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Employee Satisfaction and Stock Performance

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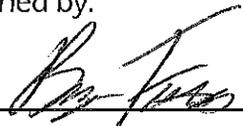
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Employee Satisfaction and Stock Performance

A Thesis

Presented to the Department of Finance

Lacy School of Business

and

The Honors Program

of

Butler University

In Partial Fulfillment

Of the Requirement for Graduation Honors

Michael Joseph Snyder

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Abstract

This study aims to explore the previously documented relationship between employee satisfaction and superior stock returns. Previous research suggests that firms with higher employee satisfaction also deliver superior stock returns. Furthermore, previous research has established a logical connection from employee satisfaction to superior stock performance. This study constructed an equally-weighted portfolio of the publicly traded companies on Fortune's "100 Best Companies to Work For" list. This performance was compared to the performance of the S&P 500 on a total return basis for the calendar years 2015, 2016, 2017, 2018, and 2019. The study also collected fundamental data related to each individual companies' firm performance and the average firm performance of companies in the S&P 500. The fundamental data collected included return on equity, profit margins, sales growth, and the price to earnings ratio. The results of this study suggest that companies with higher employee satisfaction still deliver higher stock performance and that the anomaly has not been arbitrated away by investors.

Background

Quantitative investing, of which factor-based investing is a part of, has become an increasingly important investment strategy over the last ten years. Quantitative investing can be defined as using computers to examine large amounts of data, financial or otherwise, to identify predictable patterns or relationships between variables and stock prices. According to the Wall Street Journal (2017), from 2010 to 2017 the share of stocks traded by quantitative hedge funds rose from 13.5% to 27.5%. Assets managed by quantitative hedge funds doubled from \$408 billion in 2013 to \$918 billion in 2016. In 2016, only 19% of investors had an allocation to quantitative strategies, but one year later this share had jumped to 47%. However, the most powerful indicator of the rise of quantitative investing is the surge in assets managed by smart-beta exchange traded funds (ETFs) and mutual funds. Smart-beta ETFs can be thought of as tracking an index while overweighting stocks displaying factors which have been shown to contribute to high stock returns. The assets managed under these smart-beta strategies have grown from \$140 billion in 2007 to \$760 billion in 2017. Quantitative investing, and thus factor investing, is an increasingly important segment of the market where investors are constantly searching for new factors, which may lead to outperformance (returns in excess of an investor's respective benchmark).

Several quantitative investors have written extensively about their investment strategies. One of the most notable books on factor-based investing is *What Works on Wall Street* published by Jim O'Shaughnessy (2012) of O'Shaughnessy Asset Management. The book examines the returns of different factor-based portfolios and whether they outperform a passive index. An organization which AQR Capital Management, which is a \$196 billion asset manager that constructs portfolios using multiple factors to offer returns uncorrelated to the general

market's return. Both of these organizations have provided valuable literature to the investment industry demonstrating that certain factors, and combinations thereof, can provide abnormal positive returns for investors.

Previous Research

Intangible Assets:

Historically, factor-based investing did not examine intangible assets, but over the last 25 years intangible assets have slowly grown to play an ever more important role in developed countries' economies compared to tangible assets. Tangible assets can be defined as something that can be touched: machines and buildings. Intangible assets cannot be touched. Examples include brand value and patents. An article by Merler (2018) showed that in the late 1990s tangible investments comprised .14% of the GDP of the United States and EU11 while just over 0.1% of GDP was comprised of intangible investments. However, by 2009 that relationship had flipped and by 2014 intangible investment represented 0.125% of GDP while tangible investment comprised less than 0.11%. To compound the problem, areas which many firms consider a form of investment, such as research and development, are not capitalized and expensed over the useful life of the research but are rather expensed immediately. Damodaran (2012) has argued that research and development should be capitalized as an intangible asset and amortized over its useful life. The combination of the rise of intangible assets and the misclassification of items such as research and development has led the market to undervalue intangibles. Cohen, Diether, and Malloy (2013) demonstrated that a portfolio consisting of businesses with successful research and development displayed an outperformance of 11.00%. The portfolio included firms which had displayed previous successful research and development and high levels of current research and development spending (called "GoodR&D firms"). Given

that this portfolio outperformed the market, it can be inferred that the market does not properly value research and development when it occurs. Another intangible asset which can be valuable is having a strong brand. Chehab, Lie, and Xiao (2016) studied the performance of a portfolio consisting of businesses with the top 100 most valuable brands as measured by Interbrand. Interbrand determined the value of brands through a three-part analysis: financial returns, the role of a brand in consumer purchase decisions, and a brand's strength relative to competitors. The authors found that this portfolio returned 15.9% annually from 2001 through 2012, far outperforming the S&P 500's 8.99% return over that same time.

One type of intangible asset which is particularly difficult to value is satisfaction with the firm. Satisfaction can be measured from the perspective of several groups, including customers and firm employees. Several studies have examined the relationship between customer satisfaction and stock performance. Peng, Lai, and Chen (2015) analyzed how the stock price of firms with high customer satisfaction performed relative to the overall market. Satisfaction was measured using the American Customer Satisfaction Index (ACSI) which is considered a national barometer of customer satisfaction. The results of the study showed that the stock of firms with high ACSI outperformed the market, and that this outperformance was especially prevalent during periods of pessimistic market sentiment. These results were validated in work done by Fornell, Morgeson, and Hult (2016). Their research analyzed how a portfolio of companies with high ACSI scores compared with the returns of the S&P 500 from 2000 to 2014. The results showed that \$100 invested in the high customer satisfaction portfolio grew to \$617 while the same \$100 in the S&P 500 would have grown to only \$131. This study reinforced the conclusion that firms with higher customer satisfaction had superior stock price performance as well.

Employee Satisfaction and Employee Performance:

Another group from whose perspective satisfaction with the firm can be analyzed is the firm's employees. Several studies have identified a relationship between individual employee satisfaction and performance. Aftab and Idrees (2012) measured the relationship between an individual's job satisfaction and their performance in Pakistani banks. The author's found that employees with higher satisfaction, measured through motivation and quality of relationships, also had higher individual job performance. Octaviannand, Pandjaitan, and Kuswanto (2017) also found a positive relationship between satisfaction and employee performance. Similar conclusions were drawn from a meta-analysis performed by Iffaldano and Muchinsky (1985). The authors aggregated the previous research on the employee satisfaction and performance relationship to determine whether a general conclusion could be drawn. The results showed that across previous research there was a slight positive correlation between an employee's satisfaction and their performance. DeGroot and Kiker (2003) conducted a meta-analysis of the impact of employee health programs, designed to increase employee satisfaction, and found that they were negatively related to employee absenteeism. More satisfied employees perform better and are less likely to miss work.

Employee Satisfaction and Firm Performance:

Given that more satisfied employees may perform better at their jobs, it follows that firms with higher employee satisfaction may also display better financial performance as well. Several studies have examined this relationship. Fulmer, Gerhart, and Scott (2003) argue that positive employee relations serve as an intangible asset and provide a source of competitive advantage to firms. The study examined the financial performance of the "Top 100 Best Companies to Work For in America" (BC) relative to firms of similar size and found that BCs

displayed superior return on assets (ROA). This superior ROA indicates that BCs are more profitable than their competitors and possess some form of competitive advantage which allows them to remain more profitable for sustained periods of time. Melián-Gonzalez, Bulchand-Gidumal, and González (2015) found similar relationships. The author's examined the relationship between company reviews on Glassdoor and that company's ROA, operating margins, and revenue per employee. These financial metrics measure three separate performance areas of the firm: ROA measures efficiency, operating margins measure profitability, and revenue per employee measures productivity. The author's found that there was a positive relationship between employee satisfaction and all three financial performance measurements. Huang, Meschke, and Guthrie (2015) also found a positive relationship between employee satisfaction and return on assets and Tobin's Q.

A study conducted by Lau and May (1998) examined whether a quality of work life program (QWL) impacted a firm's value. A QWL program is designed by employers to help meet their employee's needs and, ultimately, to enhance employee satisfaction. The key elements in a QWL program are job security, better reward systems, higher pay, and participatory groups. The author's examined the firm's financial performance as measured by sales growth, asset growth, return on assets and return on equity. They compared the financial performance of a portfolio constructed of QWL companies with the S&P 100. The study found that firms with a QWL program had superior sales and asset growth as well as higher returns on assets and equity than the firms in the S&P 100. These results indicate that firms with a QWL show superior financial performance. Lawler and Hackman (1971) found that low employee satisfaction was negatively related to financial performance. The authors found that a firm's profits would be negatively impacted from low employee satisfaction due to increased costs from high turnover

and absenteeism. Taken together, the results from these studies suggest that there is a positive relationship between employee satisfaction and firm financial performance.

Performance can be measured in ways other than a firm's finances. According to research by Chen, Chen, and Hsu (2016), there is also a relationship between employee satisfaction and how innovative a company is. The authors measured satisfaction through the quality of employee relations at a firm. Innovativeness was measured through both the quantity of patents filed by the company and how many times these patents were cited (the intuition being that the more a patent is cited the higher its quality). The study found that firms that displayed higher employee satisfaction were also more innovative. Ostroff (1992) examined the relationship between teacher satisfaction and organizational performance and found that higher teacher satisfaction led to superior performance for the entire educational organization.

There has been research indicating that the relationship between employee satisfaction and financial performance runs both ways. Kiewitz (2004) found evidence indicating that financial performance was a better indicator of employee satisfaction than employee satisfaction was of financial performance. However, the author proposed that financial performance and employee satisfaction were related in a positive circular loop where good financial performance drives higher employee satisfaction, which leads to better financial performance and so on.

Employee Satisfaction and Stock Performance:

The logical extension of firms with high employee satisfaction displaying better financial performance and innovation is that these firms will also display better stock returns as the stock price will reflect their superior financial performance. The seminal research on employee satisfaction and stock returns was conducted by Edmans (2011). Edmans explored the

relationship between stock performance and employee satisfaction by using the BC list as the gauge for satisfaction. Edman's hypothesis was that satisfied employees would be beneficial to firm value, but that the market would not immediately capitalize this because it is an intangible asset. Rather, the market would only value this intangible asset once it had manifested in some tangible outcome such as increased earnings. This would lead to superior returns as the stock would remain undervalued until the tangible benefits were realized. Edman's hypothesis was found to be correct as the results demonstrated a positive relationship between stock performance and employee satisfaction. Specifically, the portfolio of BCs outperformed their industry benchmarks by 2.1% annually demonstrating that the intangibles were not fully priced in and that investors could benefit from purchasing the undervalued securities of BCs. Edman's original study analyzed data from 1984 through 2009 and looked at returns relative to industry benchmarks and a value-weighted portfolio. A study by Goenner (2008) analyzed whether a portfolio composed of the BCs would outperform the S&P 500. Goenner (2008) found that a portfolio constructed of BCs generated an alpha of 0.79% annually from 1998 through 2015. This outperformance was generated despite BCs having higher price to book ratios, on average. Additionally, Goenner (2008) found that the portfolio of BCs performed better on a risk-adjusted basis as measured by the Sharpe, Treynor, Jensen, and M2 measures.

Research conducted by Mishra (2018) attempted to replicate Edman's findings from 2007 through 2014. Mishra used the same BC list as Edmans and measured returns relative to the S&P 500 as Goenner (2008) did. Mishra's work indicated that the outperformance was still prevalent and that companies on the BC outperformed the S&P 500 on both an absolute and risk adjusted basis. This suggests that investors were continuing to undervalue employee satisfaction.

Given the research above, the logic regarding the positive relationship between employee satisfaction and stock performance can be deduced. Higher employee satisfaction leads to better employee performance. This improved employee performance drives better financial results, and the improved financial performance leads to a higher stock price. The research discussed above also indicates that intangible assets such as employee satisfaction can be mispriced by the market. This mispricing offers investors an opportunity to construct portfolios coincident with those intangibles which should outperform the market.

Anomalies Over Time

In this study, we aim to analyze more recent data from 2015-2019. There is evidence that over time anomalies identified in markets are arbitrated away by investors, thereby diminishing any excess returns. Some of these market anomalies, such as momentum investing (Jegadeesh & Titman, 1993), end-of-the-week-effects (French, 1980; Gibbons and Hess, 1981), holiday effects (Ariel, 1990) have been significantly reduced or completely eliminated in recent years (Dolvin and Foltice, 2017; Robins and Smith, 2016; Robins and Smith, 2017; Robins and Smith 2019).. The same phenomenon could occur regarding the relationship between employee satisfaction and stock prices. By analyzing recent data, we can continue to monitor whether the anomaly has persisted over time or whether it has been arbitrated away.

Methodology

This study analyzes the performance of publicly traded companies which are on Fortune's Best Companies to Work For list (BC list). There are 100 companies on the BC list every year. The first step of the analysis was to determine which companies on the list for each year were publicly traded. Once the publicly traded companies were identified they were put into

an equally weighted portfolio (the BC portfolio). A portfolio was created for the calendar years 2015, 2016, 2017, 2018, and 2019. The 2019 BC list was published in December of 2018, so the 2019 list was used to create the portfolio for calendar year 2019. The same was done for each year. After each year the portfolio was rebalanced to include companies that were still on the BC list or had been added and to remove those that were no longer on the list. For the calendar years 2015, 2016, 2017, 2018, and 2019 there were 36, 35, 39, 43, and 42 publicly traded companies on the list, respectively.

Bloomberg was used to track the performance of the portfolio through each calendar year. The performance of the portfolio was measured against the performance of the S&P 500 Net Total Return Index (STRN). STRN data was gathered from YCharts Investment Research (Ycharts). Performance for the BC portfolio was also measured on a total return basis. To determine the excess return of the portfolio, the performance of the STRN was subtracted from the performance of the BC portfolio. The excess return was calculated on both an annual and a compound annual geometric return basis (CAGR).

Bloomberg was also used to gather data on the fundamental characteristics of the BC portfolio. The fundamental data collected included return on equity (ROE), price to earnings ratio (P/E), revenue per share growth, and profit margins. The same fundamental data was collected for the S&P 500 using Ycharts. This fundamental data was compared against the same data for the average company from the S&P 500 to determine whether the BC Portfolio companies had superior firm-level performance.

The BC portfolio was also compared to the STRN on a risk adjusted basis. This was performed by calculating the Sharpe and Treynor Ratio of the BC portfolio over the five years from 2015 through 2019 and comparing it to the Sharpe and Treynor Ratio of the STRN.

Results

The BC portfolio delivered an excess CAGR of 0.96% over the five-year period relative to the STRN and an arithmetic excess return of 1.03%. Table 1 shows the returns for the S&P 500 and BC Portfolio per year from 2015 through 2019. It also shows the excess return the BC Portfolio has over the S&P 500.

Table 1
Returns

Year	Average Return	2019	2018	2017	2016	2015
S&P 500	11.45%	30.70%	-4.94%	20.55%	10.18%	.75%
BC Portfolio	12.48%	27.46%	-5.57%	28.56%	9.07%	2.86%
Excess Return	1.03%	-3.24%	-.63%	8.01%	-1.11%	2.11%

This data demonstrates that investors would have achieved a higher return by investing in an equal weighted portfolio of the publicly traded companies on the BC list than by investing in the STRN. It is interesting to note that the BC Portfolio only outperformed the STRN in two out of the five years and that the majority of the outperformance was driven by an 8.01% excess return in 2017.

When we analyzed on a risk-adjusted basis, shown on Table 2, the BC Portfolio also outperformed the STRN. The BC Portfolio posts a Sharpe Ratio of .68 compared to the STRN's Sharpe ratio of .63. The BC Portfolio also had a Treynor Ratio of 0.11 compared to 0.09 for the STRN. For both ratios, we use 2.27% as the "risk-free rate", as this was the average yield on the US ten-year Treasury bond from the last five years. The ten-year treasury bond was used because it best approximates the time frame a long-term investor would use while still achieving a rate of return above inflation.

Sharpe Ratio formula: $\frac{R_p - R_f}{\sigma}$

Treynor Ratio formula: $\frac{R_p - R_f}{B}$

Table 2
BC Portfolio vs STRN: Risk Adjusted Returns

Year	BC Portfolio Return	STRN Return
Mean Return	12.48%	11.45%
Risk-Free Rate	2.27%	2.27%
Standard Deviation	15.11%	14.48%
Sharpe Ratio	.68	.63
Beta	.92	1.00
Treynor Ratio	0.11	0.09

Note: *2.27% was used at the “risk-free” rate in both ratios: Sharpe Ratio formula: $\frac{R_p - R_f}{\sigma}$ and the Treynor Ratio formula: $\frac{R_p - R_f}{B}$

As depicted in the Tables 3.1-3.4, the BC Portfolio displays a higher return on equity in excess of 5.56% (16.88% compared to 11.32%), profit margins – in excess of 1.85% (10.11% compared to 8.26%), and average excess sales growth of 4.42% (8.38% compared to 3.96%).

Interestingly, average P/E ratios for the BC Portfolio (37.62) are 65.39% higher than the average P/E ratios of the S&P 500 (22.75).

Table 3.1
Return on Equity

Year	Average	2019	2018	2017	2016	2015
BC Portfolio	16.88%	5.43%	27.78%	17.63%	19.80%	13.77%
S&P 500	11.32%	12.47%	13.17%	11.81%	11.07%	8.10%
Excess ROE	5.56%	-7.04%	14.61%	5.82%	8.73%	5.67%

Table 3.2
Profit Margins

Year	Average	2019	2018	2017	2016	2015
BC Portfolio	10.11%	15.51%	14.09%	9.18%	7.57%	4.18%
S&P 500	8.26%	9.50%	8.35%	8.95%	8.02%	6.47%
Excess Margin	1.85%	6.01%	5.74%	.23%	-.45%	-2.29%

Table 3.3
Revenue per Share Growth

Year	Average 2015- 2018	2019	2018	2017	2016	2015
BC Portfolio	8.38%	14.47%	8.83%	8.62%	8.45%	7.61%
S&P 500	3.96%	N/A	5.2%	9.45%	4.2%	-3.03%
Excess Growth	4.42%	N/A	3.63%	-.83%	4.25%	10.64%

Table 3.4
P/E Ratios

Year	Median	2019	2018	2017	2016	2015
BC Portfolio	37.62	37.59	25.67	43.55	38.66	42.63
S&P 500	22.75	23.16	18.94	24.33	23.68	23.62
Excess P/E%	80.48%	2464.77%	35.53%	79.00%	63.26%	80.48%

*The average P/E ratio of 2019 excludes TEAM's P/E ratio of 19,523.9. Including TEAM's P/E ratio leads to an average P/E ratio of 594.76.

The higher ROE, profit margins, and sales growth of the BC portfolio indicate superior firm performance compared to the S&P 500. The higher P/E ratio of the BC portfolio indicates the companies are more expensive and more growth potential than the S&P 500.

Discussion

The main purpose of this study was to determine whether investing in a portfolio consisting of the publicly traded companies on the BC list still outperformed a representative benchmark (in this case, the STRN). The findings are consistent with Goenner's (2008) research that the BC portfolio generated an alpha of .79% from 1998 through 2015. Using more recent data from 2015-2019, we find similar results: the BC portfolio outperformed the S&P 500 by 1.06% annually. We believe this study demonstrates that the relationship between employee satisfaction and stock returns has not been eliminated and that investors still undervalue

employee satisfaction. Furthermore, we find that the BC Portfolio, relative to the S&P 500, yields a higher ROE, higher profit margins, and higher sales growth. Interestingly, the BC Portfolio companies also had substantially higher P/E ratios. The higher return on equity and profit margins indicates that BC Portfolio companies are higher quality on average than those in the S&P 500 and deliver superior firm-level performance. The higher ROE indicates that the BC Portfolio companies can generate higher returns on their owner's capital than the average business in the S&P 500. The higher profit margins indicate that the BC Portfolio companies can charge higher prices or have superior cost structures to those in the S&P 500. The higher sales growth indicates that the BC Portfolio companies are faster growing than the S&P 500. This superior fundamental performance may be what is leading investors to pay a higher P/E ratio for the BC Portfolio companies than the S&P 500. Investors may believe this high P/E is justified given the higher quality and faster growth of the companies on the BC list.

This study provides further evidence that the underlying theory connecting satisfied employees to superior stock returns is still evident in recent years. This study has also demonstrated the link between employee satisfaction and firm performance as the companies on the BC list had superior fundamental performance measured on a ROE, profit margin, and sales growth basis. Given the superior stock performance identified this provides evidence that the superior firm-level performance driven by employee satisfaction leads to superior stock returns.

Overall, this study provides further evidence that investors are still undervaluing employee satisfaction when forecasting stock returns and that outperformance on both an absolute and risk-adjusted basis can be attained by investing in a portfolio composed of publicly traded companies on the BC list. Furthermore, this study provides support for the theory relating satisfied employees and superior stock returns by demonstrating that companies on the BC list

had superior fundamental performance. This study also provides another indication that investors are undervaluing intangible assets such as employee satisfaction. Quantitative investors should consider the BC list as a factor when developing stock picking models and discretionary investors should give thought to employee satisfaction when picking stocks.

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