UNIVERSIDADE CATÓLICA PORTUGUESA

The Performance of Dominant Companies

Portfolio Performance Evaluation

Ana Filipa Neto Gandra

Católica Porto Business School
March 2020

UNIVERSIDADE CATÓLICA PORTUGUESA

The Performance of Dominant Companies

Portfolio Performance Evaluation

Dissertation
Presented to Universidade Católica Portuguesa
To obtain a master's degree in Finance

by

Ana Filipa Neto Gandra

Under the supervision of
Paulo Alves, Ph.D.

Católica Porto Business School
March 2020

Acknowledgments

I would like to thank my supervisor, Professor Paulo Alves, for always being available to answer my questions and for helping me with this dissertation. I would also like to recognize Professor Ricardo Ribeiro, who helped me with the econometrics needed for this work. And lastly, I would like to thank my friends and family, who helped me stay confident and motivated during this process.

Abstract

Several studies look at the relationship between market share and rate of return, but there isn't a consensus about the topic. I studied the particular case of companies that dominate their sector, with the goal of discovering if they outperformed the market. If these companies actually performed better than the market, I would have discovered a good investment strategy. I used OLS regression and Newey-West standard errors to find out the abnormal returns of the portfolios of dominant companies I constructed. The results using OLS regression were, in general, statistically non-significant, which indicated that investing in dominant companies doesn't seem to be a good investment strategy, as it doesn't have any advantage when compared to investing in the market. However, I obtained significant results by using Newey-West standard errors. The alphas' estimations were positive, but very low, indicating that investing in dominant companies is only slightly better than investing in the market portfolio. Nevertheless, I think it is important to conduct more studies about this matter, as it is possible to obtain a better sample and look at the problem from various angles.

Keywords: portfolio evaluation; dominant companies; market share; United Kingdom.

Resumo

Vários estudos analisam a relação entre quota de mercado e taxa de retorno, mas não há um consenso neste tópico. Eu estudei o caso particular das empresas que dominam o seu setor, com o objetivo de descobrir se teriam uma melhor *performance* do que o mercado. Se de facto essas empresas tivessem uma melhor *performance* do que o mercado, teria descoberto uma boa estratégia de investimento. Usei uma regressão OLS e desvios padrão de Newey-West para descobrir os retornos anormais dos portfolios de empresas dominantes que eu construí. Os resultados obtidos através de regressão OLS não eram significativos, o que indica que investir em empresas dominantes não seria uma boa estratégia de investimento, visto que não apresenta nenhuma vantagem em relação a investir no mercado. No entanto, obtive resultados com significância estatística ao utilizar desvios padrão de Newey-West. As estimativas dos alfas eram positivas, mas muito baixas, o que indica que investir em empresas dominantes é apenas ligeiramente melhor do que investir no portfolio de mercado. Ainda assim, acho que é importante realizar mais estudos sobre este tópico, uma vez que é possível obter uma melhor amostra e tratar o problema de vários ângulos.

Palavras-chave: avaliação de portfolios, empresas dominantes, quota de mercado, Reino Unido.

Table of Contents

List of Tables

1. Introduction

This thesis analyses if dominant companies in their respective sectors outperform the market. The main intent of this master's thesis was to find out if a portfolio composed exclusively of companies with dominant market shares in each industry can outperform the market.

I chose this investigation question because there were already studies that looked at the relationship between market share and rate of return, but there isn't a consensus about the topic. Furthermore, there aren't any published papers that look at firm dominance of each sector. I also believe it would be interesting to discover if investors should avoid or seek investment in dominant companies. This curiosity arose from the idea that, by having more control over their sector, dominant companies may be able to get more profitability, economies of scale, market power and other competitive advantages, thus being a better investment choice.

I considered a dominant firm a company which has more than 40% of the market share (Slade, 2004) in that sector, but I also experimented with a less restrictive criterion to see if the results were similar. Thus, I constructed 6 different portfolios following 3 different rules to compose them. The first portfolio is an equal-weighted portfolio composed of companies that had at least 20% market share. I constructed a portfolio with the same companies, but this one was value-weighted. I then constructed another portfolio which is an equal-weighted portfolio composed of companies that had at least 30%. I constructed a value-weighted portfolio with the same companies. Finally, I constructed two portfolios, one equal-weighted and one value-weighted, with the more restrictive rule, which meant the portfolio only included companies that had at least 40% of market share in its sector.

I collected the weekly returns of the companies selected from DataStream from January 2011 to December 2016 and utilized the data available in Kenneth French's website for the factor loadings, the risk-free rate, and the market risk premium. I used linear regression to estimate the results using the CAPM, the Fama and French's 3 and 5-factor model and Carhart's 4-factor model. I also applied Newey-West standard errors to correct the standard errors to time correlation between the error terms of the model.

Using linear regression, the results were, in general, statistically non-significant. Therefore, it is as if the abnormal returns of the portfolios were equal to zero. After applying Newey-West standard errors, I obtained statistically significant values for the portfolios' alphas. While they were positive, the values were very low. Consequently, I concluded that choosing dominant companies to invest may be a better investment strategy than investing in the market, but only slightly. However, it is worth doing more studies about this matter, as the strategies I used to select the companies have some flaws and I didn't have access to the ideal factor loadings to use.

This work is divided into 5 chapters. Chapter 1 is the introduction. Chapter 2 presents a review of the literature related to evaluating portfolio performance and dominant companies' performance. Chapter 3 presents the methodology and data used. Chapter 4 discusses the results and their implications. Chapter 5 concludes.

2.Literature Review

2.1. Portfolio Performance Evaluation

Markowitz (1952) addressed the problem of how to select a portfolio. It was previously established that an investor wants to use the securities that give the maximum expected return to diversify its portfolio. But the author explained that it isn't possible to diversify away all the variance because the securities are too intercorrelated. This means that it is possible to have one portfolio with maximum expected returns and one portfolio which minimizes the variance of returns.

Markowitz (1952) proposed another rule: E – V, which is expected returns minus variance of returns. While this rule doesn't necessarily force diversification, as one single security may give maximum return and minimum variance, most portfolios constructed under this rule will be efficient and diversified. The rule also causes diversification of good quality, which means it avoids securities with high covariances among themselves. This happens because, for example, firms that belong to the same sector will normally follow the same tendency of returns.

The choice between two portfolios is also discussed by Markowitz (1952). If an efficient set of combinations of expected returns and minimum variances is computed, it is only a matter of preference of the investor.

Sharpe (1964) further develops the theme studied by Markowitz (1952). According to Sharpe (1964), with the market in equilibrium, an investor that acts rationally can obtain any point along a capital market line. The investor can only have more expected return if he is willing to take on more risk.

Sharpe (1964) made two assumptions when studying the equilibrium in the capital market. The first is that there is a common pure interest rate, giving every investor the same opportunities to borrow and lend. The second assumption states that investors have the same expectations, which means everyone considers a certain portfolio to have the same expected values, correlation coefficients, and standard deviations.

Investors will buy a combination of risky assets and will also lend at the risk-free rate. If the market allows it, the investor may even borrow at the risk-free interest rate and use those funds to invest in a combination of risky assets. As those assets are bought, there will be a revision in prices, which will, in turn, modify the expected returns. These adjustments will set prices in a way that every asset enters a minimum of one combination lying on the capital market line. Not all investors will choose the same combination, as they are all efficient, and all combinations are perfectly correlated. (Sharpe, 1964)

Single assets will be above the capital market line because it is inefficient to not diversify. They will also be scattered because there isn't a defined relationship between expected return and risk. But Sharpe (1964) defends that there is a steady relationship between expected returns and systematic risk. He argues that the plot of observations of returns of a single asset (i) and of an efficient combination (g) which contains that single asset may be linear, and the scatter around the mean is the total risk of the asset. The slope of that line would be represented by B_{ig}, which shows the reaction of the return of the single asset to changes in the return of the combination. This is the systematic risk. This information can be applied to predict returns, by determining the systematic risk through the predicted risk of the combination (σ_{Rg}).

The theory suggests that returns of efficient combinations are perfectly correlated, and this might be because they all depend on the overall level of economic activity. If the risk caused by economic activity is present in efficient combinations, it means it can't be diversified away, making economic activity the only thing that matters when measuring risk. The prices adjust until the response to changes in economic activity and the expected return have a linear relationship. The assets that aren't affected by economic activity will have a return equal to the pure interest rate. (Sharpe, 1964)

Lintner (1965) replicated Sharpe's (1964) paper. He argued that there is a price for the risk of every security and that price is given by multiplying the total risk by a "market price of dollar risk". This risk is the sum of the variance of its return and the covariance of its return with that of all other securities. If we subtract the price of risk to the expected return of a security, we get the certainty-equivalent return. Thus, the market price of a security is the capital value of the certainty equivalent return using the risk-free interest rate.

However, Lintner (1965) considered that the market price of risk used to evaluate single assets is not equal to the ratio of expected return on the optimal portfolio to the standard deviation of this portfolio return, even though this is the price of risk. Also, it turns out that return variance and covariance with other securities is the most important measure of risk of a single asset.

Lintner (1965) examined the suggestion of Markowitz that investors could regress the rate of return of a security on some index of general business conditions or the stock market to assess the outcome of those securities. He concluded that there is a direct relationship between the intercept and the stock value and there is an inverse relationship between residual variance and correlation coefficient. He also found that stocks with returns that seem to be independent of business conditions have a higher expected rate of return than the pure interest rate due to the uncertainty of the returns. Lintner (1965) also concluded that gains from diversification are caused by averaging both returns and risks of the stocks, but no amount of diversification can eliminate the risk of holding stocks. Finally, he determined that investors will always buy stocks because the price is low enough to attain good expected returns.

Later, Fama (1968) analyzed both models presented by Sharpe (1964) and by Lintner (1965) and he pointed out that they focus on the appropriate measure of risk and the relationship between risk a one-period return. Sharpe stated that Lintner's paper was superior, but Fama (1968) concluded that both were presenting the same approaches to pricing capital assets. The only difference was that Lintner used a more general stochastic process, but both papers lead to the same conclusions.

Jensen (1969) added to the previous research by developing a measure of portfolio performance. This measure was the difference between the realized returns of a portfolio and its expected returns, conditional on systematic risk and the riskless rate. After studying 115 mutual funds, he found out that systematic risk and return are consistent with the capital asset pricing model and that fund managers are unable to forecast future prices. Also, the performance of the funds considering expenses and commissions is worse than combined investments in a market portfolio and government bonds.

In a previous paper, Jensen (1968) had already studied the success of prediction of a portfolio manager. Preceding works only ranked portfolios, comparing them with each other, but there wasn't a measure in absolute terms. Upon studying 115 mutual funds, Jensen (1968) determined that on average mutual funds couldn't outperform the market.

Another model appeared with the intent to replace the capital asset proposed by Sharpe (1964) and Lintner (1965), the arbitrage theory of capital asset pricing (Ross, 1976). According to this model, the expected return of an asset is equal to the riskless rate plus the expected excess return of the market multiplied by the coefficient of the market. This coefficient of the market is the covariance between the return of the asset and the market portfolio divided by the variance of the market portfolio. The spirit behind the model is that there aren't riskless arbitrage profits in the market (Ross, 1976).

Roll (1977) commented on the feasibility of testing the asset pricing theory. He believed that until that point the literature failed to present a correct and unambiguous test of the theory and that there was a very small chance that a correct test could be done in the future. Roll (1977) concluded that the theory can only be tested if we can construct a portfolio that truly represents the market as a whole, which is not done in the literature.

Using data for individual equities between 1962 and 1972, empirical tests were conducted by Roll and Ross (1980) to test Ross's (1976) arbitrage theory of asset pricing.

The theory is supported, has the expected returns depend on estimated factor loadings, and variables like standard deviation fail to explain more than the factor loadings. Roll and Ross (1980) argue that the arbitrage pricing theory follows the same intuition as the capital asset pricing model. However, there are two main differences: the arbitrage pricing theory allows for more than one generating factor and it demonstrates that, since there mustn't be arbitrage profits in equilibrium, there is a linear relationship between an asset's expected return and its return's loadings on the common factors. They concluded that the arbitrage pricing theory performs well and that the model is good at explaining cross-sectional variation in average asset returns.

Chen (1983) used daily returns from 1936 to 1978 in order to compare the arbitrage pricing theory and the capital asset pricing model. He concludes that the arbitrage pricing theory performs well against the capital asset pricing model and it does a good job explaining cross-sectional variations in asset returns.

Grinblatt and Titman (1989) contested the idea that average mutual funds have negative or neutral performances, as other studies indicate. They thought that managers with talent may charge high fees, which means the funds' performance can only be tested by using gross returns. An estimation of the gross returns of a sample of mutual funds with data from 1975 to 1984 was used. Grinblatt and Titman (1989) concluded that some funds performed positively. They also found out that survivorship bias is small, but it's a little bit larger in smaller funds; transaction costs are large and inversely related to fund size; performance is inversely related to fund size; and both growth and aggressive growth funds have significantly positive gross returns. However, even with the existence of positive gross returns, investors don't benefit from this, as net returns are negative or neutral.

Fama and French (1992) identified some empirical problems with the capital asset pricing model presented by Sharpe (1964) and Lintner (1965). First, market equity helps explain returns, as average returns on small stocks, in terms of market equity, are very high for their market β estimations; the opposite happens with large stocks (Banz, 1981).

Second, there is a positive relationship between leverage and returns (Bhandari, 1988). Third, there is evidence that returns are positively related to the book-to-market ratio both in American (Stattman, 1980) (Rosenberg, Reid & Lanstein, 1985) and Japanese stocks (Chan, Hamao & Lakonishok, 1991). And fourth, the earnings-to-price ratio contributes to the explanation of returns of American stocks (Basu, 1983). The last one is said to capture several unnamed effects in expected returns. (Ball, 1978)

In this paper, Fama and French (1992) analyzed the market beta, size, earnings-to-price ratio, leverage and book-to-market equity as factors that explain stock returns. Their tests showed that Sharpe's (1964) and Lintner's (1965) capital asset pricing model fails to explain returns and the combination of book-to-market ratio and size is enough, as they suppress the contribution to the explanation of leverage and earnings-to-price ratio.

A year later, Fama and French (1993) identified five risk factors in the returns on stocks and bonds, three for the stock market (overall market, size, and book-to-market), and two for the bond market (maturity and default risks). They argued that, if the markets are integrated, bond returns can affect stock returns and vice versa. In what concerns size and book-to-market ratio, conclusions were the same.

As the CAPM (capital asset pricing model) failed, as shown by Fama and French (1992), Jagannathan and Wang (1996) made a case that this failure was due to the assumption that the market betas remained the same. They suggested that betas and risk premium varied over time. According to them, it's expected that betas aren't static, as business cycles affect the relative risk of a firm's cash flows. By implementing this, Jagannathan and Wang (1996) found that their model explained 30% of the cross-sectional variation in average returns, which was a lot better than CAPM, which explained only 1%.

Further developing the idea of return depending on some company's characteristics, as the idea presented by Fama and French's (1993) 3-factor model, Carhart's (1997) analysis suggested that one-year momentum in stock returns (Jegadeesh & Titman, 1993) explains the hot hands' effects in mutual fund performance (Hendricks, Patel &

Zechauser, 1993), but he believes this happens because some funds had the luck to have last year's winning stocks. However, Carhart (1997) found that all gains from momentum were consumed by transaction costs. He constructed a model using Fama and French's (1993) model plus a factor that captures momentum. This allowed him to understand that most funds underperform by the same amount of their investment costs, and only the top decile recovered their investment costs. To sum up the results of his study, Carhart (1997) left a few tips for investors: they should avoid funds that have a continuously bad performance, funds that are last year's winners tend to perform well in the next year, but afterward this tendency disappears, and lastly, all transaction costs and fees have a negative impact on fund performance.

Many years later, Fama and French (2015) further developed their previous 3-factor model, which contemplated the market beta, size, and book-to-market ratio, by adding two new factors to help explain average stock returns: profitability and investment. The dividend discount model says the price of a share is given by the summation of the discounted expected dividend per share, and according to Campbell and Shiller (1988), profitability and investment define the internal rate of return used to discount the dividends, which was why Fama and French (2015) decided to include these factors in their model.

Fama and French (2015), used three different approaches in this study. In the first one, size has a two-group division and the New York Stock Exchange median market cap is the breakpoint. This factor is the average of three small stock portfolio returns less the average of three big stock portfolio returns. Book-to-market is divided into three groups, with the breakpoints being the 30th and 70th percentiles of book-to-market ratio for New York Stock Exchange stocks. This factor is the average of two high book-to-market portfolio returns less the average of the two low book-to-market portfolio returns. Investment (conservative minus aggressive) and profitability (robust minus weak) follow the same logic as the book-to-market factor. The second approach follows the same reasoning as the first one, but were all the factors divided into two portfolios, using the

New York Stock Exchange medians as breakpoints for all of them. In the third approach, size puts equal weights on high and low book-to-market, robust and weak profitability, and conservative minus aggressive investment.

In the end, Fama and French (2015) estimated that between 71% and 94% of the variation of expected returns were explained by their new 5-factor model. All approaches had similar performances when applied to the portfolios used in the study. They also found that book-to-market was a redundant factor, as the high average return is captured by its exposure to the other factors.

Frazzini and Pedersen (2014) presented a model that tried to explain how to bet against the beta. This model was tested by using data from 20 international stock markets, treasury bond markets, credit markets, and futures markets. The model also contemplates different types of investors, some of which cannot use leverage, and others that can use it but in various degrees. Frazzini and Pedersen (2014) created a betting against beta (BAB) factor, which is a portfolio that presents a long position in low beta assets, leveraged to a beta of one, and a short position in high beta assets, de-leveraged to a beta of one. They concluded that portfolio composed of high beta assets had lower alphas and Sharpe ratios, and that their factor BAB was as significant statistically and in economic terms has other widely accepted factors, such as momentum, size, and book-to-market ratio. They also determined that worse funding liquidity causes losses for the BAB factor, increasing liquidity risk compresses betas toward one and investors with more leverage limitations hold assets with higher betas.

2.2. Dominant Companies

According to Slade (2004), it's common practice for competition authorities in European Union and North America to consider that a firm is dominant when its market share exceeds 40%, even though market share alone isn't an absolute determinant of dominance. Thus, I used market share as a proxy for market dominance.

While this work presents a more positive side of high market share, it is important to note that there are downsides to having a high market share. For example, companies that want to increase their market share may need to do significant investments in advertising, infrastructures and human capital.

A pertinent question for this work arose: why would dominant companies outperform the market? Gale (1972) studied the effect of market share on the rate of return. He concluded that they have a positive relationship, that is, when a company has a high market share it also has a high rate of return. He also found that large companies, high concentration, and moderate growth contribute to the effect of share on profitability.

This is supported by Buzzell, Gale and Sultan (1975). They stated that market share is one of the most important causes of profitability and that usually companies with a high market share have more profit than its competitors. They present three possible explanations. The first one is economies of scale. A larger firm can achieve economies of scale in various things, such as management costs, manufacturing, suppliers and other costs that don't rise at the same rate as the units sold/produced. In sum, this type of firm can achieve a more efficient method of operation. The second explanation is the market power. There's a belief between antitrust workers that large companies have higher profits because they have a superior bargain power and they can establish higher prices for a product. The last explanation pointed out by the authors is the quality of management, as it can be argued that a high market share and high profitability occur in a company not because one causes the other, but because of the good quality of management. That is, managers who are good enough to make the company the one with the biggest market share are also skilled in controlling costs and running the company more efficiently. Buzzell, Gale and Sultan (1975) also argued that these explanations aren't mutually exclusive.

Likewise, tests conducted by Rhoades (1985) showed that a high market shares cause high profits, independently of the level of concentration and firm size. Rhoades (1985) suggested that market power comes from inherent product differentiation and that consumers perceive market leaders as better due to their position in the market.

Borenstein (1991) considered that dominant market share firms are most successful in competing in individual markets and submarkets. The author attributed this success to cost or quality differences but also marketing strategies and reputation advantages.

However, the literature isn't consensual in this topic. Some author's presented arguments that stated that the relationship between market share and profits isn't that strong or simply doesn't exist. Kohli, Prescott and Venkatraman (1986) analyzed the nature of the relationship between market share and business profitability to discover if the connection was direct or spurious. They discovered that the relationship is context-specific, both types of relationships exist, and they depend on the environment, and the capacity of predicting profitability using the market share is also context-specific.

The study made by Jacobson (1988) allowed him to conclude that market share doesn't influence directly the profitability of a company and the considerable effect found in other studies is due to poor control of unobservable factors that influence profitability. The author argued that high profitability and high market share are the result of successful managing strategies, whether they were planned or happened by chance.

Bharadwaj, Szymanski and Varadarajan (1993) studied whether there is a positive relationship between market share and profitability and what are the factors that influence this relationship. They discovered that the market share has a positive effect on profitability, but the relationship between the two is only moderate and it can be artifactual.

If the relationship between market share and profitability was established, I could deduce that dominant firms would surpass the performance of the market. This is because Fama and French (2015) already established that a portfolio of firms with robust profitability performs better than a portfolio with weak profitability. However, there is doubt about the relationship between market share and profitability, and there seems to be other characteristics like market power and efficiency influencing this relationship. That is why I chose to study if a portfolio of dominant firms, that is, a portfolio of firms with high market shares in their sector of activity, performed better than the market.

3. Data and Methodology

3.1. Estimation Models

To calculate the performance of the portfolio I used the CAPM, Fama and French's 3 and 5-factor models, and Carhart's 4-factor model.

CAPM:

$$R_{it} - R_{f_t} = \alpha_{1_i} + \beta_{1_i}\left(R_{m_t} - R_{f_t}\right) + e_{it}$$

In this model, R_{it} is the return on portfolio i at time t, R_{f_t} is the risk-free return at time t, and R_{m_t} is the return on the value-weighted market portfolio at time t. This means that $R_{m_t} - R_{f_t}$ is the market risk premium at time t. The beta of portfolio i is represented by β_{1_i} and the abnormal return by α_{1_i}. The zero-mean error is represented by e_{it}.

The 3-factor model:

$$R_{it} - R_{f_t} = \alpha_{2_i} + \beta_{2_i}\left(R_{m_t} - R_{f_t}\right) + s_{2_i}SMB_t + h_{2_i}HML_t + e_{it}$$

The 3-factor model adds two variables to the CAPM model, SMB_t and HML_t. SMB_t is the return on a diversified portfolio of small stocks minus the returns on a diversified portfolio of big stocks and its coefficient is represented by s_{2_i}. HML_t is the difference between the returns on diversified portfolios of high and low book-to-market stocks and its coefficient is represented by h_{2_i}. The beta of portfolio i is represented by β_{2_i} and the abnormal return by α_{2_i}.

The 4-factor model:

$$R_{it} - R_{f_t} = \alpha_{3_i} + \beta_{3_i}\left(R_{m_t} - R_{f_t}\right) + s_{3_i}SMB_t + h_{3_i}HML_t + m_{3_i}MOM_t + e_{it}$$

Carhart's 4-factor model adds one variable to the 3-factor model. This variable is MOM_t, which is the difference between the returns on diversified portfolios one-year return momentum versus other stocks and its coefficient is represented by m_{3_i}. HML_t's coefficient is represented by h_{3_i} and SMB_t's by s_{3_i}. The beta of portfolio i is represented by β_{3_i} and the abnormal return by α_{3_i}.

The 5-factor model:

$$R_{it} - R_{f_t} = \alpha_{4_i} + \beta_{4_i}\left(R_{m_t} - R_{f_t}\right) + s_{4_i}SMB_t + h_{4_i}HML_t + r_{4_i}RMW_t + c_{4_i}CMA_t + e_{it}$$

Fama and French's 5-factor model adds two more variables to their previous 3-factor model. These variables are RMW_t and CMA_t. RMW_t is the difference between the returns on diversified portfolios of stocks with robust and weak profitability and its coefficient is represented by r_{4_i} in the 5-factor model. CMA_t is the difference between the returns on diversified portfolios of the stocks of conservative and aggressive investment firms and its coefficient is represented by c_{4_i} in the 5-factor model. HML_t's coefficient is represented by h_{4_i} and SMB_t's by s_{4_i}. The beta of portfolio i is represented by β_{4_i} and the abnormal return by α_{4_i}.

These models were estimated by linear regression, specifically using the Ordinary Least Squares (OLS) method. I also used the Newey-West method which allows to correct the standard-errors to time correlation between the error terms of the model.

To understand if the portfolio of dominant companies that I created performed better than the market, it was necessary to analyze the abnormal returns estimated by the different models. If the estimations of the alphas in the models previously presented, which represent the abnormal returns, were positive and statistically significant, the portfolio of dominant companies performed better than the market.

The method of comparing the alphas I used is common in the literature. For example, Anginer and Statman (2010) used the alphas to find out if stocks of companies highly ranked by *Fortune* magazine performed better than those with a low rank. Edmans (2011) utilized the alphas to study a value-weighted portfolio of the ''100 Best Companies to Work For in America'' to determine if the market values intangibles as employee satisfaction. Brzeszczyński and McIntosh (2014) also resorted to alphas to find if a portfolio composed of British socially responsible investment (SRI) stocks has higher returns than the corresponding indexes.

3.2. Data

To answer this research question, first I needed to construct an equal-weighted portfolio of dominant firms. To do that, I collected data from DataStream from 01-01-2011 to 31-12-2016 about the individual sales of all companies in the United Kingdom. To construct my final sample, I excluded all companies with missing information, like yearly sales and stock prices. I included "dead" companies to ensure that there was no survivorship bias. After this, I separated the companies by sector and then I calculated an average market share for the companies that were left by dividing the average sales from 2011 to 2016 of each company by the average aggregated sales of the companies of that sector from 2011 to 2016.

I used the average of those years instead of selecting dominant companies year by year using yearly sales to ensure that their position in the market was well established and not just a lucky one-time situation. The use of the total sales of the company was a choice, as I could have used only the sales of the companies' main sector. Both options presented problems. Global sales include the sales of other sectors besides the main one, in case the company operates in more than one sector, which would mean that sales from other sectors would count for determining if the company was dominant in their main sector. Main sector's sales don't account for the sales of other sectors which might have a big weight for other sectors and for the company's performance.[1]

I then collected from DataStream the weakly returns of the companies included in the portfolio between 01-01-2011 and 31-12-2016. The data for the factors size, momentum, book-to-market, investment, and profitability were collected from French's data library online, as well as the data for the risk-free rate and the market risk premium.

After all this, the portfolio had 57 companies that dominated their sector of activity.[2]

3.2.1 Sensitivity Tests

As the literature mentions 40% as a dominant market share (Slade, 2004), I constructed an equal-weighted (EW40) and a value-weighted (VW40) portfolio with all companies that had at least 40% of market share in their sector. These two portfolios included 28 companies. However, some sectors didn't have any dominant companies when using this criterion. While this was expected, I wanted to include more companies in the portfolio to ensure that as many sectors as possible had a company in the portfolio. So, I decided to include other companies as long as their share was 20% or higher. This resulted in two portfolios, one equal-weighted (EW20) and one value-weighted (VW20), which included 57 companies. I did this because it's expected that if the company with the largest market share only had a small part of the market shares, the dominant aspect that I wanted to analyze would be lost. Because this decision isn't directly supported by literature, I experimented with changing the 20% criterion to 30%. From the application of this criterion resulted two portfolios, one equal-weighted (EW30) and one value-weighted (VW30). These two portfolios included 38 companies. I analyzed the results to

[1] This sample of data assumes there aren't relevant foreign companies for the British market. There is also the problem that there might be important companies for a sector which are not listed, like privately held companies, and some companies might have a significant part of its sales in a sector which isn't its primary one.

[2] These companies are listed in the appendix.

see if they lead to the same conclusions that I obtained from studying the main portfolio. The companies that meet each criterion are listed in the appendix.

3.2.2 Descriptive Statistics

Variables	Number of Observations	Mean	Median	Maximum	Minimum	Standard Deviation
$\mathbf{R_{EW20t} - R_{f_t}}$	313	0.002	0.002	0.066	-0.082	0.019
$\mathbf{R_{EW30t} - R_{f_t}}$	313	0.002	0.001	0.065	-0.073	0.018
$\mathbf{R_{EW40t} - R_{f_t}}$	313	0.002	0.002	0.083	-0.075	0.019
$\mathbf{R_{VW20t} - R_{f_t}}$	313	0.002	0.002	0.071	-0.074	0.019
$\mathbf{R_{VW30t} - R_{f_t}}$	313	0.001	0.002	0.053	-0.043	0.014
$\mathbf{R_{VW20t} - R_{f_t}}$	313	0.001	0.001	0.039	-0.034	0.010
$\mathbf{R_{m_t} - R_{f_t}}$	313	0.004	0.001⁺	0.110	-0.124	0.046
SMB	313	0.002	0.002	0.038	-0.044	0.017
HML	313	-0.002	-0.004	0.064	-0.044	0.024
MOM	313	0.009	0.011	0.090	-0.090	0.030
RMW	313	0.004	0.006	0.035	-0.039	0.017
CMA	313	0.001	-0.001⁺	0.030	-0.030	0.012

Table 1: Descriptive statistics of the variables

0.001⁺ Denotes a value smaller than 0.001.

With the data for these 313 trading days, which are spread out weakly, we can observe Table 1 and conclude that the portfolio EW30 had a smaller median return (0.1%) than their mean return (0.2%), meaning that the portfolio is positively skewed. the portfolio VW30 had a higher median return (0.2%) than their mean return (0.1%), meaning that the portfolio is negatively skewed. The remaining portfolios had the same mean and median return, EW20. EW40 and VW20 with 0.2% and VW40 with 0.1%.

The market risk premium had a mean (0.4%) higher than the median (smaller than 0.1%), which indicates that there is positive skewness.

In what relates to the factors of Fama and French's 3 and 5-factor models and Carhart's 4-factor model, SMB had the same mean and median (0.2%). HML had a higher mean (-0.2%) than its median (-0.4%). MOM’s mean (0.9%) was lower than its median (1.1%). RMW was on average 0.4%, which is lower than its median of 0.6%. CMA’s median (smaller than -0.1%) was lower than its mean (0.1%).

4.Results

4.1. Abnormal Returns and Factors' Coefficients

4.1.1. Ordinary Least Squares Regression

As it is possible to see in the following tables (from Table 2 to Table 7), the results aren't generally statistically significant, but there are some exceptions.

In Table 2, it's possible to see that all the estimations of the coefficients of the market risk premium (the betas of the equations) are statistically significant, as they all have a p-value lower than 0.01. The betas' estimations are 0.133 using CAPM and Carhart's 4-factor model, 0.135 using Fama and French's 3-factor model and 0.129 using their 5-factor model. Using the 5-factor model, the alpha has an estimated value of 0.2%, with a p-value lower than 0.1, but no other estimation of the alpha in this table (Table 2) or Tables 3 to 7 is statistically significant. By looking at the R-squared of all equations it is evident that none of the models is doing a good job at estimating the coefficients, as the models explain 10.9% to 11.4% (depending on the model) of the dependent variable's variance.

In Table 3, as in Table 2, all the estimations of the coefficients of the market risk premium are statistically significant. The betas' estimations are 0.117 using CAPM, 0.124 using the 3 and the 5-factor models, and 0.121 using the 4-factor model. Once again, no model does a good job at estimating the coefficients, as they explain 9.1% to 9.3% (depending on the model) of the dependent variable's variance.

In fact, according to the R-squared, all models explain only a small percentage of the dependent variable's variance, meaning that the models aren't very good at estimating the coefficients of the variables.

In Table 4, as in previous tables, only the betas' estimations are significant, with a value of 0.121 using CAPM, 0.129 using the 3-factor model, 0.125 using the 4-factor model, and 0.127 using the 5-factor model.

In Table 5, once again, the betas' estimations are significant. Using CAPM the value is 0.113, using the 3-factor model is 0.105, using the 4-factor model is 0.106 and using the 5-factor model is 0.109. In this table, all the coefficients of SMB are significant (p-value lower than 0.05) and the estimated value is -0.145 using the 3-factor model, -0.144 using the 4-factor model, and -0.146 using the 5-factor model.

In Table 6 the betas' estimations are also significant. Using CAPM the value is 0.073, using the 3-factor model is 0.074, using the 4-factor model is 0.076 and using the 5-factor model is 0.083. In this table, the coefficients of SMB are also significant, and the estimated value is -0.122 using the 3-factor model, -0.120 using the 4-factor model, and -0.113 using the 5-factor model.

Finally, the betas' estimations presented in Table 7 are also significant. Using CAPM and the 3 and 4-factor models the value is 0.057 and using the 5-factor model is 0.060. In this table, the coefficients of SMB are also significant, and the estimated value is -0.086 using the 3-factor model, and -0.085 using the 4 and 5-factor models.

Represented in the tables as the Overall F-test, the global significance test presents as the null hypothesis that an equation with only the constant term (which would be the average of the dependent variable) does a better job at explaining the dependent variable than the model used. This null hypothesis is rejected by all the models for all the portfolios.

Variables	CAPM	3-factor	4-factor	5-factor
Constant (alphas)	0.001	0.001	0.002	0.002*
	(0.001)	(0.001)	(0.001)	(0.001)
$R_{m_t} - R_{f_t}$	0.133***	0.135***	0.133***	0.129***
	(0.028)	(0.032)	(0.033)	(0.031)
SMB		0.040	0.039	0.023
		(0.066)	(0.066)	(0.066)
HML		0.001+	-0.012	-0.091
		(0.040)	(0.047)	(0.088)
MOM			-0.022	
			(0.046)	
RMW				-0.156
				(0.135)
CMA				0.001
				(0.124)
Overall F-test	22.550***	7.660***	6.440***	4.750***
R-squared	0.109	0.110	0.111	0.114

Table 2: Performance of the portfolio EW20 using OLS regression

0.001+ Denotes a value smaller than 0.001. Robust standard errors in parenthesis. *** denotes p-values<0.01. ** denotes p-values<0.05. * denotes p-values<0.10.

Variables	CAPM	3-factor	4-factor	5-factor
Constant (alphas)	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
$R_{m_t} - R_{f_t}$	0.117***	0.124***	0.121***	0.124***
	(0.026)	(0.029)	(0.030)	(0.029)
SMB		0.032	0.030	0.027
		(0.065)	(0.064)	(0.064)
HML		-0.020	-0.031	-0.073
		(0.040)	(0.046)	(0.090)
MOM			-0.020	
			(0.041)	
RMW				-0.076
				(0.132)
CMA				0.024
				(0.118)
Overall F-test	20.730***	6.930***	5.540***	4.400***
R-squared	0.091	0.092	0.093	0.093

Table 3: Performance of the portfolio EW30 using OLS regression

0.001+ Denotes a value smaller than 0.001. Robust standard errors in parenthesis. *** denotes p-values<0.01. ** denotes p-values<0.05. * denotes p-values<0.10.

Variables	CAPM	3-factor	4-factor	5-factor
Constant (alphas)	0.001	0.001	0.002	0.002
	(0.001)	(0.001)	(0.001)	(0.001)
$R_{m_t} - R_{f_t}$	0.121***	0.129***	0.125***	0.127***
	(0.026)	(0.030)	(0.030)	(0.030)
SMB		0.056	0.053	0.045
		(0.068)	(0.067)	(0.067)
HML		-0.024	-0.045	-0.092
		(0.041)	(0.049)	(0.094)
MOM			-0.037	
			(0.042)	
RMW				-0.109
				(0.130)
CMA				0.012
				(0.118)
Overall F-test	20.830***	7.490***	6.060***	4.640***
R-squared	0.091	0.094	0.096	0.096

Table 4: Performance of the portfolio EW40 using OLS regression.

0.001+Denotes a value smaller than 0.001. Robust standard errors in parenthesis. *** denotes p-values<0.01. ** denotes p-values<0.05. * denotes p-values<0.10.

Variables	CAPM	3-factor	4-factor	5-factor
Constant (alphas)	0.001	0.002	0.001	0.002
	(0.001)	(0.001)	(0.001)	(0.001)
$R_{m_t} - R_{f_t}$	0.113***	0.105***	0.106***	0.109***
	(0.028)	(0.031)	(0.034)	(0.032)
SMB		-0.145**	-0.144**	-0.146**
		(0.066)	(0.066)	(0.065)
HML		-0.001+	0.005	-0.076
		(0.041)	(0.048)	(0.095)
MOM			0.009	
			(0.048)	
RMW				-0.093
				(0.121)
CMA				0.060
				(0.001)
Overall F-test	15.950***	9.090***	7.570***	5.530***
R-squared	0.074	0.090	0.090	0.092

Table 5: Performance of the portfolio VW20 using OLS regression.

0.001+Denotes a value smaller than 0.001. Robust standard errors in parenthesis. *** denotes p-values<0.01. ** denotes p-values<0.05. * denotes p-values<0.10.

Variables	CAPM	3-factor	4-factor	5-factor
Constant (alphas)	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.000)
$R_{m_t} - R_{f_t}$	0.073***	0.074***	0.076***	0.083***
	(0.019)	(0.022)	(0.023)	(0.022)
SMB		-0.122**	-0.120**	-0.113**
		(0.048)	(0.048)	(0.048)
HML			-0.022	-0.069
			(0.035)	(0.069)
MOM			0.017	
			(0.033)	
RMW				-0.018
				(0.105)
CMA				0.073
				(0.089)
Overall F-test	14.140***	9.380***	7.340***	5.880***
R-squared	0.059	0.085	0.086	0.087

Table 6: Performance of the portfolio VW30 using OLS regression.

0.001+ Denotes a value smaller than 0.001. Robust standard errors in parenthesis. *** denotes p-values<0.01. ** denotes p-values<0.05. * denotes p-values<0.10.

Variables	CAPM	3-factor	4-factor	5-factor
Constant (alphas)	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
$R_{m_t} - R_{f_t}$	0.057***	0.057***	0.057***	0.060***
	(0.014)	(0.016)	(0.016)	(0.016)
SMB		-0.086**	-0.085**	-0.085**
		(0.035)	(0.016)	(0.035)
HML		-0.017	-0.014	-0.066
		(0.023)	(0.026)	(0.051)
MOM			0.005	
			(0.025)	
RMW				-0.055
				(0.076)
CMA				0.045
				(0.064)
Overall F-test	16.470***	9.360***	7.430***	5.910***
R-squared	0.066	0.088	0.890	0.092

Table 7: Performance of the portfolio VW40 using OLS regression.

0.001+ Denotes a value smaller than 0.001. Robust standard errors in parenthesis. *** denotes p-values<0.01. ** denotes p-values<0.05. * denotes p-values<0.10.

4.1.2. Newey-West Standard Errors

The following tables (from Table 8 to Table 13) show that the alphas' estimations are generally statistically significant, after correcting the standard-errors to time correlation between the error terms of the model. As previously, the estimations of the market risk premium coefficients are all statistically significant, and the values are equal to the ones estimated using OLS.

Table 8 shows that all alphas' estimation values are statistically significant, with a p-value lower than 0.05. According to the CAPM and 3-factor models, the alpha of the EW20 portfolio is 0.1%. Using the 4 and 5-factor models, the alpha of this portfolio is 0.2%. The RMW's coefficient is also significant (p-value lower than 0.1) with an estimation of -0.156.

Table 9 presents two statistically significant estimations of the alpha. Using the CAPM and 4-factor model, the alpha of the EW30 portfolio is 0.1%.

In Table 10 there are also statistically significant estimations of alpha, with a value of 0.1% using the CAPM and 0.2% using the 4 and 5-factor models.

In Table 11 all alphas' estimations are significant, with a value of 0.1% using the CAPM and the 4-factor model, and a value of 0.2% using the 3 and 5-factor models. In addition to that, all SMB's coefficients are significant, with a value ranging from -0.144 to -0.146.

Table 12 presents a significant estimation of the alphas, with all models determining that the VW30's alpha is 0.1%. The SMB's coefficients are also significant, with a value of -0.122 using the 3-factor model, -0.120 using the 4-factor model, and -0.113 using the 5-factor model.

Finally, Table 13 presents significant estimations of alpha, which has a value of 0.1% according to all models. The SMB's coefficients are also significant, presenting a value of -0.086 using the 3-factor model and -0.085 using the 4 and 5-factor models.

The global significance test indicates that all models do a better job explaining the dependent variable than the average of the dependent variable for all portfolios.

Variables	CAPM	3-factor	4-factor	5-factor
Constant (alphas)	0.001**	0.001**	0.002**	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)
$R_{m_t} - R_{f_t}$	0.133***	0.135***	0.133***	0.129***
	(0.019)	(0.021)	(0.022)	(0.021)
SMB		0.040	0.039	0.023
		(0.038)	(0.036)	(0.037)
HML		0.001+	-0.012	-0.091
		(0.030)	(0.035)	(0.065)
MOM			-0.022	
			(0.033)	
RMW				-0.156*
				(0.091)
CMA				0.001
				(0.069)
Overall F-test	50.370***	17.220***	16.560***	10.250***

Table 8: Performance of the portfolio EW20 using Newey-West standard errors.

0.001+ Denotes a value smaller than 0.001. Newey-West standard errors in parenthesis. *** denotes p-values<0.01. ** denotes p-values<0.05. * denotes p-values<0.10.

Variables	CAPM	3-factor	4-factor	5-factor
Constant (alphas)	0.001*	0.001	0.001*	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
$R_{m_t} - R_{f_t}$	0.117***	0.124***	0.121***	0.124***
	(0.017)	(0.019)	(0.020)	(0.020)
SMB		0.032	0.030	0.027
		(0.040)	(0.038)	(0.039)
HML		-0.020	-0.031	-0.073
		(0.030)	(0.034)	(0.071
MOM			-0.020	
			(0.028)	
RMW				-0.076
				(0.095)
CMA				0.024
				(0.067)
Overall F-test	48.730***	16.640***	14.140***	10.300***

Table 9: Performance of the portfolio EW30 using Newey-West standard errors.

0.001+ Denotes a value smaller than 0.001. Newey-West standard errors in parenthesis. *** denotes p-values<0.01. ** denotes p-values<0.05. * denotes p-values<0.10.

Variables	CAPM	3-factor	4-factor	5-factor
Constant (alphas)	0.001*	0.001	0.002*	0.002*
	(0.001)	(0.001)	(0.001)	(0.001)
$R_{m_t} - R_{f_t}$	0.121***	0.129***	0.125***	0.127***
	(0.018)	(0.021)	(0.020)	(0.022)
SMB		0.056	0.053	0.045
		(0.045)	(0.043)	(0.045)
HML		-0.024	-0.045	-0.092
		(0.033)	(0.038)	(0.083)
MOM			-0.037	
			(0.030)	
RMW				-0.109
				(0.106)
CMA				0.012
				(0.066)
Overall F-test	42.760***	16.610***	15.340***	10.530***

Table 10: Performance of the portfolio EW40 using Newey-West standard errors.

0.001+ Denotes a value smaller than 0.001. Newey-West standard errors in parenthesis. *** denotes p-values<0.01. ** denotes p-values<0.05. * denotes p-values<0.10.

Variables	CAPM	3-factor	4-factor	5-factor
Constant (alphas)	0.001*	0.002**	0.001*	0.002***
	(0.001)	(0.001)	(0.001)	(0.001)
$R_{m_t} - R_{f_t}$	0.113***	0.105***	0.106***	0.109***
	(0.021)	(0.021)	(0.024)	(0.022)
SMB		-0.145***	-0.144***	-0.146***
		(0.044)	(0.044)	(0.040)
HML		-0.001+	0.005	-0.076
		(0.032)	(0.035)	(0.065)
MOM			0.009	
			(0.037)	
RMW				-0.093
				(0.088)
CMA				0.060
				(0.084)
Overall F-test	30.200***	18.310***	15.380***	11.790***

Table 11: Performance of the portfolio VW20 using Newey-West standard errors.

0.001+ Denotes a value smaller than 0.001. Newey-West standard errors in parenthesis. *** denotes p-values<0.01. ** denotes p-values<0.05. * denotes p-values<0.10.

Variables	CAPM	3-factor	4-factor	5-factor
Constant (alphas)	0.001*	0.001**	0.001*	0.001**
	(0.001)	(0.001)	(0.001)	(0.001)
$R_{m_t} - R_{f_t}$	0.073***	0.074***	0.076***	0.083***
	(0.015)	(0.015)	(0.017)	(0.015)
SMB		-0.122***	-0.120***	-0.113***
		(0.034)	(0.034)	(0.030)
HML		-0.031	-0.022	-0.069
		(0.024)	(0.025)	(0.030)
MOM			0.017	
			(0.026)	
RMW				-0.018
				(0.064)
CMA				0.073
				(0.063)
Overall F-test	24.890***	18.210***	14.080***	12.260***

Table 12: Performance of the portfolio VW30 using Newey-West standard errors.

0.001^{+} Denotes a value smaller than 0.001. Newey-West standard errors in parenthesis. *** denotes p-values<0.01. ** denotes p-values<0.05. * denotes p-values<0.10.

Variables	CAPM	3-factor	4-factor	5-factor
Constant (alphas)	0.001*	0.001**	0.001*	0.001**
	(0.001)+	(0.001)+	(0.001)+	(0.001)+
$R_{m_t} - R_{f_t}$	0.057***	0.057***	0.057***	0.060***
	(0.011)	(0.011)	(0.012)	(0.012)
SMB		-0.086***	-0.085***	-0.085***
		(0.024)	(0.024)	(0.022)
HML		-0.017	-0.014	-0.066
		(0.017)	(0.019)	(0.037)
MOM			0.005	
			(0.019)	
RMW				-0.055
				(0.049)
CMA				0.045
				(0.046)
Overall F-test	28.280***	16.850***	13.450***	11.380***

Table 13: Performance of the portfolio VW40 using Newey-West standard errors.

0.001^{+} Denotes a value smaller than 0.001. Newey-West standard errors in parenthesis. *** denotes p-values<0.01. ** denotes p-values<0.05. * denotes p-values<0.10.

4.2. Discussion of Results

In general terms, the use of the OLS didn't produce statistically significant results, except for the EW20's alpha (using the 5-factor model), the coefficient of the market risk premium (beta) for all the portfolios and the SMB's coefficients for the value-weighted portfolios. It is also evident that the models aren't good at explaining the dependent variable, even though all models do a better job at explaining the dependent variable than the dependent variable's average.

There might be an explanation for the poor job done by the models at explaining the dependent variable, as the factor loading used for the Fama and French's 3 and 5-factor models and Carhart's 4-factor model might use values that aren't the most correct. The data available for these models in Kenneth French's website that applied to my sample is relative to Europe and not the United Kingdom. In fact, all the following countries are included: Austria, Belgium, Switzerland, Germany, Denmark, Spain, Finland, France, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Sweden, and the United Kingdom. This could easily explain why the models don't work well, as the factors' loadings may be very different for the group of countries represented than it would be just for the United Kingdom.

After correcting the standard-errors to time correlation between the error terms of the model by using Newey-West standard errors, the results become much more significant, as almost all estimations of the equal-weighted portfolios alphas' and all estimations of the value-weighted portfolios alphas' are statistically significant. As these estimations are either 0.1% or 0.2%, we can conclude that there are very small but positive abnormal returns in these portfolios. This indicates that investing in companies that dominate their sector of activity, as determined by their total sales, might be a slightly best investment strategy than investing in the market portfolio.

By looking at the results from the OLS regressions and the correction to Newey-West standard errors, we can see that the betas of all the portfolios are very low, ranging from 0.135 to 0.057. This means that the returns of the companies that compose the portfolio are much steadier than the market's returns. This may happen because a dominant company will probably have an established position in the market, thus having less stock price variation.

It is also possible to conclude that there is a negative relationship between the dependent variable and the SMB factor in the value-weighted portfolios because the SMB's coefficients for these portfolios are all negative when significant.

5. Conclusion

Do dominant companies in their respective sectors outperform the market? My intention was to determine if a portfolio composed of companies with dominant market shares in their industry could perform better than the market. Thus, I would be able to understand if investing in dominant companies is a good investment strategy.

In general, the results were statistically non-significant, and the models didn't do a good job at explaining the returns. My initial plan was to determine the value of the abnormal returns. If they were negative, I would conclude that the portfolio performed worse than the market, and if they were positive, I would conclude that the portfolio performed better than the market. With the estimation of the abnormal returns being non-significant, except for one estimation, I considered that choosing dominant companies to invest is not a good investment strategy. Or, at least, it's not better than investing in the market.

After correcting the standard-errors to time correlation between the error terms of the model by using Newey-West standard errors, I obtained significant results for the alphas. As the alphas' estimations are all positive, we know that these portfolios produce positive abnormal returns. However, the estimations of alpha are very low, indicating that investing in these portfolios of dominant companies is only slightly better than investing in the market portfolio.

After studying the performance of dominant companies, I believe this topic is worth continuing to study. For example, there were some flaws in my sample that following studies may be able to correct, like being able to more accurately determine the market share of a company in a given industry, or accounting for privately held companies. Furthermore, there are many angles to study if dominant companies outperform the market, they don't need to be separated by sector or only studied at the country level.

References

Anginer, D., & Statman, M. (2010). Stocks of Admired and Spurned Companies. *The Journal of Portfolio Management, 36*(3), 71-77.

Ball, R. (1978). Anomalies in Relationships Between Securities' Yields and Yield-surrogates. *Journal of Financial Economics, 6*(2-3), 103-126.

Banz, R. (1981). The Relationship Between Return and Market Value of Common Stocks. *Journal of Financial Economics, 9*(1), 3-18.

Basu, S. (1983). The Relationship Between Earnings' Yield, Market Value and Return for NYSE Common Stocks: Further Evidence. *Journal of Financial Economics, 12*(1), 129-156.

Bhandari, L. (1988). Debt/Equity Ratio and Expected Common Stock Returns: Empirical Evidence. *The Journal of Finance, 43*(2), 507-528.

Bharadwaj, S., Szymanski, D., & Varadarajan, R. (1993). An Analysis of the Market Share-Profitability. *Journal of Marketing, 57*(3), 1-18.

Borenstein, S. (1991). The Dominant-Firm Advantage in Multiproduct Industries: Evidence from the U. S. Airlines. *The Quarterly Journal of Economics, 106*(4), 1237-1266.

Brzeszczyński, J., & McIntosh, G. (2014). Performance of Portfolios Composed of British SRI Stocks. *Journal of Business Ethics, 120*(3), 335-362.

Buzzel, R., Gale, B., & Sultan, R. (s.d.). Market Share - a Key to Profitability. *Harvard Business Review, 53*(1), 97-106.

Campbell, J., & Shiller, R. (1988). The Dividend-price Ratio and Expectations for Future Dividends and Discount Factors. *Review of Financial Studies, 1*, 195-228.

Carhart, M. (1997). On Persistence in Mutual Fund Performance. *The Journal of Finance, 52*(1), 57-82.

Chan, L., Hamao, Y., & Lakonishok, J. (1991). Fundamentals and Stock Returns in Japan. *The Journal of Finance, 46*(5), 1739-1764.

Chen, N. (1983). Some Empirical Tests of the Theory of Arbitrage. *The Journal of Finance, 38*(5), 13930-1414.

Edmans, A. (2011). Does The Stock Market Fully Value Intangibles? Employees Satisfaction and Equity Prices. *Journal of Financial Economics, 101*(3), 621-640.

Fama, E. (1968). Risk, Return and Equilibrium: Some Clarifying Comments. *The Journal of Finance, 23*(1), 29-40.

Fama, E., & French, K. (1992). The Cross-Section of Expected Stock Returns. *The Journal of Finance, 47*(2), 427-465.

Fama, E., & French, K. (1993). Common Risk Factors in the Returns on Stocks and Bonds. *Journal of Financial Economics, 33*(1), 3-56.

Fama, E., & French, K. (2015). A Five-Factor Asset Pricing Model. *Journal of Financial Economics, 116*(1), 1-22.

Frazzini, A., & Pedersen, L. (2014). Betting Against Beta. *Journal of Financial Economics, 111*(1), 1-25.

Gale, B. (1972). Market Share and Rate of Return. *The Review of Economics and Statistics, 54*(4), 412-423.

Grinblatt, M., & Titman, S. (1989). Mutual Fund Performance: An Analysis of Quarterly Portfolio Holdings. *The Journal of Business, 62*(3), 393-416.

Hendricks, D., Patel, J., & Zeckhauser, R. (1993). Hot Hands in Mutual Funds: Short-run Persistence of Performance. *The Journal of Finance, 48*(1), 93-130.

Jacobson, R. (1988). Distinguishing Among Competing Theories of the Market Share Effect. *Journal of Marketing, 52*(4), 68-80.

Jagannathan, R., & Wang, Z. (1996). The Conditional CAPM and the Cross-Section of. *The Journal of Finance, 51*(1), 3-53.

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.

Jensen, M. (1968). Problems in Selection of Security Portfolios: The Performance of Mutual Funds in the Period 1945-1964. *The Journal of Finance, 23*(2), 389-416.

Jensen, M. (1969). Risk, the Pricing of Capital Assets, and the Evaluation of Investment Portfolios. *Journal of Business, 42*, 167-247.

Kohli, A., Prescott, J., & Venkatraman, N. (1986). The Market Share-Profitability Relationship: An Empirical Assessment of Major Assertions and Contradictions. *Strategic Management JournaL, 7*(4), 377-394.

Lintner, J. (1965). Security Prices, Risk, and Maximal Gains from Diversification. *The Journal of Finance, 20*(4), 587-615.

Markowitz, H. (1952). Portfolio Selection. *The Journal of Finance, 7*(1), 77-91.

Nichols, D., & Wahlen, J. (s.d.). How Do Earnings Numbers Relate to Stock Returns? A Review of Classic Accounting Research with Updated Evidence. *Accounting Horizons, 18*(4), 263-286.

Rhoades, S. (1985). Market Share as a Source of Market Power: Implications and Some Evidence. *Journal of Economics and Business, 37*(4), 343-363.

Roll, R. (1977). A Critique of the Asset Pricing Theorys Tests - Part I: On Past and Potential Testability of the Theory. *Journal of Financial Economics, 4*(2), 126-176.

Roll, R., & Ross, S. (1980). An Empirical Investigation of the Arbitrage Pricing Theory. *The Journal of Finance, 35*(5), 1073-1103.

Rosenberg, B., Reid, K., & Lanstein, R. (1985). Persuasive Evidence of Market Inefficiency. *Journal of Portfolio Management, 11*(3), 9-17.

Ross, S. (1976). The Arbitrage Theory of Capital Asset Pricing. *Journal of Economic Theory, 13*(3), 341-360.

Sharpe, W. (1964). Capital Asset Prices: A Theory of Market Equilibrium Under Conditions of Risk. *The Journal of Finance, 19*(3), 425-442.

Slade, M. (2004). Market Power and Joint Dominance in U.K. Brewing. *The Journal of Industrial Economics, 52*(1), 133-163.

Stattman, D. (1980). Book Values and Stock Returns. *The Chicago MBA: A Journal of Selected, 4*, 25-45.

Appendices

Full Name of the Company	ICB Sector Name	Market Share	EW20 and VW20	EW30 and VW30	EW40 and VW40
BAE Systems	Aerospace and Defense	42,70%	YES	YES	YES
Rolls-Royce Holdings	Aerospace and Defense	31,62%	YES	YES	NO
Alkane Energy	Alternative Energy	48,25%	YES	YES	YES
Active Energy Group	Alternative Energy	24,64%	YES	NO	NO
Torotrak	Automobiles and Parts	49,69%	YES	YES	YES
Clean Air Power	Automobiles and Parts	43,99%	YES	YES	YES
Lloyds Banking Group	Banks	27,99%	YES	NO	NO
Barclays	Banks	40,48%	YES	YES	YES
Royal Bank of Scotland Group	Banks	29,57%	YES	NO	NO
Diageo	Beverages	83,23%	YES	YES	YES
Johnson Matthey	Chemicals	74,09%	YES	YES	YES

Gresham House	Closed End Investments	100,00%	YES	YES	YES
Balfour Beatty	Construction and Materials	39,36%	YES	YES	NO
Compass Group	Consumer Services	97,03%	YES	YES	YES
SSE	Electricity	92,26%	YES	YES	YES
International Personal Finance	Finance and Credit Services	27,77%	YES	NO	NO
Provident Financial	Finance and Credit Services	40,67%	YES	YES	YES
Associated British Foods	Food Producers	58,03%	YES	YES	YES
National Grid	Gas, Water and Multi-utilities	31,87%	YES	YES	NO
Centrica	Gas, Water and Multi-utilities	57,38%	YES	YES	YES
Bunzl	General Industrials	34,03%	YES	YES	NO
Synergy Health	Health Care Providers	42,80%	YES	YES	YES
Cello Health	Health Care Providers	22,59%	YES	NO	NO
Barratt Developments	Household Goods and Home Construction	23,55%	YES	NO	NO
Taylor Wimpey	Household Goods and Home Construction	20,31%	YES	NO	NO
Weir Group	Industrial Engineering	50,69%	YES	YES	YES
Low and Bonar	Industrial Materials	52,56%	YES	YES	YES

Scapa Group	Industrial Materials	28,85%	YES	NO	NO
Menzies (John)	Industrial Transportation	22,49%	YES	NO	NO
Standard Life Aberdeen	Investment Banking and Brokerage Services	60,91%	YES	YES	YES
Games Workshop	Leisure Goods	25,64%	YES	NO	NO
Photo-ME International	Leisure Goods	40,06%	YES	YES	YES
Prudential	Life Insurance	45,25%	YES	YES	YES
Aviva	Life Insurance	35,03%	YES	YES	NO
WPP	Media	26,72%	YES	NO	NO
Consort Medical	Medical Equipment and Services	39,32%	YES	YES	NO
RSA Insurance Group	Non-life Insurance	64,71%	YES	YES	YES
Royal Dutch Shell B	Oil, Gas and Coal	24,22%	YES	NO	NO
Amec Foster Wheeler	Oil, Gas and Coal	32,39%	YES	YES	NO
Unilever (United Kingdom)	Personal Care, Drug and Grocery Stores	26,35%	YES	NO	NO
Tesco	Personal Care, Drug and Grocery Stores	39,57%	YES	YES	NO
Burberry Group	Personal Goods	84,45%	YES	YES	YES
Glaxosmithkline	Pharmaceuticals and Biotechnology	93,95%	YES	YES	YES
Pan African Resources	Precious Metals and Mining	52,25%	YES	YES	YES

Savills	Real Estate Investment and Services	47,29%	YES	YES	YES
Land Securities Group	Real Estate Investment Trusts	23,36%	YES	NO	NO
Computacenter	Software and Computer Services	30,38%	YES	YES	NO
TT Electronics	Technology Hardware and Equipment	20,15%	YES	NO	NO
Laird	Technology Hardware and Equipment	22,88%	YES	NO	NO
Arm Holdings	Technology Hardware and Equipment	22,30%	YES	NO	NO
Pace	Telecommunications Equipment	26,55%	YES	NO	NO
Filtronic	Telecommunications Equipment	46,31%	YES	YES	YES
BT Group	Telecommunications Service Providers	80,57%	YES	YES	YES
British American Tobacco	Tobacco	65,47%	YES	YES	YES
Imperial Brands	Tobacco	33,42%	YES	YES	NO
Silverdell	Waste and Disposal Services	25,71%	YES	NO	NO
Augean	Waste and Disposal Services	57,01%	YES	YES	YES

Table 14: Companies that compose the dominant companies' portfolios.