Integrating CSR Activities Into Financial Evaluations

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Abstract

Watching how Oregon State is working to combat some of the complex social issues that plague the world today by placing student success at the top of their strategic priority list, the Oregon State Investment Group (OSIG) believes that by leveraging capital markets we can play our part in helping enhance student success at the university. Thus we are looking to raise $1,000,000 in funding for a Socially Responsible Investing (SRI) fund where students can learn socially responsible investing practices and acquire the skills they need to succeed in the market place. Ultimately we believe that capital markets can be leveraged to generate both impact and income, and that SRI will become a critical tool employed by both the public and private sector to solve the greatest challenges of the 21st century.

Nevertheless, the greatest challenge for socially responsible investors stems from the lack of tools that allow them to accurately price in the value of a publically traded company's Corporate Social Responsibility (CSR) activities. This results in asymmetric markets where the perceived value of a firm does not accurately reflect its intrinsic value. Thus the goal of this paper is to develop a theoretical foundation that links a firm's CSR activities to how they create value for the firm, construct an Environmental, Social and Governance (ESG) framework that allows investors to categorize and organize a firm's CSR activities, and then create a methodology that allows investors to use the ESG framework to translate a firm's CSR activities into numerical values that can be inputted into traditional financial models used to evaluate the value of a publically traded company.

After exploring academic literature and numerous case studies on this topic, we argue that the concept of Shared Value provides a strong theoretical framework that explains how a firm's CSR activities add value to the organization and that the shareholder value methodology provides a robust foundation from which we are able to build our own ESG integration methodology upon.

*For part of my FIN 340 course I was sanctioned by my professor to begin this research paper as part of my coursework. I then finished the remaining research outside of FIN 340.

Introduction to Corporate Social Responsibility (CSR)

Though the concept of CSR can be traced back centuries, the first popularization of the modern CSR movement can be traced back to the early years of the Cold War around 1945. (Spector 2008). Originally the concept of CSR transpired due to the threat of Communism during the Cold War, and the belief among business leaders that preserving capitalism and free markets was just as important as firm profitability. (Spector 2008). Throughout this time period, business leaders gave no thought in linking CSR to their overarching strategy or firm profitability. Rather the focus rested solely on understanding how business could benefit society. (Carrolll and Shabana, 2010).

During the 1970's, industry leaders and academics began to agree on a formal definition of CSR, and began to shift the conversation towards an emphasis on Corporate Social Performance (CSP). (Carroll 1999; Sethi 1975) The reason for the shift in the conversation was to emphasize the importance of firms not simply assuming responsibility on social issues, but actually measuring firm performance within the CSR realm. (Wartick and Cochran, 1985). Thus CSR began shifting towards the business case method where business leaders carefully analyzed the actual and expected economical and social outcomes of CSR related projects.

With an emphasis on tangible outcomes and measurement of performance, the 1980's and 1990's showed exponential growth in empirical research within the CSR realm with a emphasis on empirical analysis to link CSP with CFP. (Lee 2008) Moreover, CSR began to grow internationally during this time as more and more firms adopted CSR practices and the concept of Global Corporate Citizenship began to emerge. (Frederick 2008)

Most recently in history, the 2000's have been plagued by the Enron Scandals and the Financial Crisis created by Wall Street in 2008, with many of its effects still being felt around the world. (Carroll 2009). Furthermore, with most scientists agreeing that global warming presents a serious global issue, a renewed interest in sustainable and environmentally responsible business practices has pushed companies to contemplate how they should reorient their business practices in order to meet a socioeconomic environment that values environmental and social responsibility.

Arguments for and Against CSR

One of the strongest arguments against CSR came from the late Milton Friedman, and is based on underlying economics. (Friedman, 1962) He argued that creating profits for shareholders was the single most important responsibility of business executives, and that if the free market system did not resolve social problems, then it would be the public sector's responsibility to fill that need, not the private sector's. A second argument that also supported Milton's objections against CSR is the fact that businesses lacked the necessary expertise to effectively construct and implement socially related projects. (Davis, 1973) Thus not only would CSR projects have increased risk due to the lack of expertise, but they might not even be able to fulfill the social objectives that the firm initially set out to accomplish. An additional argument against CSR consisted of the concern that if a business were to pursue both social and economic objectives, it would dilute its ability to compete effectively against international firms as the business must now allocate resources to two different objectives instead of just one. (Carrolll and Shabana, 2010) To note, these arguments were initially constructed during the initial conception stages of CSR and thus were framed based on the context of their environment. Yet many of these arguments still persist today, with the economic argument being a strong case for why businesses should not pursue CSR projects.

On the other hand, one of the strongest arguments in favor of CSR is built on the understanding that in order for businesses to be successful tomorrow, they must invest into creating an environment that fosters business success today. (Carrolll and Shabana, 2010) Consider an environment depleted of natural resources, and one where the human condition has degenerated to a point where poverty and illness is rampant globally. Such a climate would undermine the very economic base that allows businesses to thrive in the first place, and as a result the profitability of businesses' would decrease due to increased costs of operating and a reduction in sales growth as demand diminishes. Another popular argument in favor of CSR is that businesses that invest into socially responsible businesses practices will face reduced costs from regulations. If businesses can govern themselves properly and meet the expectations of the public, there will be no need for government to intervene with costly regulation. (Carrolll and Shabana, 2010) Additional arguments in favor of CSR are centered around the idea that since businesses possess large amounts of capital, talent and infrastructure they can leverage those resources to solve social problems that the public could not solve by themselves (Davis 1973). Finally, since the public at large strongly supports CSR, businesses should also support CSR in order to better serve their customers, most of whom belong to the general public. (Bernstein 2000)

The Relationship Between Corporate Social Performance (CSP) and Corporate Financial Performance (CFP)

In order to present an objective and analytical view on the impact of CSR, researchers and analysts have spent decades conducting research in order to understand the relationship between CSP and CFP. As one of the primary arguments against CSR has been that CSR programs would detract from a firms financial value, numerous individuals both for and against CSR have performed numerous studies in order to determine if there exists a positive correlation between a firms CSP and its CFP. One study conducted by Griffin and Mahon (1997) shows that there does exist a positive relationship between CSP and CFP. Their study consisted of performing an analysis of previous studies and concluding that the negative correlation between CSP and CFP in the previous studies was a result of methodological differences. Nevertheless, a study conducted by Roman et al. (1999) argues a contrarian view to that of Griffin and Mahon. Roman states that prior CSP and CFP studies fall into three categories: Ones where there is a positive correlation, no correlation, and a negative correlation. As a result, Roman concluded that one cannot conclude that there exists a correlation between CSP and CFP.

However, in another study conducted by Margolis and Walsh (2003) suggests that there does seem to exist a positive relationship between CSP and CFP with very little evidence to suggest a negative relationship between CSP and CFP. (Margolis and Walsh 2003) Moreover, Gregory and Whittaker (2012) conducted a meta-analysis of prior research reports where they also concluded that there did exist a positive relationship between CSP and CFP.

It should also be noted that in 2008, the Economic Intelligence Unit (EIU) released the findings of a major survey that suggest that a large percentage of US business executives believe that there exists a clear and positive relationship between a firms CSR performance and its financial performance. The findings of this study also support corporate boards. (BusinessGreen 2008) Furthermore, in 2014, PricewaterhouseCoopers conducted their 17th annual global CEO Sustainability survey to understand the perspective of business leaders from around the globe in regards to social and sustainable issues.

When discussing the topic of sustainability and using corporate profits to invest into socially focused projects, 75% of CEO's agreed that satisfying societal needs beyond traditional financial ones held by investors and shareholders and investing for future generations is important. (Preston, 2015) Why do such a large percentage of CEO's believe that CSR related initiatives are important for their organizations? When asked about what they believe to be some of the greatest mega trends that will affect their businesses, CEO's responded by saying that climate change, demographics, urbanization, and resource scarcity were the four largest trends at the forefront of their minds. (Preston, 2015)

"Resource scarcity is fast becoming a priority on both the political and business with access to raw materials, water, land and energy increasingly a concern. Population growth, the speed of rising consumption in developing economies, and geopolitical and environmental factors that impact production and distribution are all intensifying the issue. The result is higher prices, market volatility and a changing supply landscape." (Preston, 2015)

As the evidence favors a positive relationship between CSP and CFP, and with a changing socioeconomic landscape that continues to place an emphasis on environmentally and socially responsible business practices in order to take advantage of new market opportunities and mitigate social, environmental and political risk, business leaders should view CSR as an integral component of their ability to successfully compete in the marketplace. The question then becomes, how exactly do CSR activities add value to a firm?

Understanding How CSR Adds Value to Firms

In order to understand how CSR can add tangible value to a business, we want to explore in greater detail the concept of "Shared Value", a term coined by Porter and Kramer (2006) in the HBR article: "Strategy in Society: The Link Between Competitive Advantage and Corporate Social Responsibility". Porter and Kramer (2011) then coined an official definition in a later paper titled: "Creating Shared Value", where they defined Share Value as *"polices and operating practices that enhance the competitiveness of a company while simultaneously advancing the economic and social conditions in the communities which the company operates." (Porter and Kramer 2011)*

At its core, Shared Value recognizes that markets do not exist in a pure economical world void of social variables, but rather that these societal needs help form the very foundation for markets to exist, and that through neglecting this fact firms limit themselves to a false dichotomy where it is only possible to generate profits by pursuing economic objectives, not social ones. Yet this neoclassical thinking has resulted in the deterioration of the underlying socioeconomic environment which in turn has sparked public outrage as demonstrated by the recent populist movement, public backlash against globalization, and increased scrutiny over the effects of global climate change. As firms face growing competition and increased pressure from shareholders to deliver financial returns, they ended up engaging in restructurings, outsourcing and cutting personal in order to try and remain competitive in the short run by reducing costs and improving efficiency.(Porter and Kramer 2011) Unfortunately these actions resulted in price competition, commoditization, little true innovation, slow organic growth and little to no material impact on the firms' long term competitive advantages. (Porter and Kramer 2011) Consequently, the communities impacted by these firms felt little to no benefit even as the profits of the corporations rose as they did not see the increased profitability help to alleviate the burdens of high unemployment and increased pressure on public goods and services. Often times, the financial impacts of these kind of cost cutting measures and narrow minded business thinking result in firms having to internalize the costs of their poor social and environmental business practices. For example, consider the BP oil spill in the Gulf of Mexico that started in 2010 as a result from cost cutting measures and lack of safety measures (Reuters 2011) Overall, BP announced that it expected the entire disaster to cost them over $60 billion, (Bomey 2016) a figure that only reflects tangible costs, and not the costs associated with a tarnished brand and most likely stricter regulations in the future. Though an extreme example, it is meant to illustrate how firms are forced to internalize costs that could have been avoided if they instead focused on long term profitability by integrating CSR activities into improving quality and reducing social and environmental risks.

Nevertheless, businesses more often than not overlook opportunities to create shared value by solving societal problems and fail to truly consider the magnitude that poor societal and environmental practices will have on their value chains. (Porter and Kramer 2011) Coincidentally, this very fact provides opportunities for firms to create competitive advantages by changing their perspective on how value is created, and take the necessary steps to acquire the expertise and resources to engage in activities that create shared value throughout their value chain.

How Firms Can Shared Value

In order to create Shared Value, Porter and Kramer (2011) outline three distinctive approaches to do so: reconceiving products and markets, redefining productivity in the value chain, and building supporting industry clusters at the company's locations.

Reconceiving Products and Markets: Consider the vast number of social and environmental problems the world faces today: malnutrition, elderly care issues, healthcare problems, lack of affordable housing, and natural resource depletion to name a few. Whereas companies have spent decades improving their manufacturing processes and building out new product lines, too many of them have lost sight of the most valuable question: Is our product actually good and beneficial for our customers, and for our customers' customers? As these areas of the economy have been traditionally overlooked by large corporations, there exists tremendous amounts of untapped opportunity for firms willing to invest in the resources to create innovative and creative products to serve individuals in markets outside the traditional norm. (Porter and Kramer 2011)

Example: Revolution foods is a social enterprise funded by organizations such as the Acumen Fund, the International Finance Corporation and Dow Chemical's Venture Fund. Its business model focuses on providing tens of thousands of healthy, nutritious and fresh meals to students daily at a higher gross margin than its competitors. (Porter and Kramer 2011). Though a for profit enterprise, its business model is built on the concept of shared value in which Revolution Foods is able to profit by providing a good that adds societal value to the end user.

Redefining Productivity in the Value Chain: Through approaching value chain improvements through the lens of CSR, companies are able to engage in shared value creation activities that they otherwise may overlook. As social and environmental externalities create hidden costs which must be internalized within the firm such as those associated with government regulation, resource scarcity and operational inefficiencies, (Porter and Kramer 2011) firms that are able to redefine how they create value within their value chain and account for environmental and social externalities by reducing waste, cutting costs and improving efficiency will ultimately be able to develop a long term competitive advantage in the market place.

Example: Walmart reduced its packaging and rerouted its trucks to cut off over 100 million in travel routes in 2009 in order to reduce its costs by over $200 million even as they continued to ship more products. In doing so they were able to cut the amount of greenhouse gas emissions they produce and reduce the amount of waste that ended up in land fills. (Porter and Kramer 2011)

Enabling Local Cluster Development: The success of a business is not limited to simply whether or not the business itself is a successful entity, but is rather a function of the overall health of the business ecosystem in which a firm operates in. (Porter and Kramer 2011) Consider that firms need logistical infrastructure such as roads, railways, freeways and ports to move product from production to end user. Firms also need capable IT infrastructure to exchange information and take advantage of the benefits of cloud computing. Additionally, all firms need access to human capital which is most commonly supplied from post secondary institutions such as colleges and universities. Consequently, any breakdown or bottlenecks created in these functions will eventually be internalized within the company in the form of higher costs in areas such as logistics or human capital.

Example: With unemployment in the low single digits, fierce competition for talent exists for numerous companies around the United States. Yet according to an analysis done by Bridgespan, over 6 million job opportunities are expected to be created for young people from 212-2022 in a range of different industries and companies that are unable to fill new job openings will inevitably face lower productivity and revenues. In order to combat this problem, companies have turned to creating their own training and development programs that specifically target opportunity youth, individuals aged 16-24 who are in neither work or school. (Seldon et. Al, 2016) In one example, CVS Health invested $2.9 million in developing programs to hire opportunity youth and was able to earn a return of 79% based off of tax credits alone. (Seldon et. Al, 2016)

Through examining the aforementioned areas and redefining the concept of value, firms can find new measures to cut costs, improve efficiency and break into new markets all the while contributing value to the greater society in a harmonic and symbiotic function.

Introduction to Socially Responsible Investing (SRI)

Whereas CSR is focused at the firm specific level, the notion of using business and capital markets to create both social and economic value extends into the investing world as well. Known as Socially Responsible Investing (SRI), investors in this field typically construct an Environmental, Social and Governance (ESG) framework as a way to evaluate how a firm's CSR activities will impact the investment decision.

SRI investments work by either screening out investment opportunities that do not meet a firm's ESG criteria, or focus on investment opportunities that are designed to achieve a social or environmental objective in addition to securing financial profits. Similar to the evolution of CSR, SRI has evolved to focus on how investors can leverage capital markets to generate both impact and income whereas in the past a large majority of SRI investments were more akin to philanthropy.

SRI Fund Performance Against Traditional Peers

Just as opponents of CSR argued that CSR activities would detract from corporate profits, the same issue also plagues the SRI industry as the prevailing assumption is that SRI fund will underperform their traditional peers. Yet, recent research in comparing SRI indices to traditional indices and SRI mutual funds to traditional mutual funds show no such correlation. Furthermore, some ESG indices even out perform their traditional peers on an absolute and risk adjusted basis. An example would be the MSCI KLD 400 Social Index when benchmarked against the S&P 500; it returned 45 basis points of absolute return against the S&P 500 and 19 basis points of risk adjusted return from July of 1990 to December of 2014. (Morgan Stanley, 2015)

Another example is a study conducted by di Bartolomeo and Kurtz in 2011. Summarized in a CFA Digest issue and also quoted by RBC Global Asset Management's 2012 report, the study summarized that "investors seeking superior investment performance have incurred no material benefit or cost from using (the KLD 400 Index) universe, and that predictions of negative alpha (for socially responsible stocks) are wrong." (RBC, 2012)

Yet another study comes from a research report from Morgan Stanley from March 2015. In this study they reviewed a “range of studies on sustainable investment performance and examined performance data for 10,228 open-end mutual funds and 2,874 Separately Managed Accounts (SMAs) based in the United States and denominated in US dollars.” Their conclusion? “In the scope of our review, we ultimately found that investing in sustainability has usually met, and often exceeded, the performance of comparable traditional investments. This is on both an absolute and a risk-adjusted basis, across asset classes and over time.” (Morgan Stanley, 2015)

Finally, a study conducted at the firm specific level analyzed the relationships between a firm’s eco-efficiency and their financial performance. Titled The Economic Value of Corporate Eco-Efficiency with the primary author being Nadja Guenster of the Rotterdam School of Management, they stated the conclusion of the study as follows: “Our findings support the conjecture of a win-win situation, where eco-efficiency can lead not only to social benefits but also to improved shareholder wealth.” (Guenster, 2010)

Yet the one weakness of these empirical studies is that they are not able to fundamentally evaluate the impact that CSR will have on a firm’s financial performance. Rather, the SRI funds of which where used in the studies were simply an aggregate of companies that met a predetermined CSR threshold and were benchmarked against their traditional peers with stock price being the only output measured.

In an attempt for investors to incorporate CSR criteria into their decision making, the majority of mainstream investors have turned to utilizing a “Dual Decision” model which considers a firm’s financial performance and CSR performance as two separate entities. (Nielsen and Nørgaard, 2009) Yet this method is used simply as a tool to select which companies to invest in and lacks the ability to discover undervalued companies as it cannot integrate ESG criteria into a firm’s expected financial performance. Moreover, it further complicates the decision making process as investors must also weight to which degree they value the ESG analysis or the financial analysis which often results in a dichotomous approach that fails to account for the inherit synergies that CSR activities can add to a firm’s total shareholder value.

Linking Corporate Social Responsibility (CSR) to Socially Responsible Investing (SRI)

With CSR becoming increasingly popular among business leaders as a way to improve both the firm's overall reputation and competitive positioning in the marketplace, more and more analysts recognize the importance of integrating CSR factors into their investment decisions. (Nielsen and Nørgaard, 2009) Yet investors face numerous problems in integrating CSR factors into their models and investment decisions with one issue being that there exists no standard way for companies to report their CSR metrics. Furthermore, CSR practices are often times intangible or are extremely long term investments which will not be realized within the average investor's time horizon. Finally, there are no established methods for integrating CSR factors into traditional financial models. As a result, there exists a discrepancy created by the difference of perspectives among investors and business leaders when it comes to how CSR activities contribute to the value of a firm. In the paper CSR Mainstream Investing, a New Match, the authors hypothesize that because of the lack of standardized CSR reporting standards and difficulty in integrating CSR activities into existing financial models, investors are more likely to undervalue the impacts of CSR. In turn this results in the creation of "hidden value" as investors are not able to fully evaluate the total value of a firm due to the lack of tools and standardized data . The authors theoretically analyzed the situation, and concluded that due to the lack of a truly integrated model investors are unable to fully realize the impact of CSR activities on a firm. (Nielsen and Nørgaard, 2009) This theoretical analysis was backed up by a case study they conducted where they interviewed how different groups of investors used different methods to account for Novozymes', a bio tech firm, CSR activities in their investment decision. Out of the investor groups, only one group, and the smallest by far, used an analytically rigorous approach that looked to integrate CSR factors into their financial evaluations. (Nielsen and Nørgaard, 2009)

Integration of CSR into Financial Analysis

Working on the assumption that markets are unable to accurately price in the value of CSR activities, we argue that investor's who are able to accurately and effectively integrate the impact of CSR activities into their financial analysis will be able to take advantage of this opportunity created by imperfect markets to generate superior long term returns by investing into firm's whose CSR activities have not been priced into their stock value.

Existing Models for Integrating CSR data into Financial Evaluations

One existing model that attempts to integrate CSR data into a multi-dimensional model in order to evaluate a company based on both its financial and CSR data simultaneously was developed by Chousa & Castro (2006). In their model they used a three dimensional approach to develop a system based on the popular Dupont Ratio decomposition system. (Ravn Elkjaer and Hjulsager 2004) Similar to the Dupont model, the model created by Chousa & Castro (2006) attempts to create a number of ratios based upon ESG data which act as proxies investors can use to understand how a firm's CSR activities will impact their financial performance. Though the complexity of these calculations may reflect reality, it is difficult to obtain the accuracy of this approach as there have been no empirical studies to validate the accuracy of this model. (Nielsen and Nørgaard, 2009)

Another framework aimed at integrating CSR data into a firm's financial evaluation was constructed by Schaltegger & Figge (1997). Through using the concept of shareholder value developed by Rappaport (1986), Schaltegger & Figge argue that environmental and social variables directly impact the key drivers of shareholder value, and thus investors can integrate their CSR data into their calculation of shareholder value which is normally conducted by evaluating all future cash flows of a firm discounted to present value by the firm's Weighted Average Cost of Capital (WACC). Being a common tool employed by investors, this is perhaps one of the most rigorous and most widely used models by modern investors as the model can be built with a high degree of flexibility and granularity depending upon the specific company. Furthermore, the model also incorporates future expected values by the application of growth rates to evaluate a firms total shareholder value at a future date, thus allowing investors to predict the impacts of a firm's current and recent activities at a future point in time. Nevertheless, this model suffers from being highly input dependent, and that changes to one of the many variables can exponentially skew the final results.

Finally, there exists debate over whether or not ESG factors can even be successfully integrated into existing financial models, or if a new model needs to be created. We argue that a new model does not need to be created, but rather there needs to be different approach in integrating existing ESG factors into traditional financial models. This concept will be explored further as we discuss our proposed methodology for integrating a firm's CSR activities into a final financial evaluations.

Proposed Methodology for Integrating ESG into Financial Evaluations

Defining CSR

In order to clearly define what exactly CSR entails in order to form a baseline definition, we chose to utilize the four part definition formulated by Carroll (1979) as it is a definition that has been successfully used in academic literature for the last twenty five years. (Carroll and Shabana, 2010) The definition for CSR is as follows: *'The social responsibility of business encompasses the economic, legal, ethical, and discretionary [later referred to as philanthropic] expectations that society has of organizations at a given point in time'.* (Carroll 1979).

Breaking CSR Down Into Individual ESG Components

After broadly defining what CSR is, the next step in our methodology requires us to break down CSR into its individual components which in turn will allow us to further categorize and define each aspect of CSR. In order to systematically break down CSR into its individual components, we utilized existing ESG frameworks as they are frequently used by investors to identify key CSR activities and organize them based upon how they will impact the business and the greater socioeconomic ecosystem.

ESG Framework Construction

In order to construct our initial framework, we analyzed three existing ESG frameworks constructed by the following organizations: RobecoSAM, MSCI, and KLD.

RobecoSAM: Originally founded in 1995, SAM was acquired by Robeco, a European asset management firm, in 2007 and renamed RobecoSAM in 2013 as Robeco continued to invest into developing ESG products. In 2016, they won Institutional Investor magazine's "ESG Manager of the Year" award and "SRI Provider of the Year" at the European Pensions Awards. (Facts and Figures, RobecoSAM) The ESG frameworks and methodologies created by RobecoSAM are employed by both the Dow Jones Sustainability Index (DJSI) (About us, RobecoSAM) and the S&P 500 ESG Index Series (About us, RobecoSAM). The key differentiator that makes the Robeco ESG platform unique is that it derives its ESG ratings from a systematical and periodical survey provided to over 3,400 listed companies. (About us, RobecoSAM)Their survey includes 60 industries, 3 dimensions and over 600 data points per company that they then use to determine whether or not a company should be included in one of their ESG indices.

MSCI: In 1969, MSCI began licensing their first equity index product and in 2014 acquired their Governance Holdings Co. (GMI Ratings), *"a provider of corporate governance research and ratings to institutional investors, banks, insurers, auditors, regulators and corporations seeking to incorporate ESG factors into risk assessment and decision-making."* (MSCI Our Story, MSCI) In 2016 MSCI won numerous awards including the Index Provider of the Year 2016 at the Structured Products Europe Awards and the Best Index Vendor Year 2016 by Mondo ETF Awards. (Recognition, MSCI) Furthermore MSCI's Deborah Yang, a Managing Director, was named top 100 women in Finance in 2016. (Recognition, MSCI) Regarding the methodologies that MSCI employs when constructing their ESG frameworks, they integrate 100's of specialized documents and monitor over 1600 news sources daily in order to aggregate thousands of data points on the ESG policies, programs and performances on over 6,000 global equities and 260,000 fixed income issuers. (ESG Ratings, MSCI) MSCI then boils down all of their aggregated information into 37 key issues selected annually for each industry that are then scored and weighted according to MSCI's materiality mapping framework. These scores and weights are then used to give each company an ESG grade on a scale from AAA (excellent ESG rating) to CCC (poor ESG rating), similar to the bond ratings given by Standard and Poor.

KLD Stats: KLD Stats is an ESG analytics tool provided by KLD that is sold and serviced by Risk Metrics Group. (KLD Stats Paper) Risk Metrics Group was then acquired by MSCI in 2010. (Kropp, 2010) In regards to their ESG framework construction, KLD is most well known for the KLD 400, a US index comprising of companies that meet the requirements of their ESG criteria. In order to evaluate firms based on their ESG criteria, KLD covers approximately 80 indicators in seven major qualitative groups including Community, Corporate Governance, Diversity, Employee Relations, Environment, Human Rights and Product based on aggregating and synthesizing third party information from a number of different sources. (KLD Stats, 2010) Furthermore, KLD also provides insights into controversial business areas including Alcohol, Gambling, Firearms, Military, Nuclear Power, and Tobacco. (KLD Stats, 2010) As of 2010, this analysis covered 3000 publicly traded US companies. (KLD Stats, 2010) Though KLD no longer exists, its methodologies are still employed by MSCI and the KLD 400 index still exists as a product line offered by MSCI.

In order to systematically decide which elements of the aforementioned ESG frameworks we were going to integrate into our own framework, we applied the following three part methodology:

1. Identify areas that overlapped among at least 2 of the 3 different frameworks.
2. Combine like and similar terms.
3. Evaluate non-overlapping components on a case by case basis. Components that did not overlap with the other frameworks were evaluated on a case by case basis according to their scope (were they widely applicable or circumstantial), clarity (ability to clearly understand the definition of the component and how it related to an ESG area) and feasibility of integration (whether or not we as student investors could find information on a particular topic). Components that were wide in scope, clear and able to be integrated were selected to be included in the framework.

Ultimately, after analyzing 13 dimensions with 22 topic areas and 187 individual components, we synthesized our own ESG framework that includes 3 overarching themes broken up into 13 topic areas that consist of 29 individual components. To review our framework please see Appendix 1.

Defining ESG Framework Components

Understanding that there exists some overlap between components and that the framework does not guarantee 100% coverage of all possible CSR activities, it is nevertheless based upon three of then most commonly used ESG frameworks in the marketplace, and attempts to capture all key CSR activities that a firm may undertake. It is organized into three over arching areas: Environment, Social and Governance. Within these three sections our framework further breaks it down into 4 major categories within environmental, 7 within social and 2 within governance. Furthermore, where needed categories are further broken up into specific components.

Environmental: Environmental is concerned with all aspects of a firm's activities that impact the greater socioeconomic ecosystem from an environmental perspective.

Supply Chain and Operational Eco-Efficiency: Supply Chain and Operational Eco-Efficiency is looking specifically at how activities within the supply chain and operations affect the environment.

-Raw materials sourcing: Raw materials sourcing focuses on the environmental implications of a firm's raw materials purchasing practices and the relationship it has with its upstream suppliers. It also looks at how efficient a firm is at turning raw materials into finished products.

-Circular Value Chain Integration:* Though not mentioned in any of three aforementioned ESG frameworks, we believe that circular value chains can play a critical role in helping businesses integrate CSR practices with their corporate strategy. By 2030, there will be another 3 billion middle market consumers whose consumption needs will put increased strain the world's natural resources. Moreover, their currently exists incredible amounts of waste in modern economies, and recent research shows that such waste creates negative externalities for businesses and nations alike. (Magnin and Hannon, 2016) One way to solve these problems is for businesses to rethink about how they create and retain value, and restructure their linear value chains into circular ones in order to maximize the value of their products. Thus we decided that this element can be classified as a CSR activity and should be part of the ESG framework.

-Energy Management: Energy management is concerned with how efficiently a firm utilizes energy in its operations, and with what kind of energy it powers its operations with.

-Water Usage: Water usage is concerned with how efficient a firm is at utilizing water in its operations, and with what kind of water the firm employs.

-Carbon Footprint: A firm's carbon footprint is concerned with how much c02 emissions that the firm directly and indirectly creates.

-Toxic Waste: Toxic waste is concerned with if a firm regularly disposes of toxic materials, and if so, how they dispose and or/store them. It also looks at how effective a firm is at mitigating the creation of toxic waste in the first place.

-Packaging Waste: Packaging waste is concerned with how much waste a firm creates from its packaging, how it disposes of the waste, and if the firm is taking measures to reduce the amount of packaging waste they create.

-Asset Maintenance: Asset Maintenance is concerned with how a firm maintains its physical assets to ensure that they do not deteriorate to the point where they would pose a concern to people or the environment.

-Biodiversity and Land Use: Biodiversity and land use focuses on the practices firms employs when governing land under their control. It also covers traditional land conservation topics, geological local wildlife concerns. It also considers whether or not a firm employs sustainable and environmentally friendly practice when constructing physical assets.

-Sensitivity to Climate Change: This area focuses on looking at how climate change can positively or negatively impact the firms ability to operate in an effective manner.

Products/Services: Products and services deals with how a firm creates new products or improves existing products in order to reduce the impact on the environment.

-Product innovation to be more sustainable: This element deals with firms creating new products that work to mitigate impact on the environment such requiring less raw resources or being made from more environmentally friendly materials.

-Product quality and liability from an environmental perspective: This element deals with the how the quality of current or future products will have on the firm's environmental liability.

Cluster Development for Environmental Impact: This area looks at how a firm's activities and/or investments are being used to develop the local business cluster in terms of environmental impact.

Other Opportunities in Environmental: This area looks at other activities that a firm engages in to positively impact the environment that fall outside of the aforementioned categories.

Social: Social is concerned with all aspects of a firm's activities that impact the greater socioeconomic ecosystem from a social perspective.

Human Capital: Human capital refers to all of the activities are firm undertakes that directly impact its human capital.

-Training Programs: Training programs refers to the different kinds of programs a firm provides its employees in order to enhance the skillsets and overall value of the employee and to reduce risks and liabilities associated with employee injuries and inappropriate behavior.

-Hiring/Recruiting Practices: This area looks into the kinds of hiring and outreach programs that a firm employs in order to ensure that it is not discriminating against individuals based on gender, race, religion or any other variable. It also looks to see if a firm has special programs to reach out to and hire individuals from traditionally underrepresented backgrounds or geographical areas.

-Diversity: Diversity looks at the proportions of the firms overall workforce to see what percentage of underrepresented individuals make up its total workforce.

-Equality: Equality looks at how a firm treats employees, and if certain groups are treated better or worse than others. It also includes how a firm compensates employees.

-Employee Satisfaction: Employee satisfaction looks at in general, how satisfied employees are at working for a specific company.

-Employee Health, Safety + Benefits: This element looks at the benefits and perks a firm provides its employees. It also specifically looks at the health and fitness programs that firms provide in order to improve the overall health of their workforce and reduce medical premiums.

-Union Strength: Union strength looks at how effective workers unions are at advocating for improved pay and benefits for employees. It is also noted that this does not apply to every industry.

Products/Services: Products and services deals with how a firm creates new products or improves existing products in order to reduce negative and/or improve the positive benefits to society.

-Product Innovation to serve disadvantaged customers: This attribute looks at whether or not a company is developing product lines to help serve marginalized and/or disadvantaged customers.

-Product quality and liability from a social perspective: This element deals with the how the quality of current or future products will have on the firm's societal liability.

Stakeholder Engagement: Stakeholder Engagement looks at how a firms relationships, policies and practices regarding their stakeholders throughout their value chain and greater business ecosystem. This includes suppliers, manufactures, distributors, customers, employees, governments and NGO's.

Privacy and Data Security: This area looks at the polices and practices that a firm employees in regards to data security and privacy. It also looks to see if a firm has a history of previous breaches and if the firm has violated the privacy of any of its stakeholders.

Corporate Philanthropy: Corporate Philanthropy looks at how a firm allocates its charitable giving and/or engages with the community and whether or not employees are able to participate.

Cluster Development for Social Impact: This area looks at how a firm's activities and/or investments are being used to develop the local business cluster in terms of social impact.

Other Opportunities in Social: This area looks at other activities that a firm engages in to positively impact the social aspect of society that fall outside of the aforementioned categories.

Governance: Governance refers to the corporate leadership of the firm, and how it orients itself in regards to socially and environmentally responsible business practices.

Board Structure: Board structure focuses on the structure of the corporate's board.

-Compensation: This area looks at the relative compensation level of C level executives and board members.

-Diversity: This category looks at the diversity of the C level executive team and of the board.

Business Ethics and Management: Business ethics and management relates to the incentives and policies employed by the firm that influence how employees and managers make decisions.

-Corruption and Bribery: Does the business engage in any kind of behavior that could be considered bribery or corrupt?

-Political, Social and Environmental Transparency: How transparent is the firm in disclosing political, social and environmental information?

-Anti-competitive Practices: Does the company attempt to wield its power in an unfair and anti-competitive manner?

-Accounting Practices: Does the company engage in/have a history of obscure and/or deceptive accounting practices to dodge taxes and enhance the value of their firm simply based on their accounting numbers?

-Ownership of subsidiaries/companies: Does the firm own a sizable stake in other companies that are environmentally and socially responsible?

Calculating a Firm's CSR Score

In our methodology, a firm will be scored on a 0-100 scale, with a 0 being the lowest score a firm can receive and a 100 being the highest score a firm can receive. Firms that score 100 should be in the top 1% of firms in regards to the quality and significance of their CSR activities while a score of 0 should represent firms in the bottom 1%. A score of 50 represents a firm with a neutral score whose CSR activities neither add or detract from the firm's intrinsic value.

To derive this score, we further categorized our ESG framework based upon the degree to which a particular activity or aspect can influence the firm's overall free cash flows and competitive positioning. (Porter and Kramer 2011, Porter and Kramer 2006, Schaltegger & Figge 1997) We then weighted each specific ESG category (e.g Products) based upon its ability to help the firm achieve a competitive advantage and generate free cash flows based upon our understanding of how firm's can integrate CSR activities to create Shared Value (Porter and Kramer 2011)

1. Value Chain Activities (41): The Value Chain, created by Michael Porter (1985) as a tool to systematically assess a firm's competitive positioning, is regarded as the fundamental building block of corporate strategy. As Porter (1985) asserts that one cannot simply look at a firm as a whole to assess their competitiveness, but must first look at each discrete activity that a firm performs and understand not just the strength of each activity, but also of the synergies generated from multiple activities operating in strategic harmony with each other. Porter then asserts that all activities a firm undertakes can be broken up into two overarching categories: Primary Activities and Support Activities. Within Primary Activities there exists Inbound Logistics, Operations, Outbound Logistics, Marketing and Sales and Service. Within Supporting Activities there exists Firm Infrastructure, Human Resource Management, Technology Development and Procurement.

After applying Porter's Value Chain analysis to our ESG framework, we decided to categorize the following ESG categories as Value Chain Activities:

Supply Chain and Operational Eco-Efficiency (0-15)

Products/Services (0-11)

Human Capital (0-15)

As value chain activities play an integral part of a firm's competitive positioning, and include two of the three functions outlined by Porter and Kramer (2011) for a firm to create Shared Value, we decided to weight the aspects of this category higher than other areas, giving Value Chain Activities an overall weighting of 41%.

2. Governance Activities (34): Governance Activities relates to the activities of a firm that are specifically undertaken by the firm's senior leadership but fall outside of the traditional value chain. These activities also refer to how a firm organizes its senior leadership and what kind of culture a firm possesses. In 2012 Deloitte compiled findings regarding how corporate leadership influences investors and business valuations. When surveyed, 45% of analysts indicated that a firm's corporate leadership strongly influences their investment decisions, and that there exists a 15.7% leadership premium for firms with extraordinary teams, and a -19.8% discount for firms with poor leadership teams. (Holland and Tom, 2012)

We decided to categorize the following ESG areas as Governance Activities:

Board Structure (0-9)

Business Ethics and Management (0-11)

Stakeholder Management (0-9)

Privacy and Data Security (0-5)

Though a firm's leadership, culture and general ethics play an integral role in shaping the firm's future strategy and its view on CSR activities, investors still put a greater emphasis on more tangible activities and metrics such as value chain activities and financial performance. Thus we decided to weight the categories in this area in such a way to that the overall category would have an overall weighting of 34% with the highest weighting in Business Ethics and Management and the lowest weighting in Privacy and Data Security.

3. Local Cluster Development Activities(23): As mentioned earlier in the paper, Local Cluster Development is one way in which a firm can create shared value. With local infrastructure providing the crucial backbone that allows organizations to function, deterioration in this infrastructure will create negative externalities that must be internalized within the firm. (Porter and Kramer 2011) Nevertheless, investment into local infrastructure is a long term plan, and will most likely never be realized in increased future cash flows. Instead the investment will pay itself off in terms of productivity and reduction in business risk as the chance for disruption and negative externalities will decrease with improved infrastructure.

We decided to categorize the following ESG areas as Local Cluster Development Activities:

Cluster Development for Environmental (0-9)

Cluster Development for Social (0-9)

Corporate Philanthropy* (0-5)

Local Cluster Development is crucial for a firm's long term viability, but its impact is very difficult to measure and is often spread incrementally throughout an entire ecosystem across a long period of time. Thus we decided to weight this section as only 25%.

*Corporate Philanthropy can be directed towards developing local infrastructure, or towards areas which will have no impact on the firm's greater business ecosystem. In subsequent scoring criteria we will score Corporate Philanthropy according to whether or not it is used as a tool to improve the relevant business cluster or is simply a generic philanthropy tool that holds little to no strategic impact.

Questions for evaluating each aspect of the ESG Framework

In order to evaluate each aspect of our ESG framework, we ask three questions to help us understand how significant and valuable a specific CSR activity is a to a firm. Our questions support three different dimensions: Historical, Comparative and Significance. Regarding how we evaluate the significance of an activity, we argue that activities that create Shared Value are the most valuable and offer the most impact for both the firm and the greater ecosystem. The final score for each ESG category is thus a composite from the weighted average of the scores for each of the three different dimensions.

1. Does this ESG area apply to this company? If no, that area will not be counted in the final score*
2. How much have they improved historically
    a) **Scoring Criteria:** A score of 0 indicates that the company has missed their KPIs and have not met their CSR goals. A median score indicates that the company has on average met their CSR goals and are seeing mid single digit improvements. A score of the highest value on the scale indicates that the company has exceeded their CSR goals and has often seen double digit improvements. If no information is available the firm receives score one point below the median automatically.**
3. Do the activities create shared value, and if so, to what degree?
    a) **Scoring Criteria:** A score of 0 indicates that the firm's activities are not socially or environmentally responsible and actually detract value from the firm's ecosystem. A median score indicates that the CSR activity does generate shared value but only on a limited scale. A score of the highest value on the scale indicates that the CSR activity generates shared value on a large scale and is significantly impacting the firms economic and ESG performance. If no information is available the firm receives a score one point below the median automatically.**

4. How does the firm compare to its peers?

    a) **Scoring Criteria:** A score of 0 indicates that for similar activities the firm is performing at the bottom 90% of their peer group. A median score indicates that they are performing on par with their peers. A score of the highest value on the scale indicates that they are performing in the top 10% of their peer group. If no information is available the firm receives a score one point below the median automatically.**

*In order to determine if a firm does not engage in an activity, we first decide if the activity is the relevant to the firm. If it is, we look through all of their CSR documentation and affiliated materials to determine if they participate in the activity. Afterwards, if we cannot find any evidence that they are engaging in the activity we automatically score them a 4 in that area. A score of 4 represents a slightly below average ESG score, and is representative of a firm's behaviors of omission where they should be doing more CSR activities but are not.

**Drawing on academic literature, firms with higher CSR reports are more likely to report data on this topic. (Dhaliwal, D., O. Z. Li, A. H. Tsang, and Y. G. Yang, 2009) Furthermore "sin" stocks receive less attention from analysts, and as a result investors are more likely to pay less attention to these companies due to availability bias. (Hong and Kacperczyk, 2009) Moreover, it can be inferred that firms who do not provide CSR information either do not believe that CSR is important enough to disclose in-depth information, or are behind their peers. Yet the latter is more likely as more and more business leaders continue to acknowledge the importance of CSR activities to improve their firm's value. (Preston, M. 2015) Thus it can be inferred that firms that do not disclose CSR data are lagging behind their peers and/or have business practices that detract from their ESG score.

Translating CSR scores into Variables that Impact Shareholder Value

In order to translate ESG scores into financial variables, we decided to build on the model proposed by Schaltegger & Figge (1997) which utilizes the shareholder value methodology created by Rappaport (1986). As discussed earlier, the shareholder value methodology captures almost all of a firm's activities and synthesizes them into one final financial valuation. Moreover, Schaltegger & Figge (1997) argue that all of a firm's CSR activities will eventually affect one of the economic drivers in the shareholder value methodology, and thus those particular drivers can be adjusted to reflect how CSR activities will affect that particular area.

Our proposed methodology thus rests on the assumption that all CSR activities will on one way or another affect a firm's total shareholder value by impacting the following drivers of a firm's shareholder value: Fixed Capital Investments, Working Capital Investments, Sales Growth, Operating Profit Margin and Tax Rate, Cost of Capital and Value Growth Duration.

How CSR Activities Can Impact Future Cash Flows

To better understand how CSR activities can impact these drivers of a firm's shareholder value, we have analyzed both case studies and empirical studies that illustrate how CSR factors can impact a firms shareholder value.

Example 1: Sales Growth

Industry: Automotive

Name of Covering Financial Firm: Kepler Capital Markets

Author(s): Michael Raab, Pierre Boucheny, Xavier Caroen, Fabio Iannelli, Tobias Loskamp

ESG Category: Socially Responsible Products

Synopsis: By 2020, the United Nations desires to reduce the number of road related fatalities by 50% globally. In response to this initiative set forth by the UN, Kepler Capital Markets began researching the financial implications of such an agenda, and narrowed their research to specifically look at technologies that would greatly reduce accident probability as these technologies clearly fall under the new regulatory initiative.

Furthermore, they also looked into technologies that were not quite mandated but still held the possibility to substantially lower the probability of an accident happening. They then researched the financial implications of such a trend, and discovered that the overall market for the components required to manufacture these new kind of safety devices would grow at an 11% CAGR from 2011 till 2025. Combined with an estimated 3.3% CAGR for the wider light vehicle industry, Kepler discovered that there existed a 8% CAGR growth opportunity for automotive companies' whose product portfolios were tailored to take advantage of the new initiative to reduce traffic fatalities globally. As a result, Kepler revised the sales growth estimates of the relevant companies' they were following, and ultimately translated these findings into increased upside value per share. (PRI Integrated Analysis 2013 pg17-18)

Example 2: Operating Profit Margin

Industry: Retail

Name of Covering Financial Firm: ClearBridge Investments

Author(s): Neal Austria

ESG Category: Human Capital

Synopsis: With one of the largest costs to retail firms being their employees, the retail industry is facing higher operating costs as both the state and federal minimum wage increase across the United States. Yet one retailer that ClearBridge covers pays it employees on average 27% higher than the industry median with the rationale that higher pay leads to low employee turnover, leading to better execution in stores (more efficient stock management/less theft and damage to on sale items/store cleanliness), high revenue productivity and high membership renewal rates. In regards to the firm’s EPS, because this retailer already pays higher than average wages to its employees, it only saw the minimum wage impact about 2% of its EPS whereas its two primary competitors saw their EPS’s negatively impacted by 11% and 8%. Consequently, ClearBridge saw this one particular’s retailers stock positively increase by 1% at the time of announcement versus their competitors who saw a -10% and -8% reduction in their stock price. (PRI A Practical Guide to ESG Integration for Equity Investing, 2016 pg 21-22)

Example 3: Fixed Capital Investments

Industry: Mining

Name of Covering Financial Firm: Morgan Stanley Research

Author(s): Jessica Alsford, Alain Gabriel

ESG Criteria: Water Usage

Synopsis: As water scarcity continues to increase, local governments and communities have been at odds with corporations who want to engage in water intensive activities such as copper mining. This issue results in costs that must be internalized within the firm in the form of more stringent, costly and time intensive permits, and the additional costs of constructing desalination plants. For example, the Chilean government has required all operations requiring more than 150 liters of water per second to incorporate sea water into their operations which consequently forces those companies to construct desalination plants. In an analysis conducted by Morgan Stanley, they suggest that *"desalination adds US$2,000US-$2,800 per tonne to capital intensity and US$92 per tonne to annual operating costs."* Ultimately the analysts at Morgan Stanley believe that these new regulations would increase the capital employed per tonne of copper by 48%, and further increase the operating costs of the mining firm. When combined with the increased costs and delays with receiving a mining permit, they calculated that the IRR of the mining project would decrease from 14% to 11% and thus deteriorate the overall profitability of the mining venture which would translate into a decreased per share stock price.

Example 4: Tax Rate

In a 2016 article released by the American Accounting Association titled *"Do Socially Responsible Firms Pay More Taxes"*, Davis, Guenther, Krull, Williams (2016) further investigated whether or not their existed a relationship between a firm's CSR rating and its tax rate. After analyzing the five year cash effective tax rates for a sample of public U.S corporations who are also covered by MSCI's ESG rating system, they discovered that firms in the highest quintile of CSR scores have on average a tax rate of 170 basis points below their peers. This suggests that corporations view CSR activities and taxes as substitutes where firms invest into CSR activities to help offset their tax rates.

For example, often times governments will provide tax credits or tax penalties in order to incentive private enterprises to undertake certain activities (e.g tax credits to employ individuals with disabilities or tax penalties for firms that do not meet emission regulations). Thus firms with higher CSR scores are more likely to undertake activities that generate tax benefits because they have the expertise and infrastructure needed to effectively undertake such projects

Example 5: Working Capital

One of the largest driver's of a firm's working capital is the amount of inventory they must keep on hand in order to ensure that a firm is able to fulfill demand in light of unexpected supply and/or demand shocks. Normally, higher levels of inventory are positively correlated with higher levels of customer satisfaction. (Ballou, 2004; Neale et al.
2006) In a study conducted by Barcos, Barroso, Surroca, and Tribo (2010), they examined the relationship between a firm's CSR rating and their inventory policy and discovered that there exists an inverted U relationship between a firm's CSR rating and their inventory policy. Specifically, pressures from customers put an increased demand for a firm to maintain high inventory levels but pressures from employees were non linear as certain human resource policies such as long term contracts increased inventory levels but policies such as training programs, safe working environments and benefits are positively correlated to improved inventory performance. (Schonberger, 2007) Finally, pressures from the environment influence firms to maintain lower inventory levels as reducing pollution and waste can be obtained from working with lower inventory levels. (Barcos, Barroso, Surroca, and Tribo 2010). Ultimately they discovered in their empirical analysis that firms with above average CSR scores saw an increase in their inventory to sales ratios while firms with below average CSR scores saw a decrease in their inventory to sales ratios. (Barcos, Barroso, Surroca, and Tribo 2010)

Translating CSR score to Cash Flow Impact

Though difficult to directly translate how a firm's CSR score will directly impact its future cash flows, based upon the score of the relevant category (i.e Products), one can use it as a guide for making future forecasts. If a company scores strongly in its product category, that datum point can help substantiate a higher future growth rate in sales. Another example could be that a firm that scores low in its ability to conserve water but engages in water intensive activities. Based on other examples and macro trends in industry, this datum point could help substantiate the claim that the company will face rising capital expenditures and operational costs in the future.

Understandably, there is no black and white method for making these kind of evaluations, and as such a large degree of discretion will be placed on the investor who is responsible for evaluating the investment opportunity.

How CSR Can Reduce a Firm's Cost of Capital

In an empirical study conducted by Ghoul, Guedhami, Kwok and Mishra, (2010) the authors attempted to answer the following question: Does Corporate Responsibility Affect a Firm's Cost of Capital?

In order to answer the question, they first reviewed literature that discussed the various reasons why firms with lower CSR scores may suffer from higher costs of capital. First of all, firms with fewer investors will have a higher cost of capital and firms with more investors will have a lower cost of capital due to the fact that they suffer from a less diverse investor base. (Heinkel, R., A. Kraus and J. Zechner, 2001) Additionally, literature also suggests that firms with lower CSR scores are often percieved to be riskier investments that firms with higher CSR scores as firms who do not value the importance of CSR are more likely for example to sell unsafe products that increase the chance of lawsuits in the future. (Waddock and Graves, 1997) Furthermore, Feldman et al. (1997) found that firms who postion themselves as socially and enviromnetally responsible are percieved by investor‘s to be less risky investments.

Then, operating under the hypothesis that firms with higher ESG scores will have a lower cost of capital compared to their peers who have below average ESG scores Ghoul, Guedhami, Kwok and Mishra (2010) analyzed over 12,000 US firms and empirically validated that firms with a higher ESG score on average a cost of equity that was 56 basis points lower than their peers with a low of 45 basis points and a high of 76 basis points.

As a firm's cost of equity is used by investors to account for business risk, or the risk incurred by investors for the variability in future cash flows, these findings make theoretical sense as firms who have strong CSR scores are investing into activities that help to mitigate environmental, social and political risk that could negatively affect future cash flows.

Changing a Firm's Cost of Capital to Reflect their CSR Score

To calculate a firm's initial cost of capital, we employ the Weighted Average Cost of Capital model (WACC), the most common model utilized by investors to calculate a firm's Cost of Capital. In order to calculate the firm's cost of equity, a key component of the WACC, we utilize the Capital Assets Pricing Model (CAPM). After calculating a firm's initial cost of equity, we then apply our final CSR score to determine what amount the firm's Cost of Equity needs to be adjusted by. Below is a diagram that shows how much a firm's cost of equity should be increased or decreased by based upon their final CSR score. For example, a firm with an initial cost of equity of 3.5% and an ESG score of 75 would ultimately have a cost of equity 2.94%

Overall ESG Score	0	25	37.5	50	62.5	75	100
Cost of Equity Adjustment	+76 bp	+56 bp	+45 bp	+/- 0 bp	-45 bp	-56 bp	-76 bp

How CSR Can Impact a Firm's Value Growth Duration

A firm's value growth duration how the time period in which a firm is able to generate returns above its cost of capital and the overall market. (Schaltegger & Figge 1997). Within the context of fundamental analysis, analysts will construct a Discounted Cash flow Model (DCF) where they will extrapolate a firm's future cash flows out generally 3-5 years, and then calculate a terminal value at the latest most year in the model. These two practices take into account a firms value growth duration as they calculate both the value of future cash flows discounted to present value, and the value of a firm that either sells its assets to the highest bidder in the final year, or simply grows indefinitely at a flat rate.

In the method where analysts calculate the firm's total value if it were to sell all of its assets to the highest bidder, they assume that a firm will cease to exist in the final year of the Discounted Cash Flow Model and calculate a terminal value. Commonly they employ a terminal exit multiple to the firms EBITDA cash flows. (Earnings Before Interest, Taxes, Depreciation and Amortization). For example, a firm with an EBITDA of 10 billion with a multiple of 3 would have a projected EBITDA of 30 billion which would then be discounted by the firm's WACC in order to determine its terminal value. As this methodology is a function of a firm's expected future cash flows and its WACC, the aforementioned CSR integration techniques will already be accounted for using this terminal valuation methodology. However, often times a firm's multiplier will be based upon comparable data which can distort the terminal value as it incorporates both intrinsic and relative valuation techniques. (Damodaran)

On the other hand, analyst often times operate under the assumption that a firm will operate indefinitely. Using this assumption, analysts employ the Stable Growth Model (or the Gordon Growth Model) developed by Myron J. Gordon (1962). This model assumes that the firm will grow forever in perpetuity, and is calculated by dividing the cash flow to the firm by the firm's Cost of Capital minus the growth rate. Nevertheless, coming up with a firm's growth rate is often times arbitrary and based simply upon a conservative value for which an analyst can expect a firm to be able to growth forever at such as its home country's GDP growth or global GDP growth. (Damodaran) Moreover, small changes to this growth rate have exponentially large effects on the terminal value.

Unfortunately, there exists little research about whether or not a firm's CSR score impacts its perpetual growth rate or how many years one should forecast a firm's future cash flows. On the other hand, one study conducted by Schaltegger & Figge (1997) suggests that firms who are able to create competitive advantages by innovating within the realms of social and environmental impact will be able to demand higher premiums and out grow their competitors. (Schaltegger & Figge 1997) Thus firms with high CSR scores may potentially be able to demand higher growth premiums than that their peers, but without additional research there is not sufficient data to make a strong argument in favor of adjusting growth rates based upon a firm's CSR score.

Weaknesses in the Proposed Methodology

One weakness of this particular approach to integrating a firm's CSR score into a financial evaluation stems from the idiosyncrasy of ESG frameworks used to evaluate a firm's CSR activities. Though we attempted to reduce the idiosyncrasies among frameworks by integrating three of the most widely used frameworks together, we acknowledge that there may be CSR aspects that our framework does not take into account. Furthermore, as there exists no standard basis for ESG framework construction, all frameworks constructed are done so based upon each parties unique experiences and understanding of CSR.

Furthermore, a lack of standardized reporting of CSR data among firms makes comparing data from one company to another difficult, and thus using comparable data to help derive a firm's CSR rating may suffer from a lack of available data and overall accuracy.

Another topic of concern is the weighting of our ESG categories. Though the weightings are meant to reflect the perceived importance based upon the type of activity, there was not a strong empirical foundation for the establishment of the weightings that we used, and is based mostly upon qualitative analysis.

Additionally, we recognize the inherent weaknesses of using case studies to help determine how certain CSR activities can add or detract value from a firm. More or less, case studies function more as illustrations to help analysts understand the potential impact of a firm's CSR activities on their future financial performance, but do not provide empirical evidence required to establish a case for a causal relationship.

Finally, we understand that our proposed methodology functions more as a guideline for investors to undertake to help them understand and forecast the impact a firm's CSR activities will have on its financial performance. Consequently, we expect variation among results as this methodology does not reduce the amount of variation that occurs due to idiosyncrasy among firms, industries and/or analysts.

Conclusion

In this paper we explored the concept of Corporate Social Responsibility and its implications for investors. After reviewing current literature among this topic we discovered that there exists a lack of information regarding how analysts should integrate a firm's CSR activities into their financial evaluations and that business managers and investors have different perceptions of how CSR activities will impact a firm's value. As business managers perceive CSR to have a greater impact on a firm's value than investors, there exists discrepancies in a firm's total value resulting in what researchers have coined as "Hidden Value." This discrepancy primarily results from the lack of standardized CSR reporting from companies and integration techniques that are able to take into consideration both CSR and financial factors.

As a result of this problem, we outlined a methodology that builds on the shareholder value methodology by breaking down a firm's CSR activities, and outlining how different kinds of CSR activities can impact different economic drivers of a firm's shareholder value through the use of both empirical studies and case study examples.

Though our methodology is not perfect and suffers from high amounts of variability that stems from how individual analysts interpret a firm's CSR data and the specific context of the company they are evaluating, we argue nevertheless that this methodology provides a strong foundation to help investors integrate a firm's CSR activities into their financial evaluations, and account for value discrepancies that exist when only the financial and economic variables of a firm are measured.

Moving forward, we plan to continue to build on our approach, and incorporate new studies that will allow us to better understand how CSR activities can influence the drivers of a firm's shareholder value.

Appenix 1: OSIG ESG Framework

Environmental

Supply Chain and Operational Eco-Efficiency
-Raw materials sourcing
-Circular Value Chain Integration*
-Energy Management
-Water Usage
-Carbon Footprint
-Toxic Waste
-Packaging Waste
-Asset Maintenance
-Sensitivity to Climate Change
Products/Services
-Product innovation to be more sustainable
-Product quality and liability from an environmental perspective
Cluster Development for Environmental Impact
Other Opportunities in Environmental Impact

Social

Human Capital
-Training Programs
-Hiring/Recruiting Practices
-Diversity
-Equality
-Employee Satisfaction
-Employee Health, Safety + Benefits
-Union Strength
Products/Services
-Product Innovation to serve disadvantaged customers
-Product quality and liability from a social perspective
Stakeholder Engagement
Privacy and Data Security
Corporate Philanthropy
Cluster Development for Social Impact
Other Opportunities in Social Impact

Governance

Board Structure
-Compensation
-Gender Diversity
Business Ethics and Management
-Corruption and Bribery
-Political, Social and Environmental Transparency
-Anti-competitive Practices
-Accounting Practices
-Ownership of subsidiaries/companies

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