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EVENT STUDY ANALYSIS OF CORPORATE SOCIAL RESPONSIBILITY ACTIONS  
AND FIRM STOCK RETURN

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## **ABSTRACT**

With the vast number of companies engaged in corporate social responsibility (CSR), it is safe to say CSR isn't disappearing from the corporate landscape anytime soon. This study seeks to determine whether there is a relationship between a CSR action, as seen through a firm issued press release, and the firm's stock price return. This study uses a sample size of over fifty companies and over eight hundred unique press releases. This study aims to help fill the void of quantitative research activity in the field of corporate social responsibility as it relates to the firm.

## TABLE OF CONTENTS

List of Tables .....	iii
Acknowledgements.....	iv
Chapter 1 Introduction.....	1
Chapter 2 Literature Review.....	3
The Corporation.....	3
Effectiveness of CSR and its payoff.....	4
CSR and Human Capital.....	5
CSR and Financial Performance.....	6
CSR Metrics and Socially Responsible Investing.....	7
CSR and The Environment.....	7
CSR and Customer Satisfaction in Relation to Market Value.....	9
CSR and The Case Against It.....	10
CSR and Shareholder’s Value.....	11
Chapter 3 Methodology.....	13
Data Collection and Source.....	13
Data Scrubbing.....	13
Data Categorization.....	14
Data Analysis.....	16
Chapter 4 Discussion of Findings.....	17
Market Returns Data.....	17
The Standard and Poor’s 500 (S&P 500) Index Returns.....	19
How the Global 500 Fared.....	20
Global 500 in Comparison to Market Returns.....	23
Global 500 in Comparison to The Standard and Poor’s 500 Index Returns.....	25
Chapter 5 Conclusion.....	27
Limitations and Opportunities for Future Research.....	28
Appendix A T-distribution and T-test.....	30
Bibliography.....	32

## LIST OF TABLES

<b>Table 1</b> - Categories of Corporate Social Responsibility with Number of Events by Year....	14
<b>Table 2</b> - Significance Level Indicator for Two-Tailed T-Test.....	16
<b>Table 3</b> - Data Findings in Comparison to Market Returns (2010-2013).....	17
<b>Table 4</b> - Data Findings in Comparison to The Standard & Poor's 500 Returns (2010-2013) .....	19
<b>Table 5</b> - Global 500 Firms Ranked in 2012.....	21
<b>Table 6</b> - Global 500 Returns in Comparison to Market Returns .....	21
<b>Table 7</b> - Global 500 Returns in Comparison to The Standard and Poor's 500 Index Returns .....	23

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## **Chapter 1**

### **Introduction**

Corporate Social Responsibility (CSR) has become one of the hottest buzzwords in business; this term has become ubiquitous in corporations and classrooms across the nation. In the interest of this thesis we will be using the broad definition of CSR as “a company’s activities and status related to its perceived societal or stake holder obligations.” (Lou and Bhattacharya (2008)) The umbrella term of corporate social responsibility has come to reflect a company’s interaction with the following stakeholders including but not limited to: the firm’s employees, the firm’s customers, the community, the government, and competitor firms.

Corporate social responsibility (CSR) is relatively new to the business world, first being studied in correlation with a firm’s profits during the 1970’s (Burke and Logsdon 1996.) Through my readings it is apparent that there is still much discussion on how to value the correlation between firms’ CSR measures and profitability and stock return of that firm. Chatterji of Duke’s Fuqua School of Business in collaboration with the Case Foundation voices these same concerns when it comes to determining valuation methods of this business practice. Much of Chatterji (2008) is focused on “do socially responsible companies actually perform better?” While many people “have accepted that they do” he believes that academically “the jury is still out.”

The study of corporate social responsibility (CSR) and value to the firm is multifaceted and has been studied through a variety of metrics, yielding a wide array of results. Academics and organizations have studied: CSR and environmental performance, CSR strategic dimensions and

performance, CSR and legal repercussions to the firm, CSR value and research and development (R&D) intensity, CSR and socially responsible investing, and CSR and accounting profitability.

However there is a dearth of academic research on whether a company's corporate social responsibility (CSR) efforts can be monetized in the open market. Is the time and effort that so many firms expend in the name of having a robust and functioning CSR department and effort, really worth it? Can this effort be observed through stock price returns? Or, was Milton Friedman correct, in 1970, by denouncing this practice as thievery by corporate executives at the cost of shareholders? (Friedman (1970)) This paper looks at other notable works within this field of study from multiple academic backgrounds including: management, economics, finance and accounting. This paper ultimately seeks to draw conclusions between the relationship between company press releases (the event, which publically signals to the market a firm's CSR effort) and its stock returns over given time periods.

## **Chapter 2**

### **Literature Review**

#### **The Corporation**

Chatterji and Richman (2008) provide insight into corporate social responsibility (CSR) in the article "Understanding the "Corporate" in Corporate Social Responsibility." One of the main points in this article is how corporations deal with pressure from “progressives.” Progressives refer to people and ideas similar to those of the progressive movement in the early 20<sup>th</sup> century. This article defines CSR slightly different from this thesis however, similarly enough as the “belief that modern corporations have the financial resources, human capital and global influence to advance progressive causes.” This leads to their way of defining what a corporation is; it is a “complex bundle of interdependent resources and capabilities that constrain their ability to undergo rapid change in response to changes in the external environment.” (Chatterji and Richman (2008))

This article further suggests that activists and progressives need to look at a corporation from a “resource-based view” (RBV) instead of a “black-box” view. This change in view also suggests that progressives need to learn about the firm in order to accomplish the most from the goals they have for that specific firm while pursuing CSR changes. There are several articles that talk about the effectiveness of CSR and its role in the modern corporation.



### **Effectiveness of CSR and its payoff**

Burke and Logsdon (1996) provide a natural starting point for any thesis dabbling in this topic. Coincidentally, this article is mandatory reading for every Penn State Smeal School of Business student. This article attempted to determine from a qualitative perspective how to value the effectiveness of corporate social responsibility (CSR).

The article defines strategic corporate social responsibility (SCSR) as successful when it yields substantial business-related benefits to the firm. This definition is extremely vague; however this “strategic outcome” does culminate in the idea of “value creation.” This paper defines value creation as a readily measurable stream of economic benefits that the firm expects to see through CSR actions. The article also adds CSR into the traditional framework of value creation techniques of firms including creation of: new technology, new products, new production facilities, new training programs, enhanced customer service, and enhanced brand awareness. The article also included a five-part framework for assessing how CSR pays off in the long-run goal of value creation. This five-part framework includes:

1. Centrality- the measure of the closeness of fit between a CSR policy or program and the firm’s mission and objectives
2. Specificity – the firm’s ability to capture or internalize the efforts of its CSR programs
3. Proactivity – this lens evaluates the degree to which the behavior is planned in anticipation of emerging economic, technological, social, or political trends in the absence of crisis conditions. (i.e. Timeliness)
4. Voluntarism – indicates the scope of discretionary decision-making by the firm while not being forced to do something by the government

5. Visibility – this denotes the observability of a business activity and the firm’s ability to capitalize on this, internally and externally

One of the key ideas on which this article sheds light is the progression of strategic CSR outcomes, which if successful, yield value creation. In this thesis, value is “a particularly helpful measure of performance because it takes into account the long-term interest of all stakeholders in a company not just the shareholders.” However, firms create value by “investing capital to generate future cash flows at rates of return that exceed their cost of capital.” (Koller, Goedhart, and Wessels (2010)) Herein lays the cognitive dissonance that can be experienced when thinking about CSR; not all CSR activity is pursued with the goal of value creation for the firm. Therefore shouldn’t firms only pursue CSR initiatives, which can be measured completely through the value chain, and have acceptable rates of return?

### **CSR and Human Capital**

Human capital is a widely accepted factor in valuations of a firm; however it came under scrutiny when looked at through the lenses of corporate social responsibility (Bhattacharya, Sen and Korschun (2008)).

This article set out to discover the correlation between a corporate social responsibility (CSR) department and its efforts, and how they factor in an employee’s decision about where to work. This article primarily discussed how a firm could more effectively engage with its employees when it comes to promoting and growing the firm’s CSR brand. This article came to the conclusion that, with the rapid growth of CSR departments in many firms, there is a great need for a clear input-output model, which leads to the employees being the actual enactors of CSR efforts and the firm being the enabler by providing structure for the employees’ human

capital is widely considered a factor of value for corporations, implying that at the correct level it can be reflected in its stock price.

### **CSR and Financial Performance**

McWilliams and Siegel (1991) provide a history of papers that have been written about the topic of corporate social responsibility (CSR) and financial performance that both correlated and disassociated the relationship between CSR and bottom line financial impact.

Papers cited include:

1. Worrell, Davidson, and Sharma (1991)
2. Clinebell and Clinebell (1994)
3. Hannon and Milkovich (1996)
4. Posnikoff (1997) (found positive relationship)
5. Wright and Ferris (1997) (found negative relationship)
6. Teoh, Welch and Wassan (1999) (found no relationship)

There are a couple very important points that come from the article. Posnikoff (1997) and Write and Ferris (1997) studied the relationship between CSR and financial performance and published conflicting papers during the same year, only furthering the question of this relationship. The article identifies that investment in corporate social responsibility (CSR) promotes differentiation at the product and firm level. The article also delves into the relationship between CSR and research and development (R&D). The authors used the KLD index (an index of companies that have been screened to have extremely high levels of CSR) to correlate the CSR activities of firms and the R&D activities of the same firms. The authors concluded that there is a strong positive correlation between CSP (corporate social performance, a measure of CSR) and R&D activity. This article concluded that when one factors in R&D intensity, CSP is shown to

have a neutral effect on profitability. These authors conclusions helped lay the ground work for my suspicions regarding my thesis topic; there is little to no value added, when it comes to corporate actions regarding CSR events (as signaled through press releases) and the correlating stock returns.

### **CSR Metrics and Socially Responsible Investing**

Going hand in hand with the hung jury in the field of valuation of corporate social responsibility (CSR) departments and efforts, there is dissention on the topic of socially responsible investing (SRI). Chatterji and Levin (2005) look deeply at this practice in their article “Breaking down The Wall of Codes: Evaluating Non-Financial Performance Measurement.” When comparing the three main indices of SRI (KLD’s Domini 400, Dow Jones Sustainability Index and FTSE4Good (an index produced by the Financial Times and London Stock Exchange) the idea of firms with well-developed CSR departments/efforts is integral into inclusion in these indices. However, the authors of this article argue that the differences within the weighting systems, relative vs. absolute performance, data collection methodology and transparency call the entire validity of SRI into question. Finally the authors put together a wish list of steps in order to bring more validity to assessing the metrics of non-financial performance; a portion of this category being enhanced CSR departments/efforts.

### **CSR and The Environment**

As earlier established, the environment is one of the main stakeholders in assessing the value of a firm’s corporate social responsibility (CSR) department and efforts. Kronar and Cohen (2001) provide a study of how firms deal with environmental standards set by themselves and

other stakeholders, mainly the government. The relationship that was studied asked the question: does being environmentally conscious, primarily in the industrial sector, add market value to a firm? While environmental performance is only one aspect of CSR, it is one of the keys to a well-recognized CSR department. Kroner and Cohen's (2001) article highlights it is one of the pillars of CSR. This category is also one of the most publicized in company press releases regarding CSR efforts in this thesis.

The study showed that firms in 1994 spent more than 120 billion dollars in order to comply with and exceed environmental standards. This paper went on to examine how this investment in the firm's environmental reputation was valued in the market place. There were two main factors that the researchers focused on; Toxic emissions (TRI levels) data (by the ton) and number of current outstanding environmentally related lawsuits against the firms.

This study had a large sample size starting with a large number of Fortune 500 firms and then using SIC codes, Standard Industry Classification Codes, which have since been replaced with North American Industry Classification Codes (NAICS)) in order to narrow down to the firms that affected the environment the most. This effectively excluded mostly financial and insurance firms. With a sample size of 233 firms the researchers concluded that the average liability of a firm was \$380 million between TRI levels and lawsuits, which accounted for approximately nine percent of replacement value of assets. The researchers concluded that with a ten percent reduction in TRI emissions the average firm would immediately see an increase in intangible-asset value of approximately \$34 million. The researchers also concluded that a reduction of "one environmental lawsuit increases the average firm value by \$170,000" however given the high cost of litigation being sued does have a significant effect on the valuation of the firm.

Kroner and Cohen's (2001) piece of research on firm value and environmental performance was an important first step in assessing why publically traded companies invest in

“environmental-reputational capital.” While establishing the correlation between firm value and environmental-reputational capital the researchers fail to conclude a causal relationship. One question raised by this paper is “Are highly reputable and profitable companies environmentally sound because they can afford to be, or does that environmental concern enhance their reputation? Is it possible that good managers spend time on environmental quality, but these expenditures do not create any value for the firm? If so, our results might be an indication that environmental performance is a proxy for good management.” This study is another case of questioned causation between CSR actions and value added through the firm.

### **CSR and Customer Satisfaction in Relation to Market Value**

Luo and Bhattacharya (2006) studied the relationship between corporate social responsibility and customer satisfaction to market value. This article “Corporate Social Responsibility, Customer Satisfaction, and Market Value” seeks to determine whether or not the large influx of corporate social responsibility (CSR) departments within Fortune 500 firms affects market value through measures of customer satisfaction. The article acknowledges that companies may generate different returns to CSR in different environments, even acknowledging that CSR efforts can lead to negative market valuations, quantitative or qualitative. This paper also gives another great umbrella definition for what CSR is: “a company’s activities and status related to its perceived societal or stakeholder obligations.”

The researchers relate CSR and increased customer satisfaction, which subsequently leads to increased market values, on three levels.

1. “Companies actions appeal to the multidimensional side of the consumer” thus creating “generalized consumers [whom] are more likely to be satisfied by products and services that socially responsible firms (versus socially irresponsible counterpart) offer.

2. “A strong record of CSR creates a favorable context that positively boost[s] consumers’ evaluations of and attitude toward the firm”
3. “All else being equal customers likely derive better perceived value and consequently, higher satisfaction from a product that is made by a socially responsible company”

The authors used the following variables, taking into account control variables such as R&D intensity:

1. A “large scale, survey data set available from [Fortune America’s Most Admired Companies] FAMA to measure CRS” – interval from 0-10
2. Customer Satisfaction – ASCI – Interval from 0-100
3. Product Quality – FAMA – interval from 0-10
4. Innovativeness capability – FAMA – Interval from 0-10
5. Tobin’s Q (stock price-based measure of a firms market value) – Compustat – Ratio
6. Stock Return - Compustat – Ratio

The article came to a two-fold conclusion “(1) CSR affects market value [partially] through the mediator or consumer satisfaction and (2) return to CSR can both be positive and negative depending on the levels of a firm’s corporate abilities.” This paper goes on to say that along with CSR initiatives having managers that work to create high product quality is vastly important because of the enhanced negative relationship between bad press and increased CSR activity.

### **CSR and The Case Against It**

While many extol the values of corporate social responsibility (CSR), not all academics see this practice in such a favorable light. Dr. Robert B. Reich of the University of California at Berkley’s Goldman School of Public Policy is just one of the academics that falls into this

category. In his paper “The Case against Corporate Social Responsibility” Reich (2008) argues that CSR “is founded on a false notion of how much discretion a modern public corporation has to sacrifice profits for the sake of certain social goods.”

Economist Milton Friedman argued decades ago “the business of a business is to make a profit, not to engage in socially beneficial acts.” (Friedman, 1970) With this mantra in mind, Reich (2008) goes on to make a mockery of the “triple bottom line” (a standardized report which enumerates progress that a company has made toward social and environmental goals) as he cites that Enron was one of the companies that was proverbially patted on the back for its leadership of the triple bottom line whilst committing one of the largest corporate frauds in history. In the continuing mockery of CSR and its relation to companies, Reich (2008) points out that investors do not penalize companies for having bad CSR reputations, such as Exxon Mobil, due to the fact that all investors really cared about was return on equity.

Reich (2008) disavows the relationship between Corporate Social Responsibility (CSR) and corporations by stating “Corporations are not set up to be public charities. The world’s biggest philanthropists, Bill and Melinda Gates, do not draw on Microsoft’s profits; they draw on their own vast fortune.” Finally, Reich (2008) states that massive corporate social responsibility actions can only do one of two things: reward shareholder’s by adding bottom line value or more likely giving away shareholders’ money.

### **CSR and Shareholder’s Value**

The Bank of Finland’s Monetary Policy and Research Department noticed a lack of “established empirical research on [Corporate Social Responsibility, (CSR)] and its impact and relevance on capital markets.” Becchetti, Ciriretti and Hasan (2009) investigated the relation between firms share prices entering and exiting the Domini 400 Social Index between the years of



1990 and 2004. The Bank of Finland surmised that the “stock market prices should reflect the fundamental expect[ed] value of the stock, i.e. the discounted sum of the expected dividends accruing to the owner of the shares.” With the assumption of rational investors, the Bank of Finland assumed that just like news of fundamental changes in a stock (expected future cash flows, interest rates, risk premiums, stock betas) will bring a price change, so would the news of a corporation’s entrance and exit from this CSR index.

The Bank of Finland study used a sample of 327 events of entrance and exits to the Domani 400 Index. This study allowed a reader to see how a firm’s share price would fare with an entrance and exit from the Domani 400 Index, as this was the case 27 different times. The Bank of Finland put in place many control variables which included events related to bankruptcy, lack of informational representation, mergers and acquisition activity, and decisions to go private to name a few. The Bank of Finland also controlled for the event reactions to be captured in many different time windows including:

- Absolute return (0) – day of event
- Absolute return (-1) - day before event
- CAR (-1, +3) – trend event returns from day before to three days post event
- CAR (-1,+1) Trend event returns from day before to day after event
- CAR (-1, 0) Trend event return day before to day of event

This study found two primary conclusions “1. A significant upward trend on absolute values of abnormal returns, irrespective of the event (entry/exit of CSR index) and 2. A significant negative effect on abnormal returns after expulsion of the CSR index”. However this second finding was attributed to Socially Responsible Investment Managers (small institutional money) penalizing these companies, through massive sell-offs, rather than loss of fundamental shareholder value.

## **Chapter 3**

### **Methodology**

#### **Data Collection and Source**

In looking for a concise yet individual source of data for corporate social responsibility I discovered a source called CSRWire.com. This source has one of the largest collections of corporate social responsibility archives online. This source published member companies' press releases when the firm commits or enacts a corporate social responsibility event. These press releases officially alert the market to an individual firm's corporate social responsibility actions.

#### **Data Scrubbing**

I narrowed the data pool down to publicly traded companies. From this list of corporations; I eliminated foreign firms that were American Depository Receipts (ADR's) listed on United States stock exchanges. Then, from this remaining list I obtained a list of corporate social responsibility related press releases from January 1<sup>st</sup>, 2010 to February 16<sup>th</sup>, 2014. However only having market returns from the University of Pennsylvania's Wharton Research Data Services (WRDS) over the years of 2010 to 2013, I further trimmed the data to correspond with these dates. Once this list was assembled I weeded out any press releases that were officially released while the markets were closed on Saturday or Sunday. This thesis solely analyzed events released during normal trading day hours (9:30 am – 4:00 pm). If the press release occurred post-trading day, the press release date was moved to the following day.

This data (i.e. press release time and date) was analyzed in association with the firm's stock price, during multiple different time windows. First of these windows, was the day before the press release (T-1), second was the day of the press release (T=0), third was day after the price release (T+1), and finally the combined return of the three days (-1,0,+1)). There were adjustments also made to the anterior dates, for example if (-1) falls on a Sunday the official (-1) day would be changed to the most recent previous trading day (i.e. Friday). Once again it must be noted that this same treatment was not afforded to press releases which occurred during the weekend, the samples that fell into this category were removed from the data set. These windows allowed a view of how a firm's corporate social responsibility action via that firm's press release related to the firm's stock return during the same time windows. The concept of studying this relation is to see how the whole market and market proxy (as represented by daily returns of The Standard and Poor's 500 Index) react to firms who engage in corporate social responsibility.

### Data Categorization

Finally, these press releases were categorized into the following types of corporate social responsibility actions.

**Table 1** - Categories of Corporate Social Responsibility with Number of Events by Year

Type of CSR Action and Year	2010	2011	2012	2013	Grand Total
Community and Community Development	27	26	15	26	94
CSR Report	16	17	18	21	72
Diversity and Human Resources	7	9	11	11	38
Environment and Sustainability	79	63	32	35	209
Health and Wellness	22	19	11	5	57
Philanthropy & Corporate Contributions	69	56	51	56	232
Ratings and Awards	45	30	24	25	124
<b>Grand Total</b>	<b>265</b>	<b>220</b>	<b>162</b>	<b>179</b>	<b>826</b>

Community and Community Development – This is a subcategory of CSR includes firms who invest in programs that are aimed a community improvements. This category includes firms that host technology competitions for students to firms that help in Community Theater and art.

Corporate Social Responsibility Report – This subcategory of CSR, is simply the press release that announces a firm release of their annual Corporate Social Responsibility reports (also known as, Annual Sustainability Reports or Annual Citizenship Report.)

Diversity and Human Resources – This subcategory of CSR includes events that promote awareness of all types of diversity, including gender, race and religion.

Environment and Sustainability – This subcategory of CSR is one of the largest in this sample. This category includes firm actions such as: when firms convert firm cars to run on alternative energy sources, when a firm reduces is carbon footprint, and when a firm decides to more sustainably source a material for their business operations.

Health and Wellness – This subcategory includes firm actions to better employee and public health.

Philanthropy and Corporate Philanthropic Actions – This subcategory of CSR, is defined when firms give direct donations to either the firm’s CSR events or to a cause or community. This type of CSR press release is also common in this study, possibly because of the relative ease to simply cut a check from the firm’s bottom line and make an announcement.

Ratings and Awards – This subcategory of CSR, is defined as when a firm is recognized for its contributions to its stakeholders. This category includes when firms are added to CSR and SRI indexes and when they are given awards for going above and beyond regulatory policy guidelines.

## Data Analysis

The announcements were broken down into the different areas of corporate social responsibility (CSR), as aforementioned. This thesis looks to determine whether the market viewed corporate actions in the CSR space as significant, good or bad. Thus, the market return data (as gathered through historical stock quotes on, Yahoo Finance and Google Finance) that correlated with the press releases of a firm's CSR action were compared to two different market returns firstly, whole market return (WRDS, 2014) and secondly the Standard and Poor's 500 Index return (WRDS, 2014). The average sample difference statistic was put through a two-tailed t-test in order to estimate significance level. Below is a table of alpha levels, which will be used as benchmarks of statistical significance and how they will be represented in the proceeding data table.

**Table 2** - Significance Level Indicator for Two-Tailed T-Test

Significance level	Indicator
Alpha $\alpha = .1$	*
Alpha $\alpha = .05$	**
Alpha $\alpha = .01$	***

\*Full table for Values of the t-distribution (two-tailed) is located in Appendix A

## Chapter 4

### Discussion of Findings

**Table 3** - Data Findings in Comparison to Market Returns (2010-2013)

Type of CSR Action		TRM [T=0]	TRM [T=-1,0,1]
Community Relations	n = 94		
	Avg. Sample difference	-0.00095	-0.00225
	T Statistic	-0.62841	-1.18047
CSR Report	n = 72		
	Avg. Sample difference	-0.00129	-0.00399
	T Statistic	-0.86503	<b>-1.72126*</b>
Diversity and HR	n = 38		
	Avg. Sample difference	0.00251	0.00170
	T Statistic	1.39769	0.66785
Environment	n = 209		
	Avg. Sample difference	0.00132	0.00177
	T Statistic	<b>1.79632*</b>	1.47593
Health and Wellness	n = 57		
	Avg. Sample difference	0.00118	-0.00152
	T Statistic	0.74207	-0.66790
Corporate Philanthropy	n = 232		
	Avg. Sample difference	0.00060	0.00067
	T Statistic	0.77454	0.60195
Ratings and Awards	n = 124		
	Avg. Sample difference	-0.00016	0.00000
	T Statistic	-0.06934	0.00126
Totals	n = 826		
	Avg. Sample difference	-0.00048	-0.00001
	T Statistic	-0.92900	-0.01250

### Market Returns Data

Looking at the data table it is evident that most of the corporate social responsibility (CSR) breakdown fields show no statically significant differences in returns from the market

return, during the same period of time. There is also a rather even breakdown of positive and negative non-statistically significant t-test scores in the table.

There are two statistically significant levels on this table, albeit at a very broad level of alpha  $\alpha = .1$ .

The subcategory of environment and sustainability, with a rather large sample of two hundred and nine data points, yielded a t-test result of 1.79632. This statistically significant difference between the day of press release return and whole market return for that day signifies that this return result difference would happen less than five percent of the time, assuming complete randomness. This result indicates that the market seemingly rewards companies that release news of CSR actions in the subcategory of environment and sustainability, with greater than market firm-stock returns for the day of press release. One explanation of this result is the fact that some firm actions that are categorized under this subcategory also directly affect bottom line profits. A great example of this is AT&T's "Paperless billing" and "Skip the bag" campaigns which while helping reduce the firm's need for trees and other natural resources, it also saved AT&T a significant amount on bottom line cost.

However, within the subcategory of CSR Report, the data paints a very different story. This category tracked the press release that documented the release of a firm's annual corporate social responsibility, corporate responsibility, or sustainability report (this thesis views all of these reports under the umbrella of CSR reports), the findings were much the opposite of the environment and sustainability subcategory. The data indicated the market was not as favorable to this subcategory of CSR reports, yielding a t-test statistic of -1.72126. This result indicates that the market seemingly punishes companies that release news of annual CSR reports, with consistently lower than market firm returns over the multi-day return period. One of the interesting aspects of the annual CSR report subcategory is that the information that is being released to the market isn't new news. In fact, the market should be consciously or unconsciously

aware of all of this information since it is essentially a recap of all of the firms CSR dealings in the prior year.

**Table 4** - Data Findings in Comparison to The Standard & Poor's 500 Returns (2010-2013)

Type of CSR Action		S&P [T=0]	S&P [T=-1,0,1]
Community Relations	n = 94		
	Avg. Sample difference	-0.00106	-0.00231
	T Statistic	-0.70178	-1.21230
CSR Report	n = 72		
	Avg. Sample difference	-0.00124	-0.00394
	T Statistic	-0.8317	<b>-1.73256*</b>
Diversity and HR	n = 38		
	Avg. Sample difference	0.00275	0.00206
	T Statistic	1.554457	0.82175
Environment	n = 209		
	Avg. Sample difference	0.001293	0.00188
	T Statistic	<b>1.801926*</b>	1.59419
Health and Wellness	n = 57		
	Avg. Sample difference	0.001046	-0.00164
	T Statistic	0.677204	-0.73517
Corporate Philanthropy	n =232		
	Avg. Sample difference	0.000677	0.00080
	T Statistic	0.604448	0.72699
Ratings and Awards	n =124		
	Avg. Sample difference	-0.00018	-0.00005
	T Statistic	-0.07849	-0.02173
Totals	n =826		
	Avg. Sample difference	-0.00052	-0.00007
	T Statistic	-1.01439	-0.10128

### The Standard and Poor's 500 (S&P 500) Index Returns

Looking at the data table it is evident that most of the corporate social responsibility (CSR) breakdown fields show no statically significant differences from The Standard and Poor's 500 index returns, during the same period of time. Much like whole market returns, there seems to be an even breakdown of positive and negative non-statistically significant t-test scores in the table.



As with the whole market table there are two statistically significant levels on this table, albeit at a very broad level of alpha  $\alpha = .1$ .

The subcategory of environment and sustainability yielded a t-test statistic result of 1.801926, a result even more statistically significant as compared to the whole market return. However this is to be expected since you are comparing these results to a smaller population. This statistically significant difference between the day of press release return and the Standard & Poor's 500 index return for that day, signifies that this result would happen less than five percent of the time, assuming complete randomness. This result once again indicates that the market (as seen through this market proxy) rewards companies that release news of CSR actions in the subcategory of environment and sustainability, with on average greater than S&P 500 index firm-stock returns for the day of press release. The same explanation can be attributed to the statistical significance level in this data as in the whole market return section.

Again, within the subcategory of CSR Reports, the findings were much the opposite of the environment and sustainability subcategory. The data indicated that this proxy for the market was not as favorable to this subcategory of CSR reports, yielding a t-test statistic of -1.73256. This result indicates that the market punishes companies in relation to this market proxy that release news of annual CSR reports, by consistently lower than S&P 500 index firm-stock returns over the multi-day return period.

### **How the Global 500 Fared**

The data collected had numerous Global 500 companies, the largest five hundred companies that operate around the globe. These firms must have also been listed on a standard United States stock exchange. These are the largest firms in the sample; the firms allocate millions of dollars and thousands of man-hours toward corporate social responsibility (CSR)

efforts. Is it possible that the market rewards these larger firm's CSR actions because of their scale or do these firms just waste the most?

**Table 5** - Global 500 Firms Ranked in 2012

Company	Global 500 Rank 2012
Abbott	268
American Express	344
Anheuser-Busch InBev	265
AT&T Inc.	32
Coca-Cola Company, The	212
CVS Caremark	56
Delhaize Group	374
Dell	147
Disney	249
FedEx Corp.	263
Ford Motor Company	27
General Electric Company	22
IBM	57
Johnson Controls	251
JPMorgan Chase & Co.	51
Merck & Co., Inc.	207
Microsoft Corporation	119
Morgan Stanley	261
PepsiCo	133
Verizon Communications	50
Wal-Mart Stores, Inc.	3

**Table 6** - Global 500 Returns in Comparison to Market Returns

Company	Market Comparison	TRM [T=0]	TRM [T=-1,0,1]
Abbot	n = 46		
	Avg. Sample difference	-0.00060	0.00028
	T Statistic	-0.45071	0.15976
AB Inbev	n=14		
	Avg. Sample difference	-0.00285	-0.00290
	T Statistic	-1.01259	-0.70335
American Express	n = 1		
	Avg. Sample difference	N/A	N/A
	T Statistic	N/A	N/A
AT&T	n = 55		
	Avg. Sample difference	-0.00030	0.00041
	T Statistic	-0.24194	0.25743
Coke	n = 32		
	Avg. Sample difference	0.00059	0.00072

	T Statistic	0.46068	0.50362
CVS	n =27		
	Avg. Sample difference	0.00000	-0.00637
	T Statistic	-0.00097	-1.66059
Delhaize Group	n =4		
	Avg. Sample difference	0.00101	0.01950
	T Statistic	0.18554	1.24251
Dell	n = 4		
	Avg. Sample difference	0.01537	0.01634
	T Statistic	1.57338	0.75240
Disney	n = 2		
	Avg. Sample difference	-0.00342	-0.01377
	T Statistic	-0.26278	-1.56242
FedEx	n = 37		
	Avg. Sample difference	-0.00278	-0.00603
	T Statistic	-1.36857	<b>-2.25486**</b>
Ford	n = 6		
	Avg. Sample difference	-0.00999	-0.00918
	T Statistic	-0.67986	-0.45068
GE	n = 14		
	Avg. Sample difference	-0.00403	-0.00313
	T Statistic	-1.17191	-0.75232
IBM	n =18		
	Avg. Sample difference	0.00071	-0.00006
	T Statistic	-0.00064	0.28404
J.P. Morgan	n =39		
	Avg. Sample difference	0.00058	-0.00018
	T Statistic	0.41153	-0.07873
Johnson Controls	n =38		
	Avg. Sample difference	0.00085	-0.00032
	T Statistic	0.53631	-0.10266
Merck & Co.	n = 38		
	Avg. Sample difference	-0.00290	-0.00177
	T Statistic	-1.59999	-0.78431
Microsoft	n = 1		
	Avg. Sample difference	N/A	N/A
	T Statistic	N/A	N/A
Morgan Stanley	n = 29		
	Avg. Sample difference	0.00272	0.00478
	T Statistic	0.88981	1.07526
Pepsi	n = 7		
	Avg. Sample difference	-0.00527	-0.00383
	T Statistic	<b>-3.84860***</b>	-1.20223
Verizon	n = 6		
	Avg. Sample difference	0.00745	0.00009
	T Statistic	0.00304	0.01171
Wal-Mart	n =6		

	Avg. Sample difference	-0.00443	-0.00538
	T Statistic	0.00793	-0.87550
Totals	n = 424		
	Avg. Sample difference	-0.00073	-0.00056
	T Statistic	-1.22856	-0.69016

### Global 500 in Comparison to Market Returns

While looking at the sample of the twenty one global 500 firms and how their returns compare to market returns during the same period, there are two stand-out statistics. The firms FedEx and Pepsi show statistically significant negative average returns in comparison to the market returns for the same time period.

The average FedEx stock return difference between the three day period (-1, 0, 1) and the market return was -.00603 which produced a t-test statistic of -2.25486. This statistically significant result states that when FedEx announced any corporate social responsibility action their stock price highly underperformed the market. In the data FedEx released a press announcement indicating CSR action thirty seven times over a span of three years (2010-2013).

The average Pepsi Co. stock return difference on the day of a press release and the market return was -.00527, which produced a t-test statistic of -3.8486. This statistically significant result (alpha level of  $\alpha = .01$ ) implies that when Pepsi announced any corporate social responsibility report their stock price highly underperformed the market on the day of announcement, over the past three years (2010-2013.)

Overall the Global 500 didn't manage to record statistically significant differences in stock returns when compared to the market; also the distribution between positive and negative returns was seemingly normal.

**Table 7** - Global 500 Returns in Comparison to The Standard and Poor's 500 Index Returns

Company	Market Comparison	S&P [T=0]	S&P [T=-1,0,1]
Abbot	n = 46		

	Avg. Sample difference	-0.00069	0.00001
	T Statistic	-0.55181	0.00311
AB Inbev	n=14		
	Avg. Sample difference	-0.00267	-0.00354
	T Statistic	-0.98819	-0.91488
American Express	n = 1		
	Avg. Sample difference	N/A	N/A
	T Statistic	N/A	N/A
AT&T	n = 55		
	Avg. Sample difference	-0.00035	0.00021
	T Statistic	-0.28462	0.14147
Coke	n = 32		
	Avg. Sample difference	0.00053	0.00052
	T Statistic	0.42170	0.35495
CVS	n =27		
	Avg. Sample difference	0.00132	-0.00538
	T Statistic	0.41255	-1.40618
Delhaize Group	n =4		
	Avg. Sample difference	0.00097	0.01974
	T Statistic	0.15971	1.23018
Dell	n = 4		
	Avg. Sample difference	0.01430	0.01589
	T Statistic	1.50154	0.73047
Disney	n = 2		
	Avg. Sample difference	-0.00325	-0.01302
	T Statistic	-0.24767	-1.49649
FedEx	n = 37		
	Avg. Sample difference	-0.00293	-0.00602
	T Statistic	-1.43869	<b>-2.30405**</b>
Ford	n = 6		
	Avg. Sample difference	-0.01036	-0.00928
	T Statistic	-0.70385	-0.45366
GE	n = 6		
	Avg. Sample difference	-0.00433	-0.00346
	T Statistic	-1.26440	-0.82086
IBM	n =18		
	Avg. Sample difference	0.00010	-0.00047
	T Statistic	-0.70449	1.45832
J.P. Morgan	n =39		
	Avg. Sample difference	0.00071	-0.00022
	T Statistic	0.50563	-0.09545
Johnson Controls	n =39		
	Avg. Sample difference	0.00104	-0.00001
	T Statistic	0.64376	-0.00258
Merck & Co.	n = 38		
	Avg. Sample difference	-0.00298	-0.00181
	T Statistic	-1.67687	-0.83252

Microsoft	n = 1		
	Avg. Sample difference	N/A	N/A
	T Statistic	N/A	N/A
Morgan Stanley	n = 29		
	Avg. Sample difference	0.00281	0.00499
	T Statistic	0.93466	1.13625
Pepsi	n = 7		
	Avg. Sample difference	-0.00415	-0.00246
	T Statistic	<b>-2.67190**</b>	-0.77844
Verizon	n = 6		
	Avg. Sample difference	0.00710	0.00351
	T Statistic	<b>3.07205**</b>	0.62176
Wal-Mart	n = 6		
	Avg. Sample difference	-0.00435	-0.00518
	T Statistic	-1.36396	-0.93653
Totals	n = 424		
	Avg. Sample difference	-0.000763	-0.00058
	T Statistic	-1.359423296	-0.721583901

### Global 500 in Comparison to The Standard and Poor's 500 Index Returns

While looking at the sample of the same twenty one global 500 firms and how their returns compare to The Standard and Poor's 500 Index returns during the same period, there are three stand-out statistics. There were two negative results and one positive result. The firms FedEx and Pepsi, once again show statistically significant negative average returns in comparison to the Standard and Poor's returns for the same time period.

As previously mentioned FedEx and Pepsi recorded statistically significant returns in comparison to The Standard and Poor's 500 Index returns for the same period, this is to be expected due to the fact that this thesis is using The Standard and Poor's 500 Index as a market proxy.

Verizon, however, recorded a positive statistically significant average difference return over The Standard and Poor's 500 Index returns during the time window of (0). This difference produced a t-test statistic of 3.07205, which further led to an alpha level of .05. While this t-test

statistic represents a generally accepted alpha level of significance, I would be remiss to not point out the relatively small sample size of six observations over three years which gives a degrees of freedom value of five.

Overall the Global 500 once again didn't manage to record statistically significant differences in stock returns when compared with The Standard and Poor's 500 Index, also the distribution between positive and negative returns was seemingly normal. Also it must be noted that both the Global 500 returns (as in comparison to the whole market returns and the Standard and Poor's Index returns) yielded negative t-test statistics. The day of event (0) return comparisons were much higher in a negative direction than the multi-day returns comparison. The time window of (0) yielded a negative t-test statistic that was approximately twice the t-test statistic that was yielded when one compares the returns over a multi-day window (-1, 0, 1). This result implies how efficient the market is and how quickly new information gets priced into the valuation of a firm.

## **Chapter 5**

### **Conclusion**

Simplistically, this endeavor was a cost benefit analysis of one of the most prominent business trends in recent history; the euphoric and contagion-like spread of the theorem of corporate social responsibility (CSR). After observing a sample of data points that connected a firm's CSR actions with the market's reaction as viewed through the firm's stock return, this thesis produced interesting results which should continually be studied and examined in regard to the quantitative study of corporate social responsibility.

After examining the entire population of the thesis sample, there were no overall samples which yield statistically significant returns either positive or negative. This piece of evidence further begs the question of, should firms who participate in corporate social responsibility apologize to shareholders for spending shareholder money without proof of constantly positive returns at a rate above their cost of capital?

When the data was further inspected to see the relationship between global 500 firms; firms who arguably spend the most on corporate social responsibility, the results were more ominous. Three out of the four statistically significant results were negative. In total, for the global 500 firms, the average difference in returns as compared to every single benchmark and time window were negative. On average, if a global 500 firm commits an action of corporate social responsibility the firm's stock returns will be on average below the market and The Standard and Poor's 500 Index on the day of the action, and the following days return.



### **Limitations and Opportunities for Future Research**

This thesis' sample size consisted of fifty one (51) firms, and eight hundred and twenty six (826) specific actions of corporate social responsibility over a period of three years (2010-2013). Further, these data points each yielded two firm stock price return statistics (total number; 1,652 unique data points) which could be compared to the market returns and The Standard and Poor's 500 Index returns. While there were thousands and thousands of instances of firms committing corporate social responsibility acts during this time period, recording all of them would have been nearly impossible. Although this would have yielded more accurate results, this analysis is very comfortable with the sample size.

Depending on individual or firm beliefs about the market efficiency, one might be able to criticize the timetables this thesis chooses to use in order to record market reaction. While it is possible to track hourly changes stock returns, due to the time restrictions this method wasn't viable.

Finally, this thesis viewed a firm's press release of a commitment of a corporate social responsibility action as the earliest and best indicator of when the market is publically informed of this information. If there is a more accurate and easily observed manor of surrogating this action, then this indicator should be used.

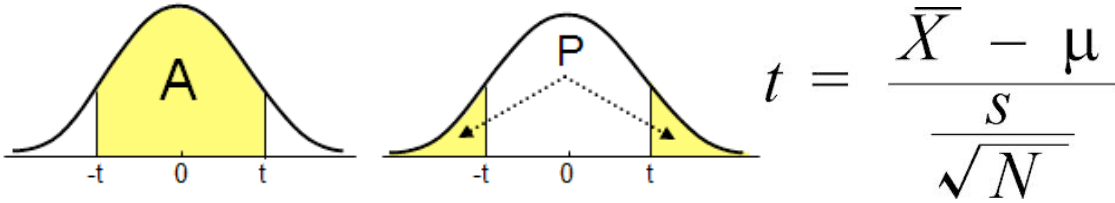
The inspiration behind this entire thesis was the desire to answer the underlying business question "Is it worth it?" It wouldn't be wrong to look at these results and quickly conclude that the market is rather indifferent to the entire concept of corporate social responsibility. However, since corporate social responsibility has become such a mainstay in the business and academic world, there are many interesting follow-up theses. One in particular would be, is there any negative relationship between firm stock return and a complete lack of any corporate social responsibility presence? This could possibly be studied if there were a population of publically

traded firms, which exited the entire space of corporate social responsibility. Another interesting step would be to survey investors, simply asking them if they would be willing to accept lower returns in order for companies to participate in the corporate social responsibility space. Further, the investors should be asked at what level of diminished returns is acceptable.

This thesis may take a rather Machiavellian view of corporate social responsibility; however the true question that each investor must ask himself or herself is “Am I willing to sacrifice money out of my own pocket in order to feel better about companies in which I invest?”

Appendix A

T-distribution and T-test



DF	A	0.8	0.9	0.95	0.98	0.99	0.995	0.998	0.999
	P	0.2	0.1	0.05	0.02	0.01	0.005	0.002	0.001
1		3.078	6.314	12.706	31.82	63.657	127.321	318.309	636.619
2		1.886	2.92	4.303	6.965	9.925	14.089	22.327	31.599
3		1.638	2.353	3.182	4.541	5.841	7.453	10.215	12.924
4		1.533	2.132	2.776	3.747	4.604	5.598	7.173	8.61
5		1.476	2.015	2.571	3.365	4.032	4.773	5.893	6.869
6		1.44	1.943	2.447	3.143	3.707	4.317	5.208	5.959
7		1.415	1.895	2.365	2.998	3.499	4.029	4.785	5.408
8		1.397	1.86	2.306	2.897	3.355	3.833	4.501	5.041
9		1.383	1.833	2.262	2.821	3.25	3.69	4.297	4.781
10		1.372	1.812	2.228	2.764	3.169	3.581	4.144	4.587
11		1.363	1.796	2.201	2.718	3.106	3.497	4.025	4.437
12		1.356	1.782	2.179	2.681	3.055	3.428	3.93	4.318
13		1.35	1.771	2.16	2.65	3.012	3.372	3.852	4.221
14		1.345	1.761	2.145	2.625	2.977	3.326	3.787	4.14
15		1.341	1.753	2.131	2.602	2.947	3.286	3.733	4.073
16		1.337	1.746	2.12	2.584	2.921	3.252	3.686	4.015
17		1.333	1.74	2.11	2.567	2.898	3.222	3.646	3.965
18		1.33	1.734	2.101	2.552	2.878	3.197	3.61	3.922
19		1.328	1.729	2.093	2.539	2.861	3.174	3.579	3.883
20		1.325	1.725	2.086	2.528	2.845	3.153	3.552	3.85
21		1.323	1.721	2.08	2.518	2.831	3.135	3.527	3.819
22		1.321	1.717	2.074	2.508	2.819	3.119	3.505	3.792
23		1.319	1.714	2.069	2.5	2.807	3.104	3.485	3.768
24		1.318	1.711	2.064	2.492	2.797	3.09	3.467	3.745
25		1.316	1.708	2.06	2.485	2.787	3.078	3.45	3.725
26		1.315	1.706	2.056	2.479	2.779	3.067	3.435	3.707

<b>27</b>		1.314	1.703	2.052	2.473	2.771	3.057	3.421	3.69
<b>28</b>		1.313	1.701	2.048	2.467	2.763	3.047	3.408	3.674
<b>29</b>		1.311	1.699	2.045	2.462	2.756	3.038	3.396	3.659
<b>30</b>		1.31	1.697	2.042	2.457	2.75	3.03	3.385	3.646
<b>31</b>		1.309	1.695	2.04	2.453	2.744	3.022	3.375	3.633
<b>32</b>		1.309	1.694	2.037	2.449	2.738	3.015	3.365	3.622
<b>33</b>		1.308	1.692	2.035	2.445	2.733	3.008	3.356	3.611
<b>34</b>		1.307	1.691	2.032	2.441	2.728	3.002	3.348	3.601
<b>35</b>		1.306	1.69	2.03	2.438	2.724	2.996	3.34	3.591
<b>36</b>		1.306	1.688	2.028	2.434	2.719	2.991	3.333	3.582
<b>37</b>		1.305	1.687	2.026	2.431	2.715	2.985	3.326	3.574
<b>38</b>		1.304	1.686	2.024	2.429	2.712	2.98	3.319	3.566
<b>39</b>		1.304	1.685	2.023	2.426	2.708	2.976	3.313	3.558
<b>40</b>		1.303	1.684	2.021	2.423	2.704	2.971	3.307	3.551
<b>42</b>		1.302	1.682	2.018	2.418	2.698	2.963	3.296	3.538
<b>44</b>		1.301	1.68	2.015	2.414	2.692	2.956	3.286	3.526
<b>46</b>		1.3	1.679	2.013	2.41	2.687	2.949	3.277	3.515
<b>48</b>		1.299	1.677	2.011	2.407	2.682	2.943	3.269	3.505
<b>50</b>		1.299	1.676	2.009	2.403	2.678	2.937	3.261	3.496
<b>60</b>		1.296	1.671	2	2.39	2.66	2.915	3.232	3.46
<b>70</b>		1.294	1.667	1.994	2.381	2.648	2.899	3.211	3.435
<b>80</b>		1.292	1.664	1.99	2.374	2.639	2.887	3.195	3.416
<b>90</b>		1.291	1.662	1.987	2.369	2.632	2.878	3.183	3.402
<b>100</b>		1.29	1.66	1.984	2.364	2.626	2.871	3.174	3.391
<b>120</b>		1.289	1.658	1.98	2.358	2.617	2.86	3.16	3.373
<b>150</b>		1.287	1.655	1.976	2.351	2.609	2.849	3.145	3.357
<b>200</b>		1.286	1.652	1.972	2.345	2.601	2.839	3.131	3.34
<b>300</b>		1.284	1.65	1.968	2.339	2.592	2.828	3.118	3.323
<b>500</b>		1.283	1.648	1.965	2.334	2.586	2.82	3.107	3.31
$\infty$		1.282	1.645	1.96	2.326	2.576	2.807	3.09	3.291

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### Service

- Sub-chair for The Paterno Allocating Committee at The University Park Allocation Committee

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