

COLEGIO UNIVERSITARIO DE ESTUDIOS FINANCIEROS

GRADO EN ADMINISTRACIÓN Y DIRECCIÓN BILINGÜE

Trabajo Fin de GRADO



Value investment strategies

A factor investing approach to value

Autor: Bennewith Oliva, Daniel

Tutor: Blanco Sánchez, Ivan

Madrid, Febrero de 2018

Index

1. Introduction.....	3
2. Factors.....	6
2.1 Factor investing.....	8
2.1.1 Valuation	9
2.1.2 Quality.....	10
2.1.2 Low-volatility.....	11
2.1.4 Momentum.....	12
3. Data source.....	14
4. Benchmark	14
5. Portfolio	15
5.1 Investment strategy.....	15
5.2 Selection process.....	15
6. Results.....	17
6.1 Absolute returns.....	17
6.2 Annual variations.....	18
6.3 Single Factor model.....	19
6.4 Multifactor model.....	22
7. Conclusions.....	24
8. References.....	26
9. Appendix.....	29

1. Introduction

Much has been discussed about if markets can be beaten by individual investors. For a determined school of thought in finance you cannot generate more value than the market would give you. All available information is fully reflected in the price (Fama, 1970). Meaning that markets can only be outperformed if more risk is assumed. So, it would be possible to beat the market, but with a higher risk.

Although we can find another school of thought that the market can be performed as the participants are irrational. These participants might be influenced by social movements (Schiller, 1986). This mass would be larger than the number of sophisticated investors that could correct the price. Implying that this irrationality that markets have could be exploited to generate a higher return with the same amount of market. To better stress this point of social movements the volume of trades must be observed (see below Graph Volume S&P500) where it can be seen that in certain points in history the amount of trades has increased exponentially and later sharply decreased.

Figure 1.1 S&P500 volume 1990-2016

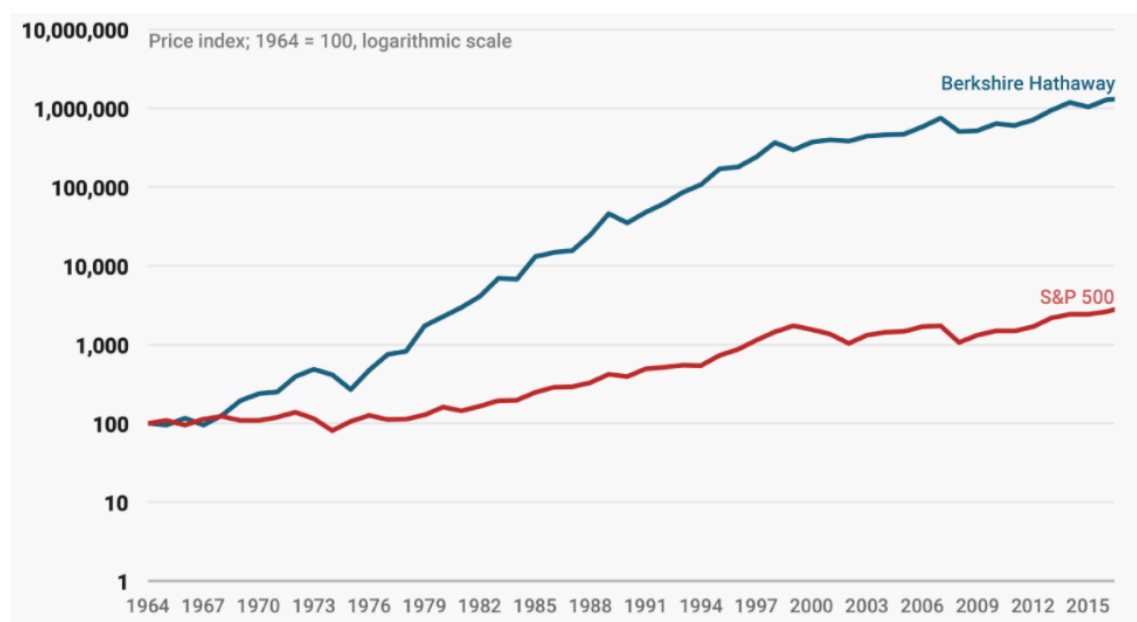


Source: Yahoo finance

In between those two theories we could find an intermediate theory. Meaning that markets can be efficient if they have enough time to adapt. This means that markets are more like biology than to physics (Lo, 2015). This would imply that markets would be beatable during certain periods and in others an investment in the markets would be more reasonable.

This project will try to shed some light to this question about beating. The project will try to beat a certain benchmark. And the strategy will be a value investing, a simplified version of it. This will mean that if with this simple strategy a higher return can be achieved. Markets must be inefficient. Value investing is the strategy used by the famous investor Warren Buffet. His investment vehicle, Berkshire Hathaway has outperformed the S&P500(see below.Figure1.2 BUFFETT VS S&P500). That is also the benchmark that the portfolio of this project will try to beat.

Figure 1.2 Buffet vs S&P 500



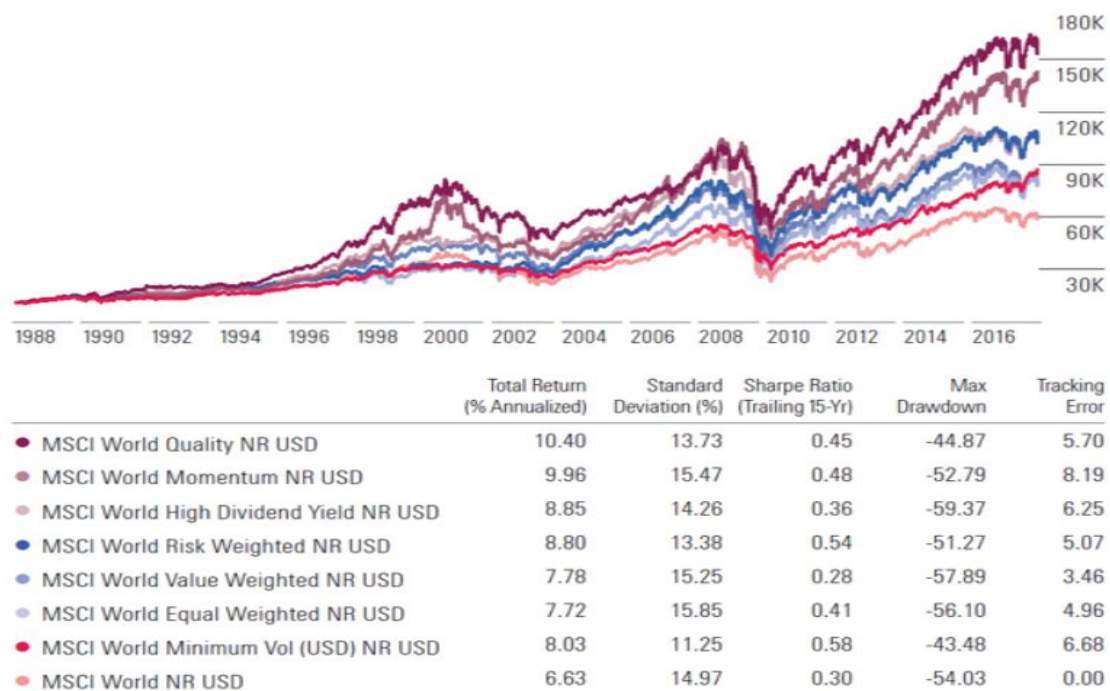
Source: Business Insider/Andy Kiersz, data from Yahoo Finance and Statman and Scheid

This project will also try to be a continuation of some investigations that already have been done and have produced positive outcome. And that have demonstrated that value investing outperform the markets (Rosenberg et al,1985). Where following a similar strategy to the one prosed in this market have been outperformed. Although, this has been done in a different period and markets might have become more efficient or completely efficient during the period that is going to be analysed. This period will range from the year 1991 to the year 2016. Both included.

The results will not only be analysed using the benchmark as comparison. The will be also analysed using a single factor model and a multifactor model. Although, it might only be necessary the single factor model if the market risk explains the return obtained by the portfolio. But if it does not the multifactor model will be used. This way it can be observed if the returns are obtained due to a higher risk of the assets that make up the portfolio.

The investment strategy will systematic. This means that the indicators used to screen companies will be allways the same. The systematic approach can be applied in several ways. And all beat the market (see figure below). The most relevant types of factor investing will be addressed in this project. That way it will be easier to appreciate how this strategies work.

Figure1.3 Returns of MSCI smart-beta ETFs



Source: Morningstar Direct

Another hypothesis that will be able to be tested is if funds are not able to beat their index because of the costs they have. It has been seen that mutual funds with high costs of active

management have produced results like the benchmark (Fama and French,2008). This will be able to be tested because in this project no transaction costs or other type of costs, such as the active management costs. Will not be taken in to account. The price that will be used is the one given by the Bloomberg terminal that has been used to extract data to do this project.

2. Factors

To able to address factor investing correctly. It must be defined what factors are. A factor can be defined as “*a constituent or element that brings about certain effects or results, or indicates a specific multiple, number, or quantity*”¹. This refers to the effect that an element can have in explaining certain return of an asset.

The beginning of this factors can be attributed to the CAPM model published in 1964. In this model the factor that defined the returns of the assets was its correlatiom with the market(Sharpe,1964). More will be said about this model further on. As it will be the single factor model used to evaluate the results obtained.

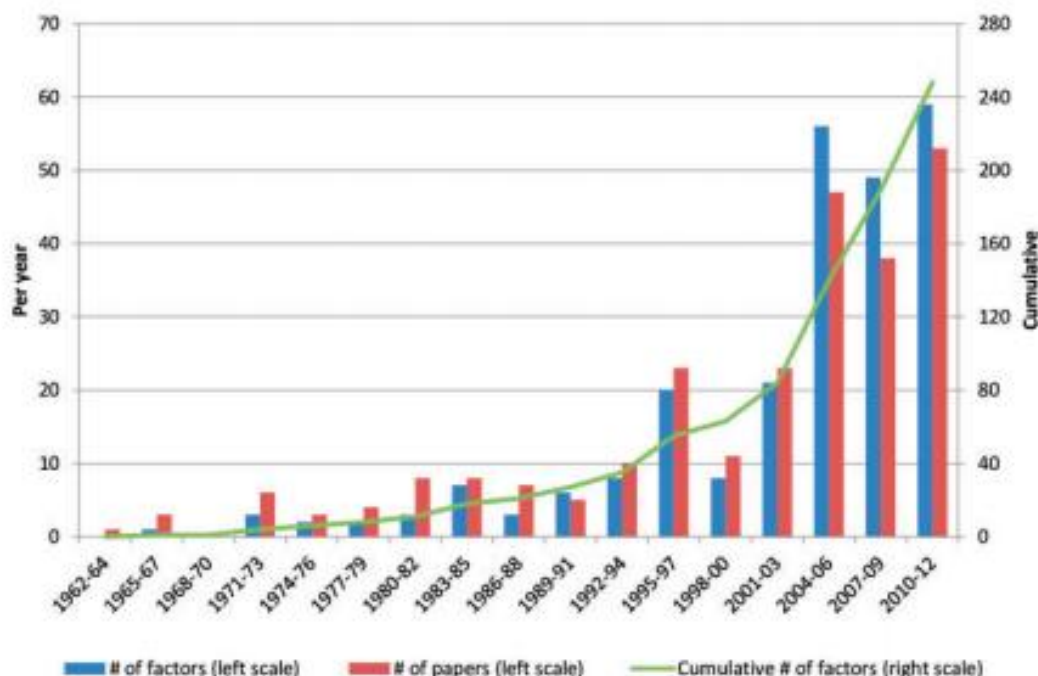
As finance has evolved during the years, the models used to evaluate results have evolved with it. Single factor model have been converted into multi factor models.The multifactor model is developed from the arbitrage pricing model(APT).This model says that the returns will be generated by a series of betas(Ross,1976).This betas will be the factors. The first model to include factors was the three-factor model published by Eugene Fama and Kenneth French in 1993. As it name says the model is made up by three factors that explain the return of a certain asset. This will be the multifactor model used to evaluate the results.

The multifactor model continue to evolve an include more factors. One example is the already mentioned three-factor model that has evolved into the five-factor model. As they have included profitability (RMW) and investment(CMA)(Fama & French,1996). In between those model is the Carhart four factor model in which momentum is included. Momemtum will be explained in more detail in the factor investing strategies. Since the publitation of this factors the interest in finding new ones has increased exponentially

¹ (BusinessDictionary.com, 2018)

(see figure below). This proliferation of factors has given birth to the term the “zoo of factors” (Cochrane,2011).

Figure 2.1 Factors and publitacons



Source: ... and the Cross-Section of Expected Returns(Harvey et al.,2016)

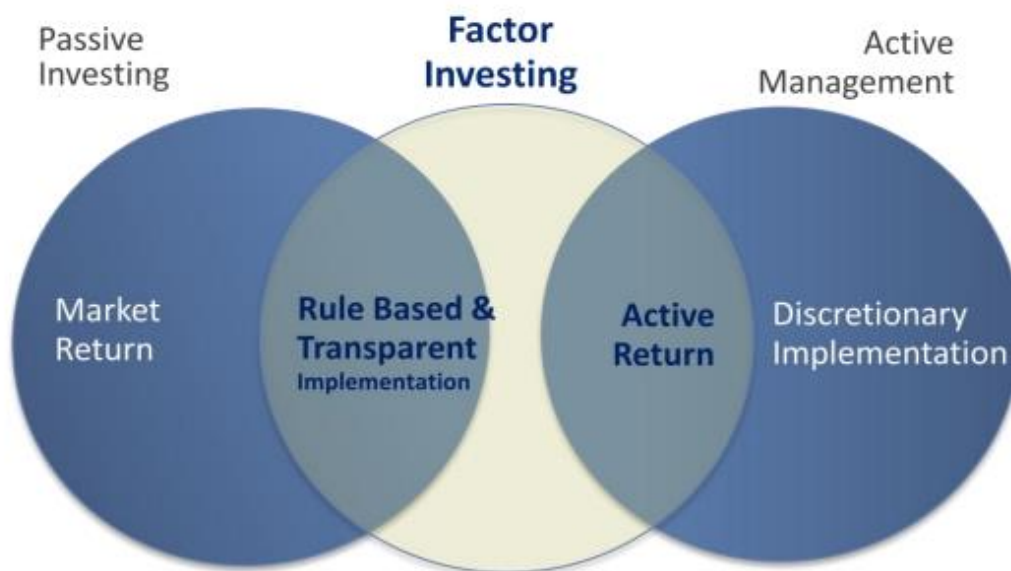
But many of this factors are not significant, 296 of the considered important have been and around half of them should be considered false discoveries(Harvey et al.,2016). This may be due to the data snooping used, this “refers to statistical inference that the researcher decides to perform after looking at the data”². As in finance must rely on non-experimental research research will sometimes tend to use the data that gives the most satisfying results. Another reason why this factors might not be as relevant as the once where is their publication. It has been demonstrated that once one factor is published its capacity of predicting the returns is reduced(McLean & Pontiff,2016).

² (Ma.utexas.edu, 2018)

2.1 Factor investing

Factor investing is also known as the third way of investing. Investment until the use of factor investing investing was divided by active investors and passive investors. This styles follows a systematic approach similar to the one followed by the passive investors. It also allows a greater transparency to investors, that way the will be able to see how the strategy is performing. It allows investors to adapt the portfolio to their specific necessities. This can be done by establishing a portfolio composed of factors that are more similar to their investing style.

Figure 2.1 Third way investing



Source: MSCI

Factor investing has been present for many years. Some funds claim they have been using it for more than twenty years³. But when it started to gain more attention was with the publication of paper evaluating the Norwegian government pension fund. In this paper it was demonstrated that the returns where explained by the exposure to a limited number of common factors(Ang et al,.2009). Since the markets has erupted and factor investing strategies range from equity investing strategies to commodity strategies. “*Smart-beta funds now account for a seventh of the \$4tn invested in the global ETF market*”according

³ (YouTube, 2018)

to financial times⁴. Smart-beta ETFs is the easiest and cheapest way of implementing this kind of strategy.

Even though the above mentioned paper showed how the active managers where obtaining the results, the financial crisis of 2008 was the event that made them look into this data. Before the crisis most of the returns where though to be obtained by and edge that active investors and also due to the liquidity factor(Ang et al.,2009).

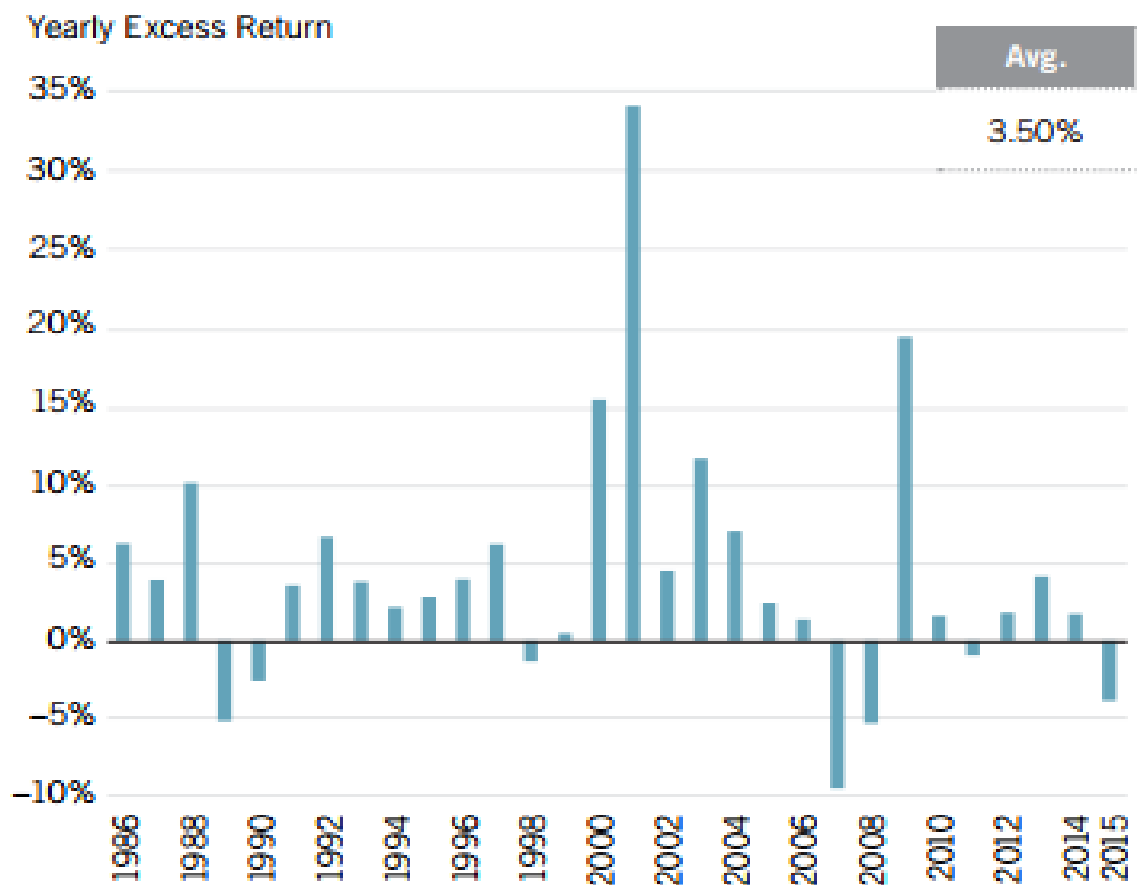
To better see how factor investing works some of the most known equity factor investing will be presented. This will be valuation, quality, low-volatility and momemtum. Also some knew strategies will be mentioned.

2.1.1 Valuation

Value investing is the thesis in which this factor investing strategy. This is thesis developd by Graham and that Warren Buffet follows. The idea is to identify companies with strong balance sheet. The process is done by using a series of indicators such as the price to book earnings and the price to earnings ratio. The factor identified with this factor investing strategy is the HML. The portfolios formed using this strategies have generated excess returns (see figure 2.1.1).

⁴ (Ft.com, 2018)

Figure 2.1.1 Excess return of Valuation portfolios.



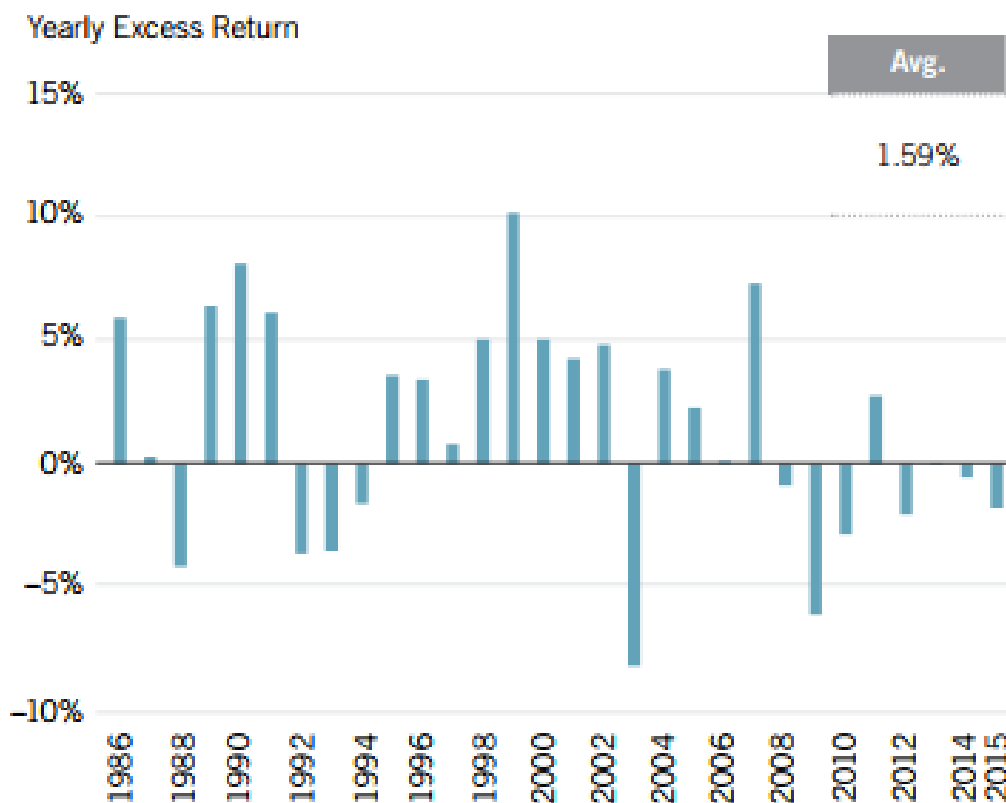
Source: Fidelity. Data from FactSet Russell 2000

2.1.2 Quality

This investment strategy is similar to the value approach. But instead of focusing just in the balance sheet as the value strategy does it also takes into account the earnings that the firm is producing. According to MSCI this strategy will be formed by five components: “*profitability, earnings quality, financial leverage, asset growth and*

corporate governance.”⁵ As all the strategies that are considered for factor investing this one has also generated excess returns (see figure 2.1.2)

Figure 2.1.2 Excess return of quality portfolios



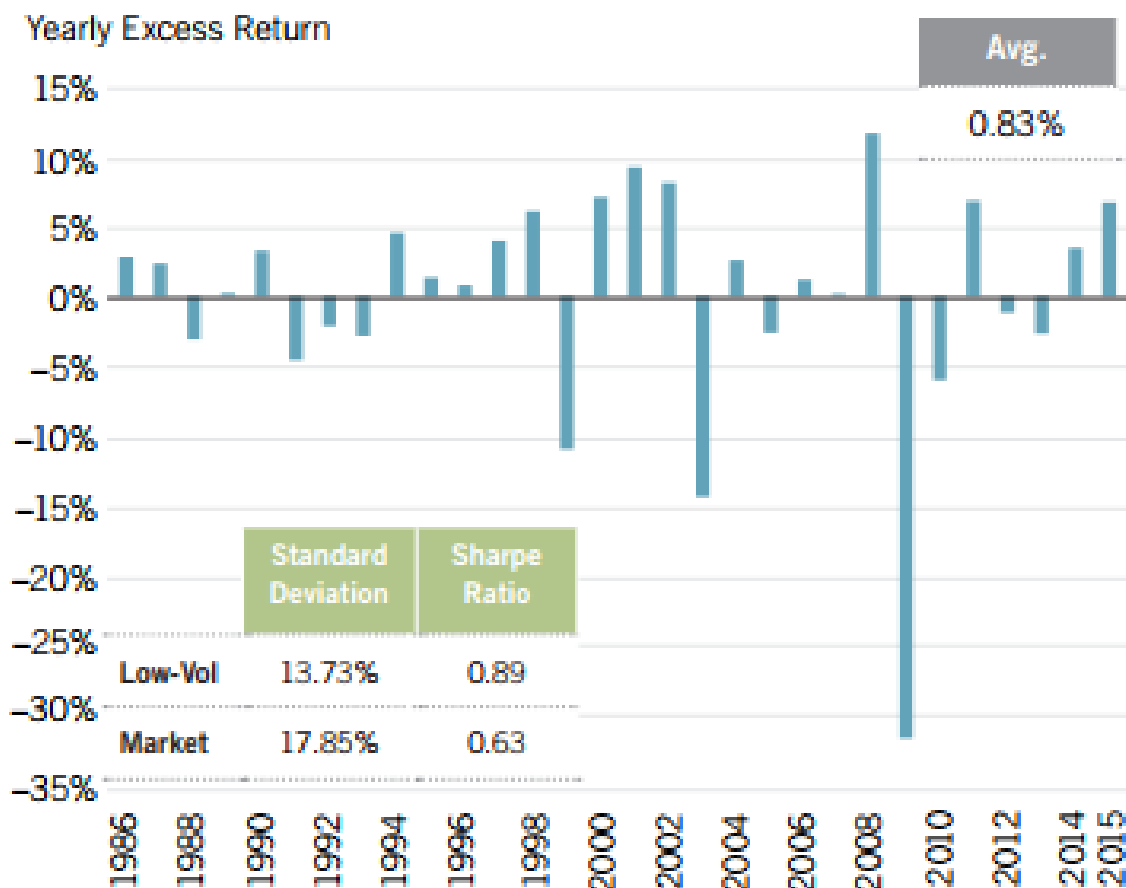
Source: Fidelity. Data from FactSet Russell 2000

2.1.2 Low-volatility

Higher volatility does not guarantee higher returns. This is contradictory with the efficient market theory. But high volatility stocks have underperformed low-volatility stocks (Baker, et al.2010). This goes in line with how portfolios composed by low-volatility stocks have performed (see figure below).

⁵ (Factor, 2018)

2.1.3 Figure Excess return of Low-volatility portfolios



Source: Fidelity. Data from FactSet Russell 2000

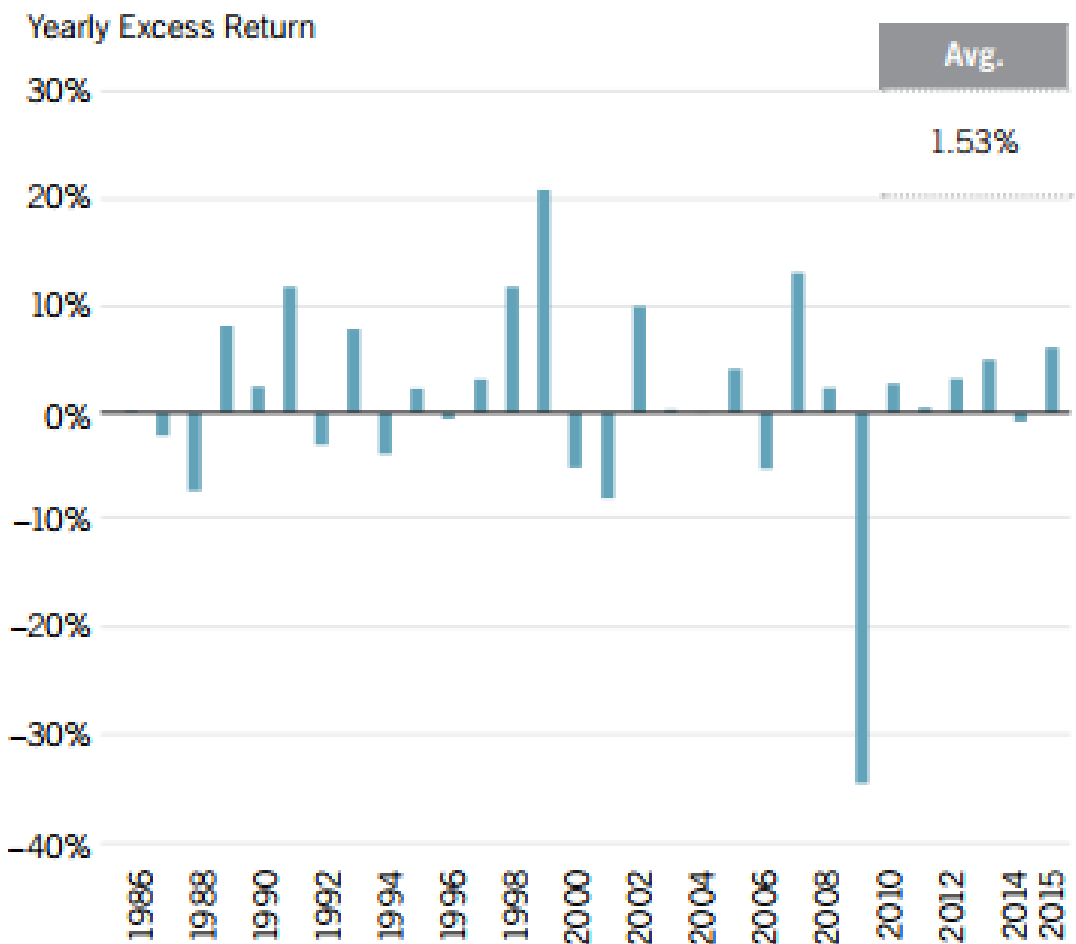
2.1.4 Momentum

The momentum strategy is based on behavioural finance. Market participants tend to overreact to information. This has already been mentioned in the introduction. But momentum is based in shorter time. The time used is from 3 to 12 months. The idea is to buy stocks that have performed well in the above mentioned period, and sell stocks that have performed poorly (Jegadeesh & Titman, 1993). Problem may arise with this strategy

if the period is too short. This will increase turnover, and as turnover increases cost will also increase, reducing the returns. This strategy is proven to generate excess returns (see Figure below)

The way to determine the momentum is by using the risk-adjusted returns over 6-month and 12-month horizons, also the excess return of each stock will be included⁶.

2.1.4 Figure Excess Return of Momentum Portfolio



Source: Fidelity.Data from FactSet Russell 2000

⁶ (Msci.com, 2018)

3. Data source

The data has been extracted from a Bloomberg terminal. In the terminal the MEMB function is the one that has been used to get the stocks that were in the index in each year. The day selected is the first day of each year(01/01/year). Although when you do this Bloomberg will automatically give you the latest trading day. The years are from 1991-2017. Once you had the stocks that made up index the ratios were included. For more information about the ratios used (see Appendix A). And that output was exported to Excel.

For the price that were not available because the stock had been taken out of the index the wizard Bloomberg that Excel includes was used to obtain them. This was done by getting the tickets from the spreadsheet. And using the price last(PX_LAST) that Bloomberg provides that will give the end of the session price of the you have selected.

No prior years to 1991 could be selected since there was no information available. Once you inserted the date of 01/01/1990 it would say that there was no information available.

4. Benchmark

The chosen index to use as a benchmark is the S&P 500. The decision to choose this index is based in the fact that it is an index that has enough companies to be screened. The problem with other indexes with not as many indexes would be that in some years there might not be enough companies that fulfil the requisites we are searching for. The other reason is that is an index with enough liquidity so filling orders at the price would not be a problem. The index is formed by 500. But some years they will be more assets, as some companies have various types of shares. The assets of the index comprise about 2.2 trillion dollars and captures approximately 80% of the total market cap of the US⁷. So, it is a big represent ant of the American stock market.

⁷. (Us.spindices.com, 2017)

5. Portfolio

5.1 Investment strategy

There can be found three different types of value investing strategies(Damodaran,2012). The strategy that will be chosen in this case is the passive value investing strategy. This is the purest of the strategies as it is based on the book that gave birth to the value investing strategy “Security Analysis” by Benjamin Graham and David Dood, first published in 1934. This book gives certain guides in how to use indicators to invest. But as this indicator have been adjusted in each edition of the book, the same will be done in this project.

5.2 Selection process

The composition of the portfolio will be based on the value investing ratios mentioned before. First, the average for each ratio will be calculated. For doing this average will used the ratios of every companies that were present in the S&P500 at that the moment in time being evaluated. Depending on the value of each ratio in reference with the average, a zero, a one will be assigned depending on how the ratios behaves in comparison with the others (see table below to how each ratio is evaluated). Once this process is done all the values given to each ratio will be summed. And the companies that will be chosen for the portfolio must all have a sum of five. This will mean that the companies incorporated to the portfolio have all the conditions that a wanted for our investment strategy.

Table 5.1 Values assigned

	Above average	Below Average	Equal to average
Return on equity	1	-1	0
Average dividend yield	1	-1	0
Price to book value	-1	1	0
Price to earnings	-1	1	0
Price to cash flow	-1	1	0
*In the case no value is found a minus one will be assigned.			

Source: Own elaboration

To simplify the selection, process no transactions costs or other type of cost will be taken in to account. This means that the price given by the Bloomberg database will be the one used to buy and sell the shares. In the table below, it can be seen how these values are assigned.

All companies will have the same weight in the portfolio. As it has been demonstrated that the winner-looser effect is not primarily a size effect (De Bondt & Thaler,1987). Although, the winner-looser effect does not take in to account all the other ratios that are being used to screen companies in this project. It serves to simplifying the process. Also, it must be mentioned that the companies represented are big enough, so liquidity risk should be not taken in to account.

From the factor investing the portfolio will try to capture the value factor using the book value the, price to earnings ratio and the price to cash flow. And the quality factor using the average dividend yield and the return of equity.

To have a weighted portfolio an amount of money will be assigned to each company and with that amount several shares will be bought. All the money must be invested, meaning

that 100% of the portfolios money will be invested in shares. As this is just a research project the numbers will not be rounded to do the calculations.

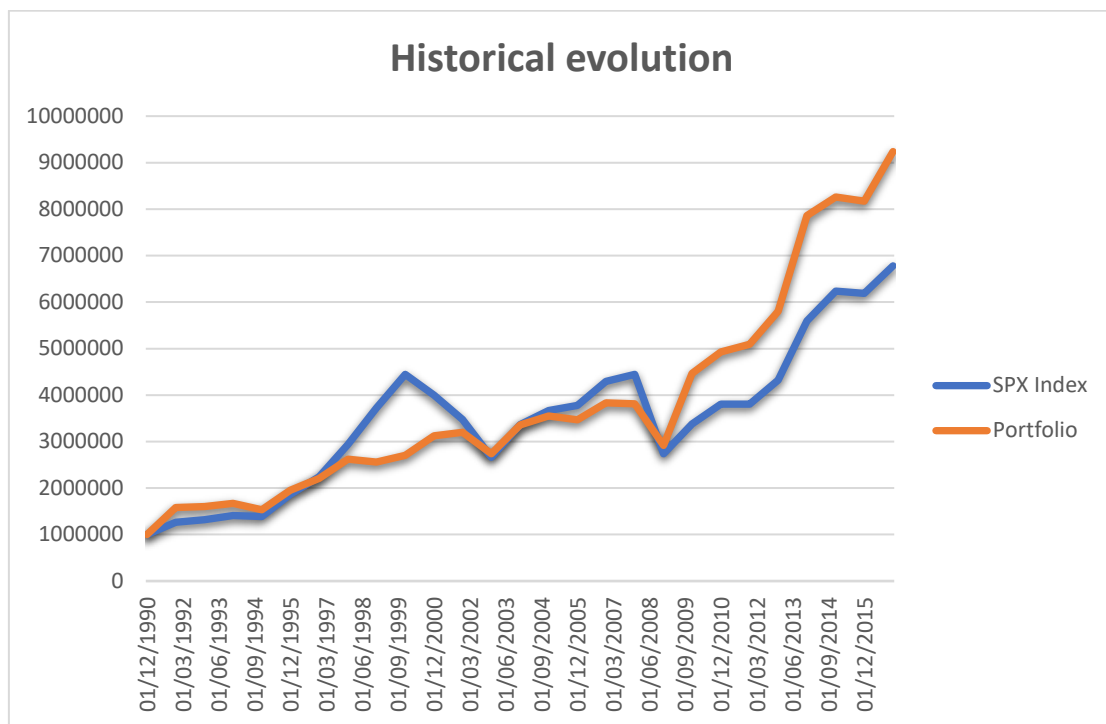
In the portfolio there will only be long positions. Even tough, if we shorted the companies that had a sum of minus five we would increase the average return of our portfolio. As there has been investigations have demonstrated this. The amount of money with which this portfolio will start is a million dollars.

6. Results

6.1 Absolute returns

The absolute returns are the returns produced by the portfolio and the benchmark without any kind of adjustment. The portfolio created using the value investing techniques has outperformed the S&P500(see graph below). The 1.000.000 dollars with which the portfolio have been increased to 9.237.853,19. And the case of the index the 1.000.000 dollars have increased to 6.779.813,46. This means that the portfolio has generated an 823,79% whilst the index has only generated a 577,92% for the investors in the 27-year period that has been studied. But to observe in clearer way how the portfolio has outperformed the index the CAGR (compound annual growth rate) has been calculated. For the portfolio the CAGR was 8,583% and for the portfolio 7,35%. This means that if an investor used this screening for the last 27 years we would have increased his returns annually by about 1,2%

Figure 6.1 Portfolio vs Index



Source: Own elaboration. Data from Bloomberg

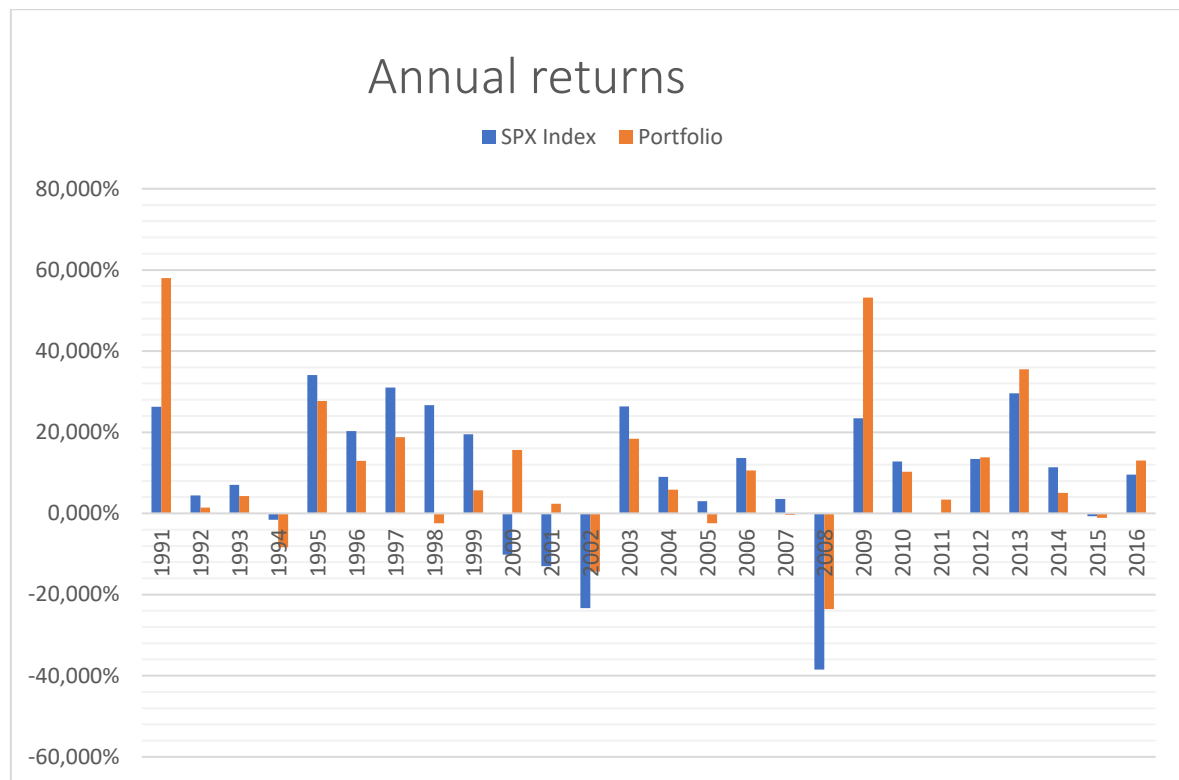
6.2 Annual variations

To see the performance of the portfolio against the index the annual have been computed. It can be observed that the index in its bad years lost more than our portfolio. Being the year 2008, the year of the fall of Lehman brothers that marked the beginning of the Great Recession. In this year the index lost a 38,5% of its value whilst the portfolio only lost 23,5% of its value. The other big loss than its found is in 2002. Investors will respond in different ways to losses and to gains (Tversky & Kaehnneman,1991). This means that investors usually suffer from loss aversion, meaning that the portfolio will be suited as it will not be such a rollercoaster.

From the graph we can also observe that in the years that certain stability is found in the markets the index will outperform the portfolio that has been created. This will prove the adaptive market hypothesis that has been mentioned in the introduction. When participants know the conditions that the markets are facing they will be able to put a correct price to the assets that are in it. But once an anomaly hit the markets, such as market crashes no predictability is found (Kim et al.,2011). For instance, the fall of

Lehman brothers' markets will behave in an efficient way as they have not had time to adapt to grasp and adapt to the new situation. So, in this scenario it will be better to have sound companies that are less prone to suffer from the effects of anomalies in the market.

Figure 6.2 Annual returns Portfolio vs Index



Source: Own elaboration. Data from Bloomberg

6.3 Single Factor model

Once the absolute returns have been analysed other things must be considered. The model that will be used in the first step to continue the analysis will be the CAPM (capital asset pricing). This formula only takes into consideration the market risk (see equation 6.4) This model is since investors will expect a higher return for more volatility. It also assumes that the only risk that investors consider is the market risk (Womack & Zhang,2013).

$$R_P - r_f = \alpha + \beta(R_M - r_f)$$

As it has been mentioned the only beta that found is found the market one. The risk-free rate used will be the three months T-bill⁸. And the market risk data will be the one found in the Kennet French's website. The portfolio risk will be the annual returns of the portfolio.

The computations were done using the Excel regression toll (see results in Table 5.1). Regression CAPM). The regression indicates that the portfolio generates alpha. This means that for the same level of market risk the portfolio creates a 0,5% higher return.

⁸ (Pages.stern.nyu.edu, 2017)⁸

Table 5.1 CAPM results

Multiple correlation coefficient	0,74463656
Coefficient of determination R^2	0,55448361
R^2 adjusted	0,53592043
Typical error	0,12347547
Observations	26

ANALYSIS OF VARIANCE

	<i>Degrees of Freedom</i>	<i>Sum of squares</i>	<i>Average of the squares</i>	<i>F</i>	<i>Critical Value of F</i>
Regresión	1	0,45540489	0,45540489	29,8700724	1,2857E-05
Residue	24	0,36590863	0,01524619		
Total	25	0,82131352			

	<i>Coefficient</i>	<i>Typical error</i>	<i>T statistic</i>	<i>Probability</i>	<i>Lower 95%</i>	<i>Higher 95%</i>
α	0,00559301	0,02730958	0,20480027	0,83945514	-0,05077119	0,06195721
β	0,74994672	0,13721837	5,46535199	1,2857E-05	0,46674191	1,03315152

Source: Own elaboration

6.4 Multifactor model

Once it is found that applying the CAPM the portfolio generates alpha other models must be applied to see if it really generates alpha or other risks generate that excess return. In this case the model used will be the Fama/French three factor model. It is based on the CAPM model, but it includes two other risk factors. The SMB, that represents the market equity. This means that smaller companies will carry higher risks than bigger ones, so a higher return should be expected from them. And the HML, that is the book equity to market equity (see equation 6.2). This ratio explains that companies with lower book to market to book ratio will have earnings and will outperform (Fama & French,1995). The formula that this model uses is the one found below.

$$R_P - r_f = \alpha + \beta_1(R_M - r_f) + \beta_2SMB + \beta_3HML$$

In this case the portfolio has underperformed taking in to account the risks it has taken. This can be seen in that the alpha in this case is negative. With the risks assumed by the portfolio they should have earned a 0,8% annual more than it has. This model has is more explicative than the other one as the R^2 is higher than the other one. The result is in line with what is expected as other value investors such as Warren Buffet have a negative alpha when this model is used to evaluate its performance (Frazzini et al.,2013).

Although this model is one of the most commonly used it has its limitations. The data used is influence by a lot of small and micro-cap companies that as they are probed to have a higher return than others, this is because they use all the American market. And the indexes used is only made up by the biggest companies. This generates certain abnormal results such as alphas in the S&P500(Cremers et al.,2008). The alphas that appear should not be there as the model explains all the returns. The three-factor Fama/French would not be able to be used by big institutional investors in an effective way.

Table 5.2 Fama/French three factor model results

Multiple correlation coefficient	0,79996125
Coefficient of determination R^2	0,639938
R^2 adjusted	0,59083864
Typical error	0,1159396
Observations	26

ANALYSIS OF VARIANCE

	<i>Degrees of Freedom</i>	<i>Sum of squares</i>	<i>Average of the squares</i>	<i>F</i>	<i>Critical Value of F</i>
Regression	3	0,52558973	0,17519658	13,0335296	4,1745E-05
Residue	22	0,29572378	0,01344199		
Total	25	0,82131352			

	<i>Coefficient</i>	<i>Typical error</i>	<i>T statistic</i>	<i>Probability</i>	<i>Lower 95%</i>	<i>Higher 95%</i>
α	-0,00836259	0,02640288	-0,31673008	0,75443433	0,06311882	0,04639364
β	0,00724893	0,00131046	5,53159981	1,4694E-05	0,00453121	0,00996665
SMB	0,0036074	0,00221513	1,6285261	0,11765074	-0,0009865	0,0082013
HML	0,00131125	0,00153504	0,85421337	0,40219293	0,00187222	0,00449472

Source: Own elaboration

7. Conclusions

The portfolio that has been created using a series of value indicators has beaten the benchmark in absolute terms for the last twenty-six years. For every dollar invested following the value strategy you would have earned 2,45\$ dollars more than just by buying the S&P500. Although transactions costs and other costs have not been taken into account. Also, a portfolio's performance can not only be measured in absolute terms. That's why the CAPM and the Fama/French three factor model have been applied to evaluate performance.

According to the CAPM model the portfolio would have also been more successful than the model. As has it has been evaluated in the CAPM section of this project the portfolio would have generated a positive alpha. That means that the portfolio would have generated a 0,5% more than the benchmark.

But according to the Fama/French the portfolio would have not performed as well as it should according to the risks it is exposed to. This means that according to this model it would not be a rational investment strategy.

The first hypothesis that was being studied. That was if using value investing screening techniques to create a portfolio. Has been proved partially right. In absolute terms an according to the CAPM the portfolio created more value for the investors. Also, the losses in the bad years for the investors were lower in the portfolio than in the index. The problem arises when the portfolio is evaluated using the Fama/French three factor model. In this case the risk assumed by the portfolio were higher than what it should have been expected for that return.

The second hypothesis that was being evaluated were one of the problems affecting the performance of the active managed funds. As the portfolio has beaten the market it can be said that costs might be one of the reasons why this type of investment vehicles are underperforming. So, they should reduce their risks.

It must be taken into account that markets have seen an increase in the number of participants. This is supposed to generate a more efficient market. Also, market information is more easily able for market participants to consult. This will help them make better decisions. Moreover, past results will not assure future results.

To conclude it must said that more research must be done to shed more light about this problem. More years should be studied, other time periods and other markets.

8. References

- Damodaran, A. (2012). Value investing: investing for grown ups?.
- De Bondt, W. F., & Thaler, R. H. (1987). Further evidence on investor overreaction and stock market seasonality. *Journal of finance*, 557-581.
- Fama, E. F., & French, K. (2008). Mutual fund performance. *Journal of Finance*, 63(1), 389-416.
- Fama, E. F., & French, K. R. (1995). Size and book-to-market factors in earnings and returns. *The Journal of Finance*, 50(1), 131-155.
- Frazzini, A., Kabiller, D., & Pedersen, L. H. (2013). *Buffett's alpha* (No. w19681). National Bureau of Economic Research.
- Kahneman, D., Knetsch, J. L., & Thaler, R. H. (1991). Anomalies: The endowment effect, loss aversion, and status quo bias. *The journal of economic perspectives*, 5(1), 193-206.
- Kim, J. H., Shamsuddin, A., & Lim, K. P. (2011). Stock return predictability and the adaptive markets hypothesis: Evidence from century-long US data. *Journal of Empirical Finance*, 18(5), 868-879.
- Lo, A. W. (2005). Reconciling efficient markets with behavioral finance: the adaptive markets hypothesis.
- Malkiel, B. G., & Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *The journal of Finance*, 25(2), 383-417.
- Mba.tuck.dartmouth.edu. (2017). *Kenneth R. French - Data Library*. [online] Available at: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html [Accessed 13 Dec. 2017].
- Pages.stern.nyu.edu.(2017). .Available at: http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/histretSP.html [Accessed 14 Dec. 2017].
- Piotroski, J. D. (2000). Value investing: The use of historical financial statement information to separate winners from losers. *Journal of Accounting Research*, 1-41.

Rosenberg, S. A., Lotze, M. T., Muul, L. M., Leitman, S., Chang, A. E., Ettinghausen, S. E., ... & Seipp, C. A. (1985). Observations on the systemic administration of autologous lymphokine-activated killer cells and recombinant interleukin-2 to patients with metastatic cancer. *New England journal of medicine*, 313(23), 1485-1492.

Shiller, R. J., Fischer, S., & Friedman, B. M. (1984). Stock prices and social dynamics. *Brookings papers on economic activity*, 1984(2), 457-510.

Us.spindices.com. (2017). *S&P 500® - S&P Dow Jones Indices*. [online] Available at: <http://us.spindices.com/indices/equity/sp-500> [Accessed 12 Dec. 2017].

Womack, K. L., & Zhang, Y. (2003). Understanding risk and return, the CAPM, and the Fama-French three-factor model.

Kiersz, A. (2017). *Here's how badly Warren Buffett has crushed the market*. [online] Business Insider. Available at: <http://uk.businessinsider.com/warren-buffett-vs-sp-500-2017-5> [Accessed 15 Dec. 2017].

Sharpe, W. F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *The journal of finance*, 19(3), 425-442.

Harvey, C. R., Liu, Y., & Zhu, H. (2016). ... and the cross-section of expected returns. *The Review of Financial Studies*, 29(1), 5-68.

Fama, E. F., & French, K. R. (2016). Dissecting anomalies with a five-factor model. *The Review of Financial Studies*, 29(1), 69-103.

McLean, R. D., & Pontiff, J. (2016). Does academic research destroy stock return predictability?. *The Journal of Finance*, 71(1), 5-32.

Ross, S. (1976). The Arbitrage Pricing Theory of Capital Asset Pricing. *Journal of Economic Theory*, 13(341), 60.

Cremers, M., Petajisto, A., & Zitzewitz, E. (2008). *When Benchmark Indices Have Alpha: Problems with Performance Evaluation*. EDHEC Working Paper.

Jegadeesh, N., & Titman, S. (1993). Returns to buying winners and selling losers: Implications for stock market efficiency. *The Journal of finance*, 48(1), 65-91.

Baker, M., Bradley, B., & Wurgler, J. (2011). Benchmarks as limits to arbitrage: Understanding the low-volatility anomaly. *Financial Analysts Journal*, 67(1), 40-54.

Ang, A., Goetzmann, W. N., & Schaefer, S. (2009). Evaluation of active management of the Norwegian government pension fund–global. *report to the Norwegian Ministry of Finance*.

2011. Presidential Address: Discount Rates. *Journal of Finance* 66:1047–10

Msci.com. (2018). [online] Available at: https://www.msci.com/documents/10199/248121/MSCI_Momentum_Index_Investor_Insight.pdf/49830602-ca1d-4b56-b4b3-858f4b5e72bd [Accessed 6 Jan. 2018].

Ft.com. (2018). *2,000% rise in new money allocated to smart-beta funds*. [online] Available at: <https://www.ft.com/content/5c5960d0-3668-11e7-99bd-13beb0903fa3> [Accessed 6 Jan. 2018].

BusinessDictionary.com. (2018). *What is a factor? definition and meaning*. [online] Available at: <http://www.businessdictionary.com/definition/factor.html> [Accessed 6 Jan. 2018].

Ma.utexas.edu. (2018). *Data Snooping*. [online] Available at: <https://www.ma.utexas.edu/users/mks/statmistakes/datasnooping.html> [Accessed 6 Jan. 2018]

YouTube. (2018). *The Science of Multi-Factor Investing*. [online] Available at: <https://www.youtube.com/watch?v=FIJRJpdbOyU> [Accessed 6 Jan. 2018]

Factor, Q. (2018). *Quality Factor - MSCI*. [online] Msci.com. Available at: <https://www.msci.com/quality-factor> [Accessed 6 Jan. 2018]

9. Appendix

Appendix A: Ratios used

Abbreviation Used	Full name	Explanation of the ratio	Name in Bloomberg
ROE LF	Return on equity	earnings divided by the equity of the company	RETURN_COM_EQUITY
ADY	Average dividend yield	average of the dividend the company paid in the last twelve months	AVERAGE_DIVIDEN_YIELD
P/B	Price to book value	price of the stock divided by the book value of the company	PX_TO_BOOK_RATIO
P/E	Price to earnings	price of the stock divided by the latest yearly earnings	PE_RATIO
P/CF	Price to cash flow	price of the stock divided by the operating cash flow	PX_TO_CASH

Appendix B: Companies forming the portfolio each year

1991	
<i>Ticker</i>	<i>Name</i>
329556Q UN Equity	National Service Industries Inc
BGG UN Equity	Briggs & Stratton Corp
HSH UN Equity	Hillshire Brands Co/The
JCP UN Equity	JC Penney Co Inc

1992	
<i>Ticker</i>	<i>Name</i>
0111145D UN Equity	Nicor Inc
0961514D UN Equity	Progress Energy Inc
2218Q UN Equity	Beneficial Corp
2223Q UN Equity	Wells Fargo & Co/Old
2500Q UN Equity	BP Corp North America Inc
2727195Q UN Equity	HSBC Finance Corp
2731112Q US Equity	Siemens Medical Solutions Health Service
2784Q UN Equity	Premark International LLC
300583Q UN Equity	Atlantic Richfield Co
3022239Q UN Equity	Wendy's International LLC
3054Q UN Equity	AT&T Teleholdings Inc
3891289Q UN Equity	Mobil Corp
45200Q UN Equity	AEP Texas Inc
677004Q UN Equity	Texaco Inc
8375930Q UN Equity	ConocoPhillips Co
950967Q UN Equity	AIG Life Holdings Inc
AEP UN Equity	American Electric Power Co Inc
ASH UN Equity	Ashland Global Holdings Inc
BGG UN Equity	Briggs & Stratton Corp
BLS UN Equity	BellSouth LLC
CNP UN Equity	CenterPoint Energy Inc
CNRG UN Equity	Consolidated Natural Gas Co
CVS UN Equity	CVS Health Corp
CVX UN Equity	Chevron Corp
D UN Equity	Dominion Energy Inc
DD UN Equity	EI du Pont de Nemours & Co
DOW UN Equity	Dow Chemical Co/The
DTE UN Equity	DTE Energy Co
DUK UN Equity	Duke Energy Corp
ED UN Equity	Consolidated Edison Inc
ETR UN Equity	Entergy Corp
FLMIQ UN Equity	Fleming Cos Inc
KMRTQ UN Equity	Kmart Corp/Old
LK UN Equity	Lockheed Corp
OKE UN Equity	ONEOK Inc
PCG UN Equity	PG&E Corp

PD UN Equity	Freeport-McMoRan Corp
PEG UN Equity	Public Service Enterprise Group Inc
PGL UN Equity	Peoples Energy LLC
PPW US Equity	PacifiCorp
RRD UN Equity	RR Donnelley & Sons Co
SO UN Equity	Southern Co/The
SPGI UN Equity	S&P Global Inc
TNB UN Equity	Thomas & Betts Corp
UEP UN Equity	Union Electric Co
WMB UN Equity	Williams Cos Inc/The
XOM UN Equity	Exxon Mobil Corp
XRX UN Equity	Xerox Corp

1993	
<i>Ticker</i>	<i>Name</i>
0910150D US Equity	Park Hotels & Resorts Inc/Old
0961514D UN Equity	Progress Energy Inc
1005945D US Equity	Ohio Edison Co
2269312Q UN Equity	Eastern Enterprises
2731112Q US Equity	Siemens Medical Solutions Health Service
3022239Q UN Equity	Wendy's International LLC
304024Q US Equity	Springs Industries Inc
3054Q UN Equity	AT&T Teleholdings Inc
329556Q UN Equity	National Service Industries Inc
45200Q UN Equity	AEP Texas Inc
45861Q UN Equity	HF Ahmanson & Co
677004Q UN Equity	Texaco Inc
93916Q UN Equity	Sonat Inc
AEP UN Equity	American Electric Power Co Inc
BAX UN Equity	Baxter International Inc
BGG UN Equity	Briggs & Stratton Corp
BLL UN Equity	Ball Corp
BLS UN Equity	BellSouth LLC
CEG UN Equity	Constellation Energy Group Inc
CNP UN Equity	CenterPoint Energy Inc
CNRG UN Equity	Consolidated Natural Gas Co
CVS UN Equity	CVS Health Corp
D UN Equity	Dominion Energy Inc
DTE UN Equity	DTE Energy Co
DUK UN Equity	Duke Energy Corp
ED UN Equity	Consolidated Edison Inc
EIX UN Equity	Edison International
ETR UN Equity	Entergy Corp
HPC US Equity	Hercules LLC
HRS UN Equity	Harris Corp
JCP UN Equity	JC Penney Co Inc
LNC UN Equity	Lincoln National Corp
NEE UN Equity	NextEra Energy Inc
NMK UN Equity	Niagara Mohawk Holdings Inc
NOC UN Equity	Northrop Grumman Corp
OKE UN Equity	ONEOK Inc

PCG UN Equity	PG&E Corp
PCH UN Equity	Potlatch Corp
PD UN Equity	Freeport-McMoRan Corp
PEG UN Equity	Public Service Enterprise Group Inc
PGL UN Equity	Peoples Energy LLC
PH UN Equity	Parker-Hannifin Corp
PNC UN Equity	PNC Financial Services Group Inc/The
SNA UN Equity	Snap-on Inc
SO UN Equity	Southern Co/The
SPXC UN Equity	SPX Corp
TRV UN Equity	Travelers Cos Inc/The
TXU US Equity	Energy Future Holdings Corp/Old
UEP UN Equity	Union Electric Co
UNP UN Equity	Union Pacific Corp
WMB UN Equity	Williams Cos Inc/The
XOM UN Equity	Exxon Mobil Corp

1994	
<i>Ticker</i>	<i>Name</i>
0111145D UN Equity	Nicor Inc
0961514D UN Equity	Progress Energy Inc
1005945D US Equity	Ohio Edison Co
1086832D UN Equity	Sunoco Inc
2500Q UN Equity	BP Corp North America Inc
2727195Q UN Equity	HSBC Finance Corp
2731112Q US Equity	Siemens Medical Solutions Health Service
2972Q UN Equity	Transamerica Corp
300583Q UN Equity	Atlantic Richfield Co
329556Q UN Equity	National Service Industries Inc
3891289Q UN Equity	Mobil Corp
41018Q US Equity	Wachovia Corp/Old
45200Q UN Equity	AEP Texas Inc
677004Q UN Equity	Texaco Inc
8375930Q UN Equity	ConocoPhillips Co
950967Q UN Equity	AIG Life Holdings Inc
ASH UN Equity	Ashland Global Holdings Inc
BAX UN Equity	Baxter International Inc
BLS UN Equity	BellSouth LLC
CEG UN Equity	Constellation Energy Group Inc
CNP UN Equity	CenterPoint Energy Inc
CNRG UN Equity	Consolidated Natural Gas Co
CR UN Equity	Crane Co
CVX UN Equity	Chevron Corp
D UN Equity	Dominion Energy Inc
DTE UN Equity	DTE Energy Co
DUK UN Equity	Duke Energy Corp
ED UN Equity	Consolidated Edison Inc
EIX UN Equity	Edison International
ETR UN Equity	Entergy Corp
FLMIQ UN Equity	Fleming Cos Inc
HDLM UN Equity	Handleman Co

KMRTQ UN Equity	Kmart Corp/Old
LDG UN Equity	Longs Drug Stores Corp
LNC UN Equity	Lincoln National Corp
NEE UN Equity	NextEra Energy Inc
NMK UN Equity	Niagara Mohawk Holdings Inc
NOC UN Equity	Northrop Grumman Corp
OKE UN Equity	ONEOK Inc
PCAR UQ Equity	PACCAR Inc
PCG UN Equity	PG&E Corp
PD UN Equity	Freeport-McMoRan Corp
PEG UN Equity	Public Service Enterprise Group Inc
PGL UN Equity	Peoples Energy LLC
PNC UN Equity	PNC Financial Services Group Inc/The
RAD UN Equity	Rite Aid Corp
SO UN Equity	Southern Co/The
TNB UN Equity	Thomas & Betts Corp
UEP UN Equity	Union Electric Co
UNP UN Equity	Union Pacific Corp
VZ UN Equity	Verizon Communications Inc
WMB UN Equity	Williams Cos Inc/The
XOM UN Equity	Exxon Mobil Corp

1995	
<i>Ticker</i>	<i>Name</i>
0111145D UN Equity	Nicor Inc
0943554D UN Equity	DII Industries LLC
1255173D UN Equity	Wachovia Corp
2218Q UN Equity	Beneficial Corp
2500Q UN Equity	BP Corp North America Inc
3022239Q UN Equity	Wendy's International LLC
3621240Q UN Equity	Bank One Corp
399463Q UN Equity	Deutsche Bank Trust Corp
41018Q US Equity	Wachovia Corp/Old
748957Q UN Equity	Pharmacia LLC
ASH UN Equity	Ashland Global Holdings Inc
CVS UN Equity	CVS Health Corp
DCNAQ UN Equity	Dana Corp
DUK UN Equity	Duke Energy Corp
ED UN Equity	Consolidated Edison Inc
F UN Equity	Ford Motor Co
KEY UN Equity	KeyCorp
NCC UN Equity	National City Corp
PCAR UQ Equity	PACCAR Inc
RRD UN Equity	RR Donnelley & Sons Co
SWK UN Equity	Stanley Black & Decker Inc
TJX UN Equity	TJX Cos Inc/The
TMK UN Equity	Torchmark Corp
XOM UN Equity	Exxon Mobil Corp

1996	
<i>Ticker</i>	<i>Name</i>
1255173D UN Equity	Wachovia Corp
2251Q UN Equity	Chrysler Corp

300583Q UN Equity	Atlantic Richfield Co
3692470Q UN Equity	Alltel Corp
896661Q UN Equity	Union Camp Corp
BAX UN Equity	Baxter International Inc
CNP UN Equity	CenterPoint Energy Inc
COP UN Equity	ConocoPhillips
DCNAQ UN Equity	Dana Corp
DOW UN Equity	Dow Chemical Co/The
ETN UN Equity	Eaton Corp PLC
F UN Equity	Ford Motor Co
GP UN Equity	Georgia-Pacific LLC
JCP UN Equity	JC Penney Co Inc
JH UN Equity	John H Harland Co
KEY UN Equity	KeyCorp
LUB UN Equity	Luby's Inc
NC UN Equity	NACCO Industries Inc
NCC UN Equity	National City Corp
PCAR UQ Equity	PACCAR Inc
PD UN Equity	Freeport-McMoRan Corp
UNP UN Equity	Union Pacific Corp
WY UN Equity	Weyerhaeuser Co
X UN Equity	United States Steel Corp
XOM UN Equity	Exxon Mobil Corp

1997	
<i>Tickter</i>	<i>Name</i>
MO UN Equity	Altria Group Inc
NC UN Equity	NACCO Industries Inc
1255177D UN Equity	Union Carbide Corp
1436513D UN Equity	Johnson Controls Inc
2200Q US Equity	Citicorp/Old
2218Q UN Equity	Beneficial Corp
2251Q UN Equity	Chrysler Corp
2770014Q UN Equity	King World Productions Inc
297504Q UN Equity	Northrop Grumman Space & Mission Systems
300583Q UN Equity	Atlantic Richfield Co
3080867Q UN Equity	Maytag Corp
3621240Q UN Equity	Bank One Corp
375573Q UN Equity	Nalco Co LLC/Illinois
41018Q US Equity	Wachovia Corp/Old
723588Q UN Equity	Great Lakes Chemical Corp
968734Q UN Equity	Aeroquip-Vickers Inc
AMAT UQ Equity	Applied Materials Inc
BC UN Equity	Brunswick Corp/DE
BDK UN Equity	Black & Decker Corp/The
BGG UN Equity	Briggs & Stratton Corp
BK UN Equity	Bank of New York Mellon Corp/The
CAT UN Equity	Caterpillar Inc
CBE UN Equity	Cooper Industries PLC
CMA UN Equity	Comerica Inc
COP UN Equity	ConocoPhillips
CR UN Equity	Crane Co
CSX UN Equity	CSX Corp
DCNAQ UN Equity	Dana Corp

DD UN Equity	El du Pont de Nemours & Co
DE UN Equity	Deere & Co
DOW UN Equity	Dow Chemical Co/The
DUK UN Equity	Duke Energy Corp
EMN UN Equity	Eastman Chemical Co
ETN UN Equity	Eaton Corp PLC
FLTWQ UN Equity	Fleetwood Enterprises Inc
GT UN Equity	Goodyear Tire & Rubber Co/The
IBM UN Equity	International Business Machines Corp
IR UN Equity	Ingersoll-Rand PLC
KEY UN Equity	KeyCorp
L UN Equity	Loews Corp
LUB UN Equity	Luby's Inc
MEL UN Equity	Mellon Financial Corp
MTLQQ UN Equity	Motors Liquidation Co
NOC UN Equity	Northrop Grumman Corp
PD UN Equity	Freeport-McMoRan Corp
PH UN Equity	Parker-Hannifin Corp
PKI UN Equity	PerkinElmer Inc
PPG UN Equity	PPG Industries Inc
ROH UN Equity	Rohm & Haas Co
TNB UN Equity	Thomas & Betts Corp
VZ UN Equity	Verizon Communications Inc

1998	
<i>Ticker</i>	<i>Name</i>
0111145D UN Equity	Nicor Inc
1255173D UN Equity	Wachovia Corp
2218Q UN Equity	Beneficial Corp
2251Q UN Equity	Chrysler Corp
2500Q UN Equity	BP Corp North America Inc
297504Q UN Equity	Northrop Grumman Space & Mission Systems
2999130Q UN Equity	BASF Catalysts LLC
300583Q UN Equity	Atlantic Richfield Co
3692470Q UN Equity	Alltel Corp
375573Q UN Equity	Nalco Co LLC/Illinois
3891289Q UN Equity	Mobil Corp
41018Q US Equity	Wachovia Corp/Old
504369Q UN Equity	General Signal Corp
605555Q UN Equity	Sears Roebuck & Co
987200Q UN Equity	May Department Stores Co/The
BKB UN Equity	BankBoston Corp
BLS UN Equity	BellSouth LLC
CBE UN Equity	Cooper Industries PLC
COP UN Equity	ConocoPhillips
CVX UN Equity	Chevron Corp
DOW UN Equity	Dow Chemical Co/The
EMN UN Equity	Eastman Chemical Co
F UN Equity	Ford Motor Co
GPC UN Equity	Genuine Parts Co
GR UN Equity	Goodrich Corp
HPQ UN Equity	HP Inc
KEY UN Equity	KeyCorp

MEL UN Equity	Mellon Financial Corp
MMC UN Equity	Marsh & McLennan Cos Inc
MRO UN Equity	Marathon Oil Corp
MTLQQ UN Equity	Motors Liquidation Co
NCC UN Equity	National City Corp
PCAR UQ Equity	PACCAR Inc
PD UN Equity	Freeport-McMoRan Corp
PNC UN Equity	PNC Financial Services Group Inc/The
PPG UN Equity	PPG Industries Inc
TKR UN Equity	Timken Co/The
X UN Equity	United States Steel Corp
XOM UN Equity	Exxon Mobil Corp

1999	
<i>Ticker</i>	<i>Name</i>
0544749D UN Equity	Kerr-McGee Corp
1086832D UN Equity	Sunoco Inc
1255177D UN Equity	Union Carbide Corp
2269312Q UN Equity	Eastern Enterprises
3075558Q UN Equity	Summit Bancorp
329556Q UN Equity	National Service Industries Inc
3621240Q UN Equity	Bank One Corp
375573Q UN Equity	Nalco Co LLC/Illinois
605555Q UN Equity	Sears Roebuck & Co
968734Q UN Equity	Aeroquip-Vickers Inc
987200Q UN Equity	May Department Stores Co/The
BGG UN Equity	Briggs & Stratton Corp
BKB UN Equity	BankBoston Corp
DLX UN Equity	Deluxe Corp
ETN UN Equity	Eaton Corp PLC
F UN Equity	Ford Motor Co
FLTWQ UN Equity	Fleetwood Enterprises Inc
HPC US Equity	Hercules LLC
HPQ UN Equity	HP Inc
IFF UN Equity	International Flavors & Fragrances Inc
KEY UN Equity	KeyCorp
LNC UN Equity	Lincoln National Corp
MMM UN Equity	3M Co
NC UN Equity	NACCO Industries Inc
PCAR UQ Equity	PACCAR Inc
PPG UN Equity	PPG Industries Inc
ROH UN Equity	Rohm & Haas Co
TGNA UN Equity	TEGNA Inc
WHR UN Equity	Whirlpool Corp
X UN Equity	United States Steel Corp

2000	
<i>Ticker</i>	<i>Name</i>
3133754Q UN Equity	AmSouth Bancorp
329556Q UN Equity	National Service Industries Inc
3346Q UN Equity	US Bancorp/Old
571300Q UN Equity	GTE Corp
605555Q UN Equity	Sears Roebuck & Co

987200Q UN Equity	May Department Stores Co/The
ATI UN Equity	Allegheny Technologies Inc
BAX UN Equity	Baxter International Inc
CMA UN Equity	Comerica Inc
CNP UN Equity	CenterPoint Energy Inc
DCNAQ UN Equity	Dana Corp
DLX UN Equity	Deluxe Corp
DUK UN Equity	Duke Energy Corp
EMR UN Equity	Emerson Electric Co
ETN UN Equity	Eaton Corp PLC
F UN Equity	Ford Motor Co
HRB UN Equity	H&R Block Inc
MEL UN Equity	Mellon Financial Corp
MMM UN Equity	3M Co
MO UN Equity	Altria Group Inc
MTLQQ UN Equity	Motors Liquidation Co
NCC UN Equity	National City Corp
NGH UN Equity	RJR Acquisition Corp
OK UN Equity	Old Kent Financial Corp
PCAR UQ Equity	PACCAR Inc
PNC UN Equity	PNC Financial Services Group Inc/The
RRD UN Equity	RR Donnelley & Sons Co
VZ UN Equity	Verizon Communications Inc
XRX UN Equity	Xerox Corp

2001	
<i>Ticker</i>	<i>Name</i>
0544749D UN Equity	Kerr-McGee Corp
297504Q UN Equity	Northrop Grumman Space & Mission Systems
3346Q UN Equity	US Bancorp/Old
3692470Q UN Equity	Alltel Corp
605555Q UN Equity	Sears Roebuck & Co
BOL UN Equity	Bausch & Lomb Inc
CMA UN Equity	Comerica Inc
COC UN Equity	ConocoPhillips Holding Co
COP UN Equity	ConocoPhillips
CVX UN Equity	Chevron Corp
DOW UN Equity	Dow Chemical Co/The
DPHIQ UN Equity	DPH Holdings Corp
ETN UN Equity	Eaton Corp PLC
GR UN Equity	Goodrich Corp
HRB UN Equity	H&R Block Inc
MTLQQ UN Equity	Motors Liquidation Co
OXY UN Equity	Occidental Petroleum Corp
PCAR UQ Equity	PACCAR Inc
PPG UN Equity	PPG Industries Inc
PPL UN Equity	PPL Corp
ROK UN Equity	Rockwell Automation Inc
RRD UN Equity	RR Donnelley & Sons Co
SWK UN Equity	Stanley Black & Decker Inc
VZ UN Equity	Verizon Communications Inc
WHR UN Equity	Whirlpool Corp

2002	
<i>Ticker</i>	<i>Name</i>

0111145D UN Equity	Nicor Inc
0544749D UN Equity	Kerr-McGee Corp
0961514D UN Equity	Progress Energy Inc
1086832D UN Equity	Sunoco Inc
1288652D US Equity	Jefferson-Pilot Corp
1500785D UN Equity	TECO Energy Inc
228510Q UN Equity	Willamette Industries Inc
2676187Q UQ Equity	SouthTrust Corp
3022239Q UN Equity	Wendy's International LLC
3133754Q UN Equity	AmSouth Bancorp
355488Q UQ Equity	Regions Financial Corp/Old
605018Q UN Equity	Charter One Financial Inc
605555Q UN Equity	Sears Roebuck & Co
987200Q UN Equity	May Department Stores Co/The
AA UN Equity	Alcoa Corp
APD UN Equity	Air Products & Chemicals Inc
ASH UN Equity	Ashland Global Holdings Inc
AYE UN Equity	Allegheny Energy Inc
BA UN Equity	Boeing Co/The
BC UN Equity	Brunswick Corp/DE
BCR UN Equity	CR Bard Inc
BF/B UN Equity	Brown-Forman Corp
BK UN Equity	Bank of New York Mellon Corp/The
BLS UN Equity	BellSouth LLC
BMS UN Equity	Bemis Co Inc
CAG UN Equity	Conagra Brands Inc
CAT UN Equity	Caterpillar Inc
CBE UN Equity	Cooper Industries PLC
CEG UN Equity	Constellation Energy Group Inc
CIN UN Equity	Cinergy Corp
CMA UN Equity	Comerica Inc
CNP UN Equity	CenterPoint Energy Inc
COC UN Equity	ConocoPhillips Holding Co
COP UN Equity	ConocoPhillips
CVX UN Equity	Chevron Corp
D UN Equity	Dominion Energy Inc
DUK UN Equity	Duke Energy Corp
ED UN Equity	Consolidated Edison Inc
ETR UN Equity	Entergy Corp
FBF UN Equity	FleetBoston Financial Corp
FE UN Equity	FirstEnergy Corp
GPC UN Equity	Genuine Parts Co
GR UN Equity	Goodrich Corp
HAL UN Equity	Halliburton Co
HES UN Equity	Hess Corp
LB UN Equity	L Brands Inc
LEG UN Equity	Leggett & Platt Inc
LNC UN Equity	Lincoln National Corp
NEE UN Equity	NextEra Energy Inc
NWL UN Equity	Newell Brands Inc
OXY UN Equity	Occidental Petroleum Corp
PEG UN Equity	Public Service Enterprise Group Inc
PGL UN Equity	Peoples Energy LLC
PLL UN Equity	Pall Corp
PNW UN Equity	Pinnacle West Capital Corp
PPG UN Equity	PPG Industries Inc
PPL UN Equity	PPL Corp

PVN UN Equity	Providian Financial Corp
ROK UN Equity	Rockwell Automation Inc
RRD UN Equity	RR Donnelley & Sons Co
SNV UN Equity	Synovus Financial Corp
SO UN Equity	Southern Co/The
SRE UN Equity	Sempra Energy
SWK UN Equity	Stanley Black & Decker Inc
T UN Equity	AT&T Inc
TGNA UN Equity	TEGNA Inc
TROW UQ Equity	T Rowe Price Group Inc
TXU US Equity	Energy Future Holdings Corp/Old
UCL UN Equity	Unocal Corp
UNM UN Equity	Unum Group
USB UN Equity	US Bancorp
VFC UN Equity	VF Corp
VMC UN Equity	Vulcan Materials Co
VZ UN Equity	Verizon Communications Inc
WMB UN Equity	Williams Cos Inc/The
XEL UN Equity	Xcel Energy Inc
XOM UN Equity	Exxon Mobil Corp

2003	
<i>Ticker</i>	<i>Name</i>
0111145D UN Equity	Nicor Inc
1288652D US Equity	Jefferson-Pilot Corp
1500785D UN Equity	TECO Energy Inc
2727195Q UN Equity	HSBC Finance Corp
3080867Q UN Equity	Maytag Corp
3133754Q UN Equity	AmSouth Bancorp
3423152Q UN Equity	Enterprise Services LLC
3517233Q UN Equity	UST LLC
3621240Q UN Equity	Bank One Corp
605018Q UN Equity	Charter One Financial Inc
987200Q UN Equity	May Department Stores Co/The
AON UN Equity	Aon PLC
AVY UN Equity	Avery Dennison Corp
BAX UN Equity	Baxter International Inc
BK UN Equity	Bank of New York Mellon Corp/The
BLS UN Equity	BellSouth LLC
BMS UN Equity	Bemis Co Inc
CAG UN Equity	Conagra Brands Inc
CAT UN Equity	Caterpillar Inc
CBE UN Equity	Cooper Industries PLC
CIN UN Equity	Cinergy Corp
CLX UN Equity	Clorox Co/The
CMA UN Equity	Comerica Inc
CR UN Equity	Crane Co
CTB UN Equity	Cooper Tire & Rubber Co
D UN Equity	Dominion Energy Inc
DTE UN Equity	DTE Energy Co
DUK UN Equity	Duke Energy Corp
ED UN Equity	Consolidated Edison Inc

EQR UN Equity	Equity Residential
ETN UN Equity	Eaton Corp PLC
EXC UN Equity	Exelon Corp
FE UN Equity	FirstEnergy Corp
FLR UN Equity	Fluor Corp
FNMA UN Equity	Federal National Mortgage Association
GE UN Equity	General Electric Co
HBAN UQ Equity	Huntington Bancshares Inc/OH
HIG UN Equity	Hartford Financial Services Group Inc/Th
HNZ UN Equity	Kraft Heinz Foods Co
HON UN Equity	Honeywell International Inc
HSH UN Equity	Hillshire Brands Co/The
KMB UN Equity	Kimberly-Clark Corp
LEG UN Equity	Leggett & Platt Inc
MAS UN Equity	Masco Corp
MI UN Equity	Marshall & Ilsley Corp
MO UN Equity	Altria Group Inc
MRK UN Equity	Merck & Co Inc
NFB UN Equity	North Fork Bancorporation Inc
PBI UN Equity	Pitney Bowes Inc
PCAR UQ Equity	PACCAR Inc
PCL UN Equity	Plum Creek Timber Co Inc
PNW UN Equity	Pinnacle West Capital Corp
SGP UN Equity	Schering-Plough Corp/Pre-merger with Mer
SHW UN Equity	Sherwin-Williams Co/The
SNV UN Equity	Synovus Financial Corp
SO UN Equity	Southern Co/The
SPG UN Equity	Simon Property Group Inc
SRE UN Equity	Sempra Energy
SVU UN Equity	SUPERVALU Inc
SWK UN Equity	Stanley Black & Decker Inc
TUP UN Equity	Tupperware Brands Corp
USB UN Equity	US Bancorp
VMC UN Equity	Vulcan Materials Co
XOM UN Equity	Exxon Mobil Corp
ZION UQ Equity	Zions Bancorporation

2004	
<i>Ticker</i>	<i>Name</i>
1086832D UN Equity	Sunoco Inc
3133754Q UN Equity	AmSouth Bancorp
355488Q UN Equity	Regions Financial Corp/Old
605018Q UN Equity	Charter One Financial Inc
605555Q UN Equity	Sears Roebuck & Co
ADP UN Equity	Automatic Data Processing Inc
AON UN Equity	Aon PLC
AVY UN Equity	Avery Dennison Corp
BAC UN Equity	Bank of America Corp
BBT UN Equity	BB&T Corp
BK UN Equity	Bank of New York Mellon Corp/The
BLS UN Equity	BellSouth LLC
BMS UN Equity	Bemis Co Inc

CAT UN Equity	Caterpillar Inc
CIN UN Equity	Cinergy Corp
CMA UN Equity	Comerica Inc
CVX UN Equity	Chevron Corp
EMR UN Equity	Emerson Electric Co
ETN UN Equity	Eaton Corp PLC
ETR UN Equity	Entergy Corp
EXC UN Equity	Exelon Corp
FBF UN Equity	FleetBoston Financial Corp
FHN UN Equity	First Horizon National Corp
FITB UQ Equity	Fifth Third Bancorp
FMCC UN Equity	Federal Home Loan Mortgage Corp
GE UN Equity	General Electric Co
GIS UN Equity	General Mills Inc
HBAN UQ Equity	Huntington Bancshares Inc/OH
ITT UN Equity	ITT Inc
KMB UN Equity	Kimberly-Clark Corp
LB UN Equity	L Brands Inc
MAS UN Equity	Masco Corp
MAT UN Equity	Mattel Inc
MEL UN Equity	Mellon Financial Corp
MI UN Equity	Marshall & Ilsley Corp
MMC UN Equity	Marsh & McLennan Cos Inc
MRO UN Equity	Marathon Oil Corp
MTLQQ UN Equity	Motors Liquidation Co
NEE UN Equity	NextEra Energy Inc
NFB UN Equity	North Fork Bancorporation Inc
OXY UN Equity	Occidental Petroleum Corp
PCAR UQ Equity	PACCAR Inc
PEG UN Equity	Public Service Enterprise Group Inc
PGL UN Equity	Peoples Energy LLC
PNC UN Equity	PNC Financial Services Group Inc/The
PPG UN Equity	PPG Industries Inc
PPL UN Equity	PPL Corp
ROK UN Equity	Rockwell Automation Inc
RRD UN Equity	RR Donnelley & Sons Co
SHW UN Equity	Sherwin-Williams Co/The
SNV UN Equity	Synovus Financial Corp
SO UN Equity	Southern Co/The
SRE UN Equity	Sempra Energy
SVU UN Equity	SUPERVALU Inc
T UN Equity	AT&T Inc
UPC UN Equity	Union Planters Corp
VFC UN Equity	VF Corp
VZ UN Equity	Verizon Communications Inc
WHR UN Equity	Whirlpool Corp
XL UN Equity	XL Group Ltd
XOM UN Equity	Exxon Mobil Corp

2005	
<i>Ticker</i>	<i>Name</i>
1086832D UN Equity	Sunoco Inc
3133754Q UN Equity	AmSouth Bancorp
8206908Q UQ Equity	BBVA Compass Bancshares Inc

ABT UN Equity	Abbott Laboratories
AVY UN Equity	Avery Dennison Corp
BLS UN Equity	BellSouth LLC
BMJ UN Equity	Bristol-Myers Squibb Co
COP UN Equity	ConocoPhillips
CVX UN Equity	Chevron Corp
DD UN Equity	El du Pont de Nemours & Co
EMR UN Equity	Emerson Electric Co
EXC UN Equity	Exelon Corp
F UN Equity	Ford Motor Co
FITB UQ Equity	Fifth Third Bancorp
GE UN Equity	General Electric Co
GIS UN Equity	General Mills Inc
HBAN UQ Equity	Huntington Bancshares Inc/OH
HET UN Equity	Caesars Entertainment Corp/Old
HNZ UN Equity	Kraft Heinz Foods Co
HRB UN Equity	H&R Block Inc
HSH UN Equity	Hillshire Brands Co/The
ITT UN Equity	ITT Inc
JNJ UN Equity	Johnson & Johnson
KMB UN Equity	Kimberly-Clark Corp
KRB UN Equity	MBNA Corp
MAT UN Equity	Mattel Inc
MEL UN Equity	Mellon Financial Corp
MI UN Equity	Marshall & Ilsley Corp
MMC UN Equity	Marsh & McLennan Cos Inc
MO UN Equity	Altria Group Inc
MRK UN Equity	Merck & Co Inc
MRO UN Equity	Marathon Oil Corp
MTLQQ UN Equity	Motors Liquidation Co
NCC UN Equity	National City Corp
OXY UN Equity	Occidental Petroleum Corp
PCAR UQ Equity	PACCAR Inc
PPG UN Equity	PPG Industries Inc
PPL UN Equity	PPL Corp
ROK UN Equity	Rockwell Automation Inc
SNV UN Equity	Synovus Financial Corp
SRE UN Equity	Sempra Energy
SWK UN Equity	Stanley Black & Decker Inc
UCL UN Equity	Unocal Corp
USB UN Equity	US Bancorp
VFC UN Equity	VF Corp
WFC UN Equity	Wells Fargo & Co
WHR UN Equity	Whirlpool Corp
XOM UN Equity	Exxon Mobil Corp

2006	
<i>Ticker</i>	<i>Name</i>
3393199Q UN E+L40:M56equity	Anheuser-Busch Cos Inc
ABT UN Equity	Abbott Laboratories
COP UN Equity	ConocoPhillips
CVX UN Equity	Chevron Corp
DOW UN Equity	Dow Chemical Co/The
EMN UN Equity	Eastman Chemical Co
EXC UN Equity	Exelon Corp
GIS UN Equity	General Mills Inc
HNZ UN Equity	Kraft Heinz Foods Co

IFF UN Equity	International Flavors & Fragrances Inc
ITT UN Equity	ITT Inc
K UN Equity	Kellogg Co
KMB UN Equity	Kimberly-Clark Corp
KRI UN Equity	Knight Ridder Inc
MKC UN Equity	McCormick & Co Inc/MD
MMM UN Equity	3M Co
MO UN Equity	Altria Group Inc
MRK UN Equity	Merck & Co Inc
MRO UN Equity	Marathon Oil Corp
NUE UN Equity	Nucor Corp
NYT UN Equity	New York Times Co/The
PBI UN Equity	Pitney Bowes Inc
SWK UN Equity	Stanley Black & Decker Inc
SYU UN Equity	Sysco Corp
USB UN Equity	US Bancorp
VZ UN Equity	Verizon Communications Inc
WHR UN Equity	Whirlpool Corp
XOM UN Equity	Exxon Mobil Corp

2007	
<i>Ticker</i>	<i>Name</i>
ADP UN Equity	Automatic Data Processing Inc
ALL UN Equity	Allstate Corp/The
BAX UN Equity	Baxter International Inc
BXP UN Equity	Boston Properties Inc
CAT UN Equity	Caterpillar Inc
CNP UN Equity	CenterPoint Energy Inc
COP UN Equity	ConocoPhillips
CVX UN Equity	Chevron Corp
DD UN Equity	El du Pont de Nemours & Co
EMN UN Equity	Eastman Chemical Co
EMR UN Equity	Emerson Electric Co
ETN UN Equity	Eaton Corp PLC
HSH UN Equity	Hillshire Brands Co/The
JNJ UN Equity	Johnson & Johnson
LB UN Equity	L Brands Inc
LLTC UN Equity	Linear Technology Corp
LLY UN Equity	Eli Lilly & Co
MAT UN Equity	Mattel Inc
MO UN Equity	Altria Group Inc
MRK UN Equity	Merck & Co Inc
MRO UN Equity	Marathon Oil Corp
NUE UN Equity	Nucor Corp
PCAR UN Equity	PACCAR Inc
PD UN Equity	Freeport-McMoRan Corp
PG UN Equity	Procter & Gamble Co/The
PNC UN Equity	PNC Financial Services Group Inc/The
SRE UN Equity	Sempra Energy
STR UN Equity	Dominion Questar Corp
UPS UN Equity	United Parcel Service Inc

USB UN Equity	US Bancorp
WYE UN Equity	Wyeth LLC

2008	
<i>Ticker</i>	<i>Name</i>
8394653Q UN Equity	Prologis
ACAS UW Equity	American Capital Ltd
ALL UN Equity	Allstate Corp/The
BDK UN Equity	Black & Decker Corp/The
CNP UN Equity	CenterPoint Energy Inc
CVX UN Equity	Chevron Corp
D UN Equity	Dominion Energy Inc
DD UN Equity	El du Pont de Nemours & Co
FDO UN Equity	Family Dollar Stores Inc
FTR UN Equity	Frontier Communications Corp
GE UN Equity	General Electric Co
GIS UN Equity	General Mills Inc
HAS US Equity	Hasbro Inc
HD UN Equity	Home Depot Inc/The
IP UN Equity	International Paper Co
ITT UN Equity	ITT Inc
JNJ UN Equity	Johnson & Johnson
LB UN Equity	L Brands Inc
MAT UN Equity	Mattel Inc
MRO UN Equity	Marathon Oil Corp
NUE UN Equity	Nucor Corp
NWL UN Equity	Newell Brands Inc
PCAR UW Equity	PACCAR Inc
PFE UN Equity	Pfizer Inc
PGR UN Equity	Progressive Corp/The
PPG UN Equity	PPG Industries Inc
SAF UN Equity	Safeco Corp
SNV UN Equity	Synovus Financial Corp
STR UN Equity	Dominion Questar Corp
SWK UN Equity	Stanley Black & Decker Inc
UPS UN Equity	United Parcel Service Inc
VMC UN Equity	Vulcan Materials Co
WFC UN Equity	Wells Fargo & Co
WYE UN Equity	Wyeth LLC

2009	
<i>Ticker</i>	<i>Name</i>
1539941D UN Equity	Spectra Energy Corp
BDK UN Equity	Black & Decker Corp/The
CAT UN Equity	Caterpillar Inc
CNP UN Equity	CenterPoint Energy Inc
COP UN Equity	ConocoPhillips
DD UN Equity	El du Pont de Nemours & Co
EMN UN Equity	Eastman Chemical Co
ETN UN Equity	Eaton Corp PLC
FCX UN Equity	Freeport-McMoRan Inc
ITT UN Equity	ITT Inc
JWN UN Equity	Nordstrom Inc
LB UN Equity	L Brands Inc
MRO UN Equity	Marathon Oil Corp
MTW UN Equity	Manitowoc Co Inc/The
NE UN Equity	Noble Corp plc
NUE UN Equity	Nucor Corp

STR UN Equity	Dominion Questar Corp
TXT UN Equity	Textron Inc

2010	
<i>Ticker</i>	<i>Name</i>
0111145D UN Equity	Nicor Inc
0961514D UN Equity	Progress Energy Inc
1500785D UN Equity	TECO Energy Inc
1539941D UN Equity	Spectra Energy Corp
9876566D UN Equity	Chubb Corp/The
AEE UN Equity	Ameren Corp
AEP UN Equity	American Electric Power Co Inc
AFL UN Equity	Aflac Inc
AYE UN Equity	Allegheny Energy Inc
CMS UN Equity	CMS Energy Corp
CNP UN Equity	CenterPoint Energy Inc
CTL UN Equity	CenturyLink Inc
CVX UN Equity	Chevron Corp
D UN Equity	Dominion Energy Inc
DOV UN Equity	Dover Corp
DRI UN Equity	Darden Restaurants Inc
DTE UN Equity	DTE Energy Co
ED UN Equity	Consolidated Edison Inc
EIX UN Equity	Edison International
EMN UN Equity	Eastman Chemical Co
ES UN Equity	Eversource Energy
ETR UN Equity	Entergy Corp
EXC UN Equity	Exelon Corp
FE UN Equity	FirstEnergy Corp
GE UN Equity	General Electric Co
GPC UN Equity	Genuine Parts Co
HD UN Equity	Home Depot Inc/The
HON UN Equity	Honeywell International Inc
ITT UN Equity	ITT Inc
ITW UN Equity	Illinois Tool Works Inc
MAT UN Equity	Mattel Inc
MDLZ UN Equity	Mondelez International Inc
MUR UN Equity	Murphy Oil Corp
NEE UN Equity	NextEra Energy Inc
NSC UN Equity	Norfolk Southern Corp
PCG UN Equity	PG&E Corp
PEG UN Equity	Public Service Enterprise Group Inc
PFE UN Equity	Pfizer Inc
PG UN Equity	Procter & Gamble Co/The
PPL UN Equity	PPL Corp
RAI UN Equity	Reynolds American Inc
RTN UN Equity	Raytheon Co
SCG UN Equity	SCANA Corp
SEE UN Equity	Sealed Air Corp
SJM UN Equity	JM Smucker Co/The
SNA UN Equity	Snap-on Inc
SO UN Equity	Southern Co/The
STR UN Equity	Dominion Questar Corp
T UN Equity	AT&T Inc
TRV UN Equity	Travelers Cos Inc/The
VFC UN Equity	VF Corp
VZ UN Equity	Verizon Communications Inc

WEC UN Equity	WEC Energy Group Inc
WM UN Equity	Waste Management Inc
XEL UN Equity	Xcel Energy Inc
XOM UN Equity	Exxon Mobil Corp

2011	
<i>Ticker</i>	<i>Name</i>
ABT UN Equity	Abbott Laboratories
BMJ UN Equity	Bristol-Myers Squibb Co
CVX UN Equity	Chevron Corp
D UN Equity	Dominion Energy Inc
DO UN Equity	Diamond Offshore Drilling Inc
DPS UN Equity	Dr Pepper Snapple Group Inc
DRI UN Equity	Darden Restaurants Inc
EXC UN Equity	Exelon Corp
GD UN Equity	General Dynamics Corp
INTC UW Equity	Intel Corp
ITT UN Equity	ITT Inc
JNJ UN Equity	Johnson & Johnson
LLY UN Equity	Eli Lilly & Co
MAT UW Equity	Mattel Inc
MDT UN Equity	Medtronic PLC
MRK UN Equity	Merck & Co Inc
PEG UN Equity	Public Service Enterprise Group Inc
PG UN Equity	Procter & Gamble Co/The
PGR UN Equity	Progressive Corp/The
RSHCQ UN Equity	RS Legacy Corp
RTN UN Equity	Raytheon Co
T UN Equity	AT&T Inc
TSS UN Equity	Total System Services Inc
UTX UN Equity	United Technologies Corp
WMT UN Equity	Wal-Mart Stores Inc
XOM UN Equity	Exxon Mobil Corp

2012	
<i>Ticker</i>	<i>Name</i>
ADI UN Equity	Analog Devices Inc
AMAT UW Equity	Applied Materials Inc
APD UN Equity	Air Products & Chemicals Inc
CNP UN Equity	CenterPoint Energy Inc
CVX UN Equity	Chevron Corp
DO UN Equity	Diamond Offshore Drilling Inc
EMN UN Equity	Eastman Chemical Co
FCX UN Equity	Freeport-McMoRan Inc
FII UN Equity	Federated Investors Inc
GD UN Equity	General Dynamics Corp
HAS UW Equity	Hasbro Inc
HRS UN Equity	Harris Corp
INTC UW Equity	Intel Corp
IP UN Equity	International Paper Co
ITW UN Equity	Illinois Tool Works Inc
JNJ UN Equity	Johnson & Johnson
KLAC UW Equity	KLA-Tencor Corp
MDT UN Equity	Medtronic PLC
TGT UN Equity	Target Corp
UTX UN Equity	United Technologies Corp
WMT UN Equity	Wal-Mart Stores Inc

XOM UN Equity

Exxon Mobil Corp

2013	
<i>Ticker</i>	<i>Name</i>
ABT UN Equity	Abbott Laboratories
AFL UN Equity	Aflac Inc
APD UN Equity	Air Products & Chemicals Inc
BDX UN Equity	Becton Dickinson and Co
CA UW Equity	CA Inc
COP UN Equity	ConocoPhillips
CSX UN Equity	CSX Corp
CVX UN Equity	Chevron Corp
DD UN Equity	EI du Pont de Nemours & Co
DO UN Equity	Diamond Offshore Drilling Inc
DOV UN Equity	Dover Corp
DRI UN Equity	Darden Restaurants Inc
FCX UN Equity	Freeport-McMoRan Inc
FII UN Equity	Federated Investors Inc
GD UN Equity	General Dynamics Corp
GIS UN Equity	General Mills Inc
GPC UN Equity	Genuine Parts Co
GRMN UW Equity	Garmin Ltd
HAS UW Equity	Hasbro Inc
INTC UW Equity	Intel Corp
KLAC UW Equity	KLA-Tencor Corp
LLY UN Equity	Eli Lilly & Co
MDT UN Equity	Medtronic PLC
MMC UN Equity	Marsh & McLennan Cos Inc
MMM UN Equity	3M Co
MSFT UW Equity	Microsoft Corp
NOC UN Equity	Northrop Grumman Corp
NSC UN Equity	Norfolk Southern Corp
OMC UN Equity	Omnicom Group Inc
PCAR UW Equity	PACCAR Inc
RTN UN Equity	Raytheon Co
SLM UW Equity	SLM Corp
STJ UN Equity	St Jude Medical Inc
STX UW Equity	Seagate Technology PLC
TGNA UN Equity	TEGNA Inc
USB UN Equity	US Bancorp
UTX UN Equity	United Technologies Corp
XOM UN Equity	Exxon Mobil Corp

2014	
<i>Ticker</i>	<i>Name</i>
9876544D UN Equity	International Game Technology
ACN UN Equity	Accenture PLC
AFL UN Equity	Aflac Inc
BAX UN Equity	Baxter International Inc
CCE UN Equity	Coca-Cola European Partners PLC
CPB UN Equity	Campbell Soup Co
CSC UN Equity	Computer Sciences Corp
CSX UN Equity	CSX Corp
DE UN Equity	Deere & Co
DPS UN Equity	Dr Pepper Snapple Group Inc

F UN Equity	Ford Motor Co
GIS UN Equity	General Mills Inc
GPC UN Equity	Genuine Parts Co
HPQ UN Equity	HP Inc
HRB UN Equity	H&R Block Inc
K UN Equity	Kellogg Co
KMB UN Equity	Kimberly-Clark Corp
KRFT UN Equity	Kraft Foods Group Inc
LLY UN Equity	Eli Lilly & Co
LYB UN Equity	LyondellBasell Industries NV
MAT UN Equity	Mattel Inc
MCD UN Equity	McDonald's Corp
MSFT UN Equity	Microsoft Corp
OMC UN Equity	Omnicom Group Inc
PEP UN Equity	PepsiCo Inc
PFE UN Equity	Pfizer Inc
RTN UN Equity	Raytheon Co
SLM UN Equity	SLM Corp
STX UN Equity	Seagate Technology PLC
TPR UN Equity	Tapestry Inc
UNP UN Equity	Union Pacific Corp
UPS UN Equity	United Parcel Service Inc
WMT UN Equity	Wal-Mart Stores Inc
WU UN Equity	Western Union Co/The
XOM UN Equity	Exxon Mobil Corp

2015	
<i>Ticker</i>	<i>Name</i>
LYB UN Equity	LyondellBasell Industries NV
DE UN Equity	Deere & Co
F UN Equity	Ford Motor Co
HRS UN Equity	Harris Corp
TPR UN Equity	Tapestry Inc

2016	
<i>Ticker</i>	<i>Name</i>
AMP UN Equity	Ameriprise Financial Inc
AVY UN Equity	Avery Dennison Corp
BAX UN Equity	Baxter International Inc
BBY UN Equity	Best Buy Co Inc
CF UN Equity	CF Industries Holdings Inc
CHRW UN Equity	CH Robinson Worldwide Inc
CMI UN Equity	Cummins Inc
DE UN Equity	Deere & Co
DOV UN Equity	Dover Corp
DOW UN Equity	Dow Chemical Co/The
EMN UN Equity	Eastman Chemical Co
EMR UN Equity	Emerson Electric Co
F UN Equity	Ford Motor Co
GIS UN Equity	General Mills Inc
GME UN Equity	GameStop Corp
GPC UN Equity	Genuine Parts Co
GPS UN Equity	Gap Inc/The
GWW UN Equity	WW Grainger Inc
HOG UN Equity	Harley-Davidson Inc
INTC UN Equity	Intel Corp

JNJ UN Equity	Johnson & Johnson
JWN UN Equity	Nordstrom Inc
LEG UN Equity	Leggett & Platt Inc
LYB UN Equity	LyondellBasell Industries NV
M UN Equity	Macy's Inc
MMM UN Equity	3M Co
NAVI UW Equity	Navient Corp
OMC UN Equity	Omnicom Group Inc
PCAR UW Equity	PACCAR Inc
PSX UN Equity	Phillips 66
PX UN Equity	Praxair Inc
ROK UN Equity	Rockwell Automation Inc
STX UW Equity	Seagate Technology PLC
TGNA UN Equity	TEGNA Inc
TROW UW Equity	T Rowe Price Group Inc
TXN UW Equity	Texas Instruments Inc
UNP UN Equity	Union Pacific Corp
VIAB UW Equity	Viacom Inc
VLO UN Equity	Valero Energy Corp
WM UN Equity	Waste Management Inc
WMT UN Equity	Wal-Mart Stores Inc
WU UN Equity	Western Union Co/The