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The Effect of Employee Satisfaction on Stock Returns and Crisis Resilience

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ABSTRACT

This study examines the impact of employee satisfaction on stock returns and crisis resilience, using as companies those listed in the Fortune "Top 100 companies to work for in the US" from 2010 to 2023. Using CRSP and Compustat data, portfolios were constructed and corrected for the Carhart 4 factor and Fama-French 6 factor model. I find that companies with high employee satisfaction exhibit significant strong abnormal excess returns, outperforming their industry matched benchmark by 0.28% monthly or 3.4% annually. However, resilience during the COVID 19 pandemic crisis was not significant across all benchmarks, but I do find evidence of crisis resilience for both weighting methodologies and time period definitions. These results allude to the fact that there is value within employee satisfaction as an intangible asset that contributes to long-term stock performance, suggesting that investment strategies incorporating these intangibles, can be profitable. Limitations include the US-only data, requiring further research on global applicability. This research follows previous literature, by demonstrating the value of investing in employee satisfaction through the substantial returns it makes.

Keywords: Employee satisfaction, Crisis Resilience, Stock Returns.

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CHAPTER 1 Introduction

Every year, Fortune collaborates with Great Places to Work to publish the list "Top 100 companies to work for in the US". This list, also referred to as BCs, shows future employees the best workplaces in the US, which makes it easier for companies to attract new employees. This is important, as businesses are struggling with having enough employees. It also however signals value within companies as employee satisfaction is an intangible asset comparable with brand values. This goes against traditional views, who see employee satisfaction as a mismanagement of company resources. In this paper, we look into the effects of employee satisfaction on multiple economic subjects.

Researchers have been researching the economic value of the list in the past. In research by Edmans (2011), he finds there to be a relation between list inclusion and long-term stock returns drift during the period 1984 until 2009. Boustanifar and Kang (2021) expanded on this research and find similar results, albeit diminished. They also studied the effect of list inclusion on crisis resilience. Comparable to research from Carvahlo and Areal (2012), they find crisis resilience within companies included in the list against crisis during the 1984-2019 period.

However, there are still some grey areas within this field of research. The effect of list inclusion during the period 2010-2023 has not yet been researched independently, only in combination with earlier periods. The effects of list inclusion and crisis resilience against COVID 19 has also not been researched. Therefore, the two questions this research aims to answer is:

Q1: *Does employee satisfaction impact stock returns in the US market from 2010 to 2023*

Q2: Does this portfolio as specified by the Fortune list "top 100 companies to work for in the US" outperform the market during the 2020 covid crisis?

In order to answer these questions, I will use CRSP and Compustat data for the US based companies from the Fortune "Top 100 companies to work for in the US" list during the period March 2010 until December 2023. Portfolios will be formed using two weighting methodologies. After this, we regress the returns, using the Four Factor model by Carhart and the 6 factor Fama and French model, in order to estimate the abnormal excess returns of the portfolio. I also control for the COVID period, in order to test whether these companies are more resilient to crises.

The hypothesized results of this study are as follows. For the period 2010 to 2023, I find abnormal excess returns for the research portfolio. This is due to the fact that investors are not able to effectively price intangibles such as employee satisfaction. In line with previous research on this matter, the authors all find similar results over parts of the research periods. I also find crisis resilience for the companies included in the list, as previous research finds that companies with high investments in human capital, such as employee satisfaction are able to outperform the market during these periods.

In my research, my findings show that the equal-weighted portfolio is able to outperform its benchmarks during the period 2010-2023 and gains significant abnormal excess returns, which are robust for other tests. I also find that portfolios built around drop-offs and original list inclusion are able to outperform the benchmarks. I do not find a significant effect on crisis resilience within the portfolio for all benchmarks and weighting methodologies, however, the portfolios did beat the market during this period for both definitions.

The thesis is organized in the following way. The second chapter contains the theoretical framework, which explains the effect of employee satisfaction on stock returns and resilience of firms with such assets against crises and states the hypotheses. The third chapter explains the data collection and contains summary statistics. The fourth chapter contains the methodology behind this thesis. The fifth chapter discusses the results and link them to the existing literature. The last chapter will conclude the research and will discuss limitations to the research.

CHAPTER 2 Theoretical Framework

The preceding literature on the undervaluation of intangibles, with a focus on employee satisfaction, and crisis resilience of companies with high intangibles such as employee satisfaction, is discussed in the following chapter of the thesis. I will discuss both theory and empirical research. We look into explanations for this undervaluation and resilience and will form multiple hypotheses as a result.

2.1 Employee satisfaction

In the traditional view, such as that of Taylor (1911), shows us that employee satisfaction is a sign of managerial mismanagement, as companies who have high employee satisfaction, overpay or underwork their employees. In these theories, labor is merely a form of input, which must be maximized for profit and minimized in cost. However, more recent theories, such as Akerlof (1982) show us that there is reciprocation between employees and firms. If the firm increases satisfaction of its employee, the employee will return this favor by increasing his effort. Such theories are backed by other people such as Becker (1962) who show that investments into human capital, instead of machines, improve value. Research by Webster and Jensen (2006) state that intangible assets are the only growth of businesses as the amount of tangible assets are fixed.

2.2 Employee satisfaction undervaluation

If the theories of Becker and Akerlof are true, then these anomalies, like most anomalies when described in academic literature (McLean and Pontiff (2016)), must lose their significance in return as the market is more able to accurately price them. However, this is not the case. In research by Edmans (2011), he finds that a value-weighted portfolio built around the Fortune "Top 100 companies to work for in the US" achieves a 4-factor alpha of 3.5% annually over the period 1984 to 2009, using data from CRSP. This alpha resembles the excess returns on this model, which Edmans attributes to the market not being able to correctly price these intangibles. Tang and Lee (2013) find similar results, when focusing on separate industry sectors within the list. Ben-Nasr et al (2018) find there to be a negative relation between employee satisfaction and stock crash risk. Because this research focusses on the pricing of intangible assets such as employee satisfaction, we will look into the explanation of this anomaly.

2.3 Explanations of employee satisfaction undervaluation

Damordan (2009) described intangible assets as invisible value. Sullivan (2000) found that there are few methods which are able to accurately value intangible assets. This could be due to the fact that it is not easy to sift through the information companies put out on their intangibles (Dugast and Foucault, 2018). However, companies with higher intangible assets are able to outperform benchmarks, independent of their type of intangible assets (Fauver et al, 2018, Chebab, 2016, Boustanifar and Kang, 2021B). Researchers are now finding new methods to invest more prudent into these intangibles (Bilbao et al, 2015).

2.4 Crisis Resilience

Companies with high investments in human capital are more crisis resilient as compared to companies with lower intangibles (Altomonthe, 2022). We also find in research by Carvahlo and Areal (2015) that companies included in the fortune list are more robust to crisis, specifically the Dotcom Crisis and Great Financial Crisis. Research by Boustanifar and Kang (2021A) finds similar results. Carvahlo and Areal (2012) find that companies included in a list of most ethical companies outperform the market during crisis. Cao and Chen (2015) find a crisis resilience around the financial crisis for companies that are included in the list.

2.5 Hypotheses formation

The research cited above attempts to explain the relation between stock returns and employee satisfaction by looking into undervaluation, signalling and information asymmetry and investor behaviour. It also lays out the findings of previous research regarding crisis resilience of companies and the relation to human capital. These theories and findings are used in this research to test several hypotheses in this thesis in order to find answers to the research question of this thesis. The following hypotheses are described below.

2.5.1 Employee satisfaction and stock returns.

Employee satisfaction is not a new concept, but it has a scarcity of literature regarding its impact on long term stock returns during the 2010-2023 period. Boustanifar and Kang (2021A) analyse on the effects of employee satisfaction on stock returns during the period 1984-2020 but did not look solely at the returns during the aforementioned period. However they discover that the overall abnormal returns over the research period decreased, as compared to research done by Edmans (2011). Research by McLean and Pontiff (2016) find there to be a decrease in abnormal returns of anomalies, once they were described in scientific literature. However, it must be said that investors have a hard time valuing intangible assets, and that the value of these assets only gets incorporated when they turn into tangibles (Edmans, 2011). Research by Barber et al (2021) find there to be a negative relation between investing in high employee satisfaction companies and the returns of venture capitalists during the period 1994 to 2015, with these funds making 4.7% less returns as compared to traditional funds. Impact investing such as this thus could be seen as a damper on returns, but due to the research of Edmans (2011) and Boustanifar and Kang (2021), we want to confirm whether this effect remains over the period our research focuses on. The first hypothesis thus is:

Hypothesis 1: Employee satisfaction impacts stock returns in the US equity market during the period 2010-2023.

2.5.2 Signalling value

If the Fortune 'Top 100 companies to work for in the US" list is able to outperform consistently over the period 1984-2020, it must be the case that investors are not able to fully incorporate intangible assets such as employee satisfaction into their valuation of stock (Edmans 2011). However, we also find that the longevity of this outperformance is not permanent as this intangible asset exerts itself into tangible assets over time. Therefore, we also research whether two different portfolios are able to outperform the market during this period. We research whether the original portfolio from 2010 shows significant abnormal excess returns over the period, as the market then is not able to fully incorporate intangible assets into their pricing. The second portfolio that is formed, consists of drop-offs from the list, if the companies are dropped from the list because they no longer have employee satisfaction as an important intangible asset, the abnormal returns must diminish as these companies are then more able to be accurately priced. The two sub hypotheses that we research in this thesis are.

Hypothesis 2A: The original portfolio in 2010 outperforms the US equity market during the period 2010-2023.

Hypothesis 2B: The portfolio of drop-offs from the Fortune "top 100 companies to work for in the US" underperforms the US equity market during the period 2010-2023.

2.5.3 Crisis resilience

For the next hypothesis, we will look again into the research by Boustanifar and Kang (2021A). In their research, they looked into the abnormal excess returns made by the Fortune "Top 100 companies to work for in the US" list portfolio during the period 1984-2020, splitting the returns into crisis, boom and normal periods. They found a significant 0.9% monthly abnormal return during crisis periods, alluding to the fact that companies such as these are better equipped to withstand crises.

In research by Carvahlo and Areal (2016), they find similar results during the 1984 to 2010 period, using a different method as compared to Boustanifar and Kang, as they only distinguish between bull and bear markets. They also find that this crisis outperformance is only present in the top half of the lists, and the latter half stays equal to the market, neither outperforming or underperforming during crisis.

Research by Carvahlo and Areal (2012) finds similar results regarding crisis resilience when looking at the most ethical companies list, further establishing the idea that such intangibles increase crisis resilience. Altomonte et al (2022) find that companies with high intangible assets survived crisis better than companies with low employee satisfaction and Demers et al (2021) find an outperformance of companies with high intangibles as compared to high ESG ratings during crisis, showing that these companies were more robust to crisis. Shan and Tang (2022) find evidence of COVID pandemic resilience within such companies. We want to see whether this resilience is present in the companies specified by the fortune “Top 100 companies to work for in the US” list. Therefore, the third hypothesis is:

Hypothesis 3: Employee satisfaction impacts economic crisis resilience during the COVID 19 pandemic.

CHAPTER 3 Data

3.1 Fortune ”Top 100 companies to work for list”

The main data source used for this research is the list of Fortune named “Top 100 companies to work for in the US”. Whilst this list originally stems from a book written by Levering et al. (1984), which was updated in 1989 by Levering and Moskowitz, the list has become much more salient in recent years. This change stems from the fact that a research organization, built around the methodology as laid out in the first book, works to update the list yearly now. Whilst the list is published in fortune yearly, it is important to note that fortune holds no influence over the creation of the list, as this might create a mismatch in incentives.

It must be noted that companies apply to be added to the list, and after they have applied, anonymous surveys will be sent to their employees in order to rank the companies based on 4 main characteristics. These characteristics are credibility, fairness, pride and respect. In the past, the list was released mid-January, and in previous research, the portfolios were made on the first of February. However, due to the way Fortune changed its publishing schemes in the 2010-2023 period, the list was released at different periods in time. In order to allow the market to have a head start on this information and prove that the market cannot fully incorporate intangibles in their valuation of companies, the portfolios will be built on the first day of the month after the publication in Fortune. This will lead to some formation years spanning more than one year, whilst others will be less. However, since the research focuses on long-term returns as opposed to mere short-term returns, this poses no problem.

3.2 Data Collection and transformation

For this research, data from CRSP and Compustat merged is used. After the public companies have been taken from the Fortune list above, by looking into whether their public data is available in CRSP and Compustat, we take their monthly returns, including and excluding dividends, which are adjusted for stock splits, market capitalization, size of assets, intangible assets and liabilities, book value per share and SIC-Code. How to determine which companies require data at a specific period, we explain in the next paragraph. In order to form the portfolios, we take a closer look at the Fortune list. If a company is dropped from the list, we will no longer need its data for the portfolio, and this data will not be collected. When a company goes private during the sample period, it is also dropped from the dataset from the moment of delisting. Furthermore, when a company goes public whilst included in the list, we will add it to the portfolio. The portfolios are reformed every year, on the first day of the month after the publication date. In order to gain a better idea of our portfolio’s composition, in the table below, we have laid out the number of companies in our portfolio.

Table 1: List composition

The second column represents the "Top 100 companies to work for in the US" companies that had their returns available on CRSP for at least 1 month between the publication of the list, see table A.1, and the subsequent list. The third column represents the public companies that were new to the list compared to last year. The fourth column represents the number of companies that were dropped due to no longer being included or going private during this period. The sample period is 2010 to 2023.

Year	Number of companies	Added	Dropped
2010	40		
2011	41	7	6
2012	45	8	4
2013	43	3	5
2014	39	5	9
2015	38	7	8
2016	36	3	5
2017	38	7	5
2018	45	8	1
2019	43	7	9
2020	42	4	5
2021	46	15	11
2022	43	7	10
2023	50	12	5
Average	45.3	7.8	6.9

In table 1 we see in the second column the maximum companies that the portfolio holds each list year, the third row represents the number of companies that went public during the portfolio duration and the new companies added upon formation after the new list publication. The fourth row shows the companies that went private during the year and the companies that were dropped from the list, due to no longer being considered a BC.

As we can see, an average of 45 companies in the list were public, which shows us that the list is almost equally divided between private and public companies. This stems from the fact that during these time periods, a number of health institutions and larger partner-based firms make up the list, which due to their nature, are mostly private. What stands out in this table, is that the portfolio becomes more volatile after the breakout of the COVID 19 pandemic. This could be because the BCs were not all able to keep their employees satisfied during this time, whilst at the same time, this period had a profound impact on the way companies do their business, which in turn could change the way these companies are viewed by their employees.

During this period of 166 observable months, a total of 123 unique companies were included in the list, leading to a total of 6906 monthly firm level data observations. This number is favourable, when comparing it to the number of observations in similar studies. When we assigned the companies based on their SIC-codes to the 49 industry classifications as specified by Fama and French, we find that, in our sample, there are 27 different industries represented out of the 49. The distribution of these companies is shown in figure 1.

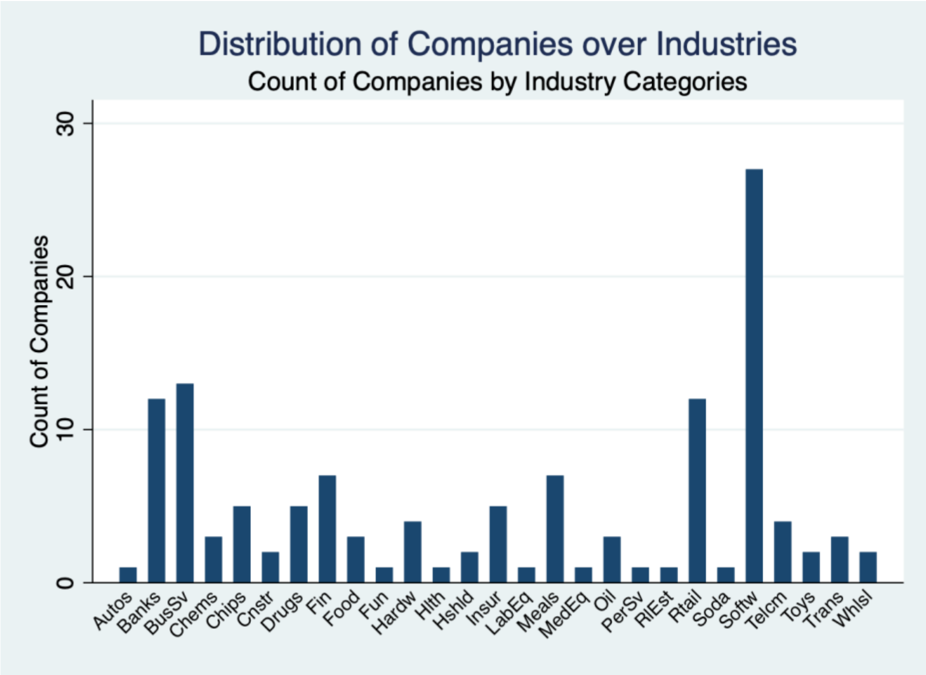

Figure 1. *Distribution of the "Top 100 companies to work for in the US" companies by the 49 industry classification of Fama French, during the period 2010-2023. The y-axis shows us the count of companies, whilst the x-axis shows us the different industries.*

From this figure, we can see that 27 companies were classified as software companies, which leads the industry composition. This sector is followed by business services (13), banks (12) and retail (12). This classification is important, as it will allow us to create industry-matched benchmark portfolios later.

3.3 Summary statistics

Because we want to get a better understanding of the fundamentals of the companies, that are included in the Fortune list, we provide summary statistics of the companies that make up the portfolio in 2010, the first year in our sample, and the companies that make up the portfolio in 2023, the last year of our sample. For our summary statistics, we are interested in a couple variables. The variables we have chosen, are used in comparable research and provide information which is usually used by investors when pricing companies. We look at the market capitalization of the companies at the moment of formation. We take the total return of the company in the portfolio for the portfolio duration using the following formula. The X amount can be found in appendix A.1.

$$Total\ Return = \sum_{i=1}^{x} return_i \quad (3.1)$$

We look at the market to book ratio, which is calculated using the latest Compustat data and the share price at the begin of the formation. This will be calculated via the following formula.

$$Market\ to\ Book\ ratio = \frac{Market\ Stock\ Price}{Book\ value\ per\ share} \quad (3.2)$$

We then look at the dividend yield during the portfolio period. We calculate this by using the formula below, where the amount for X can be found in Appendix A.1.

$$Total\ Dividend\ yield = \sum_{i=1}^{x}(return - return\ ex\ dividends)_i \quad (3.3)$$

For the intangible assets' ratio to total assets, we divide the number of intangible assets by the total assets. This is done via the following formula:

$$Percentage\ intangible\ to\ total\ assets\ (\%) = \frac{Total\ Intangible\ Assets}{Total\ Assets} \quad (3.4)$$

When these transformations have been done, we summarize in Stata at the months March 2010 and April 2023. Table 2 shows the summary statistics.

Table 2: Summary statistics
The summary statistics of the portfolio companies that were included in the Fortune "Top 100 companies to work for in the US" list in 2010 and 2023. The return and market capitalization are taken at the month of full inclusion, whilst the dividend yield, market to book ratio and percentage intangible to total assets are taken at the moment of publication.

	OBS (#)	Mean	Median	Std.Dev	Min	Max
2010						
Return (%)	39	26.91	27.77	23.75	-38.55	71.74
Market Capitalization ($ bn)	39	32.938	11.102	52.549	0.144	256.617
Dividend Yield (%)	39	1.572	1.58	1.49	0	6.597
Market to Book ratio	39	4.224	3.447	2.869	0.851	13.679
Percentage intangible to totals assets (%)	39	18.019	13.279	4.291	0	71.902
2023						
Return (%)	50	24.46	22.21	19.4	-7.45	73.56
Market Capitalization ($ bn)	50	90.0983	35.987	129.281	1.113	685.4
Dividend Yield (%)	50	1.295	0.817	1.452	0	0.742
Market to Book ratio	49	26.831	4.883	118.212	-35.006	822.3591
Percentage intangible to totals assets (%)	50	24.062	17.217	23.011	0	74.987

What we can see here is that the companies in March 2010 had a return of 5.76%. When we compare our two portfolios, we see that the percentage of intangibles has remained equal, which goes as well for our dividend yield. What springs to mind when looking at this table, is the fact that the market capitalization has grown by 200%, when comparing between 2010 and 2023. As the companies included in the portfolio have changed over time, this could be explained by the new companies included being larger in value. This increase however is comparable to the growth of the Dow Jones in this time, so the companies also could have grown. We also see that the market to book ratio in 2023 has gone to a mean of 26.831, which could point at the mispricing of intangible assets as laid out above, where the market has been able to price these assets more accurately than the managers themselves are able to do. On the other hand, it could point to overvaluation by the market, if the book value is priced accurately.

CHAPTER 4 Method

4.1 Portfolio assembly

From the data taken from CRSP, portfolios will be created using STATA. The portfolios will be made at the formation date, the first day of the month after the publication of the list. The portfolio construction dates can be found in the appendix Table A1. The portfolio is weighed at this time, and then reformed at the next date found in the appendix. When companies included in the list become public or private during the yearly portfolio duration, then the portfolio is reweighed. Both the equal-weighted and value-weighted portfolio are reweighed on the same instances. The value-weight portfolio is weighed on the basis of market capitalization.

4.2 Regression Formulas

In order to assure that the returns are not driven by risk, the returns of the portfolios will be adjusted for the 4 Factor model as specified by Carhart (1997). The formula for this is laid out below.

$$R_t = \alpha + \beta_{MKT}MKT_t + \beta_{HML}HML_t + \beta_{SMB}SMB_t + \beta_{MOM}MOM_t + \varepsilon_t \quad (4.1)$$

This model adjusts for the market, value, size and momentum factor, whose data is taken from the Ken French website. The R is the return on a portfolio in month t in excess of a benchmark. α is an intercept which captures any abnormal risk adjusted return. Our standard errors are calculated using Newey and West (1987) standard errors, which allows for our ε to be serially correlated and heteroskedastic.

Our returns are calculated over three benchmarks. The first two correspond with the research of Edmans (2011), of which first is the risk-free rate, taken from Ibbotson Associates. The second benchmark will be the industry-matched portfolio. This portfolio is assembled using the 49-industry classification of Fama and French (1997) and is used to ensure that any outperformance otherwise captured by our alpha is not related to any industry outperforming and enjoying strong returns in this period. The third benchmark is the return of the S&P 500 index, which is an index often used by investors to monitor the effectiveness of their investment. Since this paper aims to look at returns, this benchmark will provide a good insight into whether this portfolio is able to” beat the market”. (Broeders et al, 2019).

For our third hypothesis, we will investigate the resilience of the portfolio against crises. In order to research this, the formula as laid out above is expanded. We add a variable for the COVID 19 pandemic, which takes on either the value 1 or 0 depending on the month the returns are calculated for. This leads to the following formula:

$$R_t = \alpha + \alpha_{COVID} + \beta_{MKT}MKT_t + \beta_{HML}HML_t + \beta_{SMB}SMB_t + \beta_{MOM}MOM_t + \varepsilon_t \quad (4.2)$$

This model, like the model used for the first part of the research, uses the four Carhartt factors like before. The R here is the return adjusted for the before specified benchmarks. The α is an intercept capturing the abnormal return outside of the Covid-19 pandemic. Our standard errors are calculated using Newey and West standard errors.

We also want to check whether the effect remains when we correct for the 6-factor model as specified by Fama and French. The formula for this model is laid out below.

$$R_t = \alpha + \beta_{MKT}MKT_t + \beta_{HML}HML_t + \beta_{SMB}SMB_t + \beta_{MOM}MOM_t + \beta_{RMW}RMW_t + \beta_{CMA}CMA_t + \varepsilon_t \qquad (4.3)$$

In this model, we adjust for the market, value, size, operating profitability, investment and momentum factors. The data for the extra two factors can be found on the Ken French website. As before, the R is the return on a portfolio in month t in excess of a benchmark. α is an intercept which captures any abnormal risk adjusted return. Our standard errors are calculated using Newey and West standard errors.

For the last regression, we will see whether the COVID resilience changes when we correct for the larger Fama and French model. The formula for this is laid out below.

$$R_t = \alpha + \alpha_{COVID} + \beta_{MKT}MKT_t + \beta_{HML}HML_t + \beta_{SMB}SMB_t + \beta_{MOM}MOM_t + \beta_{RMW}RMW_t + \beta_{CMA}CMA_t + \varepsilon_t \qquad (4.4)$$

In this model, we adjust for the factors mentioned before. The Covid variable is an α that captures the abnormal risk adjusted return during the COVID 19 pandemic.

CHAPTER 5 Results & Discussion

5.1 Core results

In this first section, we will look at the results of our first regression. For this regression, we will use formula 4.1 in order to create a model upon which we can estimate our abnormal excess returns. The result of this regression are seen in Table 3.

Table 3: Risk-adjusted returns of the portfolio.
Monthly regressions of the returns of a portfolio based around the fortune "Top 100 companies to work for in America" list on the four Carhartt Factors, MKT, HML, SMB, MOM. The dependent variable is the portfolio return, adjusted for the risk-free rate, industry portfolio returns or the S&P 500 returns. Alpha is the excess risk-adjusted return. T-Statistics are in parentheses. The sample period is from March 2010 to December 2023.

	Excess Returns		
	Risk Free	Industry	S&P500
Panel A: Equal			
α	0.1	0.28	0.073
	(0.77)	(2.25)**	(0.56)
β_{MKT}	1.066	0.065	0.06
	(26.78)***	(1.78)*	(1.56)
β_{HML}	0.006	-0.104	-0.208
	(0.1)	(-2.24)**	(-4.14)***
β_{SMB}	0.1647	0.670	0.102
	(3.25)***	(-10.42)***	(2.06)**
β_{MOM}	-0.100	0.003	-0.044
	(-2.27)**	(0.07)	(-1.04)
R^2	0.92	0.557	0.203
Obs (#)	166	166	166
Panel B: Value			
α	0.11	0.17	0.085
	(0.83)	(1.61)	(0.65)
β_{MKT}	1.088	0.048	0.101
	(30.88)***	(1.58)	(2.88)***
β_{HML}	-0.069	-0.011	-0.072
	(-1.44)	(-0.27)	(-1.51)**
β_{SMB}	-0.198	-0.165	-0.053
	(-4.48)***	(-4.12)***	(-2.32)
β_{MOM}	-0.04	-0.076	-0.106
	(-2.24)**	(-2.09)**	(-2.17)**
R^2	0.899	0.107	0.017
Obs (#)	166	166	166

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

As we can see in the table, the equal weighted portfolio outperforms the market against all benchmarks. However, these results are not significant except for the industry benchmark. This could be due to the fact that the risk-free rate is never negative, and therefore does not adjust the portfolio when it takes on losses, it merely enlarges them. The results of the industry benchmark portfolio show us that when we invest in the Fortune portfolio, we gain an excess abnormal return of 0.28 % monthly or 3.41% annually. This is in line with research from Edmans (2011), who found a similar return on this portfolio during the period 1984 to 2009. What also is interesting, is the fact that the SMB factor has such high explanatory value for the industry adjusted equal weighted portfolio, as the factors are for the rest normal.

In order to visualize the returns gained by holding this portfolio, I include two figures that project the growth of an initial $1000 dollar investment in March 2010, when we invest in the equal-weighted and value-weighted portfolio. The figures are seen below.

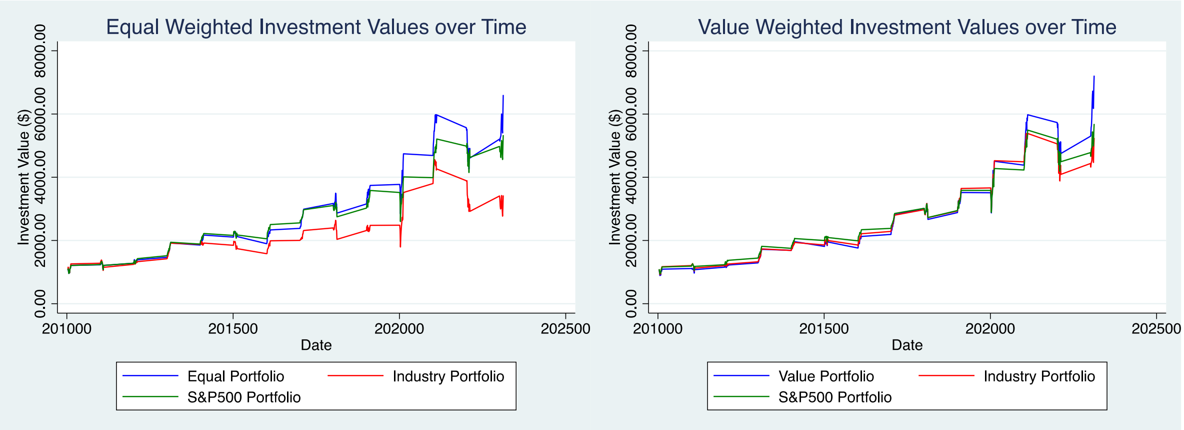

Figure 2: *The returns of the value-weighted and equal weighted portfolio matched against the corresponding benchmarks of the S&P500 index and the 49-industry benchmark, as specified by Fama and French. The graph displays the growth of an initial $1000 investment at the start of the sample period till the end. The sample period is March 2010 to December 2023.*

In this figure we can see that the equal weighted portfolio outperforms its benchmark from 2013 onwards. It is matched by the S&P equal weighted index. We also see that from 2020 onwards, the BC portfolio outgrows its S&P 500 counterpart, only to catch up to it around 2022. This is the moment that the war in Ukraine broke out. In the figure of the value-weighted portfolio, we see that it is matched by both its industry benchmark and the S&P500 similar weighting index, which corresponds to the findings of Table 3, where we do not find significant abnormal returns for the value-weighted portfolio, that would be expressed in Figure 2 as outperformance of its benchmarks.

To check whether these abnormal returns are not merely brought on by large returns of companies within our portfolio, we will winsorized the monthly returns at the 5 and 10 % level. This is done to confirm that the alpha is not merely a result of large outliers in the positive and the negative returns. The results of this winsorizing is seen in the figure below.

Table 4: Winsorized Risk adjusted returns of the portfolio

Monthly regressions of winsorized portfolios at the 5 and 10 percent level of the fortune "Top 100 companies to work for in the US" list on the four Carhartt factors, MKT, HML, SMB, MOM, as seen per table 4. The dependent variable is the portfolio return, adjusted for the risk-free rate, industry benchmark portfolio or the S&P 500 based on similar weighting return. Alpha is the excess risk adjusted return. T-statistics are in parentheses. The sample period is March 2010 to December 2023.

	5%			10%		
	Risk Free	Industry	SP500	Risk Free	Industry	SP500
Panel A: Equal						
α	0.075	0.25	0.05	0.08	0.26	0.06
	(0.6)	(2.09)**	(0.39)	(0.68)	(2.19)**	(0.47)
Panel B: Value						
α	0.065	0.13	0.042	0.06	0.12	0.033

	(0.53)	(1.31)	(0.34)	(0.47)	(1.23)	(0.28)
Obs (#)	166	166	166	166	166	166

**; Significant at the 5% level.

What we can see in this table, is that the equal-weighted portfolio, when adjusted for the industry benchmark, still maintains its significance. This means for us that the value captured in alpha is not explained by the largest returns and losses of our data sample per month. This points to the fact that these returns are thus robust.

5.2 Alternate portfolios

In order to test whether the Fortune "Top 100 companies to work for" list really signals the value of an intangible which is then not accurately valued by the market, I construct 2 new portfolios. The portfolio used in section 5.1, will from here on out be referred to as portfolio I. The first of the two new portfolios, named portfolio II, will take the companies included in the BC 2010 list, and construct a portfolio around them. This portfolio will then calculate the returns of these companies over the entire sample period, March 2010 to December 2023. This portfolio will only be reweighed when a company goes private during the sample period and will not track the changes within the Fortune list. The second portfolio, named portfolio III, will track the performance of a portfolio built around the companies that are dropped from the Fortune list. This portfolio will be reformed and reweighed at the same time when portfolio I is reformed due to the publication of the new list. When a company is first dropped from the list, but then later re-added, we will drop it from our portfolio. The results from these portfolios are shown below. Due to this way of constructing the portfolio, portfolio III will only have 154 datapoints as compared to the 166 observations we have for portfolio I and II. In the table below, we have laid out the results of the regression on the two portfolios.

Table 5: Risk adjusted returns portfolio II and III.

Monthly regressions of the returns of a portfolio based around the fortune "Top 100 companies to work for in America" list on the four Carhartt Factors, MKT, HML, SMB, MOM. The dependent variable is the portfolio return, adjusted for the risk-free rate, industry portfolio returns or the S&P 500 returns. Alpha is the excess risk-adjusted return. T-Statistics are in parentheses. The sample period is from March 2010 to December 2023.

	Excess returns		
	Risk- Free	Industry	S&P500
Panel A: Equal			
α II	0.153	0.33	0.127
	(1.52)	(2.68)***	(1.22)
α III	0.174	0.332	0.175
	(1.14)***	(1.87)*	(1.22)
Panel B: Value			
α II	0.16	0.12	0.14
	(1.18)***	(1.04)	(1.02)
α III	0.48	0.43	0.458
	(2.93)***	(3.31)***	(2.81)***

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

As we can see from the table above, portfolio II has similar returns to portfolio I, when comparing the results with Table 3. This was to be expected, as portfolio II has similar underlying companies as compared to portfolio I, due to not all companies dropping from the list between 2010 and 2023. However, we see a positive significant return abnormal return of the value-weighted portfolio over the risk-free rate, which is the only time we see this. Portfolio III has high significant abnormal excess returns compared to portfolio I and II. This is unexpected as the portfolio consists of companies that were dropped from the list by Fortune, we would assume that this signals a drop in value of their intangible assets. However, since the market is not able to correctly valuate intangibles ((Chen, 2016), (Edmans 2011)), a drop from the list might also be mispriced, and when the price of the company eventually reverts to the mean, we still gain abnormal returns on this portfolio. The results of this table will be further discussed in the discussion section of the chapter.

5.3 Covid Resilience

In order to test whether an intangible such as employee satisfaction creates crisis resilience within companies, we will use the model as specified in formula to perform a regression on our portfolio. The results of this regression are in Table 6.

Table 6: Covid Resilience in risk adjusted returns of the portfolio

Monthly regressions of the fortune "top 100 companies to work for in the US" portfolios on the four Carhartt Factors, MKT, HML, SMB, MOM. The Covid Variable is a controlling variable which takes on the value of 1 during the period of February 2020 to November 2020. The dependent variable is the portfolio return, adjusted for the risk-free rate, the 49-industry benchmark, and the S&P 500 based on similar weighting return. Alpha is the excess risk adjusted return. T-statistics are in parentheses. The sample period is March 2010 to December 2023.

	Excess Returns		
	Risk-Free	Industry	S&P500
Panel A: Equal			
α	0.11	0.34	0.067
	(0.95)	(2.88)***	(0.57)
α_{COVID}	-0.171	-1.03	0.095
	(-0.18)	(-1.17)	(0.57)
β_{MKT}	1.066	0.066	0.060
	(26.52)***	(1.82)*	(1.55)
β_{HML}	0.003	-0.121	-0.206
	(0.06)	(-2.84)***	(-4.41)***
β_{SMB}	0.167	-0.659	0.101
	(3.27)***	(-10.35)***	(2.02)**
β_{MOM}	-0.101	-0.001	-0.044
	(-2.29)**	(-0.03)	(-1.02)
R^2	0.92	0.568	0.203
Obs (#)	166	166	166
Panel B: Value			
α	0.089	0.138	0.052
	(0.66)	(1.27)	(0.38)
α_{COVID}	0.324	0.592	0.56
	(0.42)	(0.88)	(0.72)
β_{MKT}	1.0877	0.048	0.1
	(30.81)***	(1.56)	(2.86)***
β_{HML}	-0.064	-0.002	-0.063
	(-1.28)	(-0.04)	(-1.28)
β_{SMB}	-0.202	-0.170	-0.059

	(-4.43)***	(-4.22)***	(-1.24)
β_{MOM}	-0.103	-0.074	-0.104
	(-2.16)**	(-1.97)*	(-2.22)**
R^2	0.890	0.117	0.136
obs #	166	166	166

; Significant at the 10% level, **; Significant at the 5% level, *; Significant at the 1% level.*

What these regressions show us, is that the value-weighted portfolio did outperform during the time of the COVID-19 pandemic, by 0.592% monthly when adjusted for the industry benchmark. This effect however is not significant. This may be because the COVID period merely covered 9 months. What it also shows us, is that during the period, the equal-weighted portfolio did not outperform its industry benchmark but underperform by 1.03% monthly. It did however outperform the S&P 500 during this period, but these returns are minimal. This alludes to the fact that these companies were not more robust against the economic crisis that COVID posed. However, since the COVID 19 pandemic had a greater impact besides economic ones, we now must look at the performance of the portfolio during the period that the WHO deemed the COVID 19 pandemic an actual pandemic. During this time, rules and regulations were put into place, which impacted the way companies do business beyond their stock returns. Employees were given stay at home orders during this period, and businesses were forced to revise their business strategies. Since such actions can have an impact on the satisfaction employees gain, we look at the effect of this time period in Table 7.

Table 7: Adjusting for Covid during WHO period

Monthly regressions of the fortune "top 100 companies to work for in the US" portfolios on the four Carhartt Factors, MKT, HML, SMB, MOM. The Covid Variable is a controlling variable which takes on the value of 1 during the period of February 2020 to May 2023. The dependent variable is the portfolio return, adjusted for the risk-free rate, the 49-industry benchmark, and the S&P 500 based on similar weighting return. Alpha is the excess risk adjusted return. T-statistics are in parentheses. The sample period is March 2010 to December 2023.

	Excess Returns		
	Risk-Free	Industry	S&P500
Panel A: Equal			
α	0.086	0.255	0.037
	(0.71)	(2.08)**	(0.29)
α_{COVID}	0.052	0.083	0.14
	(0.16)	(0.24)	(0.41)
β_{MKT}	1.066	0.066	0.061
	(27.11)***	(1.78)*	(1.59)
β_{HML}	0.006	-0.104	-0.208
	(0.10)	(-2.23)**	(-4.12)***
β_{SMB}	0.164	-0.671	0.102
	(3.23)***	(-10.38)***	(2.03)**
β_{MOM}	-0.010	0.004	-0.043
	(-2.27)**	(0.08)	(-1.03)
R^2	0.92	0.557	0.204
Obs (#)	166	166	166
Panel B: Value			
α	-0.038	-0.025	-0.04
	(-0.26)	(-0.22)	(-0.26)
α_{COVID}	0.59	0.80	0.50
	(1.81)*	(2.83)***	(1.49)
β_{MKT}	1.092	0.053	0.104
	(30.38)***	(1.77)*	(2.91)***

β_{HML}	-0.07	-0.012	-0.073
	(-1.62)	(-0.35)	(-1.65)*
β_{SMB}	-0.201	-0.169	-0.055
	(-4.47)***	(-4.42)***	(-1.18)
β_{MOM}	-0.1	-0.70	-0.102
	(-2.25)**	(-2.15)**	(-2.34)**
R^2	0.901	0.165	0.146
obs #	166	166	166

; Significant at the 10% level, **; Significant at the 5% level, *; Significant at the 1% level.*

What these results show us, is that the abnormal returns for the value-weighted portfolio all but dissipate. They become negative, but the COVID 19 factor becomes positively significant. It is possible that for the value-weighted portfolio, the Covid factor is able to explain the abnormal returns that are made during this period. When we look at Figure 2, where the worth of a $ 1000 dollar investment is shown over time, we see that the value-weighted portfolio only starts to outperform its benchmarks during this period onward. It is then fully understandable why the alphas have decreased and become negative, as the COVID factor is the only factor that in this situation explains the abnormal returns.

For the equal-weighted portfolio, we see that the abnormal returns, when adjusted for the benchmarks, remain similar. However, we can see a positive effect for the returns of the portfolio during the WHO Covid period. Whilst this effect is not significant, we can see that the portfolio outperforms its benchmarks by an extra 0.83% monthly when we are in the period of the COVID 19 pandemic. This shows us that an equal-weighted portfolio built around the BCs is able to outperform its industry matched benchmark during periods of global crises and gain abnormal returns over the whole period. However, it must be said that when we compare the results of Table 7 to Table 6, we see that during the actual economic crisis, the portfolio was not resilient as compared to its industry benchmark, but it is able to recover more strongly in the combined period of crisis and recovery which followed. Therefore the portfolio cannot be seen as more resilient to crises in the economic sense, but must be seen as a long-term investment which is able to recover from crises more aptly compared to the benchmarks, such as the S&P 500 index.

5.4 Different Model

In previous research, such as by Boustanifar and Kang (2021), they repeat the research done by Edmans (2011), but they add a mediation to it. This mediation is to see whether the abnormal results are robust against testing the results against different models. One of these models that they used, is the Fama French 6 Factor model. As opposed to the Carhart 4 factor model, this model adds correction for the operating profitability and investment done. These are interesting factors for our research, as an intangible such as employee satisfaction is an investment into human capital and operating profitability is directly influenced by the growth of human capital. In the next sections, we will see whether the results of Table 3 and 7 are robust for the adjustment by a 6-factor model.

5.4.1 6 Factor model

In the first section, we will use the formula 4.3, as laid out in the method. This leads to the following results, which are laid out in Table 8.

Table 8: Testing against 6 factors

Monthly regressions of the returns of a portfolio based around the fortune "Top 100 companies to work for in America" list on the 6 Fama and French Factors, MKT, HML, SMB, RMW, CMA, MOM. The dependent variable is the portfolio return, adjusted for the risk-free rate, industry portfolio returns or the S&P 500 returns. Alpha is the excess risk-adjusted return. T-Statistics are in parentheses. The sample period is from March 2010 to December 2023.

	Excess Returns		
	Risk Free	Industry	S&P500
Panel A: Equal			
α	0.121	0.229	0.13
	(0.98)	(2.00)**	(1.03)
β_{MKT}	1.046	0.055	0.044
	(28.94)***	(1.54)	(1.20)
β_{HML}	0.082	0.065	-0.066
	(1.14)	(1.20)	(-1.19)
β_{SMB}	0.198	-0.560	0.077
	(3.52)***	(-8.87)***	(1.46)
β_{RMW}	0.071	0.276	-0.015
	(1.01)	(4.26)***	(-0.21)
β_{CMA}	-0.248	-0.186	-0.338
	(-2.50)**	(-2.31)**	(-4.22)***
β_{MOM}	-0.065	0.030	-0.005
	(-1.49)	(0.72)	(-0.12)
R^2	0.927	0.589	0.291
Obs (#)	166	166	166
Panel B: Value			
α	0.15	0.17	0.15
	(1.17)	(1.57)	(1.16)
β_{MKT}	1.078	0.042	0.089
	(29.01)***	(1.34)	(2.41)**
β_{HML}	0.091	0.072	0.082
	(1.60)	(1.52)	(1.45)
β_{SMB}	-0.211	-0.140	-0.089
	(-4.06)***	(-3.09)***	(-1.73)*
β_{RMW}	0.005	0.089	-0.053
	(0.07)	(1.46)	(-0.7)
β_{CMA}	-0.270	-0.136	-0.299
	(-2.9)***	(-1.75)*	(-3.15)***
β_{MOM}	-0.075	-0.059	-0.075
	(-1.65)	(-1.59)	(-1.67)*
R^2	0.905	0.139	0.162
Obs #	166	166	166

; Significant at the 10% level, **; Significant at the 5% level, *; Significant at the 1% level.*

What we can see in these results, is that when we correct for the Fama and French 6 factor model, that our equal-weighted portfolio is able to outperform all the benchmarks, but only the industry benchmark significant. What we do see, is that our abnormal returns, when adjusting for the Risk -free rate and the S&P 500, goes up. This is odd, as adding more factors to the model should reduce the abnormal returns, as the adding of more factors should explain these excess returns away.

When we look at the value-weighted portfolio, we see the same effect for these benchmarks. It must also be said that the alpha of the industry matched benchmark does not decrease as compared to the four-factor model. When we winsorize these returns by the same method as the results of Table 4, we find the following results. These results are in Table 9.

Table 9: Winsorized returns of the portfolio

Monthly regressions of winsorized portfolios at the 5 and 10 percent level of the fortune "Top 100 companies to work for in the US" list on the 6 Fama and French factors, MKT, HML, SMB, RMW, CMA, MOM, as seen per table 7. The dependent variable is the portfolio return, adjusted for the risk-free rate, industry benchmark portfolio or the S&P 500 based on similar weighting return. Alpha is the excess risk adjusted return. T-statistics are in parentheses. The sample period is March 2010 to December 2023

		x = 5%			x = 10%	
	Risk-Free	Industry	S&P500	Risk-Free	Industry	S&P500
Panel A: equal						
α	0.092	0.201	0.1	0.101	0.209	0.108
	(0.8)	(1.83)*	(0.85)	(0.88)	(1.94)*	(0.95)
Panel B: Value						
α	0.108	0.13	0.11	0.10	0.11	0.10
	(0.91)	(1.31)	(0.91)	(0.83)	(1.21)	(0.82)
obs #	166	166	166	166	166	166

*: Significant at the 10% level.

What we see here, is that the abnormal excess returns, whilst decreasing, remain significant for the equal-weighted portfolio, when adjusting for the industry benchmark. We also see that as we winsorize more, the alphas increase. This could be due to the equal portfolio giving equal weight to all returns, and there might have been more larger outliers on the loss side as compared to the positive return side. For the value-weighted portfolio, the abnormal returns drop and remain insignificant. This corresponds with the findings of Table 4.

5.4.2 Covid Resilience

For this next section, we will investigate whether the 6 Factor model of Fama and French returns the same results for crisis resilience that we find in the previous section when we adjust for the 4-factor model. For this regression, formula 4.4 is used. Because the COVID period defined by the WHO delivers significant variables, we use this definition for the next regression. The other period is regressed and can be found in Table A.2.

Table 10: Adjusting For Covid WHO period with 6 Factors

Monthly regressions of the returns of a portfolio based around the fortune "Top 100 companies to work for in America" list on the 6 Fama and French Factors, MKT, HML, SMB, RMW, CMA, MOM. The Covid Variable is a controlling variable which takes on the value of 1 during the period of February 2020 to May 2023. The dependent variable is the portfolio return, adjusted for the risk-free rate, industry portfolio returns or the S&P 500 returns. Alpha is the excess risk-adjusted return. T-Statistics are in parentheses. The sample period is from March 2010 to December 2023.

		Excess Returns	
	Risk-Free	Industry	S&P500
Panel A: Equal			
α	0.091	0.241	0.052
	(0.77)	(2.02)**	(0.42)
α_{COVID}	0.128	-0.055	0.324

	(0.39)	(-0.16)	(0.94)
β_{MKT}	1.048	0.054	0.046
	(29.09)***	(1.52)	(1.25)
β_{HML}	0.084	0.064	-0.06
	(1.17)	(1.20)	(-1.06)
β_{SMB}	0.196	-0.559	0.071
	(3.47)***	(-8.88)***	(1.35)
β_{RMW}	0.066	0.278	-0.028
	(0.92)	(4.25)***	(-0.39)
β_{CMA}	-0.253	-0.184	-0.39
	(-2.48)**	(-2.36)**	(-4.04)***
β_{MOM}	-0.063	0.029	-0.002
	(-1.48)	(0.70)	(-0.04)
R^2	0.927	0.589	0.297
Obs (#)	166	166	166
Panel B: Value			
α (%)	-0.023	-0.024	-0.018
	(-0.17)	(-0.21)	(-0.13)
α_{COVID}	0.728	0.825	0.70
	(2.14)**	(2.88)***	(2.01)**
β_{MKT}	1.082	0.047	0.093
	(28.42)***	(1.49)	(2.45)**
β_{HML}	0.105	0.087	0.096
	(2.02)**	(2.08)**	(1.82)*
β_{SMB}	-0.226	-0.158	-0.104
	(-4.55)***	(-3.75)***	(-2.11)**
β_{RMW}	-0.023	0.056	-0.081
	(-0.33)	(0.97)	(-1.11)
β_{CMA}	-0.295	-0.164	-0.323
	(-3.10)***	(-2.11)**	(-3.30)***
β_{MOM}	-0.068	-0.050	-0.068
	(-1.59)	(-1.53)	(-1.62)
R^2	0.909	0.198	0.1593
Obs #	166	166	166

; Significant at the 10% level, **; Significant at the 5% level, *; Significant at the 1% level.*

What we can see in this table and table A.2, compared to Table 6 and 7, is that the COVID variable is not influenced by the choice of model. It thus captures solely the return of the portfolio against the benchmarks during this period, adding to the abnormal returns made in that month. What it still does show us, is that both the equal-weighted and value-weighted portfolio are more resilient to crises compared to their similar weighted S&P 500 portfolio, It shows us, that whilst the equal-weighted portfolio does not outperform the risk-free rate benchmark or its industry-matched portfolio, it is able to outperform the market, making it a good investment even in times of crisis. The value-weighted portfolio, however, shows significant abnormal risk adjusted returns against all benchmarks during the WHO covid period, making this portfolio crisis resilient during this period, but this comes at the cost of underperformance during the remainder of the period.

5.5 Discussion

In this next section of this chapter, we will compare our results to pre-existing literature and will discuss the outcomes of our hypotheses.

5.5.1 Core results

Our findings in table 3 show us that the portfolio based around the BCs is able to outperform the industry matched portfolio when we assemble it equal-weighted. This is in line with research from Edmans (2011) and Boustanifar and Kang (2021). We find these same results when we winsorize the results. When we test the portfolio against the 6-factor model, as done by Boustanifar and Kang (2021), we find there to still be a significant, but lesser, alpha of 0.21% monthly, which remains even if we winsorize the results. This is in line with previous literature by Fama and French (2015) who updated their three-factor model, as used in the four factor Carhart (1997) model, to correct for investing and operating profitability, in order to more fully explain returns and decrease the abnormal excess returns. However, since this effect remains significant, we can accept the first hypothesis, which states that employee satisfaction impacts stock returns in the US equity market during the 2010 to 2023 period, leading to outperformance over the US equity market as captured by our alphas in the regressions.

5.5.2 Alternate portfolios

If the list signals value of intangible assets, then companies who are no longer included in the list must no longer possess these intangibles. However, we find in table 5 that companies who are dropped from the list are able to outperform their benchmarks for both weighting methodologies. This is not in line with research on intangibles, who see that companies can only outperform when in possession of such intangibles (Fauver et al, 2019). Therefore, we must reject Hypothesis 2B, which states that the companies dropped from the Fortune list underperform the US equity market.

We also see that the second portfolio outperforms the benchmarks. This is in line with research, as not all companies are dropped from the list and the market has difficulties valuing those intangibles. Therefore, we can accept Hypothesis 2A, which states that the original portfolio is able to outperform the market.

5.5.3 Crisis resilience

As we can see in table 6 and 10, we see that during the economic crisis of COVID 19, the equal-weighted portfolio underperforms both the risk-free rate and industry matched benchmark. This tells us that these companies are not more resilient to crisis when matched to the industry benchmark and equally weighted. What we do see, is that the portfolio does outperform the S&P500 during this time. We see that the value-weighted portfolio is able to outperform during these times of crisis, by 0.592% monthly when comparing to industry matched benchmarks and 0.56% when adjusting for S&P500 value-weighted returns. This illustrates to us that under both the weighting methodologies, the portfolio is able to beat the “market”, in our research represented by the S&P500. This is in line with research from Areal and Carvahlo (2016), who find there to be a resistance against crises within companies that have such characteristics.

When we adjust the returns for the entire COVID-19 pandemic period as presented by the WHO, we find that the equal-weighted portfolio outperforms the market by an extra 0.083% percent, whilst keeping its abnormal excess returns. The value-weighted portfolio loses its abnormal excess returns, which can be explained by looking at figure 2, where we see that the value-weighted portfolio only starts outperforming its benchmarks during this period. This makes it so that the explanatory power of the abnormal excess returns for this period with the value-weighted portfolio is then explained by the covid variable. Because of the results of our research, we cannot accept the third hypothesis for all portfolio weighting methodologies and crisis periods. But we can argue that the portfolio is more resilient to crisis, such as the COVID 19 pandemic, when we look at the larger period.

CHAPTER 6 Conclusion

This research aims to answer the question of whether employee satisfaction impact stock returns and crisis resilience. The questions this thesis aims to answer are “Does employee satisfaction impact stock returns in the US equity market during the period 2010 to 2023?” and “Does the portfolio as specified by the Fortune list “top 100 companies to work for in the US” outperform the market during the 2020 covid crisis?”. In order to answer these questions, we will summarize the findings of the study and the acceptance of our hypotheses as laid out in the theoretical framework.

In order to answer these questions, we have taken data from CRSP and Compustat for US companies included in the Fortune “Top 100 companies to work for in the US” list. Using this data, we find 6651 observations over the period March 2010 to December 2023. Using this data, return regressions are done on 3 portfolios and we control for the COVID period. Following the results, we find that these companies with high employee satisfaction outperform the market during this period, and that the equal-weighted portfolio is able to outperform the market in form of the S&P 500 index.

We find from the summary statistics that the list became more volatile in the period 2020-2023, showing that during the period of COVID, employee satisfaction was impacted. We also saw that these companies which make up the portfolio have grown by 200% in stock price in the period 2010-2023, showing that these companies increased in value.

We find that the equal-weighted portfolio built around the BCs is able to outperform its industry benchmarks by 0.28% monthly or 3.4% annually. These results are strong, even when adjusted for winsorizing and different models. It was however not able to outperform the market significantly during this period, nor the risk-free rate. When we build 2 extra portfolios based around the fortune list, one tracking the stocks at the beginning of our research and one built around the drop-offs from the list, we find that Portfolio II had similar abnormal returns, whilst the portfolio built around the drop-offs was able to outperform both Portfolio I and II, giving significant abnormal results for both weighting methodologies. We thus can argue that the companies included in the Fortune “Top 100 companies to work for in the US” outperform the US equity market during the period 2010 to 2023.

During the period of COVID 19 as per economic standard, Portfolio I was able to outperform the market in the form of the S&P500 index for both weighting methodologies. The value-weighted portfolio was able to outperform on all benchmarks, but these results were not significant. When we adjust for the period defined by the WHO, we find that the value-weighted portfolio significantly outperforms all benchmarks, and the equal-weighted portfolio outperforms all its benchmarks as well, though not significantly. Therefore, we can argue that the companies included in the list are more resilient to crisis, such as the COVID 19 Pandemic.

Limitations and Further implications

A limitation of this research is the fact that we only look at US stock data. If the effects that we have found here, namely outperformance due to employee satisfaction, we must research whether these effects are true for the rest of the world. Great Place to Work has lists on multiple countries outside of the US, and the effects of the inclusion into those lists can be researched using the same methodology as this research has done.

The implications that this research has for researchers is the fact that we are still able to find abnormal returns in our portfolio, which means that the research of McLean and Pontiff (2016) does not apply to the intangible assets anomaly. For practical implications, we refer to the fact that a portfolio built around these companies outperforms the market by 3.4% annually. These returns show us that investing in an SRI screen, such as employee satisfaction, can be profitable, which goes against pre-existing literature.

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APPENDIX A Portfolio Assembly dates

A.1 Portfolio assembly dates

Table A.1, the dates of the publishing of the fortune article on Great Places to Work "Top 100 companies to work for in the US", with the corresponding portfolio assembly date per year.

YEAR	DATE OF ARTICLE	Month Of Assembly	Total months
2010	08/02/2010	01/03/2010	12
2011	07/02/2011	01/03/2011	12
2012	06/02/2012	01/03/2012	12
2013	04/02/2013	01/03/2013	12
2014	03/02/2014	01/03/2014	12
2015	05/03/2015	01/04/2015	13
2016	03/03/2016	01/04/2016	12
2017	09/03/2017	01/04/2017	12
2018	15/02/2018	01/03/2018	11
2019	14/02/2019	01/03/2019	12
2020	18/02/2020	01/03/2020	12
2021	12/04/2021	01/05/2021	14
2022	11/04/2022	01/05/2022	12
2023	04/03/2023	01/04/2023	9

APPENDIX B Covid 6-Factor regression

A.2 6-Factor regression with COVID period

Table 10: Adjusting For Covid with 6 Factors

Monthly regressions of the returns of a portfolio based around the fortune "Top 100 companies to work for in America" list on the 6 Fama and French Factors, MKT, HML, SMB, RMW, CMA, MOM. The Covid Variable is a controlling variable which takes on the value of 1 during the period of February 2020 to November 2020. The dependent variable is the portfolio return, adjusted for the risk-free rate, industry portfolio returns or the S&P 500 returns. Alpha is the excess risk-adjusted return. T-Statistics are in parentheses. The sample period is from March 2010 to December 2023.

	Excess Returns		
	Risk-Free	Industry	S&P500
Panel A: Equal			
α	0.122	0.289	0.109
	(1.08)	(2.6)***	(0.94)
α_{COVID}	-0.021	-0.011	0.350
	(-0.02)	(-1.34)	(0.35)
β_{MKT}	1.047	0.056	0.044
	(28.49)***	(1.6)	(1.19)
β_{HML}	0.081	0.037	-0.057
	(1.18)	(0.75)	(-0.93)
β_{SMB}	0.199	-0.545	0.073
	(3.5)***	(-8.9)***	(1.40)
β_{RMW}	0.071	0.281	-0.017

	(1)	(4.27)***	(-0.24)
β_{CMA}	-0.248	-0.168	-0.343
	(-2.51)**	(-2.18)**	(-3.97)***
β_{MOM}	-0.065	0.024	-0.003
	(-1.49)	(0.58)	(-0.07)
R^2	0.927	0.602	0.294
Obs (#)	166	166	166
Panel B: Value			
α	0.12	0.13	0.10
	(0.93)	(1.23)	(0.8)
α_{COVID}	0.49	0.64	0.79
	(0.61)	(0.93)	(0.95)
β_{MKT}	1.076	0.041	0.088
	(28.75)***	(1.30)	(2.35)**
β_{HML}	0.103	0.088	0.102
	(1.74)*	(1.76)*	(1.72)*
β_{SMB}	-0.217	-0.148	-0.099
	(-4.25)***	(-3.38)***	(-1.97)**
β_{RMW}	0.029	0.086	-0.057
	(0.04)	(1.45)	(-0.78)
β_{CMA}	-0.278	-0.146	-0.312
	(-2.97)***	(-1.85)*	(-3.26)***
β_{MOM}	-0.072	-0.055	-0.07
	(-1.55)	(-1.45)	(-1.54)
R^2	0.905	0.150	0.211
Obs #	166	166	166

; Significant at the 10% level, **; Significant at the 5% level, *; Significant at the 1% level.*