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Brand Equity & Shareholder Value

-Portfolio Returns of Strong Brands-

Abstract: This study is the first to investigate the effects that strong brands, as estimated by Interbrand Ltd, have on shareholder value creation on the European market. We show that multiple trading strategies based on long positions in companies owning strong brands between January 2005 and February 2012 generate an average excess return of up to 12.7% over the 12 months following the portfolio formation. High-end brands perform especially well. All returns are robust to the risk factors in the Fama-French (1993) and Carhart (1997) four-factor model. Our findings are in line with Kerin and Sethuraman (1998), Bart et al (1998) and Madden et al (2006). We believe that our research is useful for (i) boardrooms, to realize how brands create shareholder value and (ii) investors, to assess the value of strong brands and ultimately the value of firm equity, which can be translated into a trading strategy.

Key Words: Brand Equity, Interbrand, Excess Returns, Alpha, Fama-French and Carhart, Shareholder Value, Portfolio Analysis

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1. INTRODUCTION

1.1 PROBLEM AREA

Firms are profit maximizing and consequently, through managers, allocate scarce resources to their best alternative use. In the 1970's, an ideology for corporate governance emerged that emphasized the importance of maximizing shareholder value, in which the stock return became a measure of superior performance (Lazonick and O'Sullivan 2000). This has left a deep footprint in modern time. Bianco and Lavelle (2000) state that "*the fundamental task of today's CEO is simplicity itself: Get the stock price up. Period.*" Thus, the boardroom only invests in projects where there is a clear link between the investment and the creation of shareholder value. Consequently, investments that are more problematic to measure and quantify are more likely to be underfunded. Aaker and Jacobsen (1994) state this to be the case for intangible assets such as brand equity. Srivastava et al (1998) point out that by not expressing the contribution of brand activities in terms of shareholder value, the role of brands in corporate strategy is weakened.

This is a problem since firms potentially could miss profiting from brands. Previous research within the field suggests that brands contribute positively to the firm by for example affecting the timing and size of future cash flows (Farquhar 1989; Srivastava et al 1998; Chaudhuri and Holbrook 2001). Some researchers even propose that the source of economic value and competitive ability nowadays is essentially tied to the creation and manipulation of intangible assets (Cañibano et al 2000; Lusch and Harvey 1994). However, until the positive effects are expressed in financial terms of shareholder value, these questions will not gain credibility in the boardrooms (Knowles 2003).

1.2 AIM

The aim of this study is to measure the effects that brands have on shareholder value creation. We believe that our research is useful for (i) boardrooms, to realize how brands create shareholder value and (ii) investors, to assess the value of strong brands and ultimately the value of firm equity, which can be translated into a trading strategy.

By investing in portfolios consisting of companies owning strong brands, we investigate the possibility of earning excess returns while accounting for the Fama-French (1993) and Carhart's (1997) risk factors. In line with Madden et al (2006), we define shareholder value creation as stock returns that are higher than other returns the investors could earn at a similar risk.

We aim to extend existing research by having a European focus with a unique timeframe and by exploring differences between low-, mid- and high-end brands.

1.3 DELIMITATIONS

Firstly, we base our study on companies with available and reliable brand values as estimated by the global branding consultancy firm Interbrand. These are published on a yearly basis but limited to the world's 100 most valuable brands. Our sample is further limited to the European portion of these.

Secondly, to ensure the comparability regarding the financials of the companies owning these brands, we limit our time frame to the period from when IFRS first was mandatory in Europe in January 2005, until our analysis is commenced in March 2012. This is important because we want the stock returns of the individual companies, which are based on publicly available information (e.g. annual reports), to be free from accounting biases.

Thirdly, there are delimitations emanating from our methodology, which requires the use of Fama-French and Carhart factors. These factors are only available on a monthly basis, which limit the number of observations and prevent us from investigating a short time period. To estimate our own factors would be outside the scope of this thesis.

Lastly, we are aware of the myopic view we adopt when only considering shareholder value creation as the purpose of an organization and thereby overlooking theories such as stakeholder theory. We do however believe that it is a suitable delimitation given the aim to measure the effects that brands have on shareholder value creation.

1.4 HYPOTHESES

H_0: Investing in a portfolio consisting of companies owning strong brands will not yield a higher return than an alternative investment of similar risk.

H_1: Investing in a portfolio consisting of companies owning strong brands will yield a higher return than an alternative investment of similar risk.

2. THEORETICAL BACKGROUND

2.1 DEFINING BRAND EQUITY

Aaker (1996 p.7) declares that brand equity is *"a set of brand assets and liabilities linked to a brand, its name and symbol, that add or subtract from the value provided by a product or service to a firm and/or that firm's customers"*. He further explains that brand equity is created when firms try to differentiate their products from competitors. Owning a strong brand may make the firm less vulnerable to competition and create larger margins, more inelastic responses to price increases and more stable cash flows (Hoefler and Keller 2003).

2.1.1 Two Perspectives of Brand Equity

According to Keller and Lehman (2006) and Kotler et al (2009 p.428), brand equity can be divided into two main perspectives; customer brand equity and company brand equity.[1] While the former views brand equity from the point of the customer in terms of thoughts, feelings, perceptions, images and experiences (Keller 2009), the latter takes the perspective of the company and try to capture the financial value of owning a brand (Simon and Sullivan 1993; Keller and Lehman 2006).

Customer Brand Equity

Keller (2009 p.143) explains that the core of customer brand equity is that *"the power of a brand lies in the minds of consumers"*. Kotler et al (2009 p.244) follows this reasoning by defining the concept as *"the positive differential effect that knowing the brand name has on customer response to the product or service"*. In other words, brand equity creates customer value at every step of the purchase process. Before by enhancing the information processing, during by raising confidence and after by increasing usage satisfaction (Aaker 1996 p.7-36).

[1] Note that customer brand equity should not be mistaken for consumer equity where the latter involves customer lifetime values. For more information about consumer equity, please see Bick (2009).

In general, customer brand equity can be divided into four major categories (Bick 2009; Aaker 1996 p.8)

1. **Brand name awareness**: The strength of a brand's presence in the potential customer's mind. Measured through recognition and recall.
2. **Brand loyalty**: The willingness of customers to repurchase the same brand.
3. **Perceived quality**: The customer's perception of the overall quality or superiority of a product or service with respect to its intended purpose, relative to alternatives.
4. **Brand associations**: The attributes that customers associate with a brand, e.g. lifestyle for Harley-Davidson.

While the customer brand equity includes elements for explaining why brands are valuable from a customer perspective, they are poor in providing value relevant information from a company perspective. Park and Srinivasan (1994) point out that even though you can use customer brand equity to assess a value of the brand, these measures are based on customer surveys and therefore subjective. Another disadvantage is that these questionnaires are catching customer intensions and willingness instead of actual behavior. Therefore we will be looking at company brand equity.

Company Brand Equity

The company brand equity is connected to consumer brand equity but rather than looking at the relationship between brands and customers (or other actors in the value chain), it tries to capture the benefits attributable to the firm owning the brand. Keller and Lehmann (2006 p.745) describe company brand equity as *"the degree of 'market inefficiency' that the firm is able to capture with its brands"*. In short, brand equity can be defined as *"the incremental cash flows which accrue to branded products over and above the cash flows which would result from the sale of unbranded products"* (Simon and Sullivan 1993 p.29).

2.2 THEORETICAL LINK BETWEEN BRAND EQUITY AND SHAREHOLDER VALUE CREATION

2.2.1 What Is Shareholder Value Creation

On the most fundamental level, the shareholder value of a firm can be quantified as the present value of discounted future cash flows that are attributable to the firm's owners. This implies that there are three ways in which brand equity can affect shareholder value, namely by affecting either or all of its determinants; timing of cash flows, size of cash flows and discount factors. Srivastava et al (1998) describe that shareholder value is created by accelerating and enhancing as well as reducing vulnerability

and volatility (i.e. risks) of cash flows and Osinga et al (2011) share their view and define shareholder value in terms of stock returns and idiosyncratic- and systematic risks.

2.2.2 Idiosyncratic Risk

Idiosyncratic risk is the largest risk component and explains on average about 80% of total risk in a stock return (Goyal and Santa-Clara 2003). Idiosyncratic risk, commonly referred to as unsystematic risk, covers firm specific uncertainties, constantly present when pricing a stock. Since investors are able to eliminate idiosyncratic risk by effectively diversifying their portfolios, it does not influence their valuation of the stock (Markowitz 1991).

2.2.3 Systematic Risk

Systematic risk is captured in a stock's responsiveness to changes in the overall market, quantified as the assets covariation with all other investments available in the economy (McAlister et al 2007). These may be caused by a wide area of sources such as shifts in interest rates, exchange rates or macroeconomic developments (Osinga et al 2011). It is impossible to fully hedge the systematic risk and investors are therefore demanding risk premiums based on the assets' sensitivity to the market (ibid).

Already in 1998, Srivastava et al (1998) found that branding might create monopolistic power and lead to more stable cash flows. That is an important finding when considering that as much as 80% of the variation in systematic risk can be explained by cash flow volatility (Srinivasan and Hanssens 2009), implying that brands could lower the systematic risk. In a recent study, Fischer et al (2009) confirm this link by concluding that brand expenditures reduces cash flow volatility and hence systematic risk.

McAlister et al (2007) come to a similar conclusion where they find that advertising and R&D expenditures, direct and through the creation of intangible assets, lowers a firm's systematic risk. They believe that the results are due to the fact that these companies have (i) a more diverse stock ownership and (ii) higher liquidity in the stock, which *"help insulate the firm from the impact of stock market downturns, thus lowering its systematic risk"* (p.36).

2.2.4 Timing and Size of Future Cash Flows

Regarding timing, high brand equity can help realize cash flows earlier than is possible for an unbranded or weaker competitor. Customers may react faster to communication from the firm and they are more interested to try, adopt and personally promote the branded product (Keller 1993). A great example is Apple, where consumers often are queuing for long to be able to buy the product as early as possible.

There are also several ways in how brand equity can increase the size of future cash flows. We will address five different explanations. Note that these reasons usually work together and it might be hard to

separate the effects coming from one or another. The first reason is through what is usually referred to as price premiums. Firms with high brand equity are able to charge higher prices and in that way increase their margins and hence bottom line (Farquhar 1989; Srivastava et al 1998; Chaudhuri and Holbrook 2001).

The second reason is through increased loyalty. Strong brands will not only better overcome crises and shifts in customer tastes but also have stronger resistance against competitive attacks (Farquhar 1989). This effect is explained by the fact that brand equity creates more loyal customers who are less recipient to competitor appeals and less likely to do comparison-shopping (Chaudhuri and Holbrook 2001).

The third factor is strongly intertwined with loyalty but worth mentioning separately. Similar to the price premium effect, the brand can also have a volume premium effect. That means that strong brands are able to sell a larger number of products compared to unbranded or weaker competitors (Ailawadi et al 2003; Kapferer 2008 p.13).

The fourth is through cost savings. These can mainly be found within sales efforts. Brands with high equity are usually associated with customers who are more willing to adapt and comply with marketing communication (Keller 1993). The marginal costs of marketing for these kinds of brands are therefore usually lower. Research by Smith and Park (1992) has also shown that brands with high equity have lower cost when introducing brand extensions. On a similar note, it has been found that strong brands are easier accepted and that they gain a wider distribution. They are also allowed to pay lower fees in order to be listed at the resellers and receive more shelf space for new products (Farquhar 1989).

The last reason is through extensions. Kaufman et al (2006) found that strong brand equity can be leveraged to gain stronger acceptance for new product introductions among consumers. This is important since brands extensions are important to achieve growth (Kotler 2003 p.437-441;Aaker 1996 p.275-77). Strong brand equity also enables companies to use existing customers to cross-sell products (Kamakura et al 2003).

2.3 LOW-, MID- & HIGH-END BRANDS

We have so far explained the value-creating potential of a brand as determined by the differential advantages it brings about. For products and services within the high-end market (low-end market), the differential advantages of a strong brand foremost enable a company to obtain a price premium (volume premium). However, Doyle (2001) argues that market economics also play an important role in determining the value-creating potential of a brand; *"market economics mean that even strong brands find it difficult to make a decent return in some markets; whereas in others, even mediocre brands can*

make good profits" (p.24). He argues that the intensity of competition and the level of pressures from customers are the most important factors in determining the attractiveness and the profitability of the market.

Roche et al (2008) describe a recent consumer trend, namely that more and more people substitute mid-end products for either high-end or low-end products. Their findings imply that the mid-end market is a less attractive market to compete within, regardless of brand. In addition, Tungate (2009 p. 4) states that luxury brands are recession proof, a fact that should be even more apparent for low-end brands since crisis makes consumers migrate to their market. Therefore, it is reasonable to believe that companies owning strong brands within either low- or high-end products or services will yield an even better return than companies owning brands within the mid-range category.

2.4 PREVIOUS EMPIRICAL FINDINGS

Having discussed the theoretical concepts of brand equity and shareholder value we now turn to a review of the empirical studies connecting them.

Simon and Sullivan (1993) use the financial market value of the firm as the basis for valuing brand equity. By reducing the market value of the firm with the value of its tangible assets, they identify the firm's intangible assets, which are divided into three major categories; *"(i) brand equity, (ii) the value of other firm-specific factors not associated with brand equity, and (iii) market-specific factors that lead to imperfect competition"* (p.33). Using a sample of 638 firms for the year 1985 they find that the average (median) estimated brand equity over all industries is 19% (14%) of tangible asset value. The findings show that brand equity augments the cash flow of firms and that investors appear to consider this in their stock evaluation.

Drawing on the findings of Simon and Sullivan (1993), Kerin and Sethuraman (1998) study the functional form of the relationship between brand value and shareholder value creation. The study uses brand values that are published in the Financial World magazine[2] and measures shareholder value creation as the Market-to-book (M/B) ratio of the firms that own these brands. Their sample consists of 58 firms with 148 brands for the year 1995 and 55 firms with 143 brands for the year 1996. They find a positive but concave relationship between brand value and shareholder value creation.

With an objective to assess whether Financial World's estimated brand values[3] are associated with share prices and returns, Barth et al (1998) address a concern of many standard setters about whether brand

[2] The estimates are based on a methodology developed by Interbrand Ltd. Please see section 3.2.2 for more information.

values can be estimated reliably enough in order to be recorded on the balance sheet. They study a sample of 1204 brand values from 183 publicly traded U.S. firms during 1991 to 1996. The authors test the association between (i) market value of equity and brand values and (ii) yearly changes in brand values and annual share returns[3]. The results show that brand values are positively related to both stock prices and returns. The authors claim that *"findings from this* [their] *analysis are inconsistent with investors assessing brand value estimates as significantly less reliable than other components of book value of equity"* (p.63). Furthermore *"findings suggest estimates* [of brand values] *are relevant and sufficiently reliable to be reflected in share prices"* (p.41). Thus, Interbrand's brand value estimates are suitable to base a study on that connects brand values to share prices.

Frieder and Subrahmanyam (2005) find that investors are influenced by brand perceptions of companies' products when investing in companies' stocks. They refer to this as a spill over effect and state that investors prefer to hold stocks with high brand recognition "*because of greater familiarity with the firm's products. The result also accords with the notion that investors prefer stocks of which they are cognizant or those in which they face lower parameter estimation risk"* (p.82).

In studying how marketing affects firm value, Madden et al (2006) demonstrate the creation of shareholder value through branding. In contrast to previous researchers, their view on shareholder value creation differs as they believe that "*shareholder value is not created simply through positive stock returns or increased market capitalization; rather, it occurs if and only if a company's stock returns are higher than any returns the company's shareholders might receive from alternative investments of similar risk"* (p. 225). Accordingly, they group firms with a proven emphasis on branding and marketing as evident by their brand values into various portfolios (that differ with respect to weighing mechanisms) and compare the portfolios performance to a risk adjusted relevant benchmark using the Fama-French (1993) and Carhart (1997) method. Their sample consists of 111 US publicly traded firms owning brands that appeared on the Interbrand list at least once during the period between December 31, 1993 and December 31, 2000. They find that portfolios of strong brands, with less risk, yield higher returns (α) than a relevant benchmark and thus create value for their shareholders. The findings are statistically significant even when accounting for market share and firms size.

Johansson et al (2012) adopt a similar methodology as Madden et al (2006) in investigating the financial performance of US firms during the stock market downturn in the fall of 2008. Their sample consists of firms owning 50 of the Interbrand Top 100 global brands, for which a corresponding EquiTrend measure

[3] The former is conducted while controlling for equity book value and net income, and the latter is conducted while controlling for net income and changes in net income

is available[4]. Drawing on existing literature, the authors argue that *"in an economic crisis, firms with higher brand equity would thus be likely to sustain revenues better than firms with lower equity. Also, since investors are likely to search for less risky investments in such an environment, high equity brands should become particularly attractive as 'safe harbour'. One would therefore expect the share prices of the strongest brands to lose less than those of weaker brands in an economic downturn"*(p.2). However, the authors found that the brands performed worse than the market while showing higher volatility and betas, although not significantly so. Thus, in the short run and during financial turbulent times, stocks with high brand values seem not to provide a safe haven for investors, despite its theoretical appeals.

2.5 THEORY SUMMARIZED

According to theory, brand equity creates shareholder value by reducing cash flow volatility and in addition positively affecting the amount and timing of these. There are however reasons to believe that the benefits will differ between low-, mid- and high-end brands. Furthermore, brand equity reduces risk factors associated with the stocks' performances, thus these stocks may act as safe havens for investors.

For publicly traded companies, brand equity makes up a substantial part of their market value. On the measurement part of brand equity, research has found that Interbrand's brand value estimates are relevant and reliable enough to be reflected in companies' stock prices. They have also been found positively related to both stock prices and returns and portfolios of strong brands have proved to yield higher returns than their relevant benchmark and so with less risk. However, in the short term and during financial turbulent times, stocks with strong brands seem not to provide a safe haven for investors.

[4] Interbrand and EquiTrend are two different brand equity measurement providers. EquiTrend measures are developed by the Brand and Communications Consulting practice at Harris Interactive.

3. METHOD

3.1 SCIENTIFIC RESEARCH APPROACH

To date, as shown in the theoretical background, there is a myriad of theories explaining the positive effects that brands yield to its owners, but the field connecting brand values to the creation of shareholder value is less explored. Given the purpose of this study to measure the effects that brand values have on shareholder value creation, we have opted for a quantitative research approach. Choosing between a quantitative and qualitative research approach is however not just a matter of quantifying the results into numbers or not. Svenning (2003 p.2) explains the difference as the researchers' intention to either generalize or exemplify while Bryman (2011 p.150) places the question in a larger context regarding philosophy of science.

In financial research, as well as in other social sciences, there exist several schools within the philosophy of science. Few others have had the same importance as positivism in shaping the development of social science and creating a basis for criticism and self-examination (Svenning 2003 p.25). Positivism is the foundation of quantitative research and infers, in short, that (1) the researcher only should study what is *real* (there exist an objective reality) and *observable* (empiricism), (2) the goal of research is to explain cause-and-effect relations (causality), (3) generalizability is important, (4) uniform methods are important and (5) facts and values should be separated (neutrality) (Lundahl and Skärvad 1999 p.38-44)[5].

Furthermore, two common structures connecting theory and empirics are deductive and inductive approaches. Deductive approaches have their starting point in known facts and theories, from which the researcher creates one (or several) hypothesis which is then empirically tested and either rejected or accepted. In contrast, in an inductive approach, theory is a generated result from the investigation of empirics (Bryman 2011 p.26-29; Lundahl and Skärvad 1999 p.39-41).

Bryman (2011 p.151) states that a quantitative approach generally implies that a deductive approach is suitable. That is also the case in our situation. From existing literature we derive our hypotheses and test them against empirical evidence. Naturally, this approach is most suitable when there already exist extensive theory within the area (as is our case within brand literature). The positivistic philosophy is in line with our purpose since our primary goal is not to understand or exemplify the specific cases we are investigating but rather to use them for testing a hypothesis and generalize the findings.

[5] This might be contrasted by hermeneutics, the foundation of qualitative research, which emphasizes that research is a lot about interpretation and understanding, where (1) reality is objective, bound to time and room but also dependent upon perspectives and context, (2) it is not always possible or desirable for the researcher to be neutral (Lundahl and Skärvad 1999 p.38-44).

3.2 SAMPLE SELECTION AND DATA COLLECTION

In order to determine how brands contribute to the creation of shareholder value, we must first identify companies holding reliably estimated brands. Secondly, these companies must be publicly traded for us to be able to assess the creation of shareholder value.

3.2.1 Sample Selection

The optimal sample would be drawn from, or include, the full population of companies in Europe. Unfortunately it is not possible as brand values are not available for all of them. In addition, any input that goes into our research must come from a reliable source. Our sample therefore consists of European companies owning strong brands as estimated and published by Interbrand[6].

To be included in the sample, the following criteria must be fulfilled: Firstly, the brand must be present in any of Interbrand's yearly listings of the world's 100 most valuable brands published in the period 2004-2011. Secondly, a European company whose stock is publicly traded must own the brand and, thirdly, company financial data must be available in Datastream. Following this process, depicted in Figure 3.1, each year 25-33 companies are included in our sample. In total, it consists of 37 different publicly traded European companies owning 42 different brands.

Interbrand List	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
The Worlds 100 Most Valuable Brands	100	100	100	100	100	100	100	100
Brand is not owned by a european company	-66	-63	-63	-64	-63	-62	-61	-62
Parent company is not publicly traded	-5	-5	-5	-4	-5	-5	-2	-2
Stock market data is not available	-1	-2	-2	-1	0	0	0	0
Number of brands to be included in sample	28	30	30	31	32	33	37	36
Number of individual parent companies	**25**	**27**	**27**	**28**	**29**	**30**	**33**	**33**

Figure 3.1 The table displays the different steps of sampling process applied for each year.

[6] For more information on Interbrand, please see section 3.2.2

A majority, 51%, of the companies in our sample are consumer goods companies (see Figure 3.2). The second largest group is financial companies, which consist of banks and insurance companies (24%). The remaining 25% are active in the following industries: oil and gas, industrials, health care, consumer services and technology.

ICB Industry Name	ICB Code	Number of Companies
Oil & Gas	1	2
Industrials	2000	1
Consumer Goods	3000	19
Health Care	4000	1
Consumer Services	5000	3
Financials	8000	9
Technology	9000	2

Figure 3.2 The sample companies sorted by Industry Classification Benchmark (ICB) codes.

Reviewing the sample

Below follows a discussion of ambiguities that arouse in the sampling process relating to the identification and exclusion of sample companies and how we resolved them. For all sample brands but Audi, Porsche and Shell, the owner could be unambiguously identified and BP is discussed in light of the Deep Water Horizon oil spill.

Volkswagen currently owns 99.55% of the shares in the publicly traded Audi AG (Audi 2012), thus deciding which company to include in our study as the owner to the Audi brand had to be assessed. In light of the validity criteria (please see section 3.4) we believe that the publicly traded Audi AG better reflects the performance of the Audi brand than does Volkswagen that owns a variety of brands. Accordingly, we chose to include Audi AG as separate and solitary owner of the Audi brand.

On June 26, 2007 Porsche's corporate form changed and the operative automobile business was spun off as a wholly owned subsidiary and Porsche Automobile Holding SE was created as a business unit responsible for managing equity investment (Porsche 2012a). However, *"from a legal point of view, Porsche Automobile Holding SE and the former Dr. Ing. h.c. F. Porsche AG are one and the same legal entity. This means the change in corporate form to become an SE entailed no transfer of assets and liabilities"*(Porsche 2012b). Thus, we have selected Porsche Automobile Holding SE as the owner to the Porsche brand and will consequently use their stock return in our research for the entire period between the 1st of January 2005 and the 29th of February 2012.

Prior to July 2005, Shell had a dual ownership structure with two publicly traded shares; Shell Transport & Trading and Royal Dutch Petroleum (BBC 2005). The two companies merged under the name Royal Dutch Shell whose stock started trading on the 20th of July 2005. It is this (merged) company that we use in our sample as the owner of Shell and will consequently use their stock return in our research during the entire period.

In April 2010 the Deep Water Horizon oil spill occurred (Graham and Reilly 2011). One of our sample companies, British Petroleum was responsible for the accident. At the very same moment, needless to say, their brand value sharply declined. Therefore all our portfolios will be formed to not include BP from the 1st of May 2010 at which time we argue that an investor that invests in a portfolio of strong brands will have realized the brand damage and sold its stake in BP.

3.2.2 Data

In order for our results not to be misleading or wrong and facilitate their comparability with earlier research it is important that any data we use is highly reliable. We have carefully selected our data providers to ensure high quality inputs to our research.

Datastream

Datastream is a global research database that covers a broad range of financial instruments[7]. It is part of Thomson Reuters and it is widely used in academic research. We use Datastream to collect information on stock market data (share prices, and market cap) monthly from December 2004 to February 2012 and Industry Classification Benchmark (ICB) codes. To avoid that the stock returns are influenced by exchange rates, all data is obtained in local currencies (EUR, SEK, CHF and GBP).

InterBrand

Interbrand is one of the world's leading brand consultancy firms and in December 2010 their valuation method became the world's first ISO-certified approach for valuing brands (Interbrand 2010)[8]. Each year, Interbrand publishes a list on the world's 100 most valuable brands and estimates its value in USD. Their estimates are commonly used in academic research on the connection between brand values and shareholder value creation (e.g. Kerin and Sethuraman 1998; Barth et al 1998 and Madden et al 2006). Using brand value estimates based on a methodology by Interbrand, Kerin and Sethuraman (1998) find a positive-relationship between brand value and shareholder value creation. Barth et al (1998) find that the estimates are relevant and reliable enough to be reflected in companies' stock prices and that investors find Interbrand's estimates as reliable as other components of book value of equity. They also find that there is no simultaneity bias between the brand value estimates and the market value of equity (i.e. the estimates are not dependent on stock performances). Concerning the reliability of Interbrand's brand value estimates, Madden et al (2006) add that *"Interbrand brand valuation estimates are recognized by auditors and tax authorities in many countries around the world"*(p.226).

[7] For more information on this, please see: (Thomson Reuters 2012)
[8] The valuation method is fully disclosed in Appendix 1.

An alternative to employing Interbrand's estimated brand values is using brand value estimates from another provider such as BrandZ (Millward Brown 2012) or doing the valuations ourselves. However, BrandZ's estimations are not as widely used in academic research as Interbrand's estimations, thus we cannot assure its reliability to the same extent as we can for Interbrand. In addition, performing the valuations ourselves would be far too extensive for this research (as we would have to estimate brand values for thousands of firms) and we also believe that the quality of such estimations would make the result poor and hard to compare to previous and future research.

Riksbanken

The brand values, which we obtain from Interbrand, are converted to local currencies (EUR, SEK, CHF and GBP) by the first trading day of each year using Riksbanken's conversion rates (Riksbanken 2012).

Orbis

Orbis is an online database and subsidiary of Bureau van Dijk, which contains information on companies from all over the world (Bureau van Dijk 2012). We use Orbis to collect information regarding Nace Rev. 2 industry codes and historical turnover figures on comparable companies to our sample presented in section 4.2.

Kenneth R. French's Data Library

From Professor French's database (French 2012), section "Developed Market Factors and Returns", we obtain the following risk factors covering Europe[9]: *Small Minus Big* (SMB), *High Minus Low* (HML), *Momentum* (WML), *Risk-free Rate* (RF) and *Market Minus Risk-free Rate* (RMRF). These are used in our regression model, which is presented in section 3.3.2. To collect these risk factors, rather than calculating them, is common procedure in this research field and we believe it enhances this research's quality and comparability with previous and future research.

3.2.3 Forming Portfolios

In this section we describe the different strategies we apply when compiling the stock returns of each sample company to a single portfolio return. The trading strategies described below only permit investors to take a long position. This is a logical side effect of the sampling process where companies are identified and selected based on having a strong and valuable brand. The opposite, i.e. a comparable list on the world's least valuable brands, which would be feasible to take a short position in, does not exist.

[9] The European factors are available from 1990 until today and are based on the countries of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

Each portfolio is formed on the 1st of January each year and held for 12 months before being rebalanced in light of new information (e.g. changes in brand values, market caps or companies included on the list). We choose the 1st of January to minimize the risk of hindsight bias by making it possible for real investors at the time to form the very same portfolios as we do in this research. By the 1st of January, Interbrand's brand value estimates relating to the world's 100 most valuable brands for the prior year has been published and been public information for at least 3 months (Interbrand 2012; BusinessWeek 2004; Berner and Kiley 2005).

Weighted Portfolio

Some companies on the list are conglomerates owning several brands with operations in multiple industries and some are stripped down to a single brand in a single industry. There are also differences between how important the brand is in each company to create value. The Weighted portfolio accounts for these differences by allocating weights based on the companies' ratio of *brand value to market cap* (Figure 3.3)[10].

Assuming that these weights are constant during 12 months, the portfolio return consists of the returns that are attributable to the individual companies' brands. We believe this portfolio best captures the value created by brands. We will hence apply the same procedure when weighting the Growing and Low-, Mid- and High-end brands portfolios.

[10] It should be noted that the companies might have other brands creating value, but due to lack of information in the area we only use what can be found in Interbrand's list.

Company Name	Years Present	Average Brand Value	Average Market Cap	Currency	Average 'Brand Value'/'Market Cap' -Ratio*	Company Name	Years Present	Average Brand Value	Average Market Cap	Currency	Average 'Brand Value'/'Market Cap' -Ratio*
Adidas	8	3,620	8,258	E	46%	ING	5	2,554	52,621	E	4%
Allianz	5	3,219	43,211	E	5%	L'OREAL	8	5,926	46,699	E	13%
Audi	8	3,533	8,374	E	45%	LVMH	8	18,049	40,494	E	48%
AXA	5	4,959	36,345	E	9%	Nestlé	8	19,839	171,270	SF	12%
Barclays	2	2,735	26,676	£	3%	Nokia	8	22,191	51,403	E	58%
Beiersdorf	8	2,356	10,698	E	22%	Novartis	2	9,855	182,968	SF	1%
BMW	8	15,421	24,702	E	68%	Philips	8	5,432	25,416	E	25%
Bp	6	2,177	112,739	£	1%	Porsche	8	3,106	6,400	E	55%
Burberry	5	1,874	3,601	£	35%	PPR	8	5,551	11,917	E	51%
Credit Suisse	2	3,799	35,848	SF	3%	PUMA	1	2,204	3,522	E	8%
Daimler	8	17,544	44,180	E	43%	Richemont	8	4,060	26,225	SF	18%
Danone	8	4,030	27,005	E	15%	Royal Dutch Shell	8	2,060	52,345	£	4%
Diageo	8	2,618	27,235	£	9%	Santander	2	3,789	58,743	E	2%
FIAT	4	2,614	6,984	E	22%	SAP	8	8,346	44,303	E	19%
H&M	4	109,908	292,993	SK	19%	Siemens	8	5,682	68,708	E	9%
Heineken	4	2,335	16,968	E	7%	UBS	8	7,507	89,134	SF	9%
Hermes	8	3,191	11,743	E	31%	Volkswagen	8	4,914	31,775	E	21%
HSBC	8	6,742	102,213	£	7%	Zurich	2	3,408	33,597	SF	3%
Inditex	7	4,390	27,191	E	14%						

Figure 3.3 The table presents the companies that are included in this study and how many times they are included in the sample.
*Please note that the average 'brand value'/'market cap' –ratio is an average of the ratios computed for each year. It is not a ratio between the presented average brand value and average market cap. All numbers are presented in local currencies.

Equal Portfolio

The Equal portfolio subscribes equal weights to every brand. That means that a company with one brand has a weight of 1, two brands 2, etc. Compared to the Weighted portfolio, this portfolio is much more driven by the performance of the whole sample and less sensitive to the performance of the companies with the highest ratios of *brand value to market cap*. While this means that we are not investing accordingly to how much of the results that are driven by strong brands, we have to remember that all companies on the list are in the forefront of the field and that they might have other brands just below the 100 most valuable brands. We form this portfolio to increase the external validity of the findings from the Weighted portfolio since results that are more evenly driven from the entire sample are more relevant to use for generalizations.

Absolute Brand Value Portfolio

The Absolute brand value portfolio allows for investors to increase their exposure to the most valuable brands on the list. Each company receives a weight that is proportional to their brand value(s) in relation to all included brand values on the Interbrand list. Since previous research has documented a positive relationship between brand values and stock returns, we want to investigate whether companies with higher brand values in absolute terms yield a higher return.

Growing Portfolio

Some of the brands on Interbrand's list have been there for a long time with quite stable brand values, while others are introduced during the period and exhibit large changes in value. Although we are aware of the fact that companies need to invest in their brand just in order to keep it at the same level, we still wonder if we can catch firms with exceptional skills in building brands by just including those whose brands are growing. Furthermore, it is an interesting portfolio to study since an investment based on historical brand value development (i.e. growing brands) may capture a lag between brand building activities and their returns. By forming the Growing portfolio we investigate these matter further. In this portfolio we have included brands that have grown in value from the previous Interbrand list to the next or those who are new on the list (and hence have grown their value).

Low-, Mid- and High-End Brands Portfolios

Portfolio	Number of Companies
Low End Brands Portfolio	2
Mid End Brands Portfolio	16
High End Brands Portfolio	10
Financial Portfolio	9

Figure 3.4 Table presenting the number of companies we have included within each portfolio

We will also form portfolios based on product offerings where we divide our sample into four different subgroups (see Figure 3.4). The purpose of forming these portfolios is slightly different from previous four, but still in line with our overall aim. Instead of investigating if brand value is driving shareholder value we rather want to understand if there exist any differences within the sample to get deeper insights of the phenomena. In line with literature (section 2.4) we have formed the three portfolios, Low-, Mid- and High-end, based on product and service offerings. Since we could not divide the banks and insurance companies into the three portfolios with sufficient accuracy, we placed them in a single Financial portfolio.

3.3 RESEARCH DESIGN

Since shareholder value creation takes place in the stock market, it is vital to understand both how stocks are priced and the different elements of stock returns. Investors are not only looking for investments with high possible returns but rather investments with high expected returns. The difference lies in the risk that the returns will not be realized. Understanding risk is hence a central topic to understand returns and we want to use a method that distinguishes between excess returns and returns that are compensation for risk.

The research design in this paper follows previous studies on the connection between brand values and shareholder value creation. The study by Madden et al (2006) has especially served as a role model. Their study is well cited and considered as influential in the field.[11]

3.3.1 Asset Pricing Models

Modern asset pricing theories are founded on the Nobel Prize-winning findings of Markowitz from 1959 (Fama and French 2004). Markowitz introduced the Modern Portfolio Theory (MPT)[12], which distinguish between unsystematic and systematic risk. The unsystematic risk is firm specific and can hence, as long as the assets are not perfectly correlated, be diversified by creating a portfolio of assets, which lower the volatility without lowering the expected return. The only risk that is priced in the market is the risk that cannot be diversified, systematic risk, which is measured by the assets covariation with the rest of the market (Markowitz 1991).

Based on the findings of Markowitz from 1959, Sharpe (1964) and Lintner (1965) create the Capital Asset Pricing Model (CAPM) by adding two additional criteria. The first is that investors share a joint view of asset returns and the second that there is borrowing and lending at a risk-free rate.[13]

$$E(R_{it}) = R_{ft} + \beta_{iM}\left[R_{Mt} - R_{ft}\right] \qquad \textbf{(1)}$$

[11] As of 2012-04-19 their article has been cited 122 times by e.g. Srinivasan and Hanssens (2009); Johansson et al (2012)
[12] This model is also commonly called the "mean-variance" model since it (1) minimize variance of portfolio returns, given expected return and (2), maximize expected return, given the level of variance (Fama and French 2004).
[13] Black (1972) is later showing that the an unrestricted risk-free borrowing and lending rate is unessential and that CAPM can be achieved by instead allowing short sales in risky assets.

Where,

t = **Time**

$E(R_{it}) =$ The **return** of portfolio i.

$R_{ft} =$ The **risk-free rate**.

$\beta_{iM} =$ **Systematic risk** in portfolio i.

$[R_{Mt} - R_{ft}] =$ **Return of the Market portfolio** above the risk-free rate.

The CAPM model has been widely adopted and is globally today one of the most used asset pricing models (Fama and French 2004). However, during the years, several authors have pointed out that there exist variations in returns that cannot be explained by the CAPM market β (the asset's covariation with the market). For example, Banz (1981) documented a size-effect where small shares, determined by market cap, returned better than predicted by CAPM, as opposed to shares with a large market cap. Stattman (1980) and Rosenberg et al (1985) found a similar pattern based on book-to-market ratios (B/M) where shares with large B/M showed a higher return than predicted by CAPM.

3.3.2 Fama-French and Carhart

Based on these findings, Fama and French created a three-factor model, first with a cross-sectional approach (Fama and French 1992) in line with that of Fama and MacBeth (1973), and later as a time series regression (Fama and French 1993) in line with that of Jensen et al (1972). One of the three-factor model's largest problem is however that it does not capture the momentum effect presented by Jegadeesh and Titman (1993) who state that a stock that performed well in the past 3-12 months will continue to do so in the next few months (and vice versa for bad performing stocks). Carhart (1997) solves this matter by adding a fourth factor to the Fama-French model, an approach that since then has been widely accepted (Fama and French 2004; Madden et al 2006; Fama and French 2011).

$$E(R_{it}) = R_{ft} + \beta_{iM}[R_{Mt} - R_{ft}] + \beta_{iSMB}SMB_t + \beta_{iHML}HML_t + \beta_{iWML}WML_t \quad \textbf{(2)}$$

Where,

t = **Time**

$E(R_{it}) =$ The **return** of portfolio i.

$R_{ft} =$ The **risk-free rate**.

$\beta_{iM} =$ **Systematic risk** in portfolio i.

$[R_{Mt} - R_{ft}] =$ **Return of the Market portfolio** above the risk-free rate.

$\beta_{iSMB}, \beta_{iHML}, \beta_{iWML} =$ **Coefficient estimates** of the SMB, HML and WML factors.

$SMB_t =$ **Small Minus Big.** This hedge portfolio is a return difference between Small and Big stocks. It is created by dividing the European market into two portfolios, Small (bottom 50%) and Big (top 50%) based on market cap and then subtracting the monthly value-weighted return of the Big portfolio from the return for the Small portfolio.

$HML_t =$ **High Minus Low**. This hedge portfolio is a return difference between High Book-to-Market (B/M) firms and Low B/M firms. It is created by dividing the European market into three equal portfolios, Value (high B/M), Neutral (mid B/M) and Growth (low B/M), and then subtracting the monthly value-weighted return of the Growth portfolio from the return for the Value portfolio.

$WML_t =$ **Winners Minus Loosers**. This hedge protfolio is a return difference between stocks with positive and negative momentum. It is created by dividing the European market into three portfolios, Winners (top 30%), Neutral (middle 40%) and Loosers (bottom 30%) based on the stocks cummulative return for month t-12 to t-2, and then subtracting the montlhy value-weighted return of the Looser portfolio from the return for the Winner portfolio.

Jensen (1968) extends the Sharp and Lintner CAPM to a time series regression by subtracting the risk free rate from both sides of the equation, creating a possibility to capture *excess returns* in portfolio i.

$$E(R_{it}) - R_{ft} = \beta_{iM}\left[R_{Mt} - R_{ft}\right] + \tilde{e}_{it} \qquad \textbf{(3)}$$

His goal is to introduce a way to measure portfolio performance and he finds that portfolio managers with superior forecast capabilitites systematically selects securities with $\tilde{e}_{it} > 0$, hence earning more than the "correct" risk premium for that level of systematic risk (β_{iM}). By introducing a non-zero constant (α_{it}), it is possible to measure the portfolio performance and hence make the error term (ε_{it}) serially independent [$E(\tilde{e}_{it}) = 0$]. The constant (later named Jensen's Alpha) *"represents the average incremental rate of return on the portfolio per unit time which is due solely to the manager's ability to forecast future security prices"*(p.8) where a random selection should yield a zero intercept but it is possible for the intercept to be both positive and negative (Jensen 1968).

$$E(R_{it}) - R_{ft} = \alpha_{it} + \beta_{iM}\left[R_{Mt} - R_{ft}\right] + \varepsilon_{it} \qquad \textbf{(4)}$$

Incorporating the intercept (Jensen's alpha) and error term with the the risk factors, we can below (5) present the Fama and French (1993) three factor model including Carhart's (1997) fourth momentum factor. Fama and French (1993) conclude that *"judging asset-pricing models on the basis of the intercepts in excess-return regressions imposes a stringent standard"* (p.5).

$$R_{it} - R_{ft} = \alpha_{it} + \beta_{iM}\left[R_{Mt} - R_{ft}\right] + \beta_{iSMB}SMB_t + \beta_{iHML}HML_t + \beta_{iWML}WML_t + \varepsilon_{it} \quad \textbf{(5)}$$

3.3.3 Interpreting the Coefficients

Our null hypothesis states "*Investing in a portfolio consisting of companies owning strong brands will not yield a higher return than an alternative investment of similar risk"*. Equation 2 breaks down what is meant by "*similar risk*" into the following four risk factors: $\left[R_{Mt} - R_{ft}\right], SMB_t, HML_t \; and \; WML_t$. Given a certain covariation (β_i) with these risks, an investment should yield a certain expected return ($E(R_{it})$). If the observed return (R_{it}) deviates from the expected return it is possible that this is due to excess returns (α_{it}). Regression equation 5, which is the one we utilize in our research, allows us to capture this. When interpreting the results, a positive (negative) alpha (α_{it}) indicates a positive (negative) excess return.

Regarding the systematic risk (β_{iM}), if $\beta_{iM} = 1$, it indicates that the returns of the portfolio are achieved at the same risk level as the overall market. If $-1 < \beta_{iM} < 1$, it implies that the returns are achieved with less risk than the overall market and if β_{iM} is either greater than 1 or smaller than -1, the opposite applies.

Regarding the three factors (SMB, HML and WML), a $\beta_{iSMB} < 0$ ($\beta_{iSMB} > 0$) implies that the returns of our portfolio covary more (less) with the returns of large stocks than small stocks. The returns are hence not achieved as a compensation for investing in small (riskier) stocks. A $\beta_{iHML} < 0$ ($\beta_{iHML} > 0$) implies that the returns of our portfolio covary more (less) with the returns of companies with low Book-to-Market ratios than companies with a high Book-to-Market ratio. A $\beta_{iWML} < 0$ ($\beta_{iWML} > 0$) implies that the returns of our portfolio covary more (less) with the returns of companies whose stock have perform relatively bad in the last 2-12 months than companies whose stock has performed relatively good.

3.3.4 Measuring Returns

It is worth to point out that the monthly portfolio returns are weighted in accordance with the information presented in (3.2.3 Forming Portfolios). Note that the returns presented are monthly net returns (derived through Equation 6).

$$R_{it} = \frac{P_{it} + DIV_{it}}{P_{i,t-1}} - 1 \qquad \textbf{(6)}$$

3.3.5 The Efficient Market Hypothesis

We will be using the Fama-French and Carhart four-factor model (Equation 5) in estimating our portfolios' expected return (above risk-free rate). This expected return is contingent on the stock market being efficient in pricing stocks, i.e. that the prices fully reflect all available information. That is what is meant by the Efficient Market Hypothesis (EMH). Lo[14] (2008) traces the origin of the EMH to Paul A. Samuelson's article "Proof that properly anticipated prices fluctuate randomly" from 1965 and Eugene F. Fama's article "Random walks in stock market prices" from 1965. In short and according to Lo (2008) these articles infer that *"In an informationally efficient market, price changes must be unforecastable if they are properly anticipated, that is, if they fully incorporate the information and expectations of all participants […] This is not an accident of nature, but is in fact the direct result of many active participants attempting to profit from their information"*.

For us, if EMH holds we should not be able to find positive excess returns, since investors in the stock market would have eliminated this profit opportunity. This would imply that the excess return is really just compensation for risk that is not captured by Equation 5 and thus be due to incomplete modeling. However, both theoretical and empirical anomalies in clear violation of the EMH are common. Lo (2008) writes that "*according to the behaviouralists, quantitative models of efficient markets – all of which are predicated on rational choice – are likely to be wrong*". EMH supporters respond to this by arguing that *"market forces will always act to bring prices back to rational levels, implying that the impact of irrational behaviour on financial markets is generally negligible and, therefore, irrelevant"* (ibid). Lo (2008) provides further arguments from Grossman and Stiglitz (1980) on the impossibility of informationally efficient markets "*for if markets are perfectly efficient, there is no profit to gathering information, in which case there would be little reason to trade and markets would eventually collapse"*. Naturally, EMH supporters have a response to this as well, and the loop is circled and starts over again.

Recently Fama explained that when something is mispriced in an asset pricing model that is a manifestation of some sort of risk, implying that the market is efficient in pricing stocks and that any excess return is due to incomplete modelling (Schulmerich 2007). On the other hand, there is a lot of research proving that trading strategies generate excess returns, for example strategies based on post-earning announcements (Bernard and Thomas 1989; Setterberg (2007) and customer satisfaction (Fornell et al 2006).

[14] Andrew W. Lo is the Charles E. and Susan T. Harris Professor of Finance and the Director of the Laboratory for Financial Engineering at the MIT Sloan School of Management.

From having studied every angle of the EMH, Lo (2008) concludes the following: *"Given all of the theoretical and empirical evidence for and against the EMH, what can we conclude? Amazingly, there is still no consensus among economists"*.

3.4 QUALITY OF RESEARCH

In order to assess the quality of this study, we now discuss the concepts of reliability and validity. Reliability concerns random- and validity systematic errors. The later can further be divided into both internal- and external validity (Lundahl and Skärvad 1999 p.150-152).

3.4.1 Reliability

According to Bryman (2011 p.49), reliability regards the question if the results from one test remain if the test is repeated or if the results are random or temporary. Lundahl and Skärvad (1999 p.152) explain that a study with good reliability is uninfluenced by whom and in what circumstances the measurement is conducted. They further state that reliability is a requirement, but not a mean, to reach validity because the result will be useless if the measurement tools are used wrongly, no matter how good the tools are. High reliability can only be reached if the researcher continues to critically challenge their findings and handle data with accuracy. Helpful tools in this process might be routines and error controls (Holme and Solvang 1997 p. 163-167).

To ensure reliability, we have not used any hard plugged numbers in order to prevent human errors. Further, in order to assure high quality, Interbrand's estimated brand values have been controlled twice, both before and after they were integrated in the main model. Moreover, in order to assure congruence between companies, all financial data has been obtained from one source, Datastream. Turnover and market cap from this source have also been compared with other sources[15] (to ensure that no companies were mistakenly selected). To ensure that no numbers were changed in the construction of the model, these two steps were in the end repeated and included in the final tests, with no change in the results.

Lastly, we have tried to create as much routines as possible to ensure that no data is lost during the process. In order to minimize biases and narrowed mind sets in creating the model, we independently created all the calculations and let the other person control with a fresh mind. The same approach with individual screening was conducted when forming the Low-, Mid and High-end brands portfolios.

[15] E.g. various stock exchanges, annual reports, Yahoo Finance and Orbis

3.4.2 Internal Validity

Internal validity is about compliance between the theoretical and operational definition or in short, the method's ability to measure what it is intended to measure (Lundahl and Skärvad 1999 p.150). All components of the research need to be internally valid in order for the whole project to be valid. The research design is hence very important (Svenning 2003 p.65).

In our research, the most critical concept to measure is how shareholders benefit economically from owning companies that are holding valuable brands. We have reviewed asset pricing theories to ensure that our method of measuring excess returns only capture returns that are not due to carrying risk.

A similar issue regards the estimated brand values. That research area is still quite young and debated. We however try to increase validity by choosing brand values from the source (Interbrand) with most repute and which has proved to be useful by other researchers (please view the discussion in 3.2.2 for further information).

3.4.3 External Validity

External validity is about the project's (including theories and empirics) connection to the broader picture (Svenning 2003 p.65) or simpler put, whether the results from a study can be generalized beyond the specific research context (Bryman 2011 p.51; Ryan et al 2003 p.155). Svenning (2003 p.66) states that a fundamental prerequisite to be able to generalize is that the empirical basis is correct and hence that an incorrect sampling jeopardizes any attempt to make estimations for a full population.

This sample question might be the most vulnerable spot of our method. We are only able to investigate the 25-33 companies that yearly are included on Interbrand's list (see section 4.2). It should however be added that no other institute providing brand values has a significantly larger base of companies. In addition, the sample only includes companies that are successful in building brands. The sample is thus something we need to consider carefully when we draw our conclusions but the circumstances are similar to previous researchers within the field (e.g. Barth et al 1998; Madden et al 2006; Johansson et al 2012) and we still believe that valuable information can come from the research.

Secondly, there might be a risk that the returns are biased by (i) the size and industry of the sample and (ii) the time horizon of the investigation. We try to overcome the first bias by creating a sample selection of comparable companies (in terms of size and industry) that are not included on any of Interbrand's lists. Regarding the time horizon of the investigation we believe that it might be sufficient. During the measurement period between the first of January 2005 and the 29th of February 2012, Europe has

experienced both flourishing economy and recessions. Our period of 7 years and 2 months is similar to Barth et al's (1998) period of 6 years and Madden et al's (2006) period of 7 years.

Lastly, in order to increase the external validity, Bryman (2011 p.170-171) suggests the researcher to give an in-depth explanation to facilitate a replication. We have tried to be as extensive as possible and believe that a future replication will be easy to conduct based on our explanations.

4. RESULTS

4.1 EMPIRICAL FINDINGS AND ANALYSIS

In total, we have tested 8 portfolios against our null hypothesis that *investing in a portfolio of companies owning strong brands will not yield a higher return than an alternative investment of similar risk*. For three portfolios we could reject the null hypothesis at conventional significance levels. These three portfolios were the Weighted portfolio, Equal portfolio and High-end brands portfolio. All three portfolios experienced an excess return i.e. a positive intercept (α) that was significantly different from zero with a market beta (β_{iM}) below one. These particular portfolios are the ones with strongest support in literature and we hence find the results in line with our initial expectations.

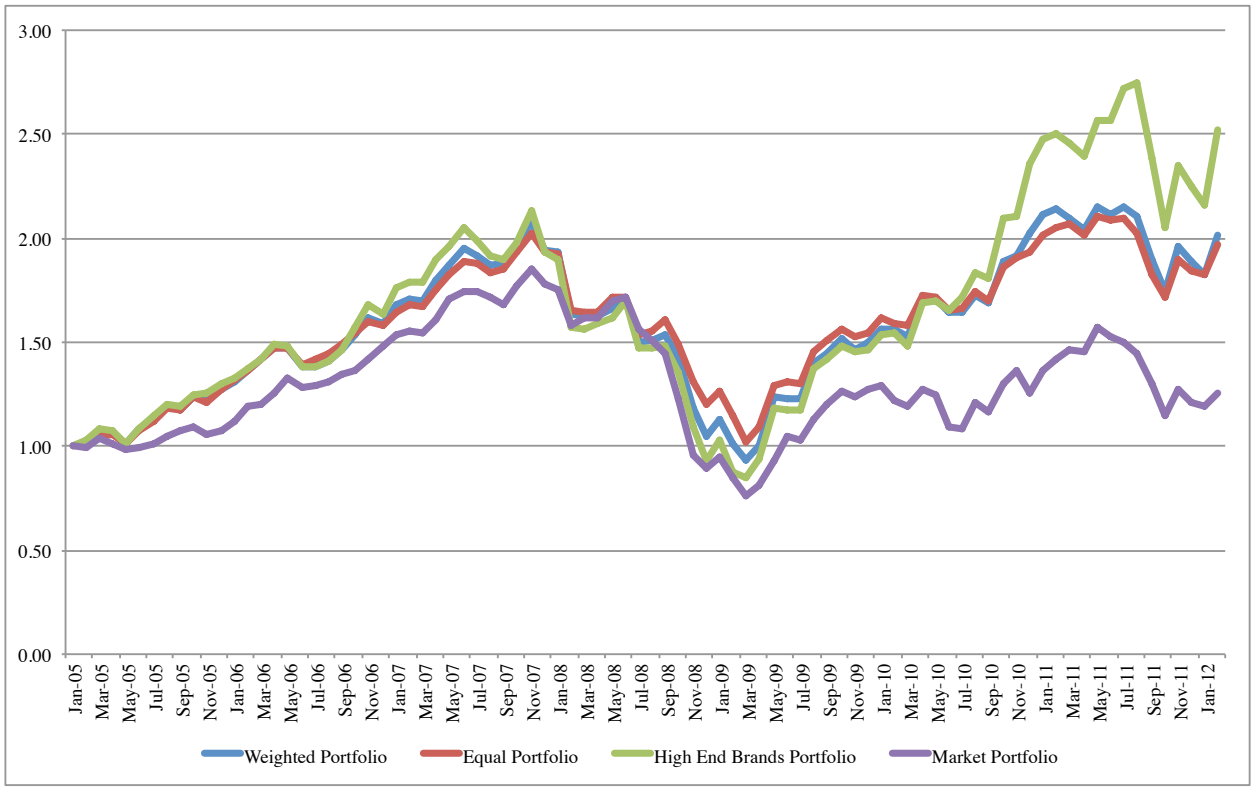

Figure 4.1 Portfolio Indices. The graph shows how the Weighted, Equal and High-end brands portfolios outperform the Market portfolio over the research period except for parts of 2008.

In order to get a deeper understanding of their performance, Figure 4.1 graphs the monthly development (R_i) of these portfolios in relation to the Market portfolio, indexed from the 1st of January 2005 to the 29th of February 2012. Over the entire period, the Weighted portfolio outperformed the Market portfolio except for a period between April 2008 and July 2008. The Equal portfolio was only outperformed one

month, June 2008, and the High-end brands portfolio outperformed the Market portfolio in all periods but a period between January 2008 and July 2008.

If an investor invested 1,000 Euro by the first of January 2005, by the 29th of February 2012 the investment would have grown to 2,111 Euro for the Weighted portfolio, 2,073 Euro for the Equal portfolio and 2,630 Euro for the High-end brands portfolio compared to only 1,336 Euro for the Market portfolio.

4.1.1 The Four-Factor Model

Figure 4.2 displays that our model (equation 5) is significant for all three portfolios at a 0.0% significance level and that it explains 67.6% of the variations in the returns of the Weighted portfolio (R Square), 73.9% of the variations in the returns of the Equal portfolio and 59.1% of the variations in the returns of the High-end brands portfolio.

Portfolio	R	R Square	Adjusted R Square	Std. Error of the Estimate	Significance Level
Weighted Portfolio	0.822[a]	0.676	0.660	0.037	0.00***
Equal Portfolio	0.859[a]	0.739	0.726	0.028	0.00***
High End Brands Portfolio	0.769[a]	0.591	0.571	0.050	0.00***

a. Predictors: (Constant), WML, SMB, RMRF, HML

Figure 4.2 The table displays how well our model (equation 5) explains the variations in the returns of the three portfolios.

***Findings are significant at 1%.

Figure 4.3 displays the Fama-French and Carhart regression for the three portfolios. It reveals that the Weighted portfolio experiences 0.7% monthly excess returns (i.e the intercept, α) during the 86-month period. On a yearly basis these excess returns equals 8.73%. The excess return is significant at a 3.7% level (*t-stat: 1.818*). The test shows that there was only one significant independent variable (*t-stat: 8.937*), RMRF (β_{iM}). Its coefficient equals 0.705 implying that the excess return was achieved with less risk than what the overall market exhibits (since $\beta_{iM} < \beta_M$). The other three factors (SMB, HML and WML) were insignificant, which tells us that no returns were obtained as compensation for these risks.

The Equal portfolio also experienced 0.7% monthly excess returns for the period but it is significant at a lower level of 1.3% (*t-stat: 2.271*). RMRF was lower (0.624) and significant at a 0.0% level (*t-stat: 10.361*). In addition, SMB (β_{iSMB}) was significant (*t-stat: -1.895*) and negative implying that the variations in the return of the Equal portfolio are more explained by the variations in the returns of large

stocks than of the variations in the returns of small stocks (i.e. the result is not obtained as a compensation for the risk of investing in small stocks).

The High-end brands portfolio experienced 1.0% monthly excess returns for the period, which translates to 12.68% on a yearly basis. The excess returns are significant at a level of 3.6% (*t-stat: 1.823*). For this portfolio there was only one significant variable, RMRF (*t-stat: 7.811*) with a coefficient equal to 0.851. Thus the returns in the High-end brands portfolio experienced the highest systematic risk out of all three portfolios, although it is still less risky than the overall market.

Weighted Portfolio	**Intercept (α)[1]**	**RMRF**	**SMB**	**HML**	**WML**
Coefficient	0.007	0.705	-0.115	0.327	-0.104
Significance Level	0.037**	0.00***	0.569	0.187	0.328
t-stat	1.817	8.937	-0.571	1.330	-0.984

Equal Portfolio	**Intercept (α)[1]**	**RMRF**	**SMB**	**HML**	**WML**
Coefficient	0.007	0.624	-0.291	0.269	-0.106
Significance Level	0.013**	0.00***	0.062*	0.156	0.193
t-stat	2.271	10.361	-1.895	1.431	-1.313

High End Brands Portfolio	**Intercept (α)[1]**	**RMRF**	**SMB**	**HML**	**WML**
Coefficient	0.010	0.851	0.002	0.225	-0.097
Significance Level	0.036**	0.00***	0.996	0.509	0.506
t-stat	1.823	7.811	0.006	0.663	-0.668

Figure 4.3 The table displays the excess returns and influence of the Fama-French and Carhart factors in our model.

*Findings are significant at 10%

**Findings are significant at 5%

***Findings are significant at 1%

[1] The Intercept is tested with a one-sided hypothesis.

The finding that all three portfolios show significantly lower systematic risk than the Market portfolio is in line with the conclusions of Fischer et al (2009) and McAlister et al (2007) that marketing and brands lower firms' systematic risk.

4.1.2 Portfolios Differences

The test results for the Absolute brand value portfolio and the Growing portfolio are not disclosed since the results (i.e. intercept, α) are insignificant. Viewed in isolation these finding are less informative than in relation to the three portfolios that experienced positive excess returns. They will hence be discussed together below.

Since the Equal portfolio delivered 0.7% monthly excess returns it is evident that just having a valuable and strong brand impacts shareholder value, but given the insignificant findings from the Absolute brand value portfolio we cannot conclude that the returns are greater for larger brands. Rather, our findings indicate that having many valuable and strong brands is more important (than the absolute size of the brands) in delivering excess returns, as evident by the excess returns of the Equal portfolio.

Regarding the insignificant findings of the Growing portfolio, we believe that a one-year historical brand value *development* is not an important driver of future excess returns. However, due to the lag between brand building activities and its returns, it is still possible that an investment based on historical brand value development will yield excess returns but the historical brand development must then be assessed on a longer term.

We believe that the Weighted portfolio best captures the returns that are due to each individual company's brand value, because it is weighted based on the ratio brand value to market cap. Market cap can be seen as the discounted value of all future earnings of the firm (in which those that are due to the brand are included) and brand value can be seen as the discounted value of all future earnings that are due to the brand. By multiplying a company's stock return by its ratio brand value to market cap, we obtain the return that is due to the brand. This portfolio delivered an excess monthly return of 0.7%. Thus, this portfolio shows that the relative size of the brand value is important in driving excess returns and more importantly, it confirms our overall theory that strong brands creates shareholder value.

The High-end brands portfolio experienced the highest monthly excess returns (1%). This shows that the capability of a brand to deliver excess returns differs with respect to product and service offerings. We believe that the excess returns in the High-end brands portfolio are explained by (i) more stable cash flows in turbulent times as stated by Tungate (2009), (ii) that consumers nowadays substitute mid-end products and services for high-end products and services and (iii) that brand values are a larger part of these firms. By larger part we refer to the ratio of brand value to market cap, which is significantly higher for this portfolio (avg. ratio 41%) as compared to the other three portfolios (low 17%, mid 17%, financials 5%) Interestingly, these excess returns were achieved with a $\beta_{iM} = 0.851$, implying that not only does the High-end brands portfolio outperform the Market portfolio $[R_{Mt} - R_{ft}]$, it does so with less

risk. However, in comparison to the Weighted portfolio and the Equal portfolio, the High-end brands portfolio experienced the highest risk. A strategy of investing in brands based on product and service offerings is thus more risky than a strategy of investing in brands purely based on an intra-company brand value measure (Weighted portfolio) or the mere prevalence of a brand value (Equal portfolio).

According to Roche et al (2008), trading down is more common than trading up in Europe. This would have us expect that the Low-end brands portfolio would perform even better than the High-end brands portfolio, but the empirical results speaks of the opposite. The Low-end brands portfolio did not show any significant excess return. We believe that the lack of excess returns in the Low-end brands portfolio is connected to the sample size, because the Low-end brands portfolio consists of only two companies. If that is not the case, the results might be due to the lower ratio of brand value to market cap, implying that the stock returns are less driven by the brand. It is also possible that a differential advantage of low-end brands, volume premium, is not as important in delivering excess returns as price premiums are for high-end brands.

There was also a lack of excess returns in the Mid-end brands portfolio (the intercept, α, was insignificantly different from zero), which included 16 sample companies. Considering the up and down trading, it is not surprising. However, it is arguable that the benefit of owning a strong and valuable brand has the capability to offset the negative effects of the up and down trading, but our research is inconclusive on the matter.

For our last portfolio, the Financial portfolio, the excess returns were insignificantly different from zero. Bank and insurance companies are unique to our sample in that their businesses fundamentally differs from any other business performed within in our sample and they also have the lowest ratio of brand value to market cap. We believe that brand aspects influence key drivers of these companies' performance less than other macroeconomic factors do, thus distorting the results. However, due to the speculative nature of the matter, we will restrain from further analysis.

4.1.3 Possible Explanations to Differences in Our Findings and Madden et al (2006)

When comparing the results from this study with the results from Madden et al (2006) it is important to consider that even though our two studies apply the same method with Fama-French's three-factor model (1993) including Carhart's (1997) fourth factor, we use different means to form portfolios.

Madden et al (2006) form three portfolios of which the first one consists of all American firms on Interbrand's list for each year, reweighted each month by their individual market cap in relation to the total market cap of all included firms. Their second portfolio is formed with the purpose of being a

realistic buy-and-hold investment. It is hence formed when the first Interbrand list is released in August 1994 and then not rebalanced but held constant during the entire period. Their third portfolio is formed by dividing each included brand value by the value of all brands included on the list that year and than averaging that proportion over the entire period of 1994-2001.

Besides portfolios, the studies differ in timeframe and region. Madden et al (2006) have a research period between 1994 and 2001 using American brands and our research covers the period 2005–2012 using European brands. Their American focus has the consequence that they can include approximately 50 brands each year compared to our 30.

We cannot find any support in literature that the different regions should alter the findings of our studies. The fact that U.S. is one country and Europe consists of multiple countries is mitigated by the fact that all European firms apply the same accounting standards (IFRS) and that all brands on Interbrand's list need to have global sales.[16] Different time frames might on the other hand have an impact. If investors in recent years have become better at realising the positive impact brands have on share returns, it should be reflected in share prices making it harder today to earn excess returns. This could explain why their third portfolio outperforms not only our similar (insignificant) Absolute portfolio, but also all our (significant) portfolios.

Another possible explanation is that the differences in returns are driven by the financial crisis in 2008 or caused by hindsight bias. Madden et al's (2006) first portfolio is formed with information that is not available until six months have gone each year and their third portfolio is formed with information that is not available until the end of the research time frame. Their second portfolio is supposed to account for these hindsight biases but unfortunately it only makes the comparison harder.

We believe that our portfolio better catches the returns that are due to the brands and that our research is more relevant for investors since it provides an actionable investment strategy.

4.1.4 Timing of Returns

To further evaluate our portfolio strategy, we look into the timing and distribution of the returns (R_i) in the three portfolios that delivered significantly positive excess returns. In order for the strategies to be realistic, it is important that all returns are not achieved during the latest years, since that could make a real investor go bankrupt. To suite the purpose of generalisation, it is also important that the results are

[16] The brand need to have a presence on at least three major continents, at least 30 percent of revenues must come from outside the home country, and no more than 50 percent of revenues should come from any one continent (Interbrand 2011 p. 66).

evenly distributed over the years and not only obtained during a single year since that could question whether the results really are attributable to brand values or another unknown factor.

Over the 86-month period that we measured returns, both the Weighted portfolio and High-end brands portfolio delivered 53 positive monthly returns, the Equal portfolio 54 positive monthly returns and the Market portfolio slightly less with 50 positive monthly returns. When comparing the three portfolios' monthly returns with the Market portfolio's monthly return, we can see that they marginally outperform the market with 58% of the cases for the Weighted portfolio, 51% for the Equal portfolio and 57% for the High-end brands portfolio.

Based on these findings, we can assume that the three portfolios' outperformance of the Market portfolio (as shown in Figure 4.1) is mainly due to larger returns in positive months rather than more positive months. When reviewing Figure 4.4, which allows us to study the performance of each portfolio on a calendar year basis, we see that a lot of the portfolios' outperformance is generated in 2005 and 2010. It should however be noted that both the Weighted and Equal portfolio outperform the Market portfolio in 6 out of 8 years while the corresponding number for High-end brands portfolio is 4, including two years of equal performance and two years of underperformance. Overall, the High-end brands portfolio display a more volatile performance compared to the Market portfolio and the other two portfolios. This could be due to the low number of companies included in the High-end brands portfolio.

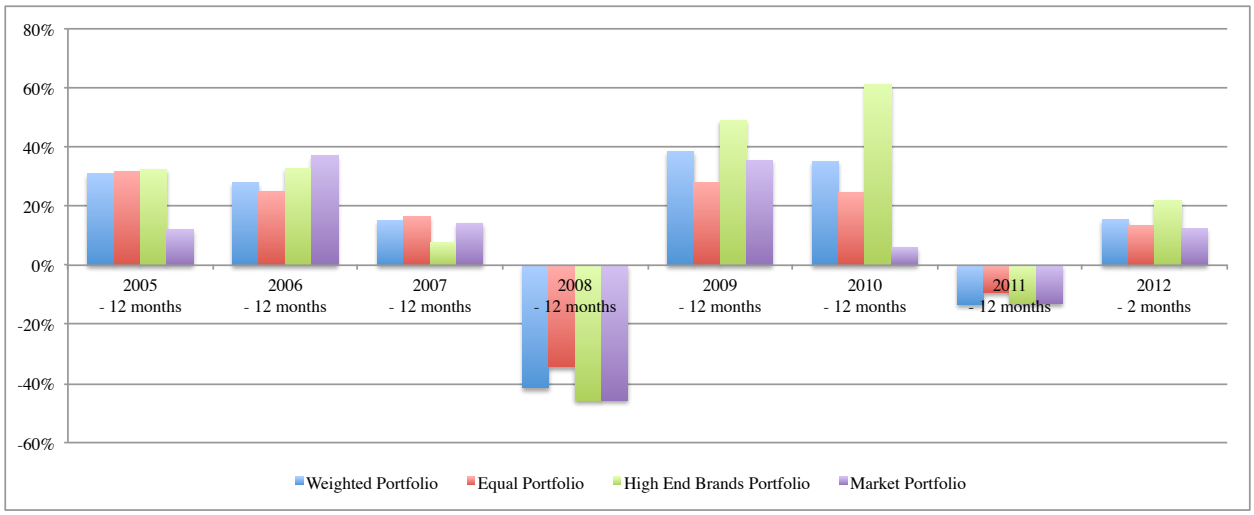

Figure 4.4 The graph shows compounded returns by year in the Weighted, Equal, High-end brands and Market portfolios.

Examining the results broken down on months, aggregated years and indexed over the full period, the three portfolios clearly outperform the Market portfolio. Hence, it feels safe to conclude that the excess results obtained in this research are attributable to the power of brand values rather than any unknown

factor. There do however seem to exist seasonal effects. Most evident is that the indexed results of the three portfolios are below the market in the beginning of 2008. They do however recover quickly and perform better than the market, seen to the full year. Our initial intention was to test the findings of Johansson et al (2012), namely that strong brands perform worse than the market during a financial crisis. Our methodology makes however such investigation impossible since we lack Fama and French factors on a daily basis.

Figure 4.5 shows each month's total contribution to the overall return of the three portfolios and the Market portfolio. The three portfolios monthly returns are similar to the Market portfolio in sign and relative influence during all months but May, September and October. During these months the return of the Market portfolio is negative while it is positive in our three portfolios.

While it is tempting to believe that the results in September and October are due to the fact that Interbrand usually releases their most valuable brands list around that time, it is not a credible theory. However, since the comparable companies from section 4.2 do not show the same pattern, we lack other alternative explanations. Overall it does however seem that the returns of our portfolios follow the returns of the Market portfolio.

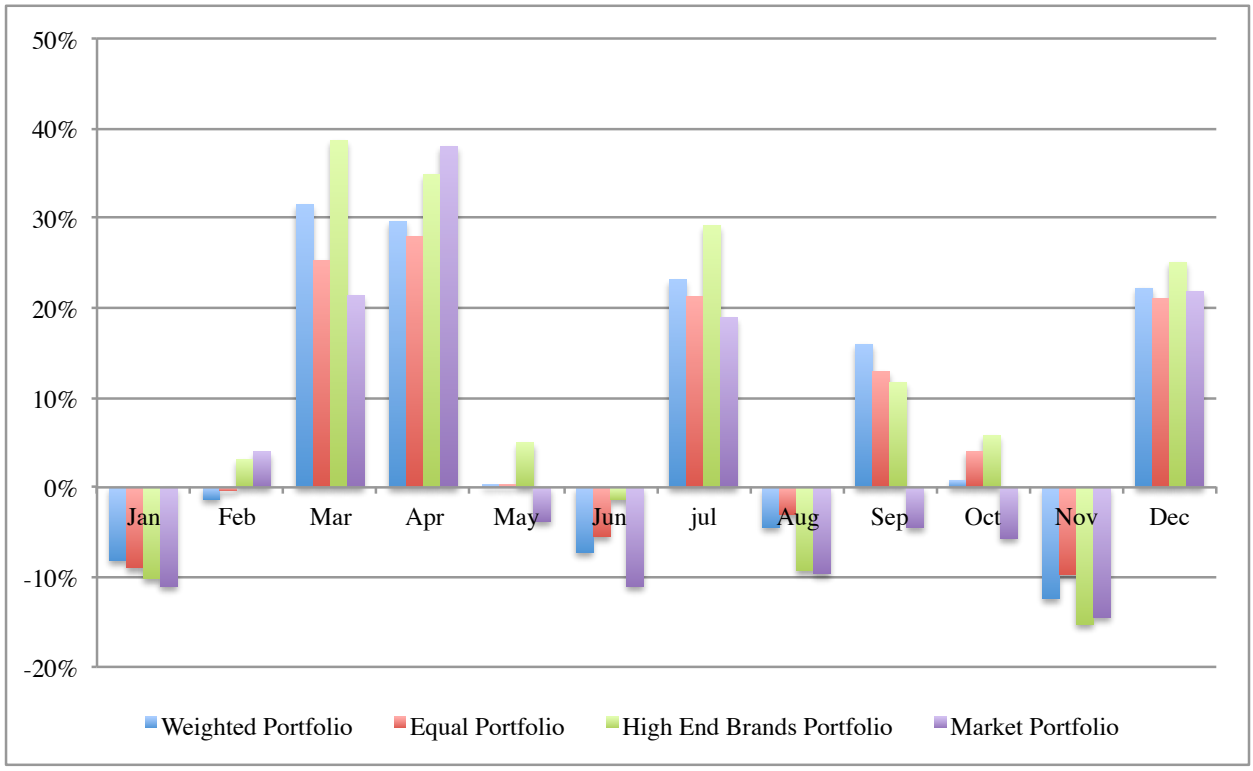

Figure 4.5 The graph shows compounded returns by month in the Weighted, Equal, High-end brands and Market portfolios

4.1.5 Explaining Excess Returns

Having concluded that three of our portfolio strategies generate positive excess returns, we will now discuss how this is possible. There are two explanations to this: Either investors fail to recognize the value of a brand in pricing stocks, in which case the market is inefficient in pricing stocks (i.e. the stock prices fail to reflect all available information) or the market is efficient in pricing stocks but our model fails to capture a market risk factor associated to brand values, in which case the excess returns are just compensation for risk. Investigating which of these fundamentally different explanations is correct, is clearly too extensive and beyond the scope of this thesis, but the reader should be aware of the prevailing alternative interpretations[17].

The following regards model failures. While we have chosen to apply the Fama and French three-factor model (1993) plus Carhart's (1997) fourth factor because of their wide acceptance in the academic community, we cannot totally outrule it to be a bad model in measuring excess returns, especially since Fama states that mispricing in asset pricing models are due to incomplete modelling in capturing risk (Schulmerich 2007). However, since Madden et al (2006) use the same model and we lack a wider accepted one, we do not see any reason to distrust the model's ability to capture excess returns.

Given that boardrooms have a hard time to understand the shareholder value being created by brands, it is not unrealistic that investors overlook the value-relevant information that brands provide (thereby making it possible to earn excess returns). This theory is however somewhat in conflict with Simon and Sullivan's (1993) findings that investors seem to consider cash flows coming from brand equity in their evaluation and Barth et al's (1998) claim that *"findings from this* [their] *analysis are inconsistent with investors assessing brand value estimates as significantly less reliable than other components of book value of equity"* (p.63).

Research in other fields have however found that prices do not fully reflect all available information and that it is possible to earn excess returns by forming trading strategies on for example post-earning announcements (Bernard and Thomas 1989; Setterberg 2007) and customer satisfaction (Fornell et al 2006). Having not been able to identify a specific market risk factor associated to brand values, we believe the results are due to real value creation.

[17] For more information on market efficiency theories, please review section 3.3.6

4.2 CONTROLLING FOR SIZE AND INDUSTRY

Due to our methodological choice of using portfolio returns as the dependent variable, we cannot make use of dummy variables. In order to control for size and industry we have therefore identified comparable companies that are similar to our sample in these two aspects. We do this to limit the amount of factors that can power our results beyond brand values.

For each company included in our sample, we have searched for comparable companies in size and industry in Orbis' online database using turnover and Nace Rev. 2 industry classification codes. In Appendix 2 we disclose a complete list of these companies, including data on turnover. A company is deemed comparable if it has the same primary and/or secondary code and if the size, as measured in average yearly turnover during the period between January 2005 and December 2010, is similar to that of their branded counterpart. While these comparison companies are not a perfect match, we have tried to come as close as possible. Several tests has been conducted, including comparable companies whose average turnover was at least 40-, 60- and 80% to that of their branded counterpart[18].

In our model, the individual stock returns of these companies have replaced the stock return of their branded counterpart and the weights have been left unchanged. When running the regression, the results were found insignificant and we can therefore conclude that our results are neither powered by industry nor turnover. This is an important finding since the companies in the sample is biased towards large firms within few industries (e.g. consumer goods and financials).

4.3 TESTING THE MODEL

There are several assumptions underlying a multiple regression model. In order for our estimation results and analysis not to be misleading or wrong, these assumptions must not be violated in our model. We therefore test our model for exhibiting heteroscedasticity, autocorrelation, multicollinearity and non-normally distributed residuals. These tests are fully disclosed in Appendix 3. The test results provided no evidence for any violations of the underlying assumptions.

[18] When including companies whose turnover was at least 40% to that of their branded counterpart, the number of included companies was 23 and the average and median turnover for the full sample was 82% and 84% respectively. Comparable numbers for 60% was 17 companies and 95% / 100%. For 80% it was 12 companies and 103% / 105%.

5. CONCLUDING DISCUSSION

Before reviewing our conclusions, it is essential to have some limitations of this study in mind.

5.1 LIMITATIONS

Firstly, even though we have presented extensive arguments from previous studies in favor of Interbrand's estimated brand values and we cannot find any other valuation method more widely used, it is important to remember that their estimates are not perfect. Without judging if it is justifiable or not, we can observe that Interbrand's list of the world's 100 most valuable brands historically have been dominated by American brands. Other biases might exist and more research of the estimates' reliability is needed.

Secondly, we have not constructed our own Fama and French factors but collected them from Kenneth French's Data Library. While using his factors is common for researchers, and we do not believe that this affect the quality of the factors (rather vice versa) it limits us from conducting daily regressions. Daily rather than monthly regressions would be helpful in order to investigate the findings of Johansson et al (2012) that valuable brands perform worse than the market in a financial crisis. As it is now, we can only view patterns in the data that are in line with the their findings, but we cannot make any significant conclusions regarding the performance during the financial crisis.

Thirdly, by employing Interbrand's brand value estimates we limit our research. The absence of a "least valuable brands list" prevent us from creating a hedge portfolio. While the number of European companies included in the yearly Interbrand lists are enough to create our main portfolios, Weighted and Equal, the low numbers of companies might affect the results in the Low-, Mid- and High-end brands portfolios. The findings from these portfolios should hence be viewed with concern and as an area for further research.

Fourthly, we have created a comparison portfolio to assure that our results are not caused by size and industry biases in the sample. While this seems important due to the observed skewness against large firms in few industries, there might be other important biases that we have not tested for. Differences in brands are one potential bias. By forming both the Weighted and Equal Portfolio we have tested for differences in having one or more brands on the Interbrand list. We have however not touched upon differences in for example: brand life cycles, corporate vs. product brands or B2B vs. B2C. Biases in those or other areas might exist and any potential influence is then not accounted for.

Lastly, on a similar note and probably most important, our sample has a great bias toward companies which have been successful in building brands. There are probably a lot of companies in the world that

invest a lot of time and resources in building brands but with poor results. By not considering the costs attributed to building the brands, we are not able to determine which brand building activities are driving shareholder value and which are not.

5.2 CONCLUSIONS

This paper is the first to investigate the effects strong brands, as estimated by Interbrand, have on shareholder value creation on the European market. With a sample of 37 publicly traded European companies owning 42 different brands over the period from the 1st of January 2005 to the 29th of February 2012, we show that portfolios of companies owning strong brands yield excess monthly returns. The results are significant both when the portfolios are formed by allocating equal weights to every single brand and when weighted according to the brands' ratio of brand value to market cap. The results are also robust when controlling for size and industry.

In order to assess whether the returns are true indicators of shareholder value creation rather than just compensation for risk, we employ the four-factor model by Fama-French (1993) and Carhart (1997). We find that the results are not generated by any of the four risk factors and that the portfolios have a lower systematic risk than the Market Portfolio, i.e. Market Beta (β_{iM}) is significantly less than one. Having not been able to identify a specific market risk factor associated to brand values, we believe the results are due to real value creation.

By showing that strong brands create shareholder value by outperforming investments of similar risk, we hope to help boardrooms realize how shareholder value can be created by strong brands. Our findings are also valuable to investors in helping them assess the value of a brand and ultimately the value of firm equity, from which they can form a successful trading strategy.

A particularly interesting finding in our study is that a brand's performance differs with respect to product and service offerings. When we divide our sample into Low-, Mid- and High-end brands portfolios, we learn that the High-end brands portfolio not just outperforms the Market portfolio but also the previously mentioned Weighted and Equal portfolio. Considering that this portfolio has the highest ratio of brand value to market cap, it further confirms our overall theory that strong brands creates shareholder value.

To conclude, this study provides evidence that positive excess returns are obtainable by investing in portfolios of valuable brands on the European market. More important is that they do so at a level of significantly less risk than the Market portfolio. The findings both suit as a successful trading strategy for investors and to help demonstrate the link between strong brands and the creation of shareholder value.

5.3 SUGGESTIONS FOR FUTURE RESEARCH

The findings from this paper have both confirmed previous research and uncovered aspects of brand values that warrant future research in the area. In particular, we find that a portfolio of companies owning high-end brands generate excess returns at a lower risk than the Market portfolio while a smaller portfolio of low-end brands do not, despite an equally feasible theoretical appeal. Future research should therefore look into the characteristics of low- and high-end brands to try to explain these differences in addition to testing two equally large portfolios with more sample firms to see if the differences remain.

Furthermore, considering that our sample firms are biased towards the consumer goods industry, future research should investigate differences and similarities of excess returns in connection to brand values across different industries and over time.

In general, our results support an investment decision in the stock of a company owning one or more strong brands (all other things being equal). The results however, give less support for a firm internal decision to invest in brands given that our sample is biased to only include successful cases. Future research is therefore needed to generate actionable managerial implications regarding investments in brands where the brand value is not already known to be strong and valuable.

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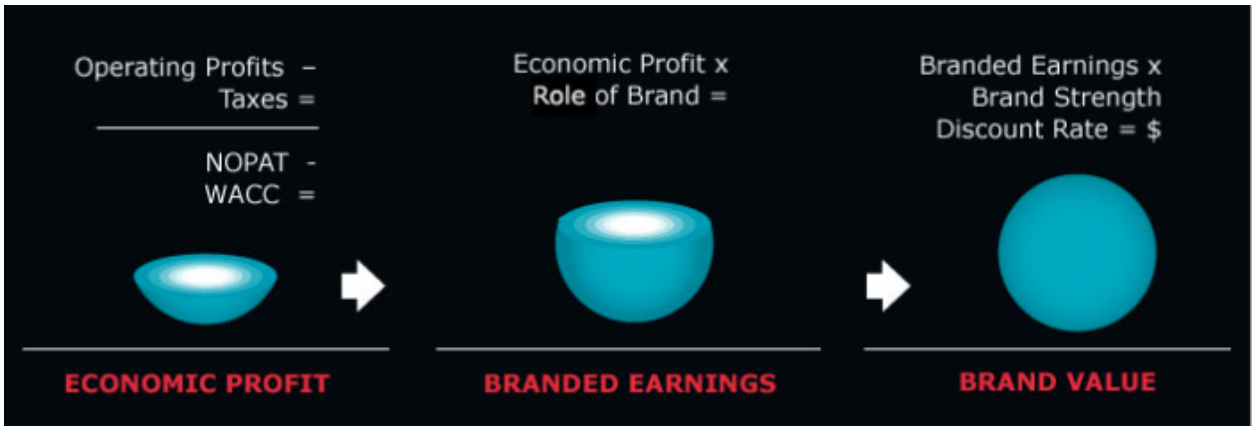
APPENDICES

APPENDIX 1. THE INTERBRAND VALUATION METHOD

Please note: The following text and figures are property of Interbrand Ltd to which we claim no authorship. This section is presented for illustrative purposes, only. Please refer to the following webpage for more information.
Source: *http://www.interbrand.com/en/best-global-brands/best-global-brands-methodology/Overview.aspx*
Source: *http://www.interbrand.com/Libraries/Branding_Studies/Best_Global_Brands_2011.sflb.ashx p.66*



Demands

The brand is truly global and has successfully transcended geographic and cultural differences. It has expanded across the established economic centers of the world and is entering the major markets of the future. In measurable terms, this requires that:

- *At least 30 percent of revenues must come from outside the home country, and no more than 50 percent of revenues should come from any one continent.*
- *It must have a presence on at least three major continents, and must have broad geographic coverage in growing and emerging markets.*
- *There must be substantial, publicly available data on the brand's financial performance.*
- *Economic profit must be positive showing a return above the operating and financing costs.*
- *The brand must have a public profile and awareness above and beyond its own marketplace.*

Economic Profit

Financial performance measures an organization's raw financial return to the investors. For this reason, it is analyzed as economic profit, a concept akin to Economic Value Added (EVA). To determine economic profit, we remove taxes from net operating profit to get to net operating profit after tax (NOPAT). From NOPAT, a capital charge is subtracted to account for the capital used to generate the brand's revenues; this provides the economic profit for each analyzed year. For purposes of the rankings, the capital charge rate is set by the industry weighted average cost of capital (WACC). The financial performance is analyzed for a five-year forecast and for a terminal value. The terminal value represents the brand's expected performance beyond the forecast period. The economic profit that is calculated is then multiplied against the role of brand to determine the branded earnings that contribute to the valuation total as noted earlier.

Role of Brand

Role of brand measures the portion of the decision to purchase that is attributable to brand—this is exclusive of other aspects of the offer like price or feature. Conceptually, role of brand reflects the portion of demand for a branded product or service that exceeds what the demand would be for the same product or service if it were unbranded. Role of brand determinations for this study derive, depending on the brand, from one of three methods: primary research, a review of historical roles of brand for companies in that industry, or expert panel assessment. The percentage for the role of brand is multiplied by the economic profit of the branded products or services to determine the amount of branded earnings that contribute to the valuation total.

Brand strength

Brand strength measures the ability of the brand to secure the delivery of expected future earnings. Brand strength is reported on a 0 to 100 scale, where 100 is perfect, based on an evaluation across 10 dimensions of brand activation (Below). Performance in these dimensions is judged relative to other brands in the industry, and in the case of exceptional brands, relative to other world-

class brands. The brand strength inversely determines, through a proprietary algorithm, a discount rate. That rate is used to discount branded earnings back to a present value based on the likelihood that the brand will be able to withstand challenges and deliver the expected earnings.

Internal Factors:
CLARITY, COMMITMENT, PROTECTION, RESPONSIVENESS

External Factors:
AUTHENTICITY, RELEVANCE, DIFFERENTIATION, CONSISTENCY, PRESENCE, UNDERSTANDING

More information about the factors:

http://www.interbrand.com/en/best-global-brands/best-global-brands-methodology/Brand-Strength.aspx

APPENDIX 2. THE COMPARABLE COMPANIES TEST

Sample Company	Comparable Company	Average '*Turnover Ratio*'
ALLIANZ SE	AVIVA	61%
AUDI AG	RENAULT	119%
AXA	GENERALI ASSICURAZIONI	83%
BANCO SANTANDER	DEUTSCHE BANK	92%
BARCLAYS BANK	ROYAL BANK OF SCOTLAND	90%
BEIERSDORF AG	GIVAUDAN SA	44%
BAYERISCHE MOTOREN WERKE AG - BMW	PEUGEOT CITROEN	116%
BP P.L.C.	ENI SPA	44%
BURBERRY GROUP PLC	HUGO BOSS AG	123%
CREDIT SUISSE	BANCO BILBAO	118%
DIAGEO PLC	PERNOD RICARD SA	43%
HEINEKEN NV	SABMILLER PLC	106%
HERMES INTERNATIONAL	BENETTON GROUP SPA	116%
HSBC Holdings Plc	BNP Paribas	63%
ING	MUNCHENER RUCKVERSICHERUNGS	105%
LVMH MOET HENNESSY	CHRISTIAN DIOR SA	104%
NOKIA OYJ	LM ERICSSON	46%
NOVARTIS AG	SANOFI	100%
PHILIPS	AB ELECTROLUX	43%
PPR S.A.	MARKS AND SPENCER P.L.C.	68%
PUMA	AMER SPORTS OUJ	68%
ROYAL DUTCH SHELL	TOTAL S.A.	52%
ZURICH	CNP ASSURANCES	84%

Figure A2.1. The table lists comparable companies to the companies we have included in our sample. For 23 out of 37 companies that we have included in our sample we could find comparable companies in terms of industry and size as measured by turnover. 14 companies have thus been excluded from the comparable company test. Please note that the average *'Turnover Ratio'* is calculated as the average of each year's comparable companies turnover divided by their selected sample companies turnover. The average of the '*Average Turnover Ratio*' equals 82%.

APPENDIX 3. TESTING THE MODEL

A.3.1 Heteroscedasticity

One assumption in a regression model is that the variances of the residuals are constant and independent of the values of the explanatory variables (Edlund 1997 p. 100). If that proves not to be the case then ordinary t- and F-tests are no longer valid. According to Newbold (2007 p. 527, 565), it is often useful to employ graphical techniques to detect heteroscedasticity and he recommends that one should plot the residuals versus the predicted or fitted values of the dependent variable to determine whether the model exhibits heteroscedasticity. If the residuals are stabile over the range of the predicted values, the model is said to be homoscedastic (and thereby not violating the underlying assumption). If the residuals tend to increase or decrease as a function of the predicted values it is a sign of heteroscedasticity. We have performed this test for each of our portfolios and the graphs are displayed in Figure A.3.1. No portfolio is determined to exhibit heteroscedasticity.

Weighted Portfolio **Equal Portfolio** **High-End Brands Portfolio**

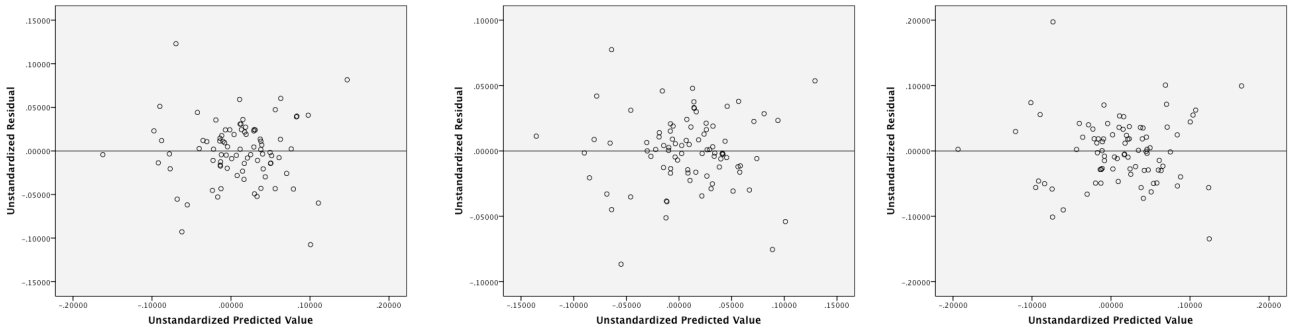


Figure A.3.1. Graph plotting the residual values versus the predicted or fitted values of the dependent variable. There is no pattern in the relationship and hence is no portfolio determined to exhibit heteroscedasticity

To confirm our findings we perform a more formal procedure for detecting heteroscedasticity called a Spearman Rang Correlation[19] test. The test estimates the correlation coefficient between the absolute values of the residuals and the unstandardized predicted values of the dependent variable and determines its significance.

In performing this test, we form the following hypothesis:

H0: The residuals are homoscedastic in which case ϱ (Spearman's rho) = 0

HI: The residuals are not homoscedastic in which case ϱ (Spearman's rho) ≠ 0

As displayed in Figure A.3.2, H0 cannot be rejected on any reasonable signifance level since sig. (2-talied) equals 37.1% for the Weighted portfolio, 74.2% for the Equal portfolio and 77.6% for the High-end brands portfolio. Thereby we confirm our findings from the graphical test that no portfolio exhibits heteroscedasticity.

Spearman's Rank Correlation Test*		**Unstandardized Predicted Value**
Abs_RES_W	Correlation Coefficient	0.098
	Sig. (2-tailed)	0.371
Abs_RES_E	Correlation Coefficient	0.023
	Sig. (2-tailed)	0.832
Abs_RES_H	Correlation Coefficient	0.031
	Sig. (2-tailed)	0.776

**N = 86*

Figure A.3.2 Results from a Spearman Rank Correlation Test. The table displays that we cannot reject that the residuals are homoscedastic.

[19] This test was proposed by Edlund (1997 p.104-105).

A.3.2 Autocorrelation

If the residuals are correlated with one another the data is said to exhibit autocorrelation. Since the residuals represent all factors (independent variables) that influence the dependent variable besides the ones we have modeled, in a time-series data, many of the residuals tend to behave similar to one another over several time-periods (Newbold 2007 p.569). If autocorrelation exists, *"the estimated standard errors for the coefficients are biased"* (Newbold 2007 p.569).

Autocorrelation can be detected graphically by plotting the unstandardized residuals versus a lagged version of these residuals (Edlund 1997 p.123). If the residuals are uncorrelated the plots should be evenly distributed in the four squares of the chart. In Figure A.3.3 we have plotted this for all three portfolios and we see no tendencies of autocorrelation in any portfolio.

Weighted Portfolio **Equal Portfolio** **High-End Brands Portfolio**

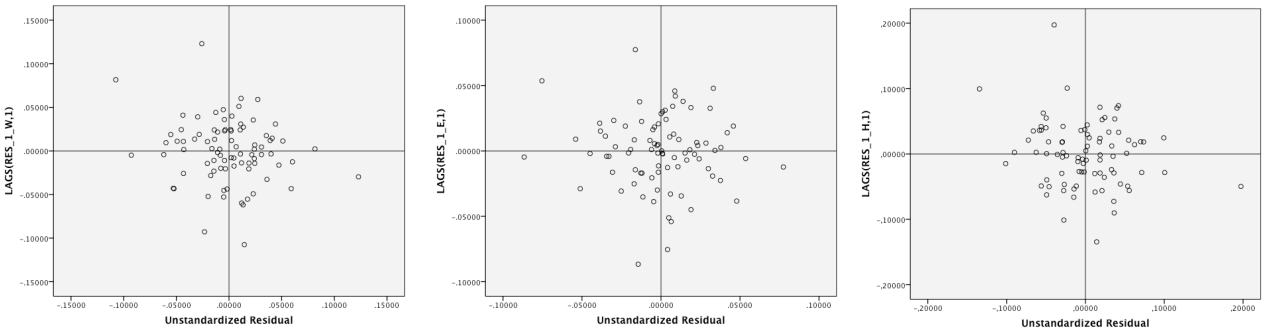


Figure A.3.3 Graph plotting the unstandardized residuals versus a lagged version of these residuals. For each portfolio, the plots are evenly distributed in the four squares of the chart and thus do not exhibit autocorrelation.

According to Newbold (2007 p.571) the test that is most commonly used for detecting autocorrelation is the Durbin-Watson test. The Durbin-Watson *d*-statistic tests the correlation between the unstandardized residuals and their lagged values. The results from this test is displayed in Figure A.3.4.

In performing the test we form the following hypothesis:

H0: The residuals are not autocorrelated in which case $\varrho=0$

H1: The residuals are positively autocorrelated in which case $\varrho>0$

Portfolio	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
Weighted Portfolio	0.822*	0.676	0.66	0.037	2.312
Equal Portfolio	0.859*	0.739	0.726	0.028	2.121
High End Brands Portfolio	0.769*	0.591	0.571	0.050	2.362

**Predictors: (Constant), WML, SMB, RMRF, HML*
***Dependent Variable: RIRF*

Figure A.3.4. Table displaying the Durbin-Watson d-statistic for the Weighted, Equal and High-end brands portfolio.

The decision rule states that we must reject H0 if $d < d_L$ and likewise we must accept it if $d > d_U$ (Newbold 2007 p.572). We obtain the critical values of d_L and d_U from Table 12 "Cutoff Points for the Distribution of the Durbin-Watson Test Statistic" (Newbold 2007 p. 877) by considering the number of observations (86), the number of explanatory variables (4) and selecting an appropriate alpha (1%). This results in a d_L of approximately 1.41 and a d_U of approximately 1.60. Thus we reject H0 if $d < 1.41$ and accept H0 if $d > 1.60$. Conclusively, for all three portfolios we cannot reject H0 but we can accept it. Thus, there is no autocorrelation.

A.3.3 Multicollinearity

If two or more explanatory variables are strongly correlated it is hard to identify their separate effect on the dependent variable (Edlund 1997 p.84). Variables suffering from multicollinearity in a multiple regression might therefore receive wrong coefficients and risks being determined as not significantly different from zero.

According to Edlund (1997 p.84) there are several ways to determine whether multicollinearity is present or not. In general, an R Square above 0.8 and none or few significant independent variables indicates multicollinearity. Since all three portfolios yields an R Square below 0.8 it should not to be a problem for us. But even so, multicollinearity may be present which is why we also look at the absolute value of the correlation between our explanatory variables where single correlations above 0.8 and/or many correlations greater than 0.5 is indicative of multicollinearity (Edlund 1997 p.86). As shown in Figure A.3.5 this is not the case for our explanatory variables.

Pearson Correlation		RMRF	SMB	HML	WML
Weighted Portfolio	RMRF	1	0.059	0.591	-0.426
	SMB	0.059	1	-0.05	-0.058
	HML	0.591	-0.05	1	-0.501
	WML	-0.426	-0.058	-0.501	1
Equal Portfolio	RMRF	1	0.059	0.591	-0.426
	SMB	0.059	1	-0.05	-0.058
	HML	0.591	-0.05	1	-0.501
	WML	-0.426	-0.058	-0.501	1
High End Brands Portfolio	RMRF	1	0.059	0.591	-0.426
	SMB	0.059	1	-0.05	-0.058
	HML	0.591	-0.05	1	-0.501
	WML	-0.426	-0.058	-0.501	1

Figure A.3.5 The table displays the correlation between our explanatory variables. Since no single correlation is greater than 0.8 and only few are greater than 0.5 this indicates that multicollinearity is not present in our model.

Edlund (1997 p.86) further recommends to look at partial correlation coefficients, tolerance values[20] and variance inflation factors (VIF) to determine whether multicollinearity is present or not and if so the severity of it. The results from these tests are presented in Figure A.3.6.

Partial Correlation:

If R Square is very high while the partial correlations are low it indicates that the explanatory variables are inter-correlated and thus multicollinearity may be present (Edlund 1997 p.87). However, since we do not have very high R Square values in combination with low partial correlations this ought not to be a problem.

Tolerance Values and VIF:

VIF is defined as 1/Tolerance. As a rule of thumb, a VIF > 10 indicate a strong multicollinearity (Edlund 1997 p.88). Since every VIF we obtain is far below 10, we have further evidence for a data free of multicollinearity.

[20] A tolerance value measures how much of the variance in an explanatory variable that is unique (Edlund 1997).

Model		Unstandardized Coefficients		Correlations			Collinearity Statistics	
		B	Std. Error	Zero-order	Partial	Part	Tolerance	VIF
Weighted Portfolio	(Constant)	0.007	0.004					
	RMRF	0.705	0.079	0.811	0.705	0.565	0.622	1.608
	SMB	-0.115	0.201	0.004	-0.063	-0.036	0.979	1.021
	HML	0.327	0.246	0.574	0.146	0.084	0.566	1.767
	WML	-0.104	0.105	-0.432	-0.109	-0.062	0.719	1.391
Equal Portfolio	(Constant)	0.007	0.003					
	RMRF	0.624	0.060	0.841	0.755	0.588	0.622	1.608
	SMB	-0.291	0.153	-0.065	-0.206	-0.108	0.979	1.021
	HML	0.269	0.188	0.598	0.157	0.081	0.566	1.767
	WML	-0.106	0.080	-0.453	-0.144	-0.075	0.719	1.391
High End Brands Portfolio	(Constant)	0.010	0.006					
	RMRF	0.851	0.109	0.764	0.655	0.555	0.622	1.608
	SMB	0.002	0.277	0.042	0.001	0.000	0.979	1.021
	HML	0.225	0.339	0.506	0.073	0.047	0.566	1.767
	WML	-0.097	0.145	-0.387	-0.074	-0.047	0.719	1.391

Figure A.3.6 Table displays partial correlations, tolerance values and VIF for the explanatory variables.

As a final test for multicollinearity we calculated the Condition Index (CI) for each of our explanatory variables. According to Edlund (1997 p.89), if the CI is between 10 & 30 the multicollinearity is considered moderate to strong and if CI > 30 it is serious. Since the biggest CI we obtain is 2.287 we do not find any evidence for multicollinearity.

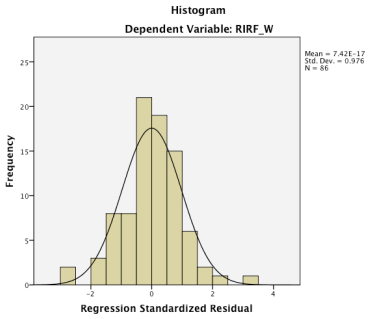
The combined results from all tests strongly indicate that the data is free from multicollinearity.

A.3.4 Normal Distribution of the Data

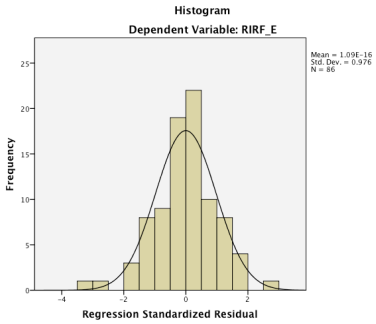
In determining how the model fits the data and the underlying assumptions of a regression model, Newbold (2007 p.523) recommends that an analysis be performed with respect to the residuals. Given that our sample size is greater than 25 we can assume a normal distribution of the data (Newbold 2007, p. 244-248) but nonetheless we will perform a graphical analyses to verify it.

To determine weather the residuals are normally distributed or not, it is useful to construct a histogram where the distribution of the residuals can be compared to a normal distribution curve whose mean and standard deviation is adjusted to that of the residuals (Edlund 1997 p.143). We perform this graphical analysis in Figure A.3.7 and the results are suggestive of a normal distribution.

Weighted Portfolio



Equal Portfolio



High-End Brands Portfolio

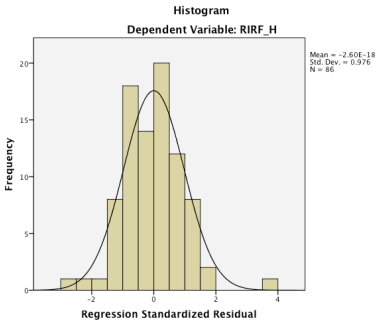


Figure A.3.7 Histogram of the residuals' distribution. The bars represent our residuals and the curve displays a normal distribution given the residuals mean and standard deviation.