implemented, thus leading to assume a strong value effect. The analysis is conducted on portfolios which are rebalanced on a yearly basis, considering the European Monetary Union (EMU) market as a reference, so to avoid different currencies issues. The insights identified in this paper can be used by corporate management to analyze the effects of the different kinds of strategies they are going to implement. This paper deals with a key management dilemma by addressing managers in the analysis of the selection process, pointing out the pros and cons of both value and growth investing.

Keywords: Value; Growth; Investing; Europe; Corporate Finance; Portfolio; Risk.

1. Introduction

The globalization process has increased the integration among the numerous financial systems in the world. Over time, financial markets have gained preponderance, sometimes even overcoming the real economic activities, in the formation of countries' wealth. The increase in efficiency, together with the easier process of collecting information and participating in the different transactions taking place in the markets, has caused more and more institutional and private investors to move their capital from the traditional entrepreneurial activities to the financial markets. This process has allowed a better match between entrepreneurial ideas and capital financing. The resulting improvement in the capital allocation process has surely been an important driver for growth in many economies. As the volume of capitals flowing into the financial markets has increased over time, researches and studies, showing anomalies and strategies that could have been used to gain excess return over the markets, have got some attention. This paper is focused on the comparison between two important investment strategies, the Value and the Growth Investment. The choice is due to several reasons. First, these two approaches

represent the two most followed ways to classify investments used by mutual funds, hedge funds and private individuals. Second, the ample literature about the two theories suggests a steady importance about their concept and offers support for further empirical research to discover if any statistical relation holds between the macroeconomic factors and the efficiency of any of the two strategies. Third, the two approaches tend to operate in a very specular way, therefore we think that important conclusions may be drawn from their comparison. Value investing is based on the ability to pick up the right undervalued stocks, generally mature companies in the manufacturing, real estate or retail industry, presenting though a sound business value. Growth investing, on the contrary, focuses on young companies, generally belonging to the healthcare or technology industry that present high growing opportunities.

Many studies conducted in the USA, Japan and other developed countries have provided empirical evidence that in the last forty years there has been a significant value premium over the market. These studies are of fundamental importance, since they aim to identify which strategies have outperformed in the past. However, the presence of abnormal returns, undermines the well-known Efficient Market Hypothesis (EMH), which states that in a truly efficient market at any point in time, all the available information is fully reflected in its current stock price. This means that as long as the market is fully efficient, it should be impossible to find any under or overvalued stocks able to generate abnormal return (Cliff and Ambrosini, 2007). This paper does not, however, try to assess whether any of the value or growth strategies has outperformed the market over the last 15 years, therefore constituting a breach of the EMH.

The paper is structured as follows. Section 2 compares the strategies and analyses literature on value and growth investing. Section 3 introduces the data and methodology used. Section 4 analyses in detail the results identified. A final section concludes the work.

2. Value and Growth Strategies

Value Strategy

Value investing is the practice of purchasing securities or assets for less than they are worth – the proverbial dollar for 50 cents. Investing in bargain-priced securities provides a “margin of safety” – room for error, imprecision, bad luck, or the vicissitudes of the economy and stock market. This philosophy emphasizes the need to perform in-depth fundamental analysis, pursuing long-term investment results, limiting risk, and resisting crowd psychology (Chahine, 2008; Henkel and Hoffman, 2019). In contrast to the speculator’s preoccupation with rapid gain, value investors demonstrate their risk aversion by striving to avoid loss. This philosophy contrasts with the *growth investing* strategy, which means buying a financial asset hoping that some other investors will take a long position buying it from you at a greater price (Graham and Dodd, 1934). The fundamental analysis is the core instrument for value investors in stock selecting activities. Graham and Dodd (1934) are considered the inventors of the fundamental analysis on stocks. The stock’s price is compared with some accounting and financial variables of the target company. A stock is considered value when it has low Price-to-Earnings (P/E), Price-to-Cash Flow (P/CF) e Price-to-Sales (P/S), and high Book-to-Market Value (B/MV, or the inverse P/BV) and Dividend yield.

Growth Strategy

Growth stocks are defined as those which experience higher-than-average gains in earnings or stock price during the past few years and are expected to continue to do so (Graham and Dodd, 1934). Basically, the underlying idea of the growth investing is that the market will continually reward stocks that show above than average growth. However, it is not sustainable that a company may systematically outperform the industry and therefore sooner or later analysts’ expectations will not be met, and the stock price will stop its surge. Generally, growth investing focuses on glamour famous companies’ stocks, whose activities and information are strongly monitored by financial analysts and

whose stocks are very liquid. Growth companies are those that show state-of-the-art ability in creating and expanding their own market. Therefore, their growth potential lies in the active commitment to increase revenues and improve profit margins. On the contrary, companies that expand their market results only through the acquisition of other companies or competitors are not to be considered as growth. Growth companies adapt themselves to the economic environment in which they operate, creating additional demand for something new that did not exist before, therefore expanding the market. From a fundamental perspective, growth stocks will be analyzed based on the same fundamental parameters of value stocks, even though the characterizing values would just be the opposite of value stocks. Growth stocks are characterized by high P/E, P/BV, P/CF, P/S, and low dividend yield.

The Value Strategy Effect and Literature

There have been many studies comparing the performances of value and growth strategies in the equity capital market (Brandenburger and Stuart, 1996). Bauman and Miller (1997) compared value and growth stocks listed on the U.S. equity capital market, the NYSE, AMEX and NASDAQ for the 1980–1993 period, and concluded that value stocks outperformed growth stocks. Bauman, Conover, and Miller (1998) conducted a comparison about how value and growth stocks show different trends and behaviors in the international market compared to the U.S. market, suggesting that one of the possible reasons explaining the discrepancy may be the difference about the investors' behavior. Bauman observed that the availability, quality, and timeliness of research information used by investors frequently vary considerably from one country to another. The study indicates that value strategy has had superior performance over the growth strategy, not only in the U.S. market, but also in the non-U.S. developed markets. Fama and French (1998) achieved similar results. They analyze only the twelve major markets and broaden the testing period (1975–1995), concluding that value stocks have obtained higher returns than growth stocks, therefore suggesting a strong value effect pervasive not just in the U.S. but also internationally. The empirical studies analyzed so far provide overwhelming evidence that the variation in cross-sectional stock returns, that favor value stocks, is significantly related to the firm book-to-market-equity (B/MV). While the existence of the value effect is certain, there is considerable debate regarding the underlying explanation for the effect.

First, Fama and French (1993, 1995 and 1996) argue that value stocks tend to outperform growth stocks because of the higher risk. Value premium is therefore a compensation for risk missed by the CAPM of Sharpe (1964) and Lintner (1965). This conclusion is based on evidence that there is common variation in the earnings of distressed firms that is not explained by market earnings, and there is common variation in the returns on distressed stocks that is not explained by the market return (Fama, French 1998). Low P/BV (value) stocks systematically perform better than high P/BV stocks (growth). Value investors are more willing to bear higher fundamental risk, and therefore its higher return is simply a reward for the higher risk involved. Second, a slightly evolution of the first explanation is that the effect is due to an association between B/MV and the risk of financial distress (Fama and French 1992, 1993, 1995; Chen and Zhang 1998). According to this explanation, the value effect exists because B/MV indicates a firm's degree of financial distress risk. In particular, firms with high B/MV (value firms) are shown to have earnings problems and relatively high levels of financial leverage. Therefore, the risk-based explanation for the value effect contends that the premium attached to value firms is a rational result of the higher financial distress risk inherent in value firms. A third explanation contends that the effect is due to irrational pricing as investors become overly optimistic or pessimistic about the prospects of firms exhibiting certain "growth- or value-related" characteristics (Lakonishok, Shleifer, and Vishny, 1994, and Daniel and Titman, 1997). Lakonishok et al. (1994) and Haugen (1995) argue that the value premium in average returns arises because the market undervalues distressed stocks and overvalues growth stocks. Therefore, irrational pricing may lead investors to overestimate stocks whose issuer have shown tremendous growth prospects in the past, even if such growth rates are rarely achievable in the future, thus not sustainable. Further, Shleifer and Vishny

(1997) and Ali, Hwang, and Trombley (2003) argue that impediments such as risk and transactions costs prevent arbitrageurs from exploiting the systematic mispricing of investors. Griffin and Lemmon (2002) and Dichev (1998) find evidence suggesting that the mispricing associated with B/MV exists even after controlling for differences in bankruptcy risk. Specifically, the authors conclude that investors systematically overprice growth firms that have high bankruptcy risk. The investors are subsequently disappointed when the firms' fortunes do not improve. Fourth, another common irrational pricing issue happens when investors evaluate a stock as good as the company is. This is faulty because a good company may not have its stocks classified as good investment, from a risk-adjusted basis (Graham, 1973). For example a well-managed company may be deemed a good investment regardless of the price. Capaul, Rowley and Sharpe (1993) provide two possible explanations for the value effect, also related to the behavioral finance. Fifth, investors can be interested in other characteristics of the stock, beside the pre-tax return and risk. A sixth explanation, provided by the same authors, is that many investors overprice glamour stocks because of some behavioral finance factors. Institutional investors may like to show good and famous company's stocks in their records, to please investors and make feel them safer. For their perspective a portfolio that have underperformed the market is more defensible, in the eye of investors, when he/she has bought glamour stocks, rather than a group of unknown and exotic ones. Haugen and Baker (1996) assumed that a reason for the mispricing is linked to the B/MV and the exaggerated reaction of the market to above-than-average growth expectations. Basically when a company is presumed to have very high growth potential, its price skyrockets and its B/MV decreases. In its euphoria, the market overestimates the growth benefit, making the stock totally overpriced in relation to its growth rate. When these stocks do not achieve the growth target imposed by the market, which is out of the reach, the obtained return is likely to be lower than that of stocks with lower B/MV. Stattman (1980) and Rosenberg, Reid, and Lanstein (1985) find that average returns on U.S. stocks are positively related to the ratio of a firm's book value of common equity to its market value (B/MV). Chan, Hamao, and Lakonishok (1991) find the same evidence in the Japanese market.

Summarizing, the principal driver of mispricing in securities is related to the behavioral finance. That is, many times investors behave irrationally, forgetting about the fundamental analysis and tending to overestimate future prospects of stocks, on the basis of past performance. Here probably lies the superiority of value stock strategies, as said by Graham, who focuses on the other spectrum of the equity market, buying neglected stocks at discount and selling overestimated ones.

3. Data and Methodology

Data Collection

The analysis has been focused on the European Monetary Union (EMU) market. This distinction is useful, because it allows eliminating any potential distortions rising from the usage of different currencies. The most proper index used to track the EMU performance is the Dow Jones EuroStoxx Index (DJ EuroStoxx). Bloomberg and Thomson Reuters Datastream have been used to build the database of stocks forming the DJ EuroStoxx index for 15 years. Bloomberg has been used to obtain the list of stocks composing the DJ EuroStoxx for each of the 15 years. Once the database of stock names has been completed, we proceeded with Datastream in order to obtain all the relevant financial information for the stocks. The matching between Bloomberg and Datastream data has been possible through the common unique stock identifying ISIN code. This *main dataset* has been used as the only source for the creation of the different portfolios through the four methodologies outlined. The following information has been collected for each stock:

- ISIN code: used to match Bloomberg and Datastream data.
- Name of the company issuing the stock.
- Price-to-book value.
- Price-to-earnings.
- Price-to-cash flow.

- Dividend yield.
- Price at the beginning of the year t : the datatype P has been used that gives the value of the stock price adjusted for changes in capital.
- Closing price at year t .
- Dividend per share: that represents the expectation of the market for the next 12 months dividend payout.
- Country in which the company is listed.
- Industry type.
- Beta of the stock in terms of the DJ EuroStoxx.
- Series of monthly price for the analyzed years.

For the sake of completeness, it is worth specifying that the population size and the stock composition of the main dataset will change year by year. That because the dataset fully takes into consideration the actual changes made to the index composition through the 15 years analyzed.

Quantitative Research Approach

Portfolio Creation and Characteristics

Value and growth portfolios are formed starting from the dataset created. Here we explain the four methodologies through which value and growth portfolios are created. It is worth specifying that for all methodologies used, portfolios have been rebalanced on a yearly basis, excluding those stocks that no longer own the proper characteristics, while including those that fulfill them. For each year, value and growth portfolios have the same sample size that differ year by year, but remains always larger than 30 elements in order to reliably assume that the sample mean can be safely presumed to have a normal distribution.

The first methodology used to create value and growth portfolios is the *Global Quartile Method*. Stocks composing the DJ EuroStoxx Index are sorted in ascending order based on their P/BV values and, then, the index is divided in four equally weighted groups (quartiles), thus each group comprises 25% of the index stocks. The first quartile represents the value global portfolio, composed by these stocks with the lowest values of P/BV . The last quartile represents the growth global portfolio, composed by stocks with the highest values of P/BV .

For the second method, the *Country-based Quartile Method*, the DJ EuroStoxx stocks are divided in different country-based datasets, one for each country market. Then, for each dataset, the same procedure of the *Global Quartile Method* is repeated. Stocks are sorted in ascending order on the P/BV and the resulting sorted index divided in quartiles. The lowest 25% stocks are selected for the value portfolio, while the upper 25% stocks for the growth portfolio. Finally, these country-based portfolios are merged together to obtain global value and growth portfolios. Basically, the criteria to differentiate a stock as either value or growth is the same as that used in the *Global Quartile Method* in the previous section. The only difference here is that it is applied on a country basis rather than on a global basis as in the *Global Quartile Method*.

The third method, called *PEBV (Price-to-Earnings and Book-Value)* uses a stock selection strategy based on two variables, the P/E and the P/BV together. Stocks composing the DJ EuroStoxx Index are classified to create four different portfolios, based on two criteria. At first, stocks are sorted in ascending order based on the P/BV ratio of the last available trading day of the previous year. The first sixty stocks, those with the lowest P/BV , are selected and further split in two equal-size samples on the basis of the P/E ratio. This procedure allows obtaining two equal-size portfolios. The first is composed of thirty stocks presenting both low P/BV and high P/E . The second is made up of stocks having both low P/BV and low P/E ratios. The same procedure is repeated, ranking the DJ EuroStoxx stocks based on ascending P/BV and taking the last sixty stocks, presenting high values of P/BV , that are then split again based on the P/E in order to create other two equal-size portfolios. In the end, four portfolios are obtained presenting the following characteristics:

- Low P/BV, low P/E stocks portfolio.
- Low P/BV, high P/E stocks portfolio.
- High P/BV, low P/E stocks portfolio.
- High P/BV, high P/E stocks portfolio.

Compared to the two methods previously showed, this methodology takes the P/E ratio into account as an additional parameter. The objective of this analysis is to assess whether the inclusion of the P/E variable can give significant contribution in explaining part of the abnormal return spread between value and growth portfolios.

The fourth method is called *Total Market Indicator Method (TMI Method)*. The creation of value and growth portfolios is based on a framework that selects stocks based on the following parameters:

- Price-to-book value.
- Price-to-earnings.
- Price-to-cash flow.
- Dividend yield.

Stocks with the lowest values of P/BV, P/E, P/CF and the highest of Dividend yield are selected to form the value portfolio. Stocks complying the opposite criteria form the growth portfolio. This method has been designed in order to obtain the “purest” portfolios, that is in line with the theoretical definitions, making it possible to achieve the highest level of accuracy. Each year, portfolios are re-balanced to keep track of the change in the stocks parameters, to obtain the best suited portfolios in line with the guidelines.

Portfolio Analysis

For each year, summary tables have been prepared reporting the values of annual arithmetic and geometric mean returns, standard deviation for both the value and the growth portfolios, together with the average portfolios’ beta, representing the magnitude of the systematic risk to the market. The portfolios’ beta and the standard deviation are used to compute the two different risk-adjusted measures, the Sharpe ratio and the Treynor ratio. The ratios are computed both on an annual and a cumulative basis. Portfolios are beta adjusted, in the sense that in comparing the two portfolios we take a long position in the value portfolio and a short one in the growth portfolio. The hedge is conducted leaving the position beta-neutral against the market. The analysis aims to assess whether the spread between the two positions is significantly different from zero, resulting in a significant return difference.

It is important to conduct portfolio comparisons on a risk-adjusted basis. This is due to the fact that investors are risk-averse, meaning that if facing two investments with the same expected return, the one with the lowest risk will be preferred and, therefore, they expect compensation for the level of risk of the portfolio (Bodie, 2009). Comparing portfolios on a risk-adjusted basis means to adjust the portfolio’s return by its intrinsic riskiness, measurable in many ways. A first risk measure, used in this paper, is the portfolio return volatility, measured by the standard deviation of its return distribution.

Besides the comparison with the DJ EuroStoxx Index, the benchmark, used to build the two portfolios, it is worth carrying out a further analysis with other external indexes, in order to ward off potential mismatches resulting from the sampling methodology. The best external benchmark is deemed to be the MSCI EMU Index. The index aims to keep records of the European Monetary Union market, like the DJ EuroStoxx. The index is further split in two sub-indexes, the MSCI EMU Value and the MSCI EMU Growth index, based on the P/BV ratios. The value portfolio is compared with the MSCI EMU Value Index, composed by 50% of the stocks with the lowest P/BV of MSCI EMU Index, while the MSCI EMU Growth Index is built with the remaining half of the stocks of the EMU Index, those with the highest P/BV. Therefore, these indexes are built following the same methodology of the value portfolio in the *Global Quartile Method*, with the only difference of including the 50% of the principal index, instead of the first quartile.

3. Empirical Findings

Global Quartile Method

Table 1 reports the final results obtained through the analysis. The portfolios' beta and the standard deviation are used to compute the two different risk-adjusted measures, the Sharpe ratio and the Treynor ratio. The ratios are computed both on an annual and a cumulative basis. The average and geometric mean returns are computed on the distribution of monthly portfolios' returns and then annualized. The results show a clear value preponderance. For the global portfolios formed according to the P/BV variable, value has outperformed growth in ten out of the fifteen years period. Value portfolios have registered superior performance, on a continuous basis, until 2006. On the opposite, from 2007 on, growth strategy have turned out to more profitable. The Value portfolio presents an annual compound (geometric mean) return over the total period of 8.87%, 472 basis points more than the Growth portfolio. However, the Growth portfolio shows a lower standard deviation than the Value portfolio, which contributes to reduce the spread to the Value portfolio from a risk-adjusted perspective. Value portfolio's Sharpe ratio has been 57.42% higher than Growth portfolio one. Value's Treynor ratio is 10.98% - that is 66.28% higher than the Growth portfolio. Therefore, considering the empirical evidences analyzed, we can state that the value strategy has outperformed the growth strategy both from an absolute and a risk-adjusted perspective. The Value portfolio has outperformed the Growth portfolio in ten out of the fifteen years studied, and the difference in return is statistically significant at the 1% level for all years. Figure 1 provides a graphic representation of the trend.

Table 1: Value versus Growth portfolios

Year	Value			Growth			Spread	Sharpe Ratio		Treynor Ratio	
	Rend	Std. Dev.	Beta	Rend	Std. Dev.	Beta		Value	Growth	Value	Growth
1997	46.29%	20.20%	0.9644	30.00%	19.16%	0.8523	12.80%	229.16%	156.59%	48.00%	35.20%
1998	19.74%	30.49%	0.9604	35.61%	24.73%	0.9136	-18.43%	64.73%	143.99%	20.55%	38.98%
1999	49.20%	14.84%	1.0291	29.76%	19.71%	0.8386	12.32%	331.54%	151.05%	47.81%	35.49%
2000	7.11%	8.96%	0.8145	-9.79%	32.67%	1.1255	17.43%	79.35%	-29.97%	8.73%	-8.70%
2001	-1.06%	25.72%	0.8096	-20.84%	30.58%	1.1245	17.22%	-4.12%	-68.15%	-1.31%	-18.53%
2002	-12.54%	27.18%	0.8834	-28.39%	35.16%	1.0299	13.37%	-46.14%	-80.75%	-14.20%	-27.57%
2003	43.05%	23.00%	1.0127	27.61%	18.06%	0.9569	13.66%	187.17%	152.88%	42.51%	28.85%
2004	20.75%	8.47%	0.7833	17.25%	10.15%	1.0606	10.23%	244.98%	169.95%	26.49%	16.26%
2005	30.03%	12.70%	1.0378	19.08%	9.82%	0.9986	9.82%	236.49%	194.36%	28.93%	19.11%
2006	35.71%	11.96%	0.9519	22.35%	9.77%	0.9342	13.59%	298.58%	228.76%	37.51%	23.92%
2007	-3.49%	11.62%	1.0547	6.82%	10.42%	0.9464	-10.52%	-30.03%	65.45%	-3.31%	7.21%
2008	-50.47%	31.78%	1.1611	-39.57%	24.63%	1.0155	-4.50%	-158.81%	-160.66%	-43.47%	-38.97%
2009	62.17%	45.99%	1.5273	19.09%	16.28%	0.8070	17.05%	135.18%	117.26%	40.71%	23.65%
2010	-4.33%	26.18%	1.4109	13.79%	13.42%	0.8518	-19.26%	-16.54%	102.76%	-3.07%	16.19%
2011	-30.69%	21.35%	1.3589	-7.85%	14.98%	0.8814	-13.68%	-143.75%	-52.40%	-22.58%	-8.91%
Average P/BV		1.07			6.85		-				
Arithmetic Mean Return		11.53%			6.31%		3.64%				
Geometric Mean Return		8.87%			4.15%		2.78%				
Std. Dev.		24.58%			21.17%		-				
Beta		1.05			0.96		-				
Sharpe Ratio		46.91%			29.80%		-				
Treynor Ratio		10.98%			6.60%		-				

Source: Thomson Reuters Datastream.

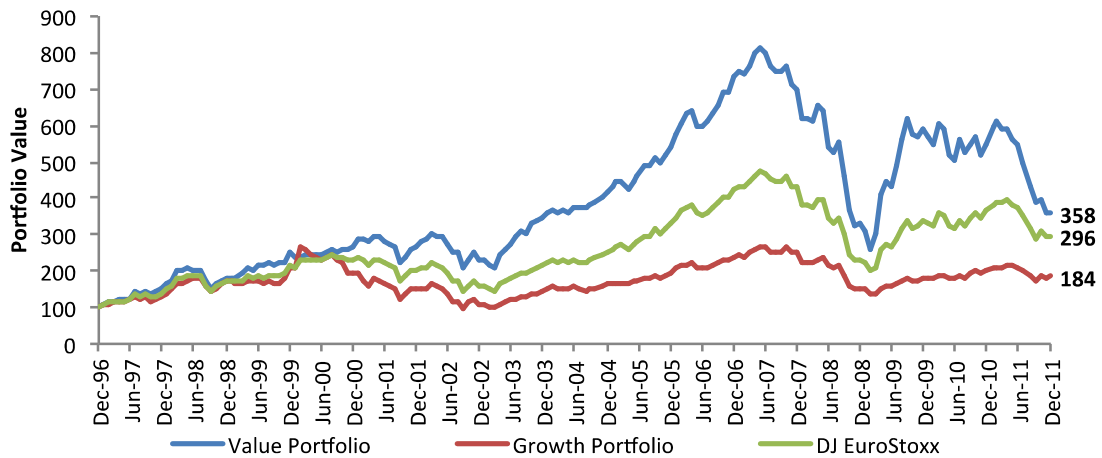
Table 2: Index and benchmark comparison

Year	DJ EuroStoxx		MSCI EMU Value		MSCI EMU Growth	
	Return	Std. Dev.	Return	Std. Dev.	Return	Std. Dev.
1997	37.85%	17.53%	46.66%	22.11%	33.79%	22.41%
1998	24.45%	26.89%	24.10%	27.56%	31.17%	25.41%
1999	27.46%	13.04%	37.15%	15.50%	37.72%	23.16%
2000	6.14%	12.26%	9.50%	13.45%	-15.60%	18.92%
2001	-11.80%	23.05%	-13.97%	19.42%	-24.75%	26.49%
2002	-22.28%	29.40%	-35.61%	33.70%	-34.49%	26.92%
2003	33.66%	18.00%	21.52%	23.18%	11.34%	16.82%
2004	18.16%	8.51%	12.61%	7.72%	7.62%	8.83%
2005	30.91%	12.80%	27.14%	11.94%	17.63%	10.04%
2006	28.22%	10.74%	21.20%	10.31%	16.73%	9.00%
2007	1.46%	10.32%	-0.54%	10.31%	11.33%	8.60%
2008	-46.00%	26.32%	-49.16%	25.11%	-43.57%	21.31%
2009	46.55%	28.42%	25.90%	30.05%	18.60%	17.94%
2010	8.30%	18.86%	-4.90%	20.46%	7.10%	14.84%
2011	-19.49%	17.33%	-21.83%	21.69%	-10.73%	17.34%

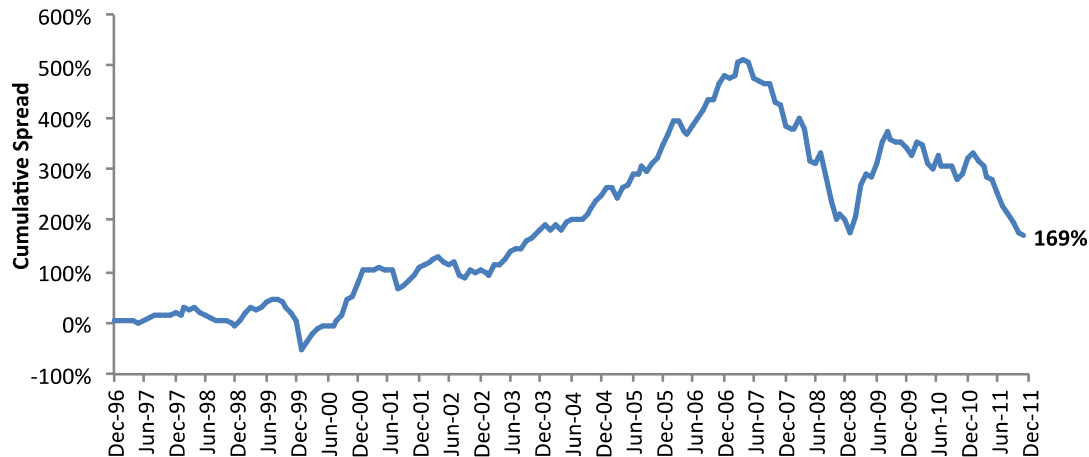
Average P/BV	N/A	N/A	N/A
Arithmetic Mean Return	9.30%	5.14%	3.03%
Geometric Mean Return	7.50%	2.79%	1.10%
Std. Dev.	20.12%	21.62%	19.60%
Beta	N/A	N/A	N/A
Sharpe Ratio	46.22%	23.76%	15.46%
Treynor Ratio	N/A	N/A	N/A

Source: Thomson Reuters Datastream

Figure 1: Value versus Growth Portfolios



Source: Thomson Reuters Datastream

Figure 2: Cumulative spread between Value and Growth portfolios

Source: THOMSON REUTERS DATABANK

Figure 2 shows the alternation of different cycles in which one of the two strategies has better performed. When the Value portfolio performs better than the Growth one, the cumulative spread increases and vice versa. We identify seven specific phases:

- First phase (Jan 1997 - Jan 2000): substantial parity between the two strategies;
- Second phase (Feb 2000 – Aug 2000): slight growth preponderance;
- Third phase (Sept 2000 – May 2007): strong value preponderance. In these seven years, Value portfolio performance has shown an outstanding steadfastness, reaching the historical maximum spread of 514%;
- Fourth phase (June 2007 – Feb 2009): the Growth portfolio has outperformed at a very impressive rate, recovering to 174%;
- Fifth phase (March 2009 – Sept 2009): Value preponderance. The spread has kept on growing until September 2009. In these six months the superior performance of the Value strategy has made the spread bounce to 375%.
- Sixth phase (Oct 2009 – Feb 2011): substantial parity between the two strategies.
- Seventh phase (March 2011 – Dec 2011): growth has outperformed, reducing the spread to 169%.

Index Comparison. From Table 2, the DJ EuroStoxx Index has obtained an annual arithmetic mean return of 9.30%, correspondent to an annual compounded return of 7.50%, with an annual standard deviation of 20.12%, lower than both the value and the Growth portfolios' volatility. The index has performed better than the growth strategy, in terms of both arithmetic and geometric returns, while the value strategy has been demonstrated to be the best performer. From a risk-adjusted perspective, thanks to the lowest standard deviation, the index Sharpe ratio is very close to the Value portfolio one, while considerably outperforming the Growth portfolio. Summarizing, through the *Global Quartile Method*, classifying stocks based on P/BV ratio, the value strategy has been the best performer, both from an absolute and risk-adjusted perspective, while the Growth portfolio has poorly performed and did not succeed in beating the market.

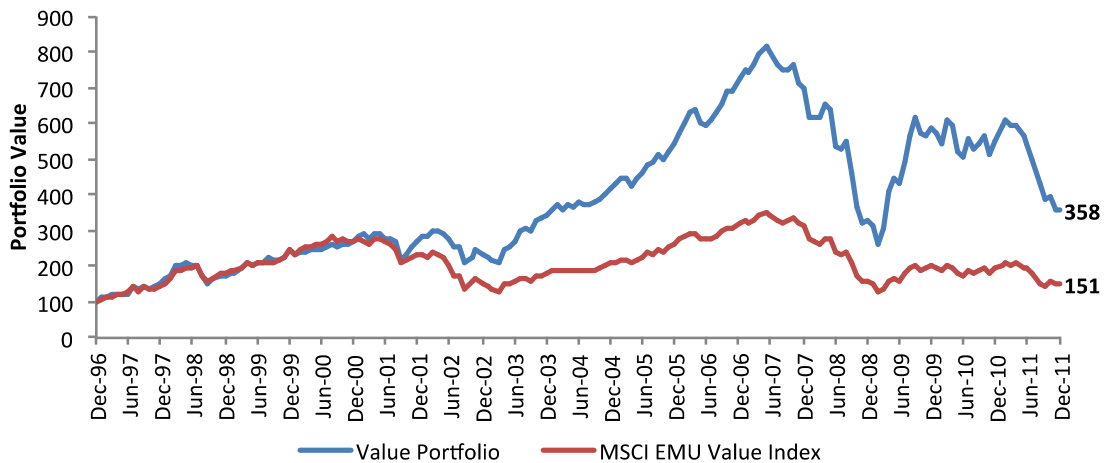
Benchmark Comparison. In this section value and Growth portfolios are compared to the MSCI EMU Value and Growth indexes.

Table 3: Correlation between Value, Growth Portfolios and bench marks

	Correlation
Value Portfolio - MSCI EMU Value Index	92.21%
Growth Portfolio - MSCI EMU Growth Index	93.41%

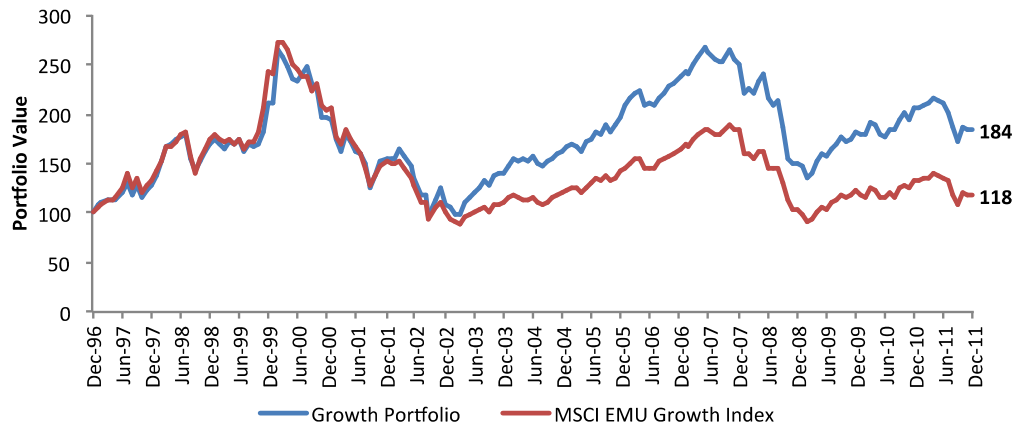
Source: Thomson Reuters Datastream

The correlation between the Value portfolio and the Value Index is 92.21%, while for the Growth pairs is 93.41%. The correlation between the corresponding peers is very high, suggesting that the two portfolios have been built following the proper methodology and own the right characteristics to be considered respectively value and growth investing portfolios. Furthermore, the comparison is worth to be tested to understand whether the portfolios built would have provided a superior or a lower return than a comparable index, which aims to follow the same strategy. From Table 3, even if the correlation between the Value portfolio and the benchmark index is very high, the former has obtained superior returns both from an absolute and a risk-adjusted perspective. The Value portfolio arithmetic mean return (11.53%) is twice as much as that of the benchmark (5.14%), and comparing the annual geometric returns, the difference is even higher. The MSCI EMU Value Index has a standard deviation of 21.62%, lower than that of the Value portfolio. However, the lower volatility is not enough to offset the return spread, with the Value portfolio having a standard deviation risk-adjusted return that is 97.47% higher than the benchmark one. Therefore, the Value portfolio has outperformed the benchmark index both in terms of absolute return and in risk-remuneration perspective.

Figure 3: Comparison between Value and MSCI EMU Value Index

Source: Thomson Reuters Datastream

Figure 3 shows that the Value portfolio and the benchmark index have behaved similarly up to September 2001, afterwards the Value portfolio registered superior returns, although showing a higher volatility. Figure 4 shows that similar considerations can be drawn for the comparison between the Growth portfolio and the MSCI EMU Growth Index. The Growth portfolio has outperformed the benchmark both in absolute and risk-adjusted basis. The index annual arithmetic mean return has been 328 basis points lower than the Growth portfolio one (6.31%). In terms of annual compounded return, the difference is even bigger with the Growth portfolio return that is almost four times as much as the index value. Also in this case, the lower standard deviation of the MSCI index is not sufficient to offset the return spread hold over the years in the determination of the risk-adjusted return.

Figure 4: Comparison between Growth Portfolio and MSCI EMU Growth Index

Source: Thomson Reuters Datastream

Data shows that portfolios built following the Global Quartile Method registered superior performance compared to the MSCI EMU Value and Growth Indexes.

Country-based Quartile Method

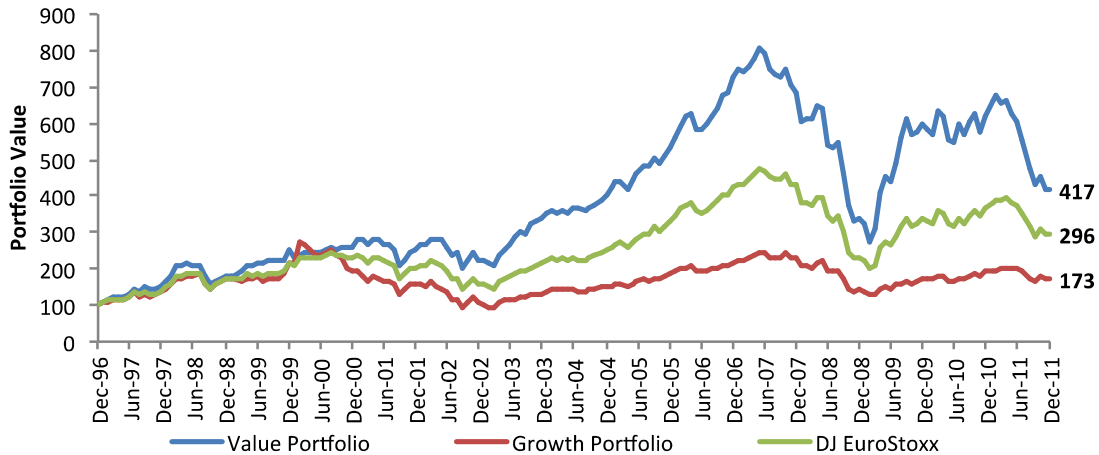
Table 4 reports the results concerning this method. Even here, the value strategy performs better than the growth strategy, in ten out of fifteen years. However, the Growth portfolio shows a slightly lower standard deviation. The beta of the two portfolios is very similar, however, due to the considerable difference in arithmetic mean returns, the Value portfolio has a Treynor ratio that is nearly twice as much as that of the Growth portfolio. From a risk perspective, it is worth noting that the Value portfolio preponderance is also associated with a superior risk. Therefore, considering the risk-adjusted return measures, part of the superior absolute performance registered by the Value portfolio over the years is offset by its superior riskiness, measured both in systematic risk (beta) and total risk (standard deviation). Even considering higher values of standard deviation and beta for the Value portfolio, the value strategy achieves higher risk-adjusted return, both in terms of systematic and total riskiness. The difference between portfolio returns, with neutral beta, is in favor of the value strategy in ten out of the fifteen years period, for which in nine years this difference is statistically significant at the 1% level.

Table 4: Value versus Growth portfolios

Year	Value			Growth			Spread	Sharpe Ratio		Treynor Ratio	
	Rend	Std. Dev.	Beta	Rend	Std. Dev.	Beta		Value	Growth	Value	Growth
1997	50.60%	20.23%	0.98	37.13%	19.92%	0.91	10.82%	250.15%	186.38%	51.64%	40.82%
1998	16.74%	29.96%	0.95	29.71%	25.23%	0.93	-14.23%	55.88%	117.76%	17.57%	31.81%
1999	46.40%	13.50%	1.01	30.63%	19.01%	0.88	11.29%	343.75%	161.09%	45.94%	34.65%
2000	5.91%	9.46%	0.85	-11.24%	33.23%	1.17	16.55%	62.49%	-33.83%	6.92%	-9.63%
2001	-4.91%	26.81%	0.88	-19.04%	29.30%	1.11	11.59%	-18.30%	-65.00%	-5.60%	-17.20%
2002	-9.86%	25.92%	0.84	-31.64%	38.18%	1.08	17.56%	-38.05%	-82.88%	-11.75%	-29.30%
2003	43.68%	19.94%	0.94	25.71%	15.65%	0.92	18.79%	219.00%	164.25%	46.69%	27.90%
2004	21.25%	8.43%	0.76	14.19%	9.82%	1.04	14.48%	251.98%	144.49%	28.15%	13.67%
2005	30.50%	12.81%	0.97	18.80%	9.38%	1.00	12.54%	238.17%	200.36%	31.34%	18.80%
2006	36.60%	12.29%	0.92	19.80%	9.60%	0.95	19.11%	297.81%	206.34%	39.87%	20.75%
2007	-3.76%	11.21%	0.99	7.80%	10.16%	0.97	-11.82%	-33.51%	76.85%	-3.79%	8.03%
2008	-48.45%	31.06%	1.15	-39.28%	23.81%	1.00	-2.89%	-155.98%	-164.96%	-42.08%	-39.19%
2009	62.38%	43.15%	1.49	20.41%	14.90%	0.79	15.80%	144.56%	136.99%	41.76%	25.97%
2010	5.66%	23.03%	1.30	12.07%	13.60%	0.84	-10.00%	24.57%	88.79%	4.35%	14.36%
2011	-29.92%	21.68%	1.35	-7.47%	15.16%	0.86	-13.53%	-138.00%	-49.24%	-22.19%	-8.65%
Average P/BV		1.15			6.69		-				
Arithmetic Mean Return		12.33%			5.90%		5.12%				
Geometric Mean Return		9.99%			3.71%		4.45%				
Std. Dev.		23.60%			21.24%		-				
Beta		1.03			0.96		-				
Sharpe Ratio		52.26%			27.80%		-				
Treynor Ratio		12.03%			6.13%		-				

Source: Thomson Reuters Datastream

Figure 5: Values versus Growth Portfolios

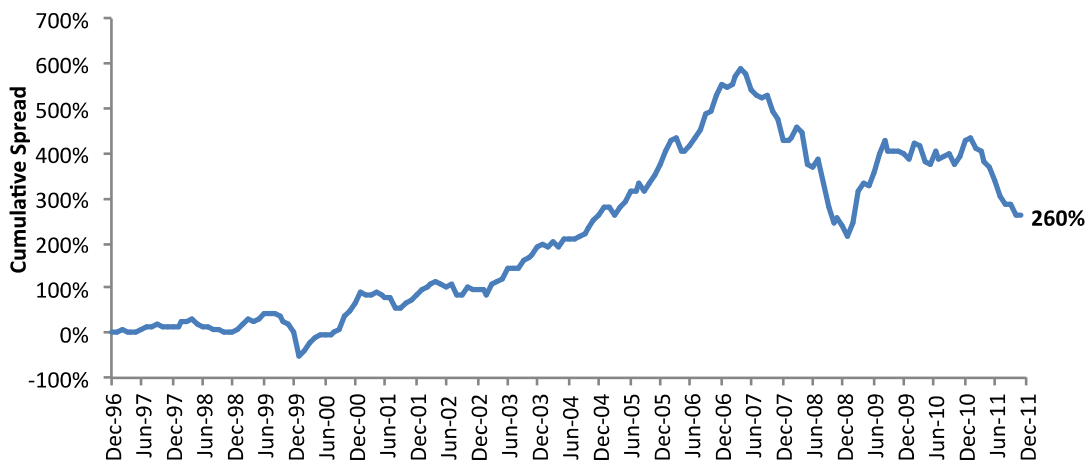


Source: THOMSON REUTERS DATABEAM

Table 4 lists the annual average spreads, between the two strategies, both on a relative and cumulative basis. It is worth taking this analysis and integrates the related effects with the analysis of Figure 5. Most of the time the two portfolios show similar movements in terms of growth or decline, even though what changes is the magnitude of the trend. However, even if the two portfolios may appear to have behaved in a very similar way over the period, a critic year was 2000, *the dot-com bubble*, in which the correlation is 11.93%, in evident countertrend to the other years.

Figure 6 shows that throughout the fifteen years analyzed, the Value portfolio has outperformed the Growth portfolio by 260 basis points, on a cumulative basis and on a beta-neutral perspective. The *Country-based Quartile Value* portfolio has achieved a beta-neutral return higher than the *Global Quartile Method* portfolios by 91 basis points.

Figure 6: Cumulative spread between Value and Growth Portfolios



Source: THOMSON REUTERS DATABEAM

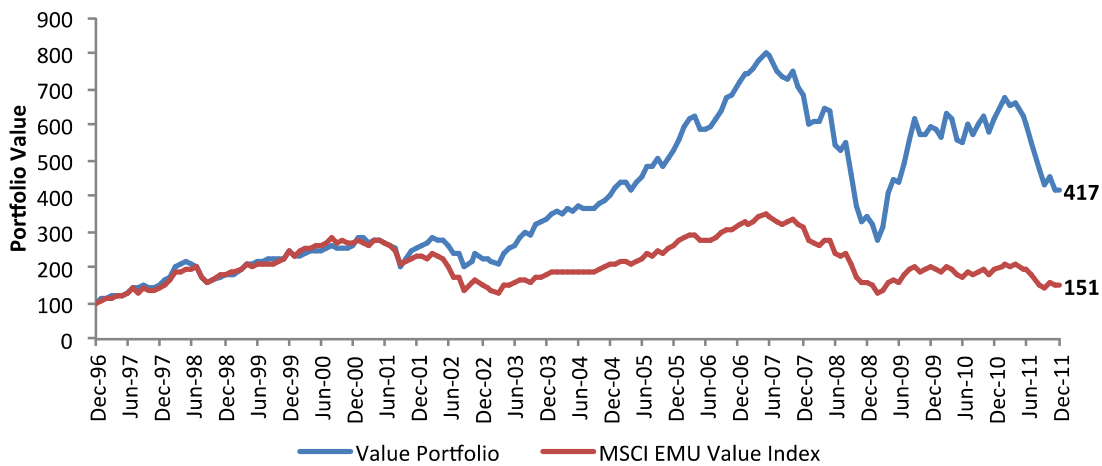
Index Comparison. Also for the *Country-based Method*, as we observed for the *Global Quartile Method*, the index has performed better than the growth strategy, in terms of both arithmetic and geometric returns, while the value strategy has been demonstrated to be the best performer.

Benchmark Comparison. From Table 5, the correlation between the corresponding peers is very high, suggesting that the two portfolios have been built following the proper methodology and own the right characteristics to be considered respectively value and growth investing portfolios.

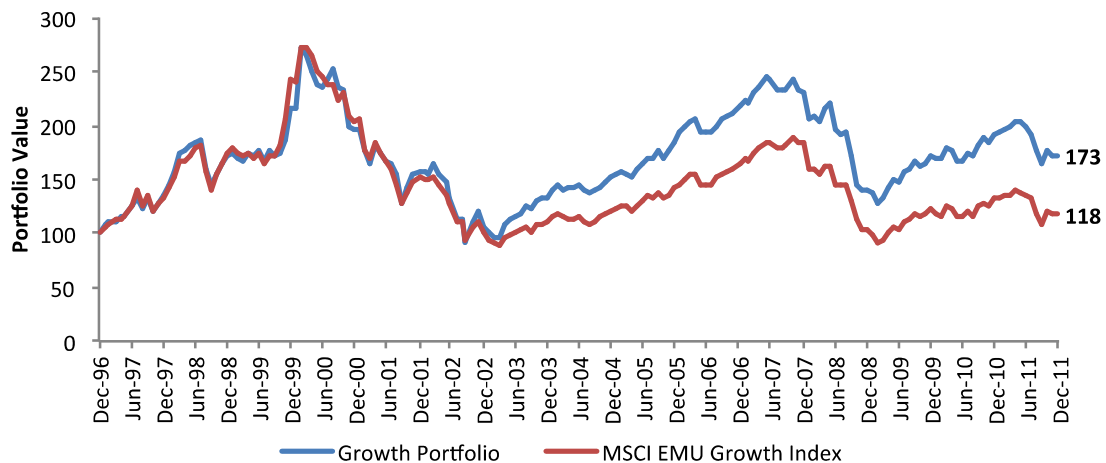
Table 5: Correlation between Value, Growth Portfolios and bech marks

	Correlation
Value Portfolio - MSCI EMU Value Index	92.82%
Growth Portfolio - MSCI EMU Growth Index	93.21%

Source: Thomson Reuters Datastream

Figure 7: Comparison between Value Portfolio and MSCI EMU Value Index

Source: Thomson Reuters Datastream

Figure 8: Comparison between Growth Portfolio and MSCI EMU Growth Index

Source: Thomson Reuters Datastream

Analyzing the return and the standard deviation, we can appreciate a similar behavior as for the Global Quartile Method. Data show the superior performance of the portfolios built in this section and the poor results of the MSCI EMU Value and Growth Indexes. Furthermore, the Value portfolio obtained through the Country-based Quartile Method has enhanced its return spread to the MSCI EMU Value growth, while the Growth portfolio has performed in a poorer way, compared to the Global Quartile Method.

PEBV Method

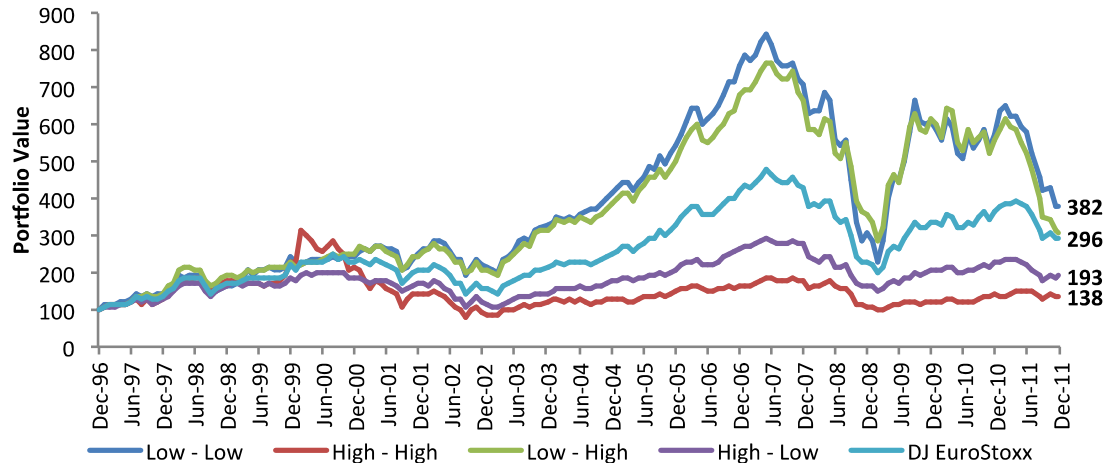
Table 6 shows the Value effect is evident also for the PEBV method. Moving from extreme growth to extreme Value portfolios, the return increases, both in absolute and risk-adjusted measures. Another important factor in the analysis of the annual returns distribution is that while Growth portfolios tend to lose money during the 2000-2001 period, Value portfolios tend to gain return. This is not a fortuity, the Dot-com bubble hit hardly Growth portfolios that generally used to contain lot of highly speculative technology stocks. As the market hit hard these stocks, investors used to shift their money to more industrial and real economy companies, usually belonging to the value family. The increase in demand of these stocks drove their price up resulting in a positive return of Value portfolios. Second, a similar asymmetry is showed also for 2007-2008 years. These years correspond to the beginning of the modern industrial crisis in Europe. The low ratios of P/BV and P/E of value stocks suggest that these companies are neglected by the market because of precarious financial and business conditions. Usually value stocks, due to their worse financial conditions, are considered weaker and more vulnerable to economic downturns. Chan and Chen (1991) refers to it as the *distress factor*. On the other side, during economic growth, as from 2003 to 2006, value firms tend to outperform growth firms, reasons have to be found in the value effect (Fama, French, 1998) and size effect (Banz, 1981). For portfolios formed according to both P/BV and P/E variables, value has outperformed growth in ten out of the fifteen years period. The difference is statistically significant at the 1% level for six years.

Table 6: Value versus Growth portfolios

Year	HIGH - HIGH			HIGH - LOW			LOW - HIGH			LOW - LOW		
	Rend	St. dev.	Beta	Rend	St. dev.	Beta	Rend	St. dev.	Beta	Rend	St. dev.	Beta
1997	33.10%	21.06%	0.8798	28.36%	16.94%	0.8404	43.53%	21.43%	0.9969	43.51%	19.00%	0.9787
1998	36.86%	23.98%	0.9226	33.54%	25.28%	0.8404	42.93%	32.19%	1.0051	10.34%	30.02%	0.9600
1999	33.83%	22.49%	0.8924	17.33%	13.60%	0.8120	20.74%	9.80%	0.9827	63.57%	19.14%	0.9967
2000	-10.22%	45.11%	1.2991	-2.11%	13.18%	0.8411	9.87%	11.36%	0.8737	1.85%	8.89%	0.7225
2001	-31.54%	39.85%	1.3848	-8.10%	16.36%	0.7550	-4.93%	23.57%	0.8432	0.08%	25.72%	0.7986
2002	-32.96%	43.75%	1.1087	-31.22%	33.15%	1.0109	-14.88%	24.74%	0.9063	-9.82%	29.98%	0.8531
2003	28.95%	16.18%	0.9657	16.75%	17.59%	0.8813	45.78%	21.69%	1.2435	42.26%	20.94%	0.8136
2004	6.48%	12.56%	1.5010	20.97%	7.75%	0.7905	21.53%	10.88%	0.9125	27.56%	6.49%	0.6044
2005	13.49%	10.99%	1.2154	19.71%	10.79%	0.9301	30.70%	13.06%	1.1396	29.16%	13.27%	0.9813
2006	11.78%	9.42%	0.9731	26.78%	10.46%	0.9121	35.68%	12.93%	0.9763	39.81%	12.73%	1.0452
2007	11.08%	12.95%	1.1140	5.73%	9.57%	0.7643	0.34%	12.68%	1.0593	-6.05%	12.47%	1.0815
2008	-37.33%	25.28%	1.0356	-38.26%	23.40%	0.9888	-45.51%	28.58%	1.1000	-53.34%	37.12%	1.2074
2009	11.93%	15.65%	0.7288	22.49%	15.37%	0.8014	63.53%	46.21%	1.4170	68.64%	56.95%	1.8314
2010	14.35%	14.24%	0.8708	9.02%	12.77%	0.7453	-6.48%	28.29%	1.8328	-3.29%	26.79%	1.1269
2011	2.33%	15.85%	0.8295	-12.08%	13.75%	0.8567	-39.29%	21.92%	1.7023	-31.21%	23.61%	1.2187
Average P/BV		8.28			5.62			1.08			1.03	
Average P/E		54.38			20.51			42.80			11.13	
Arithmetic Mean Return		5.16%			5.97%			10.39%			12.62%	
Geometric Mean Return		2.17%			4.47%			7.72%			9.36%	
Std. Dev.		24.70%			17.72%			24.41%			27.07%	
Beta		1.05			0.85			1.13			1.01	
Sharpe Ratio		20.87%			33.72%			42.56%			46.61%	
Treynor Ratio		4.92%			7.02%			9.17%			12.43%	

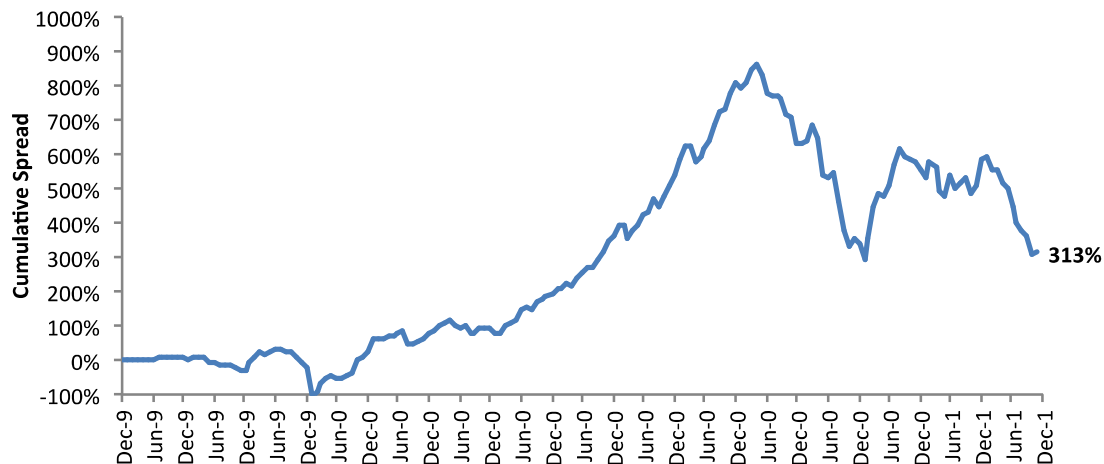
Source: Thomson Reuters Datastream

Figure 9 shows the trend of the four portfolios, and how the performance increased moving from the extreme growth to the extreme Value portfolios.

Figure 9: The four portfolios performance

Source: Thomson Reuters Datastream

Looking at the spread distribution in Figure 10, the value effect looks pervasive. Since December 2000 and the spread had always remained positive. However, a critic year was 2000, when the Value portfolio increased in value, while the Growth portfolio lost value, resulting in a big jump in the spread.

Figure 10: Cumulative spread between Value and Growth Portfolios

Source: Thomson Reuters Datastream

Index Comparison. The Value portfolio still has the best performance, followed by the DJ EuroStoxx Index and lastly by the Growth portfolio. However, the performance edge has increased because the Value portfolio has performed better, while the growth has underperformed compared to the *Global Quartile Method*. The standard deviation has increased for both portfolios, amplifying the positive return increase of the Value portfolio and the negative one of the Growth portfolio. Summarizing, through the *PEBV* method, classifying stocks based on P/BV and P/E ratios, the value strategy has strengthen its profitability, while the Growth portfolio has underperformed, widening its spread to the Value portfolio.

Benchmark Comparison. The comparison between Table 2 and Table 6 shows how the correlation between the Value portfolio and the Value Index has decreased compared to the *Global Quartile Method*. The same is true for the Growth portfolio, whose correlation has decreased. Besides these minor changes, the portfolios still present a considerably high correlation with the MSCI EMU benchmarks.

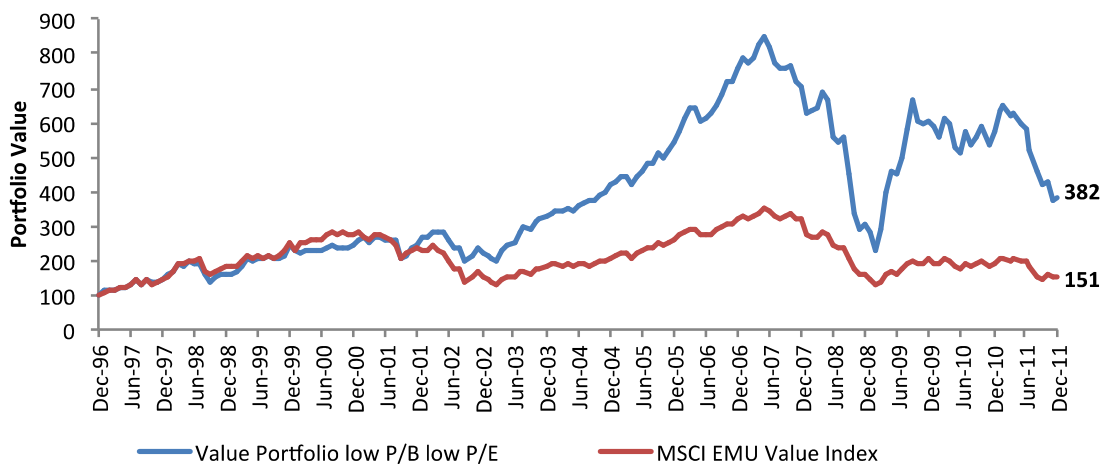
Table 7: Correlation between Value, Growth Portfolios and bench marks

	Correlation
Value Portfolio - MSCI EMU Value Index	88.55%
Growth Portfolio - MSCI EMU Growth Index	89.37%

Source: Thomson Reuters Datastream

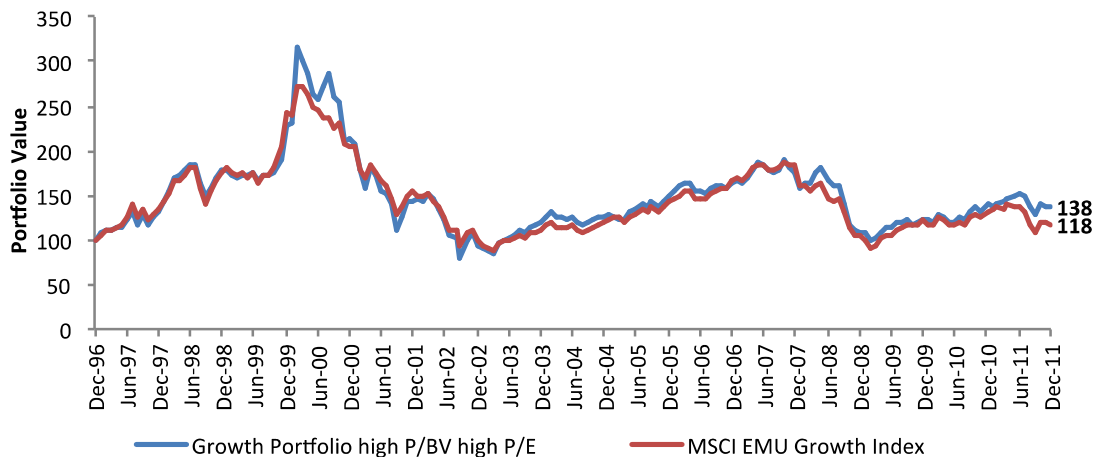
From Table 6 we can observe how the Value portfolio has obtained superior returns both in absolute and risk-adjusted terms. The Low-Low portfolio arithmetic mean return is twice as much as that of the benchmark, and comparing the annual geometric returns, the difference is even higher. The lower volatility is not enough to offset the return spread, with the Low-Low portfolio. Therefore, the Low-Low portfolio has outperformed the benchmark index both in terms of absolute return and in risk-remuneration perspective. Similar considerations can be drawn for the comparison between the High-High portfolio and the MSCI EMU Growth Index. The High-High portfolio has slightly outperformed the benchmark both in absolute and risk-adjusted basis, although the Growth portfolio built following the Global quartile methodology obtained higher portfolios values.

Figure 11: Comparison between Low-Low Portfolio and MSCI EMU Value Index



Source: Thomson Reuters Datastream

Figure 12: Comparison between High-High Portfolio and MSCI EMU Growth Index



Source: Thomson Reuters Datastream

Total Market Indicator Method

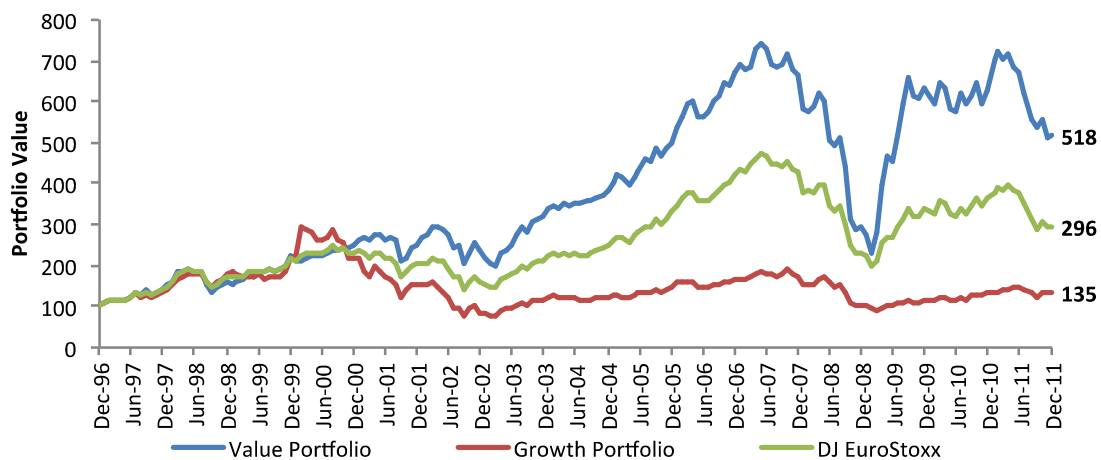
Also through this methodology, the value strategy outperformance is evident. The Value portfolio risk-adjusted return considerably outperforms the Growth portfolio. The difference between portfolio returns, with neutral beta, is in favor of the value strategy ten out of the fifteen year period. From Figure 13 we can appreciate that the Value portfolio has a more volatile trend. The portfolio value has increased steadily for ten years, reaching a top value of 740 in May 2007. Then, the portfolio has registered heavy losses throughout the 2008, shrinking to the lowest value of 232 in February 2009, rebounding to 714 in April 2011 and finally living another collapse closing at 518 in December 2011. The difference between portfolio returns, with neutral beta, is in favor of the value strategy; ten out of the fifteen years period, and in six years is statistically significant at the 1% level.

Table 8: Value versus Growth portfolios

Year	Value			Growth			Spread	Sharpe Ratio		Treyner Ratio	
	Rend	Std. Dev.	Beta	Rend	Std. Dev.	Beta		Value	Growth	Value	Growth
1997	39.31%	16.57%	0.8527	34.18%	19.55%	0.8536	6.05%	237.25%	174.83%	46.10%	40.05%
1998	11.61%	31.01%	0.9192	38.56%	23.23%	0.9057	-29.94%	37.44%	165.98%	12.63%	42.57%
1999	40.89%	17.27%	1.0414	25.40%	20.00%	0.8501	9.38%	236.76%	127.00%	39.26%	29.89%
2000	11.25%	9.20%	0.8522	-2.04%	38.61%	1.2491	14.83%	122.26%	-5.27%	13.20%	-1.63%
2001	1.35%	26.63%	0.7646	-27.28%	36.01%	1.2838	23.01%	5.06%	-75.75%	1.76%	-21.25%
2002	-6.69%	29.55%	0.8459	-42.67%	47.77%	1.2683	25.74%	-22.63%	-89.32%	-7.91%	-33.64%
2003	32.10%	25.87%	0.8817	37.01%	20.24%	1.2147	5.94%	124.11%	182.85%	36.41%	30.47%
2004	20.85%	7.37%	0.6239	7.93%	10.98%	1.3291	27.45%	283.13%	72.23%	33.42%	5.97%
2005	29.56%	12.66%	0.8884	13.24%	11.12%	1.1821	22.08%	233.50%	119.06%	33.28%	11.20%
2006	34.44%	11.77%	0.9145	14.77%	11.24%	1.1532	24.85%	292.59%	131.45%	37.66%	12.81%
2007	-0.57%	12.09%	1.1318	11.83%	12.18%	1.1190	-11.07%	-4.70%	97.11%	-0.50%	10.57%
2008	-51.65%	34.85%	1.2291	-39.63%	26.11%	1.0572	-4.53%	-148.21%	-151.82%	-42.02%	-37.49%
2009	83.75%	53.08%	1.7365	10.63%	13.89%	0.6494	31.87%	157.78%	76.54%	48.23%	16.37%
2010	0.51%	20.82%	0.9895	20.08%	13.41%	0.8638	-22.73%	2.45%	149.77%	0.52%	23.25%
2011	-15.11%	21.81%	1.0497	1.11%	15.88%	0.8211	-15.75%	-69.27%	7.01%	-14.39%	1.36%
Average P/BV		1.02			8.82		-				
Arithmetic Mean Return		14.31%			4.95%		6.91%				
Geometric Mean Return		11.59%			2.03%		5.58%				
Std. Dev.		25.81%			24.21%		-				
Beta		0.98			1.05		-				
Sharpe Ratio		55.44%			20.45%		-				
Treynor Ratio		14.58%			4.70%		-				

Source: Thomson Reuters Datastream

Figure 13: Value versus Growth portfolios

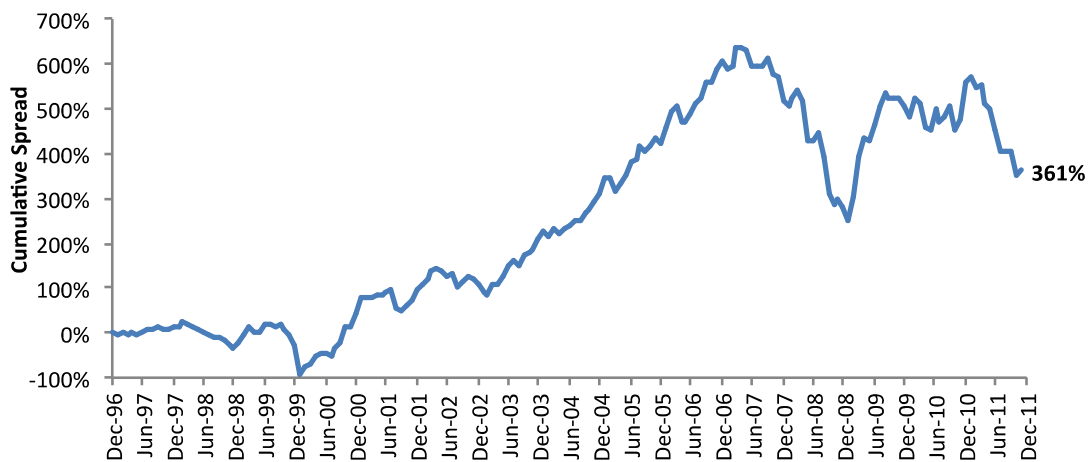


Source: Thomson Reuters Datastream

Figure 14 suggests that the Value portfolio has outperformed the Growth portfolio by 361 basis points, on a cumulative basis and on a beta-neutral perspective. The *TMI Method* Value portfolio has

resulted to have achieved the highest beta-neutral return and spread amongst all methods used for this research.

Figure 14: Cumulative spread between Value and Growth Portfolios



Source: Thomson Reuters Datastream

The correlation between monthly returns over the examined period has been 64.42%, the lowest among the examined methods.

Index Comparison. The TMI Method Value portfolio has further enhanced its return spread to the DJ EuroStoxx Index, outperforming the benchmark by 501 basis points in terms of arithmetic mean return, and by 409 basis points in terms of geometric mean return. Moreover, the Value portfolio's Treynor ratio has been 20% higher than the index's one. The Growth portfolio, on the opposite, has underperformed the benchmark market by 547% basis, and its Treynor ratio has been 55.75% lower than that of the DJ EuroStoxx.

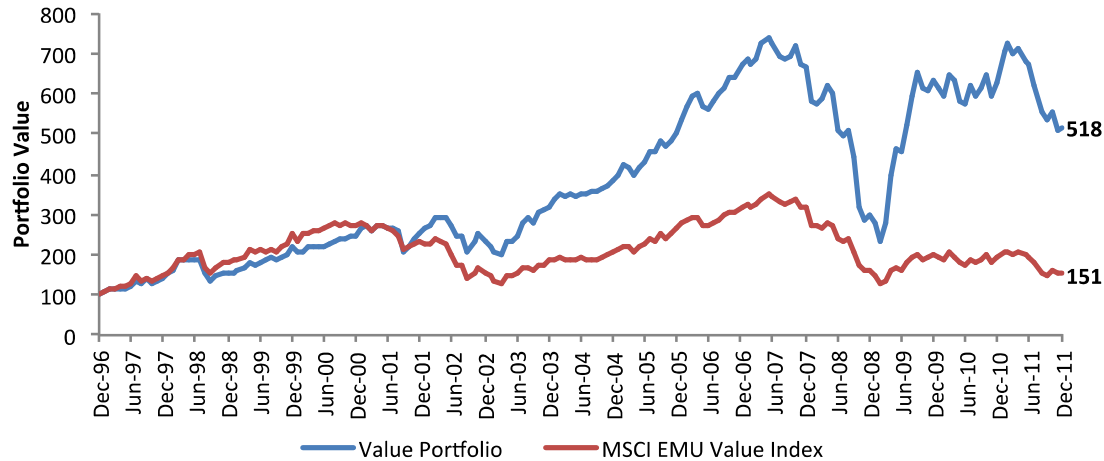
Benchmark Comparison. Comparing to the *Global Quartile Method*, the correlation has decreased considerably, suggesting that the two portfolios do not follow the external benchmark peers by the same extent they used to in the previous methods.

Table 9: Correlation between Value, Growth Portfolios and bench marks

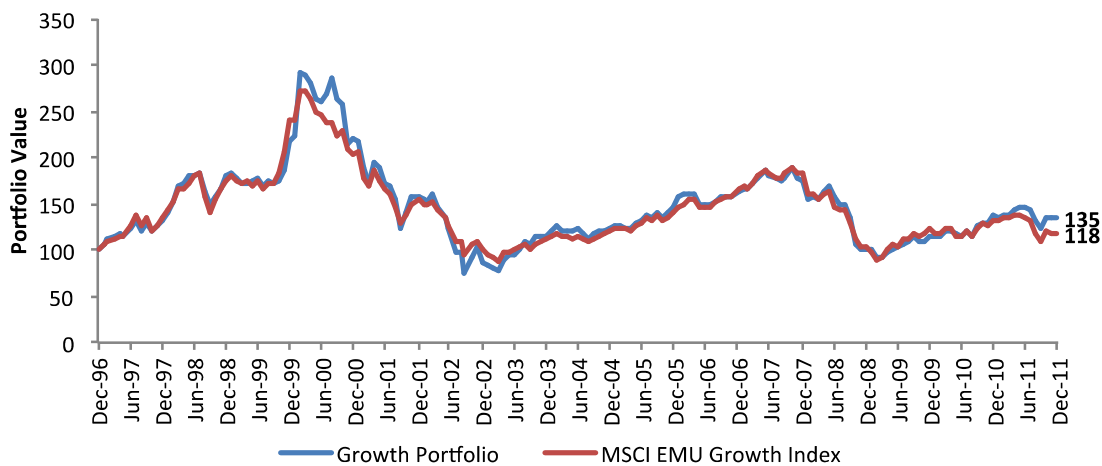
	Correlation
Value Portfolio - MSCI EMU Value Index	89.41%
Growth Portfolio - MSCI EMU Growth Index	89.68%

Source: Thomson Reuters Datastream

Comparing Table 2 and Table 8, the *TMI Method* has provided the top performer Value portfolio, and the worst-performer Growth portfolio among the analyzed methods. Therefore, broadening the outperformance margin of the Value portfolio to the MSCI EMU Value index and reducing, almost to null, the margin of the Growth portfolio to the comparable index. From Figure 15 the difference between the two Value portfolios is evident, while Figure 16 highlights the absolute similarity between the two Growth portfolios.

Figure 15: Comparison between Value Portfolio and MSCI EMU Growth Index

Source: Thomson Reuters Datastream

Figure 16: Comparison between Growth Portfolio and MSCI EMU Growth Index

Source: Thomson Reuters Datastream

5. Conclusions

This paper has carried out an analytical comparison between two important investment strategies, the Value and the Growth Investment. For each of the two strategies, value and growth, four portfolios were created and compared both from a beta-unadjusted and adjusted perspective. The beta unadjusted analysis was useful to compare same strategy portfolios as standalone investments. On the other hand, the comparison of beta-adjusted portfolios was useful to quantify the return contribution on a hedged investment strategy, therefore matching a position in a portfolio with a specular one in a portfolio pursuing the opposite strategy. However, it is worth noting that for the value strategy, the best performing method has been the *Total Market Indicator*, both from a beta-adjusted and unadjusted perspective. For the growth strategy, the method that has created the best performer portfolio has been the *Global Quartile Method*. Comparing the four Value portfolios by a beta-unadjusted (absolute return), and adjusted perspectives, it is evident that, passing from the first method to the last one, the Value portfolios performances have increased as new methods were implemented. The *TMI Method* has obtained the highest performances, both in terms of arithmetic and geometric mean returns, while registering the lowest level of systematic risk. This leads the TMI Value portfolio to have achieved the highest Treynor ratio. On the other hand, in terms of total risk, the *Country-based Quartile Method* has provided the Value portfolio with the lowest risk. However, the lower riskiness has not been enough to

offset the return differences, and thus, also in this case, the *TMI Method* has recorded the highest Sharpe Ratio. From this comparison, the *TMI Method* results to have been the best Value portfolio, both in terms of absolute return, risk, and risk-adjusted return.

It is interesting to see how, among the Quartile methods, the Country-based approach has improved the performance of the Value portfolio, compared to the Global approach. The main difference between the two methods has been shown from 2002 to 2006. During these years, the Country-based portfolio has considerably outperformed the Global portfolio. Moreover, in 2010, the two portfolios acted in a very opposite way, with the Global portfolio losing and the Country-based gaining. From a risk-adjusted return based on the standard deviation, the *Country-based Quartile Method* is the second best performer. However, considering the Treynor Ratio, the second best performer turns out to be the *PEBV Method*.

For the growth strategy, the underlying empirical evidence has led to opposite conclusions, compared to the value strategy. In this case, the best methodology has been the *Global Quartile Method*. Furthermore, following the order through which the four methodologies have been presented, the Growth portfolio performance weakens. Comparing Growth portfolios, the differences are more evident than for the Value portfolios. The empirical results seem to suggest a negative relationship between the P/BV value and the performance for Growth portfolios. In general, the higher the P/BV value, the lower the return rate, and the higher the riskiness. From a risk-adjusted perspective, the differences among portfolios are strong, with the *Global Quartile Method* outperforming all the others with consistent margin. Therefore, it is interesting how differently the four methodologies have performed in relation to the two strategies. The value strategy benefited from the introduction of new methodologies for the portfolio creation, since the performances have been improved following the order through which the four methods have been presented. On the other hand, for the growth strategy, the opposite holds, with the performances that have weakened as the new methods were presented.

The paper covers the period between 1997 and 2011, and analyzes how the two investing strategies have reacted to the dot-com bubble and the more prosperous years from 2002 to 2007. However, it would be interesting to broaden the time period analyzed to see whether the value strategy would have been prevailed even under other circumstances. Second, it would be of importance a thorough examination of other factors, beside the systematic risk (beta), included in the asset pricing methods. The Arbitrage Pricing Theory (APT) is credited to provide a reliable and exhaustive framework, and further studies may be addressed to assess its validity under the current circumstances of the European capital markets. Finally, a third aspect that should be studied relates to the psychological aspects involved in the investing decisions, the so-called behavioral finance (Shleifer, 2000). There is room for improvement in the portfolio creation methodology, and lot of potential comes from the implementation of the proper behavioral mindset consistent with the underlying investing strategy.

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