CORPORATE SUSTAINABILITY AND SHAREHOLDER WEALTH

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– EVIDENCE FROM AMERICAN COMPANIES

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ABSTRACT

The goal of this study is to provide insights on implementing sustainability into corporate strategy, and provide an answer whether it can lead to higher than average market valuation. Using extensive data of S&P 500 firms covering the years 2006-10, 85 companies were selected as meeting corporate sustainability criteria. An investment strategy that bought firms with CS would have earned abnormal returns of 7.4 percent per year during the sample period. We find that firms with balanced financial, social and environmental activities had lower revenues growth, lower growth volatility, and lower stock price volatility. These results are consistent with the idea that firms benefit from investing in corporate sustainability and that this practices are reflected in their stock prices. The results also indicate that investment in sustainable companies do not show anti-cyclical patterns within usual stock market cycle, however it is connected with higher stock market crash resistance. The empirical evidence of this paper is particularly pronounced for public firms that consider to implement sustainability into core business strategy. It also contributes to better understanding of this concept in the contemporary capital markets.

Keywords: corporate sustainability, shareholder wealth, environmental management, corporate social responsibility, sustainable corporate finance, sustainable development

1. Introduction

The word *sustainability* has become a more common part of the world's vocabulary over the past few decades, from the Club of Rome's Report called "The Limits of Growth," presented in 1972, to the concept's widespread existence in the contemporary business world. *Sustainable development* has become part of the public agenda around the globe. More consumers want businesses to provide eco-friendly products and services and take the lead on actions to address their environmental concerns. National governments are starting to promote a balanced approach to business planning and development. Growing numbers of shareowners pursue corporations to achieve long-term sustainable profitability, leading to a stock value rise and cost of capital reduction, over time. Employees want good and safe working conditions. The communities in which the firms operate want them to be aware of the social impact of their activities and significantly reduce their negative consequences. Corporations are also being closely monitored by several non-governmental organizations (NGOs), who are trying to pressure them to behave in more socially responsible ways. Because the general public gives each business a "license to operate," companies should not ignore the ongoing *sustainable wave*. Those who will be able to ride it may achieve a substantial competitive advantage.

The concept of *sustainability* was initially launched as an environmental idea focused on the conservation of resources. Nowadays, it has become a milestone for the entire business community. According to a recent survey, 93% of CEOs see sustainability as important, or very important, to their company's future

success, 96% believe that sustainability issues should be fully integrated into the strategy and operations of a company, and 73% see this as a way of strengthening their brand, trust, reputation and financial performance (UNGC, 2010). The number of companies and industries that can still afford to ignore changing external social conditions, natural resource management pressures, and rising expectations for long-term financial policy implementation, is declining rapidly. All *sustainable* efforts undertaken by corporations must benefit all sides. If either a business, or a society, pursues policies that benefit its interests at the expense of the other, a temporary gain to one will undermine the long-term prosperity of both (Porter and Kramer, 2006, 2011).

In order to turn *sustainability* into above-average profitability, the concept must become a matter of corporate management and core business strategy. Each company must be able to select those aspects of the ongoing *sustainable wave* that intersect with its particular business. All movement in that area should be undertaken carefully and present an opportunity to create shared value and substantial benefits for a business in a given time period, higher than other possible investment projects, that are also valuable from other stakeholder perspectives. This is the *conditio sine qua non* of making *sustainability* a major factor of the core business strategy. An emphasis on window dressing in that area will not provide long-term profitability and may lead to market share decline and the loss of their reputation (Besley and Ghatak, 2007).

Addressing sustainability issues at the micro level requires well-defined and measurable concept of corporate sustainability (CS). Scholars and practitioners often treat CS and corporate social responsibility (CSR) as being nearly synonymous. This is a common misunderstanding - these two concepts have different backgrounds and different theoretical paths. CSR generally refers to a collection of company's policies and practices linked to relationships with key stakeholders, values, compliance with legal requirements, and respect for people, communities and the environments they live in. Being socially responsible means operating a business in a manner that meets or exceeds the ethical, legal, and public expectations that society has of businesses. Thus, it is generally limited to social and some environmental aspects of business activities, meaning that CSR commitment contributes only partly to sustainable development.

The concept of CS can be seen as a transfer of the overall idea of *sustainable development* to the business level. This implies that the identity of the *sustainable company* has a multidimensional perspective. Strategic CS management deals with questions of integrating economic, ecological and social issues to realize a business case (Dyllick and Hockerts, 2002; Flatz, 2002). This concept determines how to integrate the previously discussed areas systematically. It truly contributes to all aspects of sustainable development. A sustainable company can be seen as a business unit which considers its long term health as a combination of the proper management of all major areas of its activities (e.g., financial, social and environmental) at the same time. Thus, it is able to overcome conflict of goals between the above mentioned areas in the long run. From the financial perspective, it means that asset and revenue growth is balanced with the corporation's operating and financial policies. A set of mutually consistent growth objectives and financial targets is actively developed over time.

The social perspective can be described as an achievement of business goals in the way that meets ethical standards and respects identifiable stakeholder's welfare. In order to do so, a *sustainable company* should adopt practices that go beyond the minimum legal requirements. Environmental perspective means that a company includes ecological aspects in all of its core competencies. The implementation of a coherent environmental friendly management system (EFMS) is necessary. *A sustainable company* sees environmental factors as a matter of its core business strategy.

The goal of this study is to provide insights in relation to implementing sustainability into corporate strategy, and providing an answer for whether it can lead to higher than average market valuations. Companies that carefully think through the issues of *sustainability,* and are able to develop effective ways to build them into all major areas of their activities, are likely to achieve competitive advantage in the contemporary marketplace. Those who truly overcome a conflict of goals between financial, social and environmental perspectives should find opportunities to mitigate operational risk, cut the costs of capital and boost revenue. This should result in a more stable financial performance and higher stock market valuation of *sustainable corporations* in the long term. Activities in the area of CS that entail a short-run

cost to achieve an appropriately greater shareholder gain and profitability in the long-run will therefore not be a departure from the economic objective and conduct of the corporation.

2. Related Literature

Numerous studies have empirically examined connections between “doing good” and “doing well” for the shareholder. The existing literature is fragmented and tends to focus on a single aspect of sustainability, either the social, environmental or financial aspect, rather than a proper balance between them and the company’s relationship with various dimensions of shareholder gains.

The link between CSR and profitability was studied by Margolis and Elfenbien (2008) in their survey of management literature. They found that there is little evidence stating that CSR negatively affects performance. However, the authors also point out that there is only a very small positive correlation between corporate behavior and good financial results, which could be a result of reverse casualty, in which a history of strong financial performance gives companies a better ability to contribute to society. Mănescu (2011) provides evidence that human rights and product safety indicators might be value relevant, but are not efficiently incorporated into stock prices.

Scholtens and Zhou (2008) found that the different components of stakeholder relationships appear to be associated, in a complex manner, with shareholder performance. Renneboog, Horst and Zang (2008) also suggest that the existing studies do not unequivocally demonstrate that socially responsible investments (SRI) have a positive shareholder value impact. The other aspect of CSR, corporate philanthropy, and its impact on sales growth, was examined by Baruch, Petrovits and Radhakrishan (2010). They determined that charitable contributions are significantly associated with future revenue, whereas reverse casualty is marginally significant. Elfenbein and McManus (2010) suggest that consumers consistently express a willingness to favor socially responsible firms and tend to pay more for products linked to charitable activities. In their study, Boyle, Higgins and Rhee (1997) suggest that CSR activities may adversely affect financial results. Kahn, Lekander, and Leimkuhler (1997) also agree that managers who entail corporate resources to social issues impose a direct cost on shareholders. Different results from the above mentioned empirical studies show the difficulties in testing the relationship between CSR and firm financial performance. The most important of them are addressed by Benabou and Tirole (2010).

When it comes to the environmental aspect of sustainability, two major opposite streams are identified. The first points out a positive and the second point out a negative link between corporate environmental performance and profitability. Reinhardt (1998) is among the proponents of a win-win environmental management paradigm. In his study, he argued that green strategies enhance firms’ competitive advantage by attracting environmentally aware consumers.Majumdar and Marcus (2001) find that the development of pro-environmental technologies is connected with an increase in the productivity and quality of companies’ operating process.

Semenova and Hassel (2008) show that the reputational benefits of environmental preparedness mainly increases market value, while environmental performance can also bring operational benefits to financial performance. In their study, Nakao, Amano, Matsumura, Genba and Nakano (2007) find out that a firm's environmental performance has a positive impact on its financial performance and vice versa. Yin and Schmeidler (2009) provide evidence that firms which integrate ISO 14001 standards into their daily operations report improvements in environmental and financial performance. Similar findings are presented by Guoyou, Saixing, Xiaodong and Chiming (2011).

In contrast, Fernando, Sharfman and Uysal (2010) find that green environmental strategies do not increase market valuation, but there is also not a statistically significant difference in performance between green and environmentally neutral firms. Only inappropriate environmental management is valued lower by the market. In his study, Zaho (2008) points out that the environmental investments appear to conflict with shareholder value maximization. The results of the statistical analysis indicated that the registration of ISO 14001 environmental management systems has led to lower profitability. Fisher-Vanden and Thorburn (2010) also provide evidence on the negative shareholder wealth effects of voluntary corporate environmental initiatives. They suggest that companies announcing membership in environmental programs experience significantly negative abnormal stock returns. Based on the studies

that have been done to date, it is difficult to determine exactly what the relationship between the implementation of environmental management systems and shareholder benefits is.

Sustainability, in the discipline of corporate finance, is a less established concept. This area is relatively new, however, the concept does have a growing body of literature. It is often interpreted as a financial policy that cares for future generations. This single corporation objective does not say anything about enhancing profits and shareholder gains in the long-term, and is, therefore, a departure from the economic objective.

Sustainability in finance requires a multidimensional approach. This finds its reflection in Soppe's (2004; 2011) theory, that defines sustainable finance as a financial policy that strives for triple-bottom-line performance measurements with human actors that opt to maximize multi-dimensional preference functions. In a related theoretical work, Johnsen (2003) suggests that sustainability in corporate finance is strictly connected to socially responsible investing. Margolis and Walsh (2001) synthesized 80 studies on SRI portfolios, and found that over 50% indicated a positive link between SRI funds performance and CSR practices by companies.

The multidimensional approach complicates financial modeling and results in unacceptable methodological difficulties. This is probably the reason why the linkages between corporate sustainable finance and widely perceived performance have not yet captured the proper attention of the contemporary academic literature. Orlitzky, Schmidt and Rynes (2003), in their meta-analysis of 52 studies on the linkages between corporate social and financial performance, illustrated that the current evidence is too fractured and variable to draw any generalizable conclusions.

Additional research should be done on the benefits of the environmental, social and financial aspects of CS. In our view, the existing literature is too fragmented, especially because it treats the above mentioned areas separately. In some cases, the existing studies are not able to unequivocally quantify them, especially in the area of sustainable corporate finance. Hence, this paper develops a new method for CS assessment. We study CS as a multidimensional concept, along with each of its major components, and provide an answer as to whether it can lead to additional shareholder gains.

3. The Theoretical Frameworkand Methods

3.1. Financial Aspects of Corporate Sustainability

The unrestrained growth of revenue can lead to serious financial difficulties. The tradeoffs between more growth and higher financial risk might enable corporations to gain enough cash from the market to maintain its existence over longer term horizons. The history of the six major financial and economic crises over the last century is the best proof of it. These crises include: 1. The collapse of the speculative stock market in 1929-1933, 2. The collapse of real estate values in 1929-1933, 3. The Savings and Loan institutions collapse in the 1980s, 4. The Latin American bank debt crisis in the 1980s, 5. The collapse of Long Term Capital Management in 1997 and, 6. The sub-prime home mortgage loan crisis in 2006-2009. Therefore, growth should no longer be seen as something to be maximized in parallel to unlimited additional risk taking. It is a decision variable that must be consistent with other major policy parameters.

Sustainability in finance is interpreted as mutual compatibility in the long run between growth objectives and established operating and financial policies. To test the above mentioned consistency, the concept of the sustainable rate of growth is introduced. The rate of growth shows the maximum revenue growth (in %) which the company can sustain (finance internally) without changing any of its basic operating and financial ratios and without resorting to a new equity issue (Higgins, 1977). The firm's sustainable growth rate g^* in a given year is a function of the profit margin p_m (net income after tax/revenue), asset turnover a_t (revenue/assets), financial leverage f_l and earnings retention ratio e_{rr}:

$$g^* = p_m * a_t * f_l * e_{rr} . (1)$$

This sustainable growth rate calculation takes beginning of year equity as the base of its calculations. Sales and profit improvements are taken relative to last year's ending positions. If the company is able to achieve the sustainable growth rate g^*, the new assets are financed by new debt and an increase in

equity through retained earnings. In other words, the financial and operating policies of the firm are aimed at stable risk and returns for the owners of the residual claims, in the long term.

If the actual growth rate is higher than the sustainable growth rate in the longer term perspective, the company permanently does not have enough capital to meet its investment needs. The main challenge is to find a proper way to finance growth. It can be achieved through dividends reduction, operating performance improvements, increases in leverage, new equity rises or actual growth rate reductions.

Over the last decade, 2000-2009, new equity issues only provided, on average, about 1% of the total funds required by U.S. non-financial corporations. In fact, in most of the years during this time period, the value of shares repurchased by companies exceeded the value of new shares issued, indicating negative net new equity. There are at least four reasons for this state of affairs: 1. The most competitive and financially successful firms appear to primarily rely on internal cash flows to invest, despite the ability of additional low cost external financing (Kaplan and Zingales, 1997), 2. Some corporations are not interested in new equity issues because of their prohibitive characteristics, which is much higher than other sources of capital costs (e.g., registration, underwriting, selling, possible underpricing), 3. The stock market also becomes a secondary source of capital because of the time lag between new equity issue decisions and actual selling conditions and, 4. New common stock can lead to loss of voting control, especially in closely held companies.

Operating performance improvement can be achieved through profit margins and asset turnover increases. It requires a lot of strategic decision making and restructuring. The strategic drivers are prices, volumes and product mix. A successive concentration of resources, in relation to where they can be used most effectively, can increase the operating performance of a given company. Simple price increases, or product quality reductions, will only decrease competitiveness and lead to a lot of operational disorder.

The usage of increased financial leverage as a factor enabling the development of company growth objectives is very tricky. The relaxation of financial constraints will lead to an increase in the weighted average cost of capital and a possible decrease in the market value added that is created by the firm. The average U.S. firm's cumulated value of debt to the accumulated value of assets ratio rose from 46.5% in 2001 to 54.5% in 2009. We should not see a further substantial increase in corporate debt levels in the coming years. If the company cannot allow the relaxation of the financial constraints' scenario to happen, the only other way to increase the existing debt ratio is to reduce the cash flowing to shareholders. This is extremely problematic, because equity owners are used to receiving dividends of a certain level, therefore, there is not much room in the contemporary stock market for further reductions. In 2008, the average percentage of corporate net incomes distributed to shareholders reached a decade low value of 16.2%, down from 44.8% in 2003 and a 1999-2008 average of 28.9%. The possible reduction in dividends should also be compensated by more than a proportional rise in the share price produced by new investments.

When new equity financing is impossible, the firm's investment, financing and dividend decisions are independent. Because investment capital beyond that provided by retained profits and accompanying borrowing is available only through a reduction in dividends or an increase in financial leverage, the marginal cost of capital increases with growth beyond the sustainable level (Higgins, 1977).

The unrestrained growth of revenue can lead to serious financial difficulties. Sustainable growth problems are, therefore, becoming more and more severe in the contemporary marketplace. Many companies will not be able to solve them by simply relaxing financial constraints, a payout ratios reduction or new stock sales. Asset and revenue growth must be balanced with a corporation's operating and financial policies in the longer term perspective. Only then will the concept of sustainability truly become a matter of corporate management and core business strategy.

If the actual growth rate is lower than the sustainable growth rate in the longer term perspective, the company permanently has more than enough capital to meet its investment needs. The main challenge is to determine the proper way to use the excess cash. It can be achieved through new value-creating investment expenditures, mergers and acquisitions (buying growth), common share repurchases or an increase in dividends. From a strictly financial perspective, the problems posted in the above mentioned situation seem to be far less demanding; this is not true from the *sustainable company* perspective.

The situation in which the firm permanently underperforms its sustainable rate of growth has negative information content within the ongoing *sustainable wave*. It becomes more and more difficult for a business to locate value-creating investments for all of the cash flow that is being earned. More specifically, an increase in dividends is not always a good solution, as the stock market often reacts negatively to unexpected extraordinary dividend payments, especially in the longer term perspective.

Only 30% of all mergers and acquisitions are successful in terms of additional value creation. The only proper solution is to sustainability build into all of the major areas of companies' activities. It will allow for determining new value-creating investment opportunities and make the actual rate of growth closer to the sustainable rate of growth. This should result in a more stable financial performance and higher stock market valuation in the long term.

4.2. Social Aspects of Corporate Sustainability

There is no universal definition of CSR. According to Howard Bowen, CSR is defined as a 'businessman's obligations to pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of the objectives and values of the society' (1953: 6). Allied concepts (Sethi, 1979; Wartick and Cochran, 1985) also link the responsiveness and performance of a firm to the society. In the contemporary market economy, all stakeholders (e.g., consumers, employees, governments, shareowners, local communities, and NGOs) have equal interests and equal claims in the company's outputs and resources (Freeman, 1984; Clarkson, 1995). Hence, the firms should be accountable to them.

Society's and governments' demands for CSR have recently become highly prominent. The United Nations (UN) promotes CSR through the group called the Global Compact; the UK government has created a ministerial portfolio of CSR. Vast numbers of corporations are engaged in the social practices of self-reporting initiatives and self-regulation. In addition, cooperation with NGOs is moving across supply chains. There has also been substantial growth in the number of ethical and social mutual funds, as well as their market share (Vogel, 2005).

CSR is now seen as mainstream in the business world. The variety of factors that combine to account for this state of affairs are as follows:

- The economic and political power of the world's biggest corporations has grown significantly in recent years. In the year 1999, it included 100 of the largest economies in the world, 51 of which were corporations and 49 were countries (based on comparisons of corporate revenue and country gross domestic product). In the year 2009, their number, mainly due to an economic meltdown, fell to 45;

- Social responsibility is likely to be a normal good (Benabou and Tirole, 2010). The general wealth creation connected with the globalization process has made people around the world more aware of both positive and negative externalities created by companies in their business as usual and increased demand for socially responsible businesses at the same time. Consumers who value CSR efforts would be also willing to pay more for products offered by such firms (Elfenbein and McManus, 2010);

- Employees tend to work harder (or better) for socially responsible firms, which can lead to stronger employee commitments and higher productivity (Baron, 2008);

- Information about companies' practices throughout the world has become easily accessible and spreads much more quickly, thanks to new information technologies (the long run cost of doing business without taking care of social issues has risen significantly);

- Honest commitment to good corporate citizenship connected with strong commercial competence can help create value in the longer term perspective, as there is no principal-agent problem connected with companies' investment in social responsibility if it generates higher returns to its shareowners.

There is a wide range of activities connected with being a socially responsible corporation. It spans from creating good working conditions, to volunteering in the local community, and from eliminating race discrimination, to building wells in Sudan. What is most important is that all CSR activities should be

integrated into a core business strategy and decision-making process that is relevant throughout the company. CSR activities must be aligned with companies' core competencies, which imply a long time perspective of CSR.

Being truly socially responsible involves considerable costs. Taking a step forward in adopting it, that goes beyond the minimum legal requirements, should generate tangible opportunities to increase competitiveness and attract new sources of capital. Strategic CSR should lead to businessman's obligations to pursue those policies, to make those decisions a long term increase in profits and a strengthened market position. The firm is investing shareholders' money into it, so paying attention to being a socially responsible corporation should have bottom-line benefits, which, over the longer term perspective, will lead to sustained profits.

Truly responsible businesses never lose their commercial imperative. However, Friedman (1970) and Reich (2008) argue that a concentration on CSR leads to a "incorrect" corporate objective function. In their view, firms should focus on increasing profits and transferring all social activities to other organizations.

More profitable businesses create additional welfare in the form of jobs, products and innovation. All of these benefits are hidden under the social responsibility umbrella. There is nothing bad in making additional money by addressing the current society's and governments' demands.

4.3. Environmental Aspects of Corporate Sustainability

At the turn of the 21th century, in the age when a number of ecological threats, due to the rapid development of human civilization, have been identified, environmental issues are not only becoming part and parcel of politics, but also of business life. The growing ecological awareness of the consumer, the increase in the significance of CSR, including the change in the expectations of strategic pressure groups (Esty and Winston, 2006), the pro-environmental transformation of the international and national legal environment, the development of the pro-ecological technologies and the appearance of new "green" sources of capital (Laszlo, 2003), are considered the most important reasons for businesses to restructure themselves to become more eco-friendly. The 'ecologization' of a company refers to the inclusion of environmental management in its operations. This means broadening planning, organization, leadership and member performance control processes by aspects of the minimization of ecological burdens.

The history of the pro-environmental reorientation of managing a company is relatively short. Other concepts, not directly connected to ecological issues, such as the quality of occupational health management systems, are much older and more widely used in business practice. According to the latest trends, there is an increasing willingness to include environmental aspects into existing management systems, thus designing it into an entirely new, comprehensive concept of corporate management, which we call eco-friendly management system (EFMS).

EFMS are best understood as a general system for managing an organization, which includes environmental aspects in a majority of its activities, including: procurement, manufacturing, distribution, reporting, marketing, services, research and development, public relations, and infrastructure. The basic advantages of EFMS include a change in the organization's culture, the elimination of non-effective processes, an increase in savings due to a less frequent occurrence of breakdowns and a reduced amount of waste, an improvement in product quality and occupational safety, an improvement of the company image, reinforcement of its market position, the benefits of the first move, the imposition of standards, and the lower weighted average costs of capital (including gaining access to new "green" sources of capital).

The implementation of eco-friendly management systems involves a considerable number of costs. Its effectiveness depends on a variety of factors, like the size of the company, the industry, the technological advancements, the competitive environments, the ecological awareness of society, the government's environmental policies, and the local community. The pro-environmental reorientation of managing a company can only ensure above-average profitability in the long term, if the concept becomes a matter of the core business strategy and is included in a majority of its basic functions.

4.4. Sample and Data Description

To select the sample, we began with an investigation of all companies listed in the S&P 500 index. The index includes 500 leading U.S. based companies (a few of them have their headquarters in other countries) as the leading industries of the American economy, capturing 75% coverage of U.S. equities. Our main financial data source is the Wharton Research Data Services (WRDS), which provides detailed balance sheets, income statements and cash flow statements for the above mentioned firms. The WRDS database covers most of the S&P 500 firms. Missing data were derived from the Yahoo Finance website, which served as a supplementary source. All social and environmental performance data have been retrieved from firms' websites. There is no existing and credible central database covering information about these aspects of corporate activities.

In the first phase, we restricted our sample to the 464 firms that demonstrated that their social activities are integrated into their core business strategy and decision-making process. These companies publish profound CSR reports, documenting a wide range of activities connected with being continuously socially responsible since the year 2006. Their actions, which are desirable in terms of the objectives and values of the society, have also been awarded by at least three external institutions and organizations.

In the second phase, we exclude companies without EFMS, resulting in a sample of 262 pro-environmental oriented firms in terms of procurement, manufacturing, distribution, marketing, service, research and development, public relations, and infrastructure. These companies implemented, or achieved, since 2006, at least three of the following requirements:

- In the area of reporting: own-designed environmental reports or reports created according to Global Initiative Reports guidelines;
- In the area of procurement, manufacturing, distribution, research and development and service: own-designed an environmental management system or ISO 14001 certificate;
- In the area of infrastructure: Leadership in Energy and Environmental Design (LEED) certificate;
- In the area of public relations and marketing: environmental awards granted by external institutions and organizations.

In the third phase, the sample of 262 was further reduced to 85 companies, which were able to achieve mutual compatibility between growth objectives and established operating and financial policies in the long run. In order to meet the criteria of financial sustainability, the companies' average difference between the real rates of revenue growth and the sustainable growth rate, determined by using Formula (1), oscillated between plus and minus 10% in the years of 2001-10. This estimator is a proper measure, because it does not create a sever bias in the results, as it is rarely possible to precisely hit the sustainable rate of revenue growth, so using a range is absolutely necessary, and because the selected range of difference between the real and sustainable revenue growth rate is wide enough and the time horizon long enough to ensure that the differences between the groups are not the result of the fact that some companies might be more sensitive to cyclical changes in the stock market than others. Finally, the selected estimator is narrow enough to eliminate the companies characterized by a too high long term volatility of the revenue growth rate from the sample.

The list of 85 firms with balanced financial, social and environmental activities is illustrated in Table 1. The sectors of industrial and consumer discretionary are most strongly represented in the sample, while the sectors of energy, finances and healthcare are not well represented. The sector of telecommunication services is not represented at all. Table 2 summarizes these results.

4. Research Hypotheses

Managing CS requires the examination of the type of relationship between a combination of proper management of all major areas of a company's activities (financial, social and environmental) and the overall corporate financial performance. There are three theoretical possibilities for this (Preston and O'Bannon, 1997). Firstly, more profitable firms have enough financial resources to spend on sustainable activities. They can improve their environmental and social performance and implement more activities in that area, better than the less profitable firms. Another possible explanation is that sustainable

performance drives financial performance and shareholders benefit from investing in CS. Finally, there can be a synergistic relationship between them.

In our study, we address several issues related to the impact of CS on shareholder value creation. First, we attempt to ascertain whether the implementation of sustainability into corporate strategy leads to abnormal returns. We also examine whether or not companies meeting CS criteria are associated with different stock price volatility.

Hypothesis 1: Companies that adopt sustainability into their core business strategies and decision-making processes earnhigher than average stock market valuations.

Hypothesis 2: Companies that adopt sustainability into their core business strategies and decision-making processes are characterized by lower stock price volatility.

Secondly, we examine the revenue growth paths of both sustainable and unsustainable firms. We do so in order to determine whether CS is related to different revenue growth rates and different revenue growth volatility.

Hypothesis 3: Companies that adopt sustainability into their core business strategies and decision-making processes earnlower average growth rates than unsustainable companies.

Hypothesis 4: Companies that adopt sustainability into their core business strategies and decision-making processes are characterized by a lower volatility of revenue growth.

Finally, we ask whether or not investment in sustainable companies exhibits any anti-cyclical patterns within the usual stock market cycle. We also examine whether the implementation of sustainability into corporate strategy leads to different economic crisis resistance.

Hypothesis 5: Companies that adopt sustainability into their core business strategies and decision-making processes are not characterized by anti-cyclical patterns within the usual stock market cycle.

Hypothesis 6: Companies that adopt sustainability into their core business strategies and decision-making processes are characterized by a higher than average stock market crash resistance.

All formulated hypotheses in our study are directional, suggesting that firms and shareholders benefit from investing in CS and that these practices are reflected in their stock market performance. This approach is consistent with the ongoing *sustainable wave*.

5. Results

5.1. Corporate Sustainability and Returns

If CS affects firm performance and this relationship is fully incorporated by the market, then a stock price should quickly adjust to a relevant change in the corporate management and core business strategy. This is highly unlikely, because the implementation of sustainability at the micro level requires a systematic and long term approach and expected returns on the stock wouldn't only be affected within the event window. As such, realized returns on the stock would differ systematically from equivalent securities.

In this section, we examine the relationship between CS and subsequent returns. An investment of $1 in the portfolio of firms with CS on December 30, 2005, when our data began, would have grown to $1.59 by December 31, 2010. In contrast, a $1 investment in the S&P 500 index would have grown to $1.01 over the same period (Chart 1). This is equivalent to annualized returns of 9.57 percent for the sustainable portfolio and 0.15 percent for the market portfolio, a difference of more than 9.4 percent annually. The results also illustrate that that investments in sustainable companies are connected with higher stock market crash resistance. In 2008, a decline in returns for the S&P 500 index was almost 38.5 percent, while the sustainable portfolio lost slightly more than 30.3 percent. The annual returns for both portfolios during the sample period are illustrated in Chart 2.

There are few explanations for the above mentioned disparity. One possible explanation is that the performance differences are driven by differences in the level of risk of the two portfolios. The related literature identifies several equity characteristics that can explain the differences in earned stock market returns. The most important aspect among them are the price to earnings ratio, book to market ratio, size and immediate past returns.

Several methods have been developed to account for these style differences in a system of performance attribution. We employ the model design by Carhart (1997), estimated by:

$$R_{it} = \alpha_{it} + \beta_{it} * RMRF_t + \chi_{it} * SMB_t + \delta * HML_t + \phi * PR1YR_t + \varepsilon_{it}, (2)$$

Where: R_{it} is the excess return on a portfolio to an asset in month *t*, $RMRF_t$ is the market return minus the risk-free rate, and the terms SMB_t (small minus big), HML_t (high minus low), and $PR1YR_t$ are the month *t* returns on a zero-investment, factor-mimicking portfolios for size, book-to-market, and one-year momentum in stock returns, respectively. We interpret α_{it} as the abnormal return in excess of what could have been achieved by passive investments in the market portfolio.

Table 3 illustrates the results of estimating Equation (2), where the dependent variable, R_{it}, is the monthly return difference between the sustainable and S&P 500 index portfolios. For this specification, the α_{it} is 59 basis points (bp) per month, or about 7.37 percent annually. This point estimate is statistically significant at the one-percent level. Thus, very little of the difference in observed returns can be attributed to style differences in the two portfolios.

We also find that firms with balanced financial, social and environmental activities had lower daily stock return volatility over the years 2006-10 as compared to the S&P 500 index. Standard deviation in daily returns of the portfolio of the S&P 500 index was 0.000146, while for the sustainable portfolio it was 0.000142. This result is consistent with the overall concept of sustainable development.

5.2. Corporate Sustainability and Revenue Growth

Corporate revenue growth data provides us with important information about equity markets. It not only helps investors forecast future profits, but also determines the price they are willing to pay for equity. Revenue also play a central role in determining the capabilities of business to cover expenditures on fixed capital and research and development. The implementation of CS involves considerable costs. The adaptation of this concept should generate tangible opportunities to increase shareholder wealth. For instance, as we have seen in the former section, it is connected with abnormal stock market returns and lower stock price volatility. In addition, the revenue growth paths of sustainable firms should be different from the revenue growth paths of the unsustainable ones in the long term. According to the concept of sustainability, the former should be slower. Firms who truly overcome the conflict of goals between financial, social and environmental perspectives should also be characterized by lower revenue growth volatility.

In this section, we examine the revenue growth paths of both sustainable and unsustainable firms. We find that the average annual rate of growth of revenue for the sample of sustainable companies between the years of 2006-10 was 4.5 percent, while for the unsustainable companies, it was 8.5 percent over the same time period. These results differ significantly. We also find that companies that adopt sustainability into their core business strategies and decision-making processes are characterized by a lower annual volatility of revenue growth over the years of 2006-10. The standard deviation in annual revenue growth of the sustainable corporations was 0.00121, while for unsustainable firms it was 0.00243.

Unsustainable firms among the S&P 500 companies are characterized by higher average revenue growth rates in years of economic prosperity. However, the results also illustrate that the revenue of sustainable companies are more resistant to economic meltdowns. In 2009, both groups experienced sharp declines in revenue growth. However, this decline for sustainable companies was a little lower. Chart 3 shows the results of annual revenue growth rates, comparing sustainable and unsustainable companies over the years of 2006-10.

5.3. Corporate Sustainability and Stock Market Cycles

An important question that we address in this paper is whether stock market cycles for the sustainable corporations has similar features to unsustainable ones. This is an important question to answer. If the adoption of sustainability into core business strategies and decision-making processes is characterized by any anti-cyclical patterns within the usual stock market cycle, than investment in these companies should protect shareholders against losses during stock market crashes. This is highly unlikely, because

cyclicity is a permanent feature of the market. However, according to the concept of CS, firms that adopt it should be characterized by higher stock market crash resistance.

In this section, we examine the selected characteristics of CS within stock market cycles. We use monthly data on stock returns for the S&P 500 index and our sample of 85 sustainable corporations. The series runs from December 30, 2005 to December 31, 2010, thus yielding a total of 60 observations. The monthly returns for both portfolios during the sample period are illustrated in Chart 4. The small number of observations does not allow us to employ any sophisticated stock market cycle analytical tools and makes all the below findings less reliable.

The first finding that comes from inspection of the graph is that the sustainable company's portfolio is not characterized by any anti-cyclical patterns within the S&P 500 index stock market cycle. There are no significant time lags between peaks and troughs for both portfolios. Moreover, the market cycle for our sample of 85 sustainable companies tends to have a comparable duration. The second finding is that investment in these companies not only diminishes shareholders' losses during the stock market crash, but also ensures higher returns during the bull phase. Almost all of the monthly returns on the sustainable portfolio during the sample period are higher than the returns on the S&P 500 index. What is more, this difference is higher during the peaks than the troughs. We also find that sustainable companies tend to have higher monthly return amplitude and almost a seven times lower volatility, measured by the coefficient of variation, than similar returns for the S&P 500 index.

6. Discussion and Conclusions

The conduct of business activities with a view to enhancing corporate profits and shareholder gains is the canonical objective of the corporation. This does not mean that the above target must be realized during the short-run period. Instead, the opposite is true. Long-run profitability and shareholder gains are at the core of economic objectives. Activities in the areas of the social, environmental and financial aspects of CS that entail a short-run cost to achieve an appropriately greater long-run profit are therefore not a departure from the core economic objectives of the firm.

In this study, we made an attempt to establish a measurable concept of CS, which covers all major areas of a firm's activities at the same time. This concept can be seen as a transfer of the overall idea of sustainable developmentto a business level. Using our CS criteria for S&P 500 firms, we build a sample of 85 sustainable companies. We then analyze the empirical relationship between CS and the selected aspects of shareholder wealth in the years of 2006-10. We examine the relationships in a sequence of six hypothesis. The six hypotheses are as follows. First, we attempt to ascertain if the implementation of sustainability into corporate strategy leads to abnormal returns (Hypothesis 1) and lower stock price volatility (Hypothesis 2). Then we try to determine if CS is related to lower revenue growth rates (Hypothesis 3) and lower revenue growth volatility (Hypothesis 4). Finally, we attempt to collect some evidence on the cyclical patterns of investment in sustainable companies within the usual stock market cycle (Hypothesis 5). We also examine if the implementation of sustainability into corporate strategy leads to different economic crisis resistance (Hypothesis 6).

We find that CS is strongly correlated with stock returns during the analyzed period. An investment of $1 in the portfolio of firms with CS on December 30, 2005, when our data began, would have grown to $1.59 by December 31, 2010. In contrast, a $1 investment in the S&P 500 index would have grown to $1.01 over the same period. This is equivalent to annualized returns of 9.57 percent for the sustainable portfolio and 0.15 percent for the market portfolio, a difference of more than 9.4 percent annually. The results are economically large and are robust in relation to many controls and other firm characteristics.

The relationship between valuation and CS was strong during the entire sample period. The surplus in the stock performance of the sustainable companies has increased significantly since the beginning of the global economic crisis. This indicates that more market participants started to pay close attention to sustainability in a firm's environmental, social and financial policies. The fact that this price adjustment is taking a long time is not surprising in light of the fact that the achievement of CS requires a combination of the proper management of all major areas of firm's activities. Interestingly, while these results are consistent with the idea that firms benefit from investing in CS, we still do not know what Hypothesis 1 implies about abnormal returns in the future. If we assume that CS becomes common practice, there is no reason to expect any first-mover advantages.

We also find some evidence in support of Hypotheses 2 and 6. Firms with balanced financial, social and environmental activities had lower daily stock return volatility over the years 2006-10 than the S&P 500 index. In 2008, a decline in returns for the S&P 500 index was almost 38.5 percent, while the sustainable portfolio lost slightly more than 30.3 percent.

In addition to the three hypotheses considered above, we also find some evidence in support of Hypotheses 3 and 4. For Hypothesis 3, we find that the average annual rate of the growth of revenue for the sample of sustainable companies between the years 2006-10 was 4.5 percent, while for the unsustainable companies it was 8.5 percent. These results differ significantly and illustrate that the implementation of sustainability is connected with lower revenue growth rates in the long term. For Hypothesis 4, we find that the analyzed modification in business strategy is connected with lower revenue growth volatility. The standard deviation in the annual revenue growth of the sustainable corporations over the years 2006-10 was 0.00121, while for the unsustainable firms, it was 0.00243.

We also find some evidence in support of Hypothesis 5. Companies that adopt sustainability into their core business strategies and decision-making processes are not characterized by anti-cyclical patterns within the usual stock market cycle. The market cycle for our sample of 85 sustainable companies' monthly returns tends to have a comparable duration, higher amplitude and lower volatility, than the S&P 500 index. Moreover, investment in these companies not only diminishes shareholders' losses during the stock market crash, which is also consistent with Hypothesis 6, but also ensures higher returns during the peak phase.

In our paper, we consider the relationships between CS and selected dimensions of shareholder wealth. Our results suggest that firms and shareholders generally benefit from investing in sustainability. Hence the clear message to policymakers is that public policy incentives and requirements for CS should be strengthened. This will tighten the link between commercial interests and companies' constituencies' well-being.

The chosen methodology has some limitations. Our sample is restricted to the U.S. financial market. Therefore, conclusions shouldn't be generalized to emerging markets. In addition, we only analyzed a selected group of financial, social and environmental activity aspects. Hence, it is possible that our results are driven by some unobservable or unconsidered firm characteristics. These multiple causal explanations have different corporate policy and investment strategy implications and stand as a challenge for future research. Our paper can be seen as an attempt to address this challenge.

7. Appendix

Table 1 The S&P 500 firms meeting corporate sustainability (CS) criteria

Ticker symbol↓	Company↓	Ticker symbol↓	Company↓
MMM	3M Co	MAR	Marriott Int'l.
ABT	Abbott Laboratories	MAT	Mattel Inc.
AMD	Advanced Micro Devices	MKC	McCormick & Co.
APD	Air Products & Chemicals Inc	MCD	McDonald's Corp.
AA	Alcoa Inc	MHP	McGraw-Hill
AIZ	Assurant Inc	NWSA	News Corporation
BHI	Baker Hughes Inc	NEE	NextEra Energy Resources
BLL	Ball Corp	NKE	NIKE Inc.
BAX	Baxter International Inc.	NSC	Norfolk Southern Corp.
BDX	Becton Dickinson	OMC	Omnicom Group

BMS	Bemis Company	PLL	Pall Corp.
BBY	Best Buy Co. Inc.	PH	Parker-Hannifin
BF.b	Brown-Forman Corporation	PEP	PepsiCo Inc.
CA	CA, Inc.	PCG	PG&E Corp.
CAT	Caterpillar Inc.	PNW	Pinnacle West Capital
CB	Chubb Corp.	PPL	PPL Corp.
CMS	CMS Energy	PX	Praxair Inc.
CCE	Coca-Cola Enterprises	PRU	Prudential Financial
CSC	Computer Sciences Corp.	RTN	Raytheon Co.
ED	Consolidated Edison	COL	Rockwell Collins
CEG	Constellation Energy Group	SHW	Sherwin-Williams
COST	Costco Co.	SIAL	Sigma-Aldrich
CSX	CSX Corp.	SO	Southern Co.
CMI	Cummins Inc.	SWK	Stanley Black & Decker
DE	Deere & Co.	SYY	Sysco Corp.
DOV	Dover Corp.	TGT	Target Corp.
DOW	Dow Chemical	TXT	Textron Inc.
DTE	DTE Energy Co.	TIF	Tiffany & Co.
EMN	Eastman Chemical	TJX	TJX Companies Inc.
ETN	Eaton Corp.	UTX	United Technologies
ECL	Ecolab Inc.	UNM	Unum Group
EIX	Edison Int'l	WMT	Wal-Mart Stores
ETR	Entergy Corp.	DIS	Walt Disney Co.
XOM	Exxon Mobil Corp.	WM	Waste Management Inc.
GD	General Dynamics	WHR	Whirlpool Corp.
GE	General Electric	WEC	Wisconsin Energy Corporation
GT	Goodyear Tire & Rubber	XRX	Xerox Corp.
GWW	Grainger (W.W.) Inc.		
HAS	Hasbro Inc.		
HON	Honeywell Int'l Inc.		
HRL	Hormel Foods Corp.		
INTC	Intel Corp.		
IBM	International Bus. Machines		
IPG	Interpublic Group		
JNJ	Johnson & Johnson		

JCI	Johnson Controls		

Table 2 Distribution of sustainable companies by Global Industry Classification Standard (GICS) sectors

GICS Sector↓	S&P 500 companies	Percentage of all S&P 500 companies	85 sampled companies	Percentage of sample
Consumer Discretionary	82	16,40%	19	22,35%
Consumer Staples	41	8,20%	9	10,59%
Energy	37	7,40%	2	2,35%
Financials	81	16,20%	4	4,71%
Health Care	51	10,20%	4	4,71%
Industrials	60	12,00%	20	23,53%
Information Technology	72	14,40%	6	7,06%
Materials	31	6,20%	9	10,59%
Telecommunications Services	9	1,80%	0	0,00%
Utilities	36	7,20%	12	14,12%

Chart 1 The cumulative annual returns on $1 investment on December 30, 2005 for the S&P 500 index and sustainable companies portfolio.

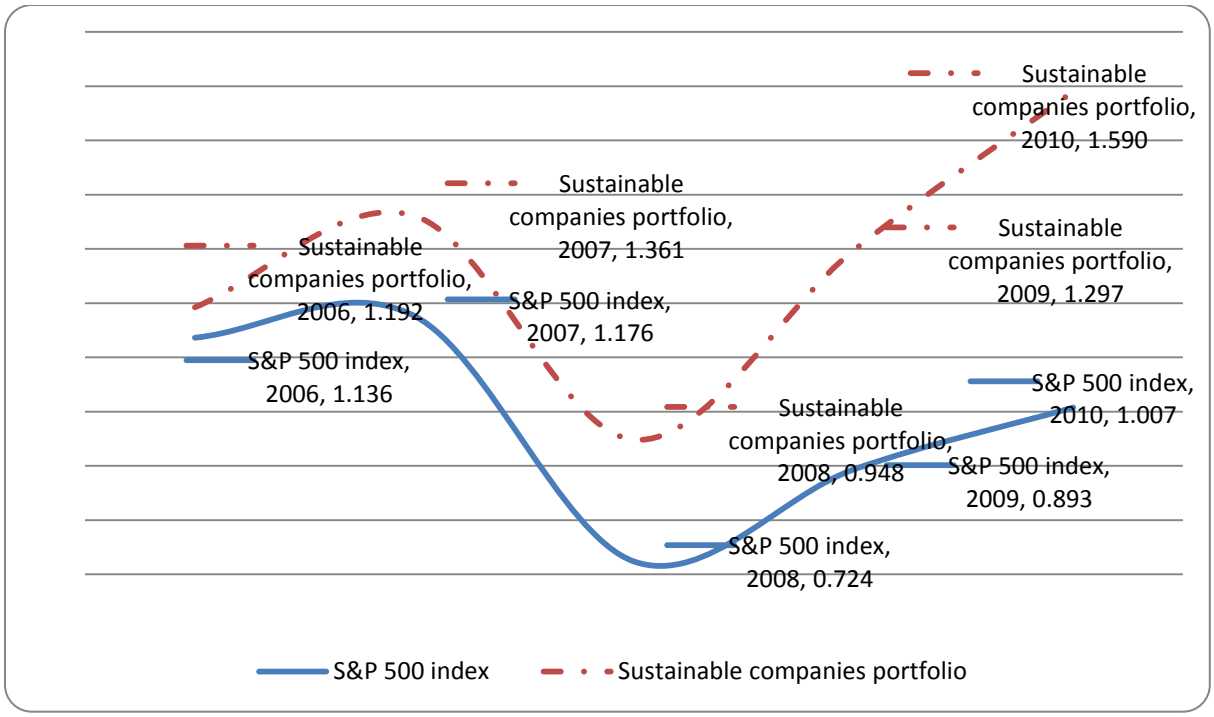


Chart 2 Annual returns for the S&P 500 index and sustainable companies portfolio during years 2006-10

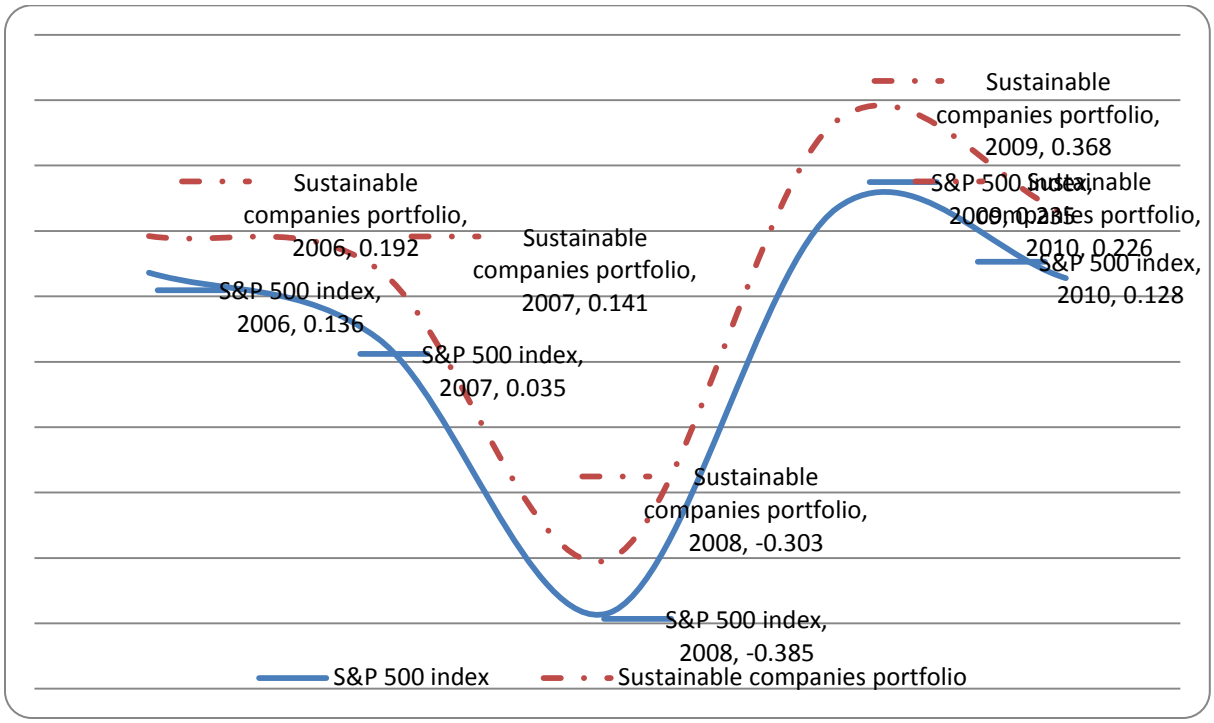


Table 3 Performance-Attribution Regressions for Sustainable Companies Portfolio

We estimate four-factor regressions (equation (2) from the text) of monthly returns for portfolio of sustainable companies. The table contains the results of investment strategy that bought firms with CS. The explanatory variables are *RMRF*, *SMB*, *HML*, and *Momentum*. These variables are the returns to

zero-investment portfolios designed to capture market, size, book-to-market, and momentum effects, respectively. (See Fama and French [1993] and Carhart [1997] on the construction of these factors.) The sample period is from December 30, 2005 through December 31, 2010. Standard errors are reported in parentheses and significance at the five-percent and one-percent levels is indicated by * and ** respectively.

α	*RMRF*	*SMB*	*HML*	*PR1YR*
0,0059**	-0,0161	0,5970**	0,1465*	0,0145
(0,002)	(0,031)	(0,082)	(0,075)	(0,024)

Chart 3 Annual revenues growth rates for sustainable and unsustainable companies during years 2006-10

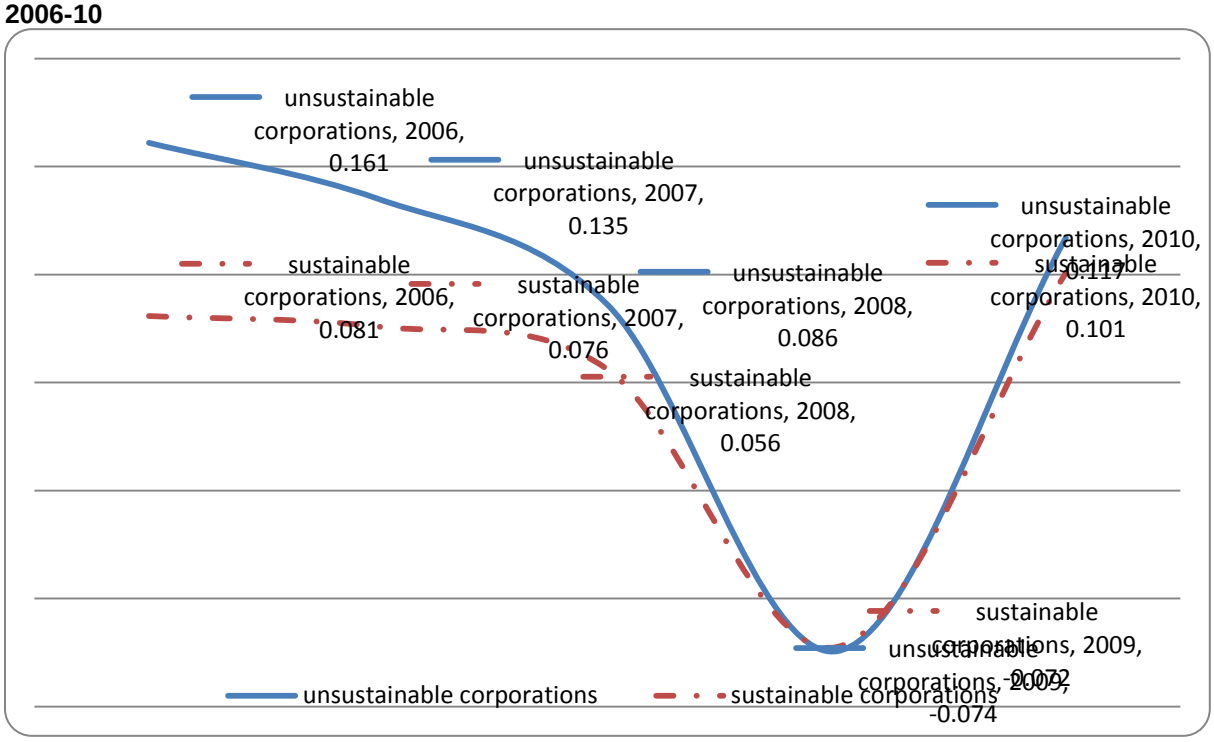
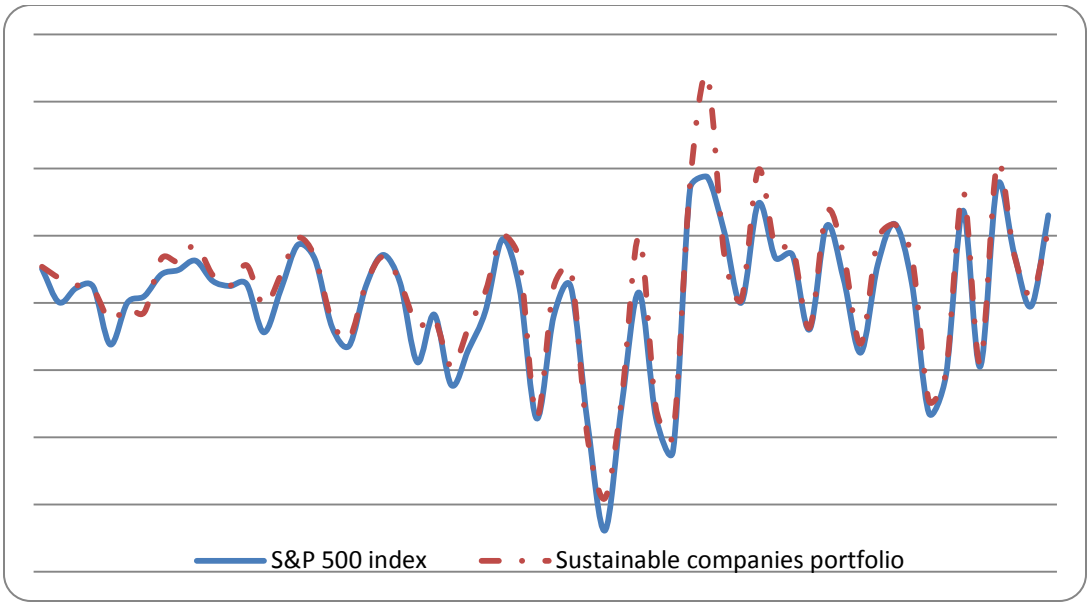


Chart 4 Monthly returns for the S&P 500 index and sustainable companies portfolio during years 2006-10



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