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Master Degree Project in Finance

Recognizing Intangible Assets

-A study about employee satisfaction and stock returns

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Abstract

Valuating intangible assets is an art and making sure that they are correctly valued is crucial for the valuation process for any investor. This is of increasing importance, because companies today have a large part of their value attributed to intangible assets. This thesis will examine this difficulty and more specifically the intangible asset, employee satisfaction.

The portfolio created and analysed in this thesis consists of companies on a list created by the institution A Great Place to Work. Companies on this list have high levels of employee satisfaction.

This research shows that investors choosing to invest in a portfolio of companies where the employees show high levels of employee satisfaction earn significantly higher returns in the long run than predicted by the Capital Asset Pricing Model and the Market Model.

Acknowledgements

A great contributor to this research has been the supervisor Martin Holmen with his commitment and excellent guidance. He has taken the time to help constructing a purpose for this study that hopefully can make a contribution to the financial field of academics. The software's provided by Gothenburg University have also been of great help, providing with Bloomberg and statistical software.

A great inspiration for this thesis has also been the American researcher Alex Edmans who have done research within the area on the US market. His work on intangibles in the US was the inspiration to conduct similar study on the European market.

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1. Introduction

This research is conducted to examine whether investors can accurately recognize the value of intangible assets in the returns of the stock. Having good employee employer relations can be viewed as an intangible asset (Brennan & Cornell, 2000). All of the examined companies come from the annual list created by the Great Place to Work institute. Where the institute rank companies by their level of job satisfaction that their employees experience. Thus a portfolio consisting of the top ranked European companies will be formed. The main focus is to find whether investors accurately value these portfolios or if they are overvalued or undervalued over time. This should not be the case since stock prices should reflect all public information (Malkiel, 2003). There is also a question of causality, one could easily argue that a firm that performs well will have more satisfied employees, Schneider et al (2003) for instance found that return on assets and earnings per share predicts employee satisfaction. This is one of the main reasons for considering stock returns instead of profits or other profitability ratios. Since the stock price is affected by the judgment of the investors directly.

Great inspiration for the study was the research conducted by Alex Edmans (2011). He found that on the US market companies with high level of employee satisfaction tend to generate higher returns than expected in the long run. These findings are intriguing and it is interesting to see if the same results can be found on the European market. Or if investors in this market somehow more accurately value this information in the stock price. Information in this case is the level of employee satisfaction.

This topic is interesting to study due to the fact that the result should show that intangible assets, in this case employee satisfaction, should be fully incorporated in the stock price. And finding a deviation from this means that European investors does not correctly value intangibles. Another aspect that makes this interesting is the increasing importance of intangible assets. Eskildsen et al (2003) shows that in 1978 78% of the market value of a company comprised of

tangible assets, while in 2001 only 28%. Today 90% of the value of companies such as Microsoft can be attributed to intangible assets (Edvinsson, 2002).

This approach can be easily be distinguished from previous research since there seems to be limited amounts in this specific area and geographically research seems absent. Hopefully this inspires more people to look into the area because it seems like there is more room for exploration. Due to the lack of previous research this thesis has a broader focus on the topic and in the future it might be possible to break it down and find a more clear explanation to the phenomena at hand.

The US and European stock market are fairly similar when it comes to how trading is conducted and regulated. Therefore the information reflected in stock price should have the same effect. In orders words one can expect that results should be coherent to the ones of Edmans (2011) did in his research. Also Scheuth (2003) finds the mutual funds that has a socially responsible investing (SRI) strategy, generally performs better than its peers. The results will show if having a portfolio consisting of companies with high employee satisfaction can beat the market. This will indicate if intangible assets have fully been incorporated in the stock price. Although the similarities between the financial markets are evident, there are significant differences in the labour market characteristics. If this affect the result will be interesting to note.

1.1. Contribution

The Purpose is to shed light over an area that somehow seam to be forgotten at times. So the contribution is to make sure that intangibles receives the acknowledgement that they deserve at least to the extent possible. No matter what the outcomes are there are many researcher stating that intangibles are hard to work with but no matter what they should not be forgotten.

1.2. Research question

Our research question is does European equity markets correctly value the effect of employee satisfaction over time?

2. Background

2.1. Intangible Assets

Tangible assets are measurable and in general easier to valuate in comparison with an intangible one. Intangible asset are not in physical form. Known examples of intangible assets are copyrights and trademarks. In this paper the intangible asset is defined as the satisfaction that employees feel for working for a particular company. When it comes to the accounting aspect of intangible assets its importance has gradually increased in later years. A lot of this can be attributed to the increasing acquisition wave in which companies has bought other companies in the belief that their intangible assets will increase the total value of the company (Libby & Short, 2011). Edvinsson (2002) also recognizes the importance of intangible assets, he exemplifies this with the company Microsoft, where 90% of the market capitalization of Microsoft could be attributed to intangible assets. Sharma (2012) also shares the same view as he states that two-thirds of the global market value can be attributed intangible assets. In addition to this intangible assets are regarded as critical drivers for knowledge creation. This in turn implies that intangible assets are vital drivers for economic growth in general (Kramer, Marinelli, Iammarino, & Revilla Diez, 2011). From these authors the importance of intangible assets cannot be underestimated in the valuation of companies.

2.2. Efficient Market Hypothesis

The basics behind the efficient market hypothesis (EMH), from a theoretical point are that it is or should be impossible to beat the market when investing without taking on extra risk. This is because stock prices reflect all available information in their value due to the markets efficiency (Fama & French, 1992).

A “random walk” is a classical term used in financial literature to describe a price series where all where all subsequent prices change represent random outcomes from previous prices. And the EMH is associated with the theories of a “random walk” and to break it down easily the main idea is that the information flow is unconstrained and the information is immediately reflected in the stock price. So tomorrows price change is only affected by the information of tomorrow and not

dependent on the information available today. Information is random and therefore the prices are also random but should fully reflect the available information on the market (Malkiel, 2003). This brings us down to the reasoning for this thesis. If the market at hand fully represents the prices on should not find any stocks that do not represent the available information.

According to the EMH it should be impossible to outperform the market through selecting stocks or companies, in this case companies form the Best Large companies, since all stocks reflect the fair price. The only way to beat the market is to choose riskier stocks in order to receive higher payoff. The stocks in this research are not considered riskier or undervalued.

3. Literature Review

3.1. Edmans 2011 and 2012

Edmans have written two research papers on the subject with different approaches, the approach of 2011 was finance and in 2012 he integrated more management theories. The notion that employee satisfaction should create returns that are higher than of companies with low employee satisfaction seems compelling. Edmans (2011) treats the level of employee satisfaction as an intangible asset and tries to find a relationship between the level of employee satisfaction and the return on the companies their equity. To find an applicable sample of companies with high level of employee satisfaction he uses the list published by the Great Place to Work institute. What he finds is that companies with higher levels of employee satisfaction generate superior returns in the long run. His conclusion is that the market fails to include the intangible assets into its valuation of the companies. This is also true even when controls are made for company characteristics.

The concept of employee satisfaction is widely known, as it is in this case, its not taken into account by the investors. This provides motivation for the morally appealing idea that social responsible investing can generate returns that are higher than the markets expect, thus making it an attractive investment strategy.

Edmans (2012) further develops this analysis and states that these findings have three main implications. First, employee satisfaction causes stringer corporate performance. Second, CSR can improve stock returns. Third, the market is slow to fully value the effects of intangible assets. Instead they are not fully incorporated into the valuation until they have generated tangible assets such as earnings announcements visible as tangible assets. Management research analysed by Edmans (2012) show that companies with high levels of employee satisfaction provides returns that is over what could be expected. This should motivate companies to invest in employee satisfaction and subsequently the returns of the companies share should increase. However this is not so simple in practice. First, to achieve higher levels of employee satisfaction the management of the company has to make a change towards an improvement. There will probably not be an immediate effect because implementation takes time to show the effects. However this is not the only obstacle to improvement in employee satisfaction. Companies do not start from scratch companies already have a culture and to change it can take time and a lot of resources.

3.2. Other Research

Fulmer et al (2006) provides an insights to the notion that company performance and employee satisfaction are linked. They use the same list of companies as Edmans and shows that not only the return of the share of the company is affected, but in addition also accounting performance measures such as returns on assets are higher than its peers.

However, not everyone has a pure positive view of actions that improve the level of satisfaction for the employees. Abowd (1989) shows that announcements of wage increase have a negative effect on the market capitalization of companies. Looking from an investor point this is not that far fetched. If a company simple announces that it will increase its expenses without giving enough reason for it, this could be seen as if the company will increase its expenses in the long run. As Abowd (1989) states shareholders do not expected the increase in wage to result in an equal increase in productivity, thus the expected future cash flow to shareholders decreases.

Although simply stating that the only way to generate employee satisfaction is through delivering wage increases or higher pay than competitors is to simplify what drives employee satisfaction. Other variables should be incorporated into the equation when trying to make judgment of what drives employee satisfaction and company value. One of these variables that should be acknowledged is the corporate governance in companies. Another important variable is the level of employee influence in the boardrooms of companies. Gorton & Schmid (2004) look on the characteristics of listed companies in Germany. Germany together with most other European markets are interesting to study since employees in their domestic companies have legally allocated control rights to the supervisory board, that is a board of nonexecutive directors. Their role is to supervise the executive board, and to reject or approve decisions made by the executive board. They compare companies that fill only one third of the seats with employees on the supervisory board with companies that have equal representation of employees and shareholders. Their research shows that German companies that have equal representation usually trade on a 31% discount compared with companies with less employee representation. Similarities to the German market can be found in more countries across Europe and one of them being Sweden.

Thus, previous research suggest that the equity of a company that have not taken action for improving the working conditions for its employees do not generate higher than expected returns on its shares. Although as will be shown now there are some that provides motivation that this should be the case. Barney (1986) motivates that the company culture of a company can be a source for superior financial performance. Company culture can be difficult to define, thus hard to replicate for some other companies and then the culture has the potential of generating superior financial performance over time.

In addition to this Mitchell, Holtom, Lee, & Erez (2001) find that there is a negative relationship between the employee turnover of the company and the level of employees satisfaction i.e. the ability of the company to hire new staff as well as keeping the key employees of the company increases.

4. Data Sources

4.1. Great Place to Work

The companies in the portfolio all come from the lists and rating made the Great Place to Work Institute, which is a global research, consulting and training company and have the mission to help out organizations to identify, create and maintain their positions as great employers all over the globe. Their customer base is diverse and covers 45 countries in 6 continents. The clientele consists of companies who strive to maintain their position as the provider of the best working environment available in the chosen country (greatplacetowork.net, 2013). In table 10 in the appendix, one can see from which countries the companies originates from, portfolio-by-portfolio.

The process in were the companies are ranked by the institute includes both interviews and surveys. This process could be accused of being biased, despite this it is arguably the best ranking of companies with high levels of job satisfaction. Therefor it is the best tool available for choosing which companies to include in our portfolios.

The reasoning behind the choice of the ranking and list from this institution is because the cover a larger part of Europe than other institutes and also they have enough historical data to provide big enough sample size. The stock-returns where collected from Bloomberg.

4.2. Portfolio

In order to assess the equity markets ability to adequately value intangible assets, or in this case their ability to fully incorporate the effect of employee satisfaction. The portfolio is constructed of companies that have been listed on the Best Large companies to work for in Europe. The list is published yearly by the Great Place to Work Institute.

In order to be eligible to participate on the list companies have to apply to the institute, and then participate in a two-part evaluation. This first part of the evaluation is an anonymous survey passed out to the employees of the company. Followed by a culture and management audit is conducted by the institute (Great

Place to Work Institute). The companies used in this paper are published on the "Best large companies in Europe". The summary statistics of lists can be seen in table 1

Summary Statistics

Summary Statistics The second column is the number of companies that are included in the portfolio, third column represents the number of companies added from the previous year and the fourth column is the number of companies dropped from the previous year

Year of list	# Companies in Portfolio	Added	Dropped
2003	15		
2004	14	6	7
2005	19	6	1
2006	15	2	6
2007	13	1	3
2008	8	3	8
2009	8	3	3
2010	10	5	3
2011	10	4	4
2012	6	0	4

Table 1

4.3. Risk Free rates

When choosing the risk free rate for the Euro zone both German Risk Free rate and European was considered. The German risk free interest rate is preferred due the current financial situation in Europe for countries within the euro zone. For the remaining countries not included in the EMU the native five and ten year government bonds were used as risk-free rates. Five and ten year government bonds are selected since they match the duration of the investment horizon. This will make the government bonds free of reinvestment risk, which is one of the criterions set up by Damodaran (2012).

4.4. Index

The last piece of the puzzle was to find an appropriate benchmark index. Since the companies come from different countries, data from the companies native major stock indices have used as benchmarks.

5. Theory

5.1. CAPM

The basic idea behind the capital asset pricing model (CAPM) is that investor needs to be compensated for the risk taken in investing. It was developed by Sharpe (1964), Lintner (1965) and Mossin (1966) (Mossin, 1966). CAPM states that the expected return of a portfolio or security should equal to rate on a risk-free security with an addition of a risk premium. And if the expected return do not beat or meet the required return the investment should not be undertaken. The model is stated as in equation 1:

$$E(R_i) = R_f - \beta_{iM}\left[E(R_M) - R_f\right] \quad (1)$$

Where:

$E(R_i)$ = Is the expected return of the portfolio or security

R_f = Is the risk free rate of return.

β_{iM} = Is the sensitivity between the market and the security or portfolio.

$E(R_M)$ = Is the expected return of the market.

R_f is the risk-free rate that represents the time value of money which is the return an investor receives for placing funds in the investment over a period of time. Secondly the model represents risk together with calculus of the amount of compensation required by the investor to take on additional risk. The results of the CAPM model can then be plotted on the security market line for all the different betas (Sharpe, 2007)

5.2. Jensens Alpha

Jensen (1968) addresses problems with the evaluation of fund manager's ability to create portfolios of securities or assets that will give returns that are higher than expected at given risk level.

The foundation of the model is the Capital Asset Pricing Model is stated as in equation 2:

$$\tilde{R}_{jt} = R_{Ft} + \beta_j\left(\tilde{R}_{Mt} - \tilde{R}_{Ft}\right) + \tilde{e}_{jt}) \quad (2)$$

Which states that the return of portfolio j is equal to a linear function of the market risk premium plus the risk free rate and the error term. The error term in this case has an expected value that is equal to zero. When running the regression one will need to subtract the risk free rate from both the RHS and the LHS giving equation 3:

$$\tilde{R}_{jt} - R_{Ft} = \beta_j\left(\tilde{R}_{Mt} - \tilde{R}_{Ft}\right) + \tilde{e}_{jt} \quad (3)$$

In addition from original CAPM model Jensen recognizes that there is a possibility that there can be additional return generated from the fact that a portfolio manager can successfully create returns that are different than what is expected by the CAPM framework. What he relaxes is the assumption that the regression line must not pass through the origin, this change in assumption will make the equation look like equation 4:

$$\tilde{R}_{jt} - R_{Ft} = \alpha_j + \beta_j\left(\tilde{R}_{Mt} - \tilde{R}_{Ft}\right) + \tilde{u}_{jt} \quad (4)$$

The new error term $\tilde{u}_{jt}$ has an expected value of zero, it is also expected the error term has no presence of autocorrelation (Jensen, 1968). If the error term would have been serially correlated an investor could have earned significantly higher returns by taking information obtained in the previous period. In an efficient market this possibility would be eliminated according to the weak form conditions of the efficient market hypothesis (Bodie, Kane, & Marcus, 2009).

This assumption makes it possible to rewrite the formula without the error term $\tilde{u}_{jt}$, as can be seen equation 5.

$$\tilde{R}_{jt} - R_{Ft} = \alpha_j + \beta_j\left(\tilde{R}_{Mt} - \tilde{R}_{Ft}\right) \quad (5)$$

Now moving the $\beta_j(\tilde{R}_{Mt} - \tilde{R}_{Ft})$ to the left hand side gives equation 6:

$$\tilde{R}_{jt} - R_{Ft} - \beta_j(\tilde{R}_{Mt} - \tilde{R}_{Ft}) = \alpha_j \quad (6)$$

This equation should according to the original CAPM be equal to zero. Jensen provides an extension to it, and raises the question that the CAPM do not explain all returns that can be given by the share of a company.

The explanatory power of Jensens Alpha does not stop with the conclusion whether the CAPM explains all of the return given by a portfolio. In this thesis the focus will not only be if the alpha is equal to zero or not, but also on what sign the constant holds. Much value can be attributed to the sign. A positive alpha implies that the CAPM underestimate the return that the portfolio gives. A negative alpha implies that the CAPM overestimates the actual return provided by the portfolio.

5.3. Market Model

All the portfolios created have also been analysed trough the Market Model (MM) framework. The MM is a model similar to the CAPM although. The significant difference being that instead of the return of the individual asset or portfolio is a linear relationship with the risk premium of the market. The MM states that it is a linear relationship with the return of the market portfolio. This is illustrated in equation 7:

$$R_{jt} = \alpha_j + \beta_j R_M + \varepsilon_j \quad (7)$$

Important to note here is that as with the CAPM there is assumed to be no problems with autocorrelation, and as in the CAPM the constant is expected to be insignificant. If not, the return of the portfolio is not solely explained by the linear relationship but with the addition of a premium.

6. Methodology

After obtaining the list of best large companies to work for in Europe, companies that were not listed on any exchange were removed. In addition to this companies that are listed on a European exchange but are clearly native to some non-European country were removed, e.g. Google was listed during several years but subsequently removed.

6.1. Portfolio

In accordance with the procedure used by Edmans (2011), the portfolios are formed the month after the publication of the list. This is to ensure that the information is fully incorporated by the equity markets. Also in the style of Edmans (2011) a number of different portfolios was created. For the analysis creation of both evenly and value weighted portfolios was necessary.

Equation 8 was used to create an evenly weighted portfolio:

$$r_{portfolio} = \left(\frac{1}{N} * r_{comp\,1}\right) + \left(\frac{1}{N} * r_{comp\,2}\right) + \cdots + \left(\frac{1}{N} * r_{comp\,n}\right) \quad (8)$$

Where:

r = The monthly return of the company share or the portfolio.

N = The total number of companies included in the portfolio.

A value-weighted portfolio was created using equation 9.

$$r_{portfolio} = \left(\frac{MC_{comp\,1}}{Tot.MC} * r_{comp\,1}\right) + \left(\frac{MC_{comp\,2}}{Tot.MC} * r_{comp\,2}\right) + \cdots + \left(\frac{MC_{comp\,n}}{Tot.MC} * r_{comp\,n}\right) \quad (9)$$

Where:

r = The monthly return of the company share or the portfolio.

MC = Market Capitalization of a company included in the portfolio

$Tot.MC$ =Total market capitalization of all companies included in the portfolio

The portfolios where created in the same manner that of Edmans (2011). These two different types of weighted portfolios where created for the analysis. In order to ensure that a reference sample existed, portfolios of companies that have been dropped from the list were created.

6.2. Index

One of the major issues when comparing corporations from different countries comes down to the appropriate choice on an benchmark index. In order to get the most appropriate benchmark a weighted index was created consisting of the domestic index of each corporation and using their market capitalization as weight. This is illustrated by equation 10:

$$Index_{port.} = \left(\left(\frac{\sum MC_{Comp.\ country\ x}}{Tot.MC}\right) * r_{\square ndex\ from\ country\ x}\right) + .. + \left(\left(\frac{\sum MC_{Comp.country\ n}}{Tot.MC}\right) * r_{index\ from\ country\ n}\right) \quad (10)$$

Where:

$Index_{Portfolio}$ = The monthly return of the benchmark portfolio.

$MC_{Comp.country\ x}$ = The total market capitalization of the companies generating from country x

$Tot.MC$ = The total market cap of all the companies in the portfolio

6.3. The Risk Free Rate

In order to ensure that the resulting alpha values found in the model were not only a result of using solely the risk free rate of Germany. Resulted in creating value weighted bond yields from the five and ten year government bonds for the non EMU countries according equation 11:

$$Rf = \left(\left(\frac{\sum MC_{Comp.\ country\ x}}{Tot.MC}\right) * Rf_{Country\ x}\right) + .. + \left(\left(\frac{\sum MC_{Comp.country\ n}}{Tot.MC}\right) * Rf_{country\ n}\right) \quad (11)$$

Rf = The risk free rate weighted with company value.

$MC_{Comp.country\ x}$ = The total market capitalization of the companies generating from country x

$Tot.MC$ = The total market cap of all the companies in the portfolio

7. Results and Analysis

In this chapter the results generated from the performed regressions, starting with the results from the CAPM continuing with the results from the MM will be examined.

This will be done in a number of different ways. First consider a portfolio created and updated one month after the publication of a new list. Consider this portfolio with three different investments horizons firstly a portfolio during the period 2003-2013. Following the portfolio will be divided into two five-year holding periods, the periods 2003-2008 and 2008-2013. Two different individual lists will also be examined, the list published in 2003 and the list published in 2008. Both of these lists will then be examined after a five-year holding period.

In order to ensure that the potential alpha values cannot simply be attributed to the nature of the companies, portfolios consisting of the companies that have been dropped from the list have also been created. These portfolios have been put under the same analysis, as the portfolios comprised of companies included on the list. This is to compare our results with a reference sample. Important to note is that this does not necessary mean that they are not as good as the year before but only that some other companies performed better that particular year.

7.1. CAPM Framework

Starting of by looking on how the portfolios perform when CAPM is applied on them. The first results are considering the time period 2003-2013 as can be seen in table 2. For the sake of robustness all the calculations was also done with Euribor as the risk free rate. This did not change the results thus only regressions with the German risk free rate as proxy for the Euro zone.

Regression output for the period 2003-2013

In Table 2 monthly regressions of return to a portfolio of The Best Large Companies to work for in Europe between the years 2003-2012. ewpI, ewpII, vwpI and vwpII are regressions based on the CAPM. That is that the risk free rate has been deducted from them. From pI and vwpI the yield German gov bond have been deducted, on ewpII and ewvwpII the value weighted risk free rate have been deducted. In pI and PII the portfolios are evenly weighted, in vwpI and vwpII the portfolio are value weighted The portfolios have been regressed against different risk premiums, rp10 being the risk premium calculated with the risk free rate of Germany wrp is the risk premium with the value weighted risk free rate of return. Index is the benchmark index in the market model framework. α is the constant in each model. The table shows the Beta coefficient and the stars the level of significance.

	ewpI	ewpII	vwpI	vwpII
rp10	0.926***		0.726***	
wrp10		0.928***		0.992***
α	0.019***	0.019***	0.019***	0.015***

*: Significant at the 10% level. **: Significant at the 5% level. ***: Significant at the 1% level.

Table 2

7.1.1. 2003-2013

Table 2 shows the results for portfolios that where formed based on the list published in 2003, after which the portfolio was updated as a new list was published. The results are similar to the findings of Edmans (2011) that by creating a portfolio of companies on the Best Place to work list generates significant Alphas over time. As can be seen in table 2 no matter if the value weighted portfolio or an evenly weighted, all alphas are significant at the 1% level. Not only are they significant, they are al positive. This tells us that the equity markets undervalue them over time.

7.1.2. 2003-2008

Now the sample period will be divided into two halves, starting with the period 2003-2008 which can be seen in the table below.

Regression output for the period 2003-2008

In table 3 monthly regressions of return to a portfolio of The Best Large Companies to work for in Europe btween the years 2003-2008. EwpI, ewpII, vwpI and vwpII are regressions based on the CAPM. That is that the risk free rate has been deducted from them. From ewpI and vwpI the yield german gov bond have been deducted, on pII and vwpII the value weighted risk free rate have been deducted. In ewpI and ewpII the portfolios are evenly weighted, in vwpI and vwpII the portfolio are value weighted. The portfolios have been regressed against different risk premiums, rp10 being the risk premium calculated with the risk free rate of Germany wrp is the risk premium with the value weighted risk free rate of return. Index is the benchmark index in the market model framework. α is the constant in each model. The table shows the Beta coefficient and the stars the level of significance.

	ewpI	ewpII	vwpI	vwpII
rp5	0.928***		0.728***	
wrp5		0.931***		0.730***
α	0.019***	0.019***	0.016**	0.016**

*: Significant at the 10% level. **: Significant at the 5% level. ***: Significant at the 1% level.

Table 3

Table 3 shows the regression output for the period 2003-2008, the portfolios are reformed one month after the publication of a new list. Both evenly weighted portfolios have alphas that are positive and significant at the 1% level. Looking at the value weighted portfolios these are also positive and significant, but this time at the 5% level. Still the findings are in accordance with the findings of Edmans (2011). None of the beta values shows any signs of having values that incorrect as the value weighted portfolio showed in table 3.

7.1.3. 2008-2013

In table 4 the output for the second part of the sample periods 2008-2013 can be viewed.

Regression output for the period 2008-2013

In table 4 monthly regressions of return to a portfolio of The Best Large Companies to work for in Europe btween the years 2008-2013. EwpI, ewpII, vwpI and vwpII are regressions based on the CAPM. That is that the risk free rate has been deducted from them. From pI and vwpI the yield german gov bond have been deducted, on ewpII and vwpII the value weighted risk free rate have been deducted. In ewpI and ewpII the portfolios are evenly weighted, in vwpI and vwpII the portfolio are value weighted. The portfolios have been regressed against different risk premiums, rp10 being the risk premium calculated with the risk free rate of Germany wrp is the risk premium with the value weighted risk free rate of return. Index is the benchmark index in the market model framework. α is the constant in each model. The table shows the Beta coefficient and the stars the level of significance.

	ewpI	ewpII	vwpI	vwpII
rp5	1.071***		0.617***	
wrp5		1.072***		0.617***
index				
α	0.036***	0.036***	0.010	0.010

*: Significant at the 10% level. **: Significant at the 5% level. ***: Significant at the 1% level.

Table 4

Table 4 shows the regression output for the second half of the sample period. This time certain different findings can be seen compared to the results of previous five years and for the entire sample period.

The alphas of the evenly weighted portfolios follow the same pattern as the previously, that is being positive and significant at the 1% level. However the alphas of the value-weighted portfolios do not follow the same pattern. They are still positive but they are insignificant, thus it cannot be said that they are different from zero with statistical certainty. The implication of this is that portfolios with the investment strategy to give a more weight to large companies are more accurately valued using the CAPM.

7.1.4. Portfolios Consisting of Companies Dropped From the List

To examine whether the positive and significant alpha values can be attributed to the companies being included on the list, the reference sample will now be considered. The portfolios in this regression have ben formed with companies

that used to be on the list but subsequently have lost their place on it. The output can be seen in table 5 on the next page.

Regression output for the portfolios consisting of dropped companies

In table 5 monthly regressions of return to a portfolio of companies that used to be in the The Best Large Companies to work for in Europe between the years 2003-2012. ewpI, ewpII, vwpI and vwpII are regressions based on the CAPM. That is that the risk free rate has been deducted from them. From lpI and lvwpI the yield of the German gov bond has been deducted, on ewpII and ewvwpII the value weighted risk free rate have been deducted. In pI and PII the portfolios are evenly weighted, in lvwpI and lvwpII the portfolio are value weighted. The portfolios have been regressed against different risk premiums, rp10 being the risk premium calculated with the risk free rate of Germany wrp is the risk premium with the value weighted risk free rate of return. All variables with the prefix i means that they have been calculated with a benchmark index that is value weighted on only the dropped companies. Index is the benchmark index in the market model framework. α is the constant in each model. The table shows the Beta coefficient and the stars the level of significance.

	ewpI	ewpII	vwpI	vwpII	iewpI	iewpII	ivwlpI	ivwlpII
rp10	0.784***		0.697***					
wrp10		0.784***		0.697***				
lrp10					0.921***		0.882***	
lwrp10						0.920***		0.881***
α	0.003	0.003	-0.001	-0.001	0.004	0.004	-0.000	-0.000

*: Significant at the 10% level. **: Significant at the 5% level. ***: Significant at the 1% level.

Table 5

As can be seen on table 5 on the previous page, the reference sample displays that all of the portfolios have insignificant alphas. To ensure that our results are robust, they have been weighted in the same manner as the portfolios. The portfolios comprised of companies included on the list. This implies that significant alpha values are generated from being included on the list.

7.1.5. The List of 2003

Below in table 6 you can see the table consisting of portfolios formed with the list of 2003 and held for 5 years until the publication of the list in 2008.

Regression output the list of 2003 held between 2003-2008

In table 6 monthly regressions of return to a portfolio of The Best Large Companies to work for in Europe btween the years 2003-2008. EwpI, ewpII, vwpI and vwpII are regressions based on the CAPM. That is that the risk free rate has been deducted from them. From pI and vwpI the yield german gov bond have been deducted, on pII and vwpII the value weighted risk free rate have been deducted. In ewpI and ewII the portfolios are evenly weighted, in vwpI and vwpII the portfolio are value weighted. The portfolios have been regressed against different risk premiums, rp10 being the risk premium calculated with the risk free rate of Germany wrp is the risk premium with the value weighted risk free rate of return. Index is the benchmark index in the market model framework. α is the constant in each model. The table shows the Beta coefficient and the stars the level of significance.

	ewpI	ewpII	vwpI	vwpII
rp5	0.836***		1.210***	
wrp5		0.836***		0.209
Cons	0.003	0.003	0.094***	0.097***

*: Significant at the 10% level. **: Significant at the 5% level. ***: Significant at the 1% level.

Table 6

The table 6 shows that the result when the portfolio consisting of companies from the list of 2003 and held for five years. It is visible that the results differ from the previous ones. The evenly weighted portfolios do not perform better than can be expected from the CAPM, no matter how the risk free rate is weighted the alpha values are still insignificant. Looking at the value weighted portfolios it can be seen that they generate alpha values that are positive and significant. Thus one can conclude that during the period the value weighted portfolio outperform the evenly weighted. This is different from the results found in table 4. The portfolios that give more weight to large companies are easier to value using CAPM. The difference between the portfolios being that the portfolios used in table 5 is not constantly updated with the publication of a new list. Thus it could be argued

that the larger companies on the list in 2003 makes the portfolio more difficult to value and thus provides significant alphas.

7.1.6. The List of 2008

Now consider the portfolio formed with the list of 2008 and held for five years. This regression output can be seen in the table 7 below.

Regression output for the list of 2008 held between 2008-2013

In table 7 monthly regressions of return to a portfolio of The Best Large Companies to work for in Europe btween the years 2003-2008. EwpI, ewpII, vwpI and vwpII are regressions based on the CAPM. That is that the risk free rate has been deducted from them. From pI and vwpI the yield german gov bond have been deducted, on pII and vwpII the value weighted risk free rate have been deducted. In ewpI and ewpII the portfolios are evenly weighted, in vwpI and vwpII the portfolio are value weighted. The portfolios have been regressed against different risk premiums, rp10 being the risk premium calculated with the risk free rate of Germany wrp is the risk premium with the value weighted risk free rate of return. Index is the benchmark index in the market model framework. α is the constant in each model. The table shows the Beta coefficient and the stars the level of significance.

	ewpI	ewpII	vwpI	vwpII
rp5	1.217***		1.185***	
wrp5		1.217***		1.185***
index				
_cons	0.007	0.007	0.002	0.002

*: Significant at the 10% level. **: Significant at the 5% level. ***: Significant at the 1% level.

Table 7

Examining table xx one can see that when the portfolio consisting of the companies on the list of 2008, it can be see that none of the portfolios performed better than expected with statistical certainty. Looking at table xx one can also see that it does not matter how the portfolios are weighted.

Individual regressions where performed for every list in the same manner, but no consistent result could be found. The lists when held without updating did not performed better than expected.

7.2. CAPM Analysis

The output shows that the portfolios constantly updated and held for ten years provides the most significant alpha values. When held for five years the alpha values of the value-weighted portfolios give inconsistent results. This is also true when investing in a portfolio formed with companies from a list and held for five years without updating it. When using this investment strategy none of the evenly weighted portfolios have significant alphas. However important to note is

that no matter which strategy considered, none of portfolios consisting of companies dropped from the list has significant alpha values, no matter how the portfolio or risk premium is weighted.

7.3. Market Model

Table 8 below shows the regression output of a portfolios consisting of companies from the 2003 list and consequently updated one month after a publication of a new list.

Regression Output for the Market Model

In table 8 the Market Model output is displayed. The portfolios consist of companies included in the Best Large Companies to work for list and is updated as a new list is published. Monthly regressions of the portfolio returns have been regressed against the benchmark index. ew as prefix to mp indicates that the portfolio is equally weighted. vw as prefix indicates that the portfolio is value weighted. The suffix indicates during which period of years the portfolio was regressed. Shown in the table are the Beta values and the stars indicate the level of significance.

	ewmp03-13	vwmp03-13	ewmp03-08	vwmp03-08	ewmp08-13	vwmp08-13
index	0.920***	0.730***	0.920***	0.730***	1.069***	0.615***
cons	0.019***	0.017**	0.019***	0.017**	0.036***	0.010

*: Significant at the 10% level. **: Significant at the 5% level. ***: Significant at the 1% level

Table 8

It is visible that the results here are in line with the findings on the CAPM regime. The portfolios held under the entire sample period of 2003 to 2013 show positive and significant alpha values at the 1% level except the value weighted portfolio that is significant at the 5% level. This tells us that the MM fails to accurately value the portfolios when held during the entire sample period

Considering the divided sample period, the evenly weighted portfolios have positive and significant alphas at the 1% level. This consistency is not shared by the value weighted portfolios, the portfolio held in the period between 03-08 is significant at the 5% level but the portfolio held during the years 08-13 is insignificant. This is in line with the findings of the CAPM framework. This findings strengthen the argument that between 2008-2013 it was easier to value portfolios with greater weight of large companies. As can be seen in table 9 in the appendix portfolios of dropped companies follows the same pattern as with the CAPM with all alphas being insignificant.

7.3.1. Market Model Analysis

Results from the market model are similar to that of the CAPM model when considering the portfolios during a holding time of ten years. During this period the evenly weighted and the value weighted provide significant alphas although this time for different levels of significance. But once again when divided into two sample periods the results for the value-weighted portfolios are inconsistent.

9. Conclusion

Looking at the result one can see that the results tell a similar story as Edmans. It is visible that both CAPM and the MM give significant alphas over a time period of ten years. Meaning that the portfolio is not correctly valued since returns are higher than expected.

Looking at the shorter times periods that have been regressed it is easy to see that the structure of the portfolios, the risk free rate and index do not deliver conclusive results. The shorter time periods are inconclusive in comparison with the longer periods.

An important aspect in order to make this portfolio deliver the abnormal returns was to update the portfolio as soon as new information is published. In this case when the employee satisfaction list was updated. This is confirmed in the regression since in order to have significant alphas over time it is important to update the portfolio when new information is published, this is also a factor that generates significant alphas. Stretching the importance of updating the portfolio is the fact that portfolios consisting of companies of dropped companies generate significant alphas. This is also supported by financial theories on stock markets since a stock is only correctly valued if all available information at the time is fully incorporated.

Results shows that the intangible asset of employee satisfaction is not fully incorporated in the stock prices of the European market over time. Meaning that it is possible to achieve abnormal results holding a portfolio consisting of companies that have incorrectly valued intangible assets. This conclusion only holds for a continuous updated portfolio over time.

Bibliography

Abowd, J. M. (1989, September 1). The Effect of Wage Bargains on the Stock Market Value of the firm. *American Economic Review* , pp. 774-800.

Barney, J. B. (1986, July 1). Organizational Culture: Can it be a source of sustained competititve advantage . *Academy of Management Review* , pp. 656-665.

Bloomberg. (2013). *bloomberg.com*. Retrieved 04 04, 2013 from http://www.bloomberg.com/company/

Bodie, Z., Kane, A., & Marcus, A. J. (2009). The Efficient Market Hypothesis. In *Investments* (Vol. 8, pp. 344-375). New York: McGraw Hill.

Brennan, N., & Cornell, B. (2000). Intellectual Capital: Current Issues and Policy Implications . *Journal of Intellectual Capital , 1* (3), pp. 206-240.

Brooks, C. (2008). *Introductory Econometrics for Finance.* Cambridge: Cambridge University.

Damodaran, A. (2012). Invemstment Valuation. New Jersey: Wiley, John Wiley & Sons, inc.

Edmans, A. (2011, March 30). Does the stock market fully value intangibles? Employee satisfaction and equity prices. *Journal of Financial Economics* , pp. 621-640.

Edmans, A. (2012, November 1). The Link Between Job Satisfaction and Firm Value, With implications for Corporate Social Responsibility . *Academy of Management Perspectives* , pp. 1-19.

Edvinsson, L. (2002). The New Knowledge Economics . *Business Strategy Review , 13* (3), pp. 72-76.

Eskildsen, J., Westlund, A. H., & Kristensen, K. (2003). The Predictive Power of Intangibles . *Measuring Business Excellence , 7*, pp. 46-54.

Eugene Fama, K. F. (1992). The Cross-Section of Expected Stock Returns. *Journal of Finance* , 427-465.

Fulmer, I. S., Barry, G., & Scott, K. S. (2006, December 7). Are the 100 Best Better? An Empirical Investigation of the Relationship Between Being a "Great Place to Work" and Firm Performance. *Personnel Psychology* , pp. 965-993.

Gorton, G., & Schmid, F. A. (2004, September 1). Capital, Labor and the Firm: A Study of German Codetermination. *Journal of the European Association* , pp. 863-905.

Great Place to Work Institute. (n.d.). *www.greatplacetowork.net*. Retrieved April 10, 2013 from http://www.greatplacetowork.net/best-companies/about-applying-to-best-companies-lists/how-youre-evaluated

greatplacetowork.net. (2013). Retrieved 04 04, 2013 from http://www.greatplacetowork.net/

Jensen, M. C. (1968, May). The Performance of Mutual Funds in the Period 1945-1964. *Journal of FInance* , pp. 389-416.

Kramer, J.-P., Marinelli, E., Iammarino, S., & Revilla Diez, J. (2011, September). Intangible assets as drivers of innovation; Empirical evidence on multinational eterprises in German and UK regional systems of innovation. *Technovation , 31* (9), pp. 447-458.

Libby, R., & Short, D. (2011). Reporting and Intepreting Property Plant and Equipment; Natural Resources; and Intangibles. In R. Libby, & D. Short, *Financial Accounting* (Vol. 7, pp. 387-452). McGraw Hill .

Lintner, J. (1965, February). The Valuation of Risk Assets and the Selection of Risky Investments in Stock Portfolios and Capital Budgets . *Review of Economics and Statistics* , pp. 13-25.

Malkiel, B. G. (2003). The Efficient Market Hypothesis and Its Critics. *The Journal of Economic Perspectives* , 59-82.
Melicher, J. C. (2012). *Entrepreneurial Finance.* Mason: South-Western Cengage Learning.
Metz, T. *Black Monday - The Stock Market Catastrophe of October 19, 1987.* Washington, D.C: Beard Books.
Mitchell, T. R., Holtom, B. C., Lee, T. W., & Erez, M. (2001, December 1). Why People Stay: Using job embeddness to predict volountary turnover. *Acadamy of Management Journal* , pp. 1102-1121.
Mossin, J. (1966, October). Equilibrium in Capital Asset Market. *Econometrica* , pp. 768-783.
Schneider, B., Hanges, P. J., Smith, D. B., & Salvaggio, A. N. (2003, October 1). Which Comes First: Employee Attitudes or Organizational Financial and Market Performance. *Journal of Applied Psychology* , pp. 836-851.
Schueth, S. (2003, March). Socially Responsible Investing in the United States . *Journal of Business Etichs* , pp. 189-194.
Sharma, N. (2012). Intangible Assets: A Study of Valuation Methods. *BVIMR Management Edge , 5* (1), pp. 61-69.
Sharpe, W. F. (1964, September). Capital Asset Prices: A Theory of Market Equilibrium Under Conditions of Risk. *Journal of Finance* , pp. 425-442.
Sharpe, W. F. (2007). *Investors and Markets: Portfolio Choices, Asset Prices, and Investment Advice.* Princeton: Princeton University Press.

Appendix 1 – regression output for dropped companies

Regression Output for the Dropped Companies Under the Market Model

In table 9 the Market Model output is displayed. The portfolios consist of companies dropped from the Best Large Companies to work for list and is updated as a new list is published. Monthly regressions of the portfolio returns have been regressed against the benchmark index. Ew as prefix to mp indicates that the portfolio is equally weighted. Vw as prefix indicates that the portfolio is value weighted. The suffix indicates during which period of years the portfolio was regressed. Shown in the table is the Beta values and the stars indicate the level of significance.

	lmp03-13	lvwmp03-13	ilpII03-13	ivwlmp03-13	lmp03-08	lvwmp03-08	limp03-08	vwlimp5
index	0.785***	0.698***			0.785***	0.698***		
ilndex			0.920***	0.883***			0.922***	0.883***
cons	0.004	0.000	0.004	0.000	0.004	0.000	0.004	0.000

*: Significant at the 10% level. **: Significant at the 5% level. ***: Significant at the 1% level

Table 9

Appendix 2 – portfolios and countries

Portfolios and Countries

Table 10 shows which countries that are represented in the portfolios year for year

Year	Countries
2003	Denmark, England, Finland, France, Germany, Greece, Spain, Sweden, Switzerland
2004	Denmark, England, France, Germany, Greece, The Netherlands, Spain
2005	Denmark, England, France, Germany, Greece, The Netherlands, Spain, Sweden, Switzerland
2006	Denmark, England, France, Germany, The Netherlands, Spain, Sweden, Switzerland
2007	Denmark, England, France, Germany, The Netherlands, Spain
2008	England, France, Germany, Italy, The Netherlands, Spain
2009	England, France, Germany, Italy, The Netherlands
2010	Denmark, England, Germany, Italy, The Netherlands, Spain
2011	Denmark, England, Germany, Italy, The Netherlands, Spain, Switzerland
2012	Denmark, England, Finland, Germany, Italy, Switzerland

Table 10