EXECUTIVE COMPENSATION AND CORPORATE SUSTAINABILITY

By

PADMA KADIYALA *

GABRIELLA SIERRA **

* Associate Professor, Pace University ** Former student, Pace University.

ABSTRACT

This paper studies how executive compensation is designed in firms that adopt sustainable corporate policies (sustainable firms'). It is now well understood that executive stock options increase the incentive for risk taking, an incentive that is exacerbated by declining stock prices (Kadan and Swivels (2007)). Empirical analysis of compensation policies at sustainable firms requires identification of such firms, a task that is susceptible to an endogeneity bias. The bias arises when profitable firms mirror the characteristics of sustainable firms without intentionally electing to be so. The paper circumvents the bias by comparing and contrasting compensation practices of firm additions and deletions from an index of sustainable firms created by Dow Jones Co, called the Dow Jones Sustainability Index (DJSI). The analysis shows significant differences among additions and deletions in the level and composition of CEO pay. Only 27% of median CEO pay in firms added to the index is in the form of stock options. Among deletions, stock options account for 41% of total CEO pay. Compensation of the top four executives below CEO is more comparable across the two sets of firms.

Keywords: Executive Compensation, Stock Options, Corporate Sustainability.

INTRODUCTION

This paper studies executive compensation in firms that have sustainable corporate practices. Corporate sustainability has been defined by various authors as a business approach which creates long-term value to its shareholders and stakeholders by effectively managing risks associated with economic, environmental, and social transformations. Management is the governing body in a corporation responsible for decision making and policy implementation. It is now well understood that how management is compensated affects their decision making (Bertrand and Mullainathan (2001), Aggarwal and Samwick (2003)).

This paper examines whether executive compensation policies are designed to encourage managers to pursue sustainable corporate policies. Empirical analysis of this issue is confounded by an endogeneity bias. An endognerity bias arises when it is attempted to link corporate sustainaibility to executive compensation, because size and profitability, which affects tendency to adopt sustainable policies (McGuire, Schneeweis and Sundgren (1988) and McWilliams and Siegel (2000)), also affects executive compensation (Lambert and Larcker (1987) Bebchuk and Grinstein (2005)). We overcome the endogeneity bias by relying on additions and deletions to an index of sustainable firms created by Dow Jones. According to a publication by Dow Jones, the "Dow Jones Sustainability World Index consists of more than 300 companies that represent the top 10% of the leading sustainability companies out of the biggest 2500 companies in the Dow Jones Global Total Stock Market Index. In September of each year, Dow Jones adds a new set of firms to the index, and deletes firms from the index that no longer satisfy the criteria for sustainability.¹By comparing and contrasting compensation practices of firms added to the index, and deleted from the index, we can isolate the sustainability factor and its impact on compensation contracts.

Our results show very strong differences in CEO compensation in the two sets of firms. CEOs in the median firm added to the index receive only 27% of their compensation in the form of stock options, while their counterparts in firms deleted from the index receive 41% in the form of stock options. The two sets of firms are more comparable in how they compensate top executives just below the rank of CEO. Aggarwal and Samwick (2003) argue that it is optimal to weight options more heavily in ¹DSJI World – Key Facts. http://www.sustainability-index.com/07_htmle/ indexes/ ajsiworld_keyfacts.html

the compensation of top management for whom performance can be measured directly.

Differences in CEO option compensation between firms added to and those deleted from the DJSI, are also shown to impact firm risk. Idiosyncratic risk of firms deleted from the index increases as the proportion of options in CEO compensation increases. Beta risk, however, shows no such relation to option compensation. CEOs in firms deleted from the index appear to have, and to act, on incentives to increase idiosyncratic risk, which increases the value of their stock options.

Thus, we are able to demonstrate that there are significant differences in how firms identified by the DJSI as having sustainable policies compensate their CEOs, relative to firms identified by DJSI as lacking sustainable policies. The rest of this paper is organized as follows: Section 1 derives hypotheses relating corporate sustainability to executive compensation. Section 2 describes the endogeneity bias in identifying sustainable firms. Section 3 describes the compensation data. Section 4 analyzes differences in compensation policies of additions and deletions to the index. Section 5 concludes.

1. Corporate Sustainability and Executive Compensation

The traditional view of the optimal compensation contract is that it aligns incentives of managers to those of shareholders. In this classic principal-agent model of executive compensation, Garen (1994) shows that firms tradeoff agent incentives against insurance in setting pay. Firms with volatile returns, or those whose returns covary more with the market, reduce incentive pay in favor of higher salaries.

Executive compensation in firms that have sustainable policies can deviate from this optimal contract if the classical principal-agent model no longer holds. Managers in sustainable firms are required to not only align their interests with those of shareholders', but also with those of other 'stakeholders' such as creditors, labor, and the larger community. The alignment of management and shareholder interests may conflict with the interests of other stakeholders. Recent literature points to such a conflict between bondholders and shareholders, when strong governance policies closely align management to shareholders. Klock, Mansi and Maxwell (2005) show that bondholders demand higher yields on debt issued by firms with strong anti-takeover policies.

If the focus on stock price created by the use of stock based incentives in the compensation package of CEOs blinds managers to the interests of the larger community, the firm may negotiate a different contract with management that has fewer stock based incentives. Smith and Stulz (1985) show that stock options increase managers' incentives to take risks. But an increase in firm risk transfers wealth from bondholders to stockholders. Firms that are mindful of bondholders' interests may restrict the grant of stock options to managers as compensation. The testable hypothesis follows:

 H_{A} : Sustainable firms have fewer stock grants and stock options in CEO compensation.

While there is evidence that stock options increase managerial incentives to take risk, it is important to distinguish between the two components of firm risk, beta risk, and idiosyncratic risk. Well diversified managers receiving stock options are concerned only about beta risk, which can lower firm value. At the same time, they have an incentive to increase idiosyncratic risk since the value of their option holdings increases with idiosyncratic risk. This incentive to increase idiosyncratic risk does not create a conflict with shareholders who also hold diversified portfolios, and therefore also care only about beta risk. Indeed, Guay (1999) finds that the wealth of CEOs who hold stock options is highly sensitive to firm's stock-return volatility.

These incentives should be lower in the case of sustainable firms, as these firms are mindful of other stakeholders like creditors and employees. These stakeholders bear the brunt of undesirable outcomes that may arise from an increase in idiosyncratic risk such as bankruptcy. These arguments lead to our second testable hypothesis:

 $H_{\rm B}$: Idiosyncratic risk in sustainable firms is relatively insensitive to stock options paid to the CEO.

The last hypothesis differentiates between CEO pay and compensation received by top management. Stock options awarded to top management other than the CEO may not be associated with an increase in firm risk. Carpenter (2000) shows that stock options awarded to a risk-averse manager who cannot hedge these options reduces the incentive to increase risk. Instead, the manager dynamically alters volatility as the value of the firm changes. Hall and Murphy (2003) show that it is middle management, more than CEOs, who cannot easily hedge option risk in the face of legal restrictions on short selling, or pledging securities as collateral. Garen (1994) shows that when managers have decision making authority on investments that will be made in the future, those who hold unhedged options in the firm will favor safe projects. Thus, when stock options are awarded to top management, the firm does not have to fear an increase in firm risk. With higher risk no longer a disadvantage, the tax advantage for firms to pay employees stock options, creates an incentive for firms to reward top management below the rank of CEO with options. Our third and last testable hypothesis follows:

 H_c : Sustainable firms do not award fewer stock options to top management below the rank of CEO.

These hypotheses were derived on the premise that sustainable firms respond not only to the interests of shareholders, but also to the interests of other stakeholders. The interests of other stakeholders is represented here in this section by that of creditors, but we assert here that the analysis can be extended to any group of stakeholders who are not residual claimants.

2. Identification of sustainable firms

The analysis requires identification of firms that follow sustainable corporate policies. A common approach is to use the socially responsible screens employed by Kinder, Lydenberg and Domini Research & Analytics (KLD). The KLD screening occurs in two-steps. In the first step, firms engaged in controversial industries such as alcohol, tobacco or gaming are eliminated. In the second step, a set of qualitative indicators for community, corporate governance, environment, employee relations and controversial business issues are used to select firms that qualify as being socially responsible. These filters unfortunately introduce an endogeneity bias. To understand the source of the endogeneity bias, we can represent our first hypothesis by the following equation:

Option_i = $a + b^*$ sustainable dummy for firm_i + e_i (1) where option, is the proportion of stock options in executive compensation and sustainable dummy is an indicator that takes a value of 1(0) if the firm is sustainable. If sustainability leads to lower option compensation, then b<0 in equation (1). There is a large literature dating back to Lambert and Larcker (1987) that shows that size and profitability affect the use of stock options in executive compensation. But as shown by McWilliams, et al (2000), size and profitability are also the very characteristics of sustainable firms. The endogeneity between the characteristics of sustainable firms, and their tendency to use options leads to bias in the estimation of the coefficient b in equation (1).

The endogeneity bias can be avoided using an instrumental variables (IV) approach. The task is to identify an instrument that is highly correlated with sustainability, but is uncorrelated with the propensity to award stock options. We identify one such instrument, which is a dummy variable that takes a value of one if a firm is added to an index of sustainable firms created by Dow Jones, and takes a value of zero if a firm is deleted from the same index. This variable fulfills the requirements of a good instrument. By definition, it is correlated with the sustainability factor. As will be described in more detail in the next section, the decision to add or delete a firm from the index is uncorrelated with executive compensation.

2.1 Dow Jones Sustainability Index

This study is based on the US companies included in the Dow Jones Sustainability World Index (DJSI) which comprises more than 300 companies worldwide. Data for index changes is publicly available on their website starting in 2003.

To assess sustainability uniformly across firms, DJSI relies on

a Corporate Sustainability Assessment model created by the Sustainable Asset Management Research Company (also known as SAM). The model assigns a score to each of four performance measures. A complete list of assessment criteria and weights are to be found in Appendix 2. The DJSI calculates the SAM score for firms included in the Dow Jones Wilshire Global index and annually adds new firms with the highest score to the index. Firms in the DJSI index are monitored regularly. If a critical negative issue occurs, the firm is informed by SAM of its deletion from the DJSI. Additions and deletions are announced on the same day, which is usually in the 3rd or 4th weeks of September.

The important aspect of the screening process is that addition and deletion decisions are made independent of a firm's profitability. Thus, we are able to avoid a bias that may be created by spurious correlation between profitability and executive compensation. Further, the size bias is averted by comparing two samples of firms that are both large (requirement for inclusion in the DJSI).

3. Data

Additions and deletions of US firms from the DJSI World Index are collected for the years from 2003 through 2007². These firms are listed in Appendix 1. 12 companies were removed from consideration, as they were added and removed from the index within a year. The analysis of these firms is difficult as event years overlap. In other words, for these firms the year after addition coincides with the year of deletion, and vice versa. Leaving these firms in the sample would mean that the additions are not independent of deletions, and that the data is correlated across the two samples.

Executive compensation data was obtained from Execucomp which is a part of the Compustat database. For each firm added to or deleted from the index, data on executive rank by salary plus bonus, the Black Scholes value of options granted, restricted stock grant, salary, all other compensation and total compensation as reported in SEC filings are collected from 2002 (the year before additions and deletions data is available) to 2008

²"DJSI World." Dow Jones Sustainability Index website at: http://www.sustainabili ty-index.com/07_htmle/data/djsiworld.html (the one year after additions and deletions data becomes available). The executive rank by salary plus bonus is a numerical ranking from one through seven, with one assigned to the CEO, and two through seven consisting of the remaining top executives of these firms For the purpose of this study, we follow Aggarwal and Samwick (2003) and only retain ranks 1 through 4.

Figure 1 graphs the mean total compensation for additions and deletions in each of years 2003 through 2007. The graph shows that mean total compensation in year 2005 is much larger than the mean compensation in any other year. This overall increase in compensation appears to have been led by the financials such as Bear Stearns and Goldman Sachs. Even though these two firms are eliminated from the sample because they were deleted from the DJSI in the very next year, they appear to have affected other financials that remain in the sample.

The next step is to check the robustness of our assumption that our reliance on additions and deletions from the DJSI is independent of firm characteristics. We do so by comparing size, profitability and leverage for the two sets of firms. Annual data on total assets, net income, total sales, long-term debt and book value of shareholder equity is obtained from Compustat for the years between 2003 and 2007. Profitability is calculated as the ratio of net income to shareholder's equity, and leverage is calculated as the ratio of long term debt to total assets.



Figure 1. Total Compensation of CEOs of Additions/Deletions

Compensation data is obtained from Execucomp. Total compensation for CEOs is calculated as the sum of the value of stock options, restricted stock and stock grants, salary, bonus, and all other compensation. The Table 1 reports the average total compensation for firms added to/deleted from the DJSI. Time period is 2003-2007.

	Total assets (in \$ billions)		Sales (in \$ billions)		Leverage		Profitability	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Additions	91.74	14.60	20.77	12.03	0.18	0.15	0.20	0.17
Deletions	84.79	14.32	20.32	10.55	0.18	0.16	0.27	0.17
Test of statistical significan- ce for difference (p-values)	0.88	0.47	0.94	0.44	0.86	0.95	0.4	0.67

Table 1. Firm characteristics of additions and deletions

Data on accounting variables is obtained from COMPUSTAT for the fiscal year end corresponding to the year of addition or deletion to the DJSI. Total assets is data6, sales is data12, leverage is calculated as the ratio of long term debt (data9) and total assets, and profitability is calculated as the ratio of net income (data172) to shareholders' equity (data60). Tests of statistical significance are the t-tests for the means and the Kruskal Wallis tests for medians. Time period: 2003 to 2007.

Table 1 presents univariate statistics for these characteristics. Size is captured by sales, and by total assets. The t-test for means and the Kruskal-Wallis test for medians, both show no significant differences between the two samples in terms of size, profitability or leverage.

4. Empirical Analysis of Compensation and Sustainability

4.1 CEO compensation

This sub-section tests the first hypothesis that sustainable firms award fewer stock options to their CEO. Total compensation to the CEO is calculated as sum of the value of stock options, bonus, salary, restricted stock grants, stock grants and all other compensation, coded as such by Execucomp. The proportion of stock options and stock grants in total compensation is calculated for the CEO. Likewise, the proportion of salary and bonus in total compensation is also calculated for each firm in each of three 'event' years, year '-1', the year before the firm was added to (deleted from) the index, year '0', the year the firm was added to (deleted from) the index and year '+1', the year after the firm was added to (deleted from) the index. Comparisons are made across years, and across additions and deletions.

Table 2 presents results on CEO compensation. In year '0', only 31% of mean CEO compensation is in the form of options and stock grants for firms added to the index. For deleted firms, the proportion of options is significantly higher at 44%. Other quantiles of the compensation distribution are also worth noting. The median option compensation in firms added to the index is only 27% and

	Proportion of stock options and stock (%)					Propo an	ortion of sa d bonus (%	lary 6)
			25 th	75 th			25 th	75 th
	Mean	Median	percentile	percentile	Mean	Median	percentile	percentile
Additions	31.35	27.023	0	56.80	49.31	38.93	26.63	70.65
Deletions	44.15	40.7	27.04	69.22	38.48	32.74	23.27	51.40
Test of statistical significa- nce of difference	0.04	0.04			0.05	0.1		

Panel A: Compensation data in year of additions/deletions

	Proportion of and sta	stock options ock (%)	Proportion and bo	n of salary onus (%)
	Year'-1'	Year'+1'	Year'-1'	Year'+1'
Additions	44.00	41.20	41.85	42.50
Deletions	35.61	43.89	44.56	39.06

Panel B: Compensation data in year before (year '-1') and year after (year '+1') additions/deletions

Table 2. Compensation to CEOs

Compensation data is obtained from Execucomp for the period from 2002 to 2008. Total compensation for the CEO is calculated as the sum of stock options granted, restricted stock and stock grants, salary, bonus, and all other compensation, identified as such by Execucomp. The proportion of options and stock grants in total compensation, and the proportion of salary and bonus in total compensation are reported here.

is 0% at the 25th percentile. For firms deleted from the index, median option compensation is 40% and even at the 25th percentile, it is 27%. Means and medians are statistically different for the two samples, confirming hypothesis H_A , that firms added to the index ('sustainable') pay fewer options to their CEO.

Option compensation in the other two events years, year '-1' and year '+1' are not different for the two samples. This confirms that the event of being added to, or being deleted from, magnifies the impact of the sustainability factor on compensation.

We next estimate ordinary Least-Square Regressions (OLS) to test the hypothesis. The proportion of stock options and stock grants in total compensation for each firm is the dependent variable in the cross-sectional regressions. An indicator dummy variable that takes a value of 1 (0) if the firm is added to (deleted from) the index is the independent variable. A separate regression is estimated for each event year, even though the hypothesis H_A only applies to year 0.

Table 3 has the results. The coefficient on the addition dummy variable is negative and is statistically significant in year '0', the event year. The regression has the highest explanatory power in year 0 as indicated by an adjusted

	Year	'0'	Year'-1	,	Year'+1'	
Independen tvariable	coefficient	t-statistic	coefficient	t-stat	coefficient	t-stat
Intercept	0.4415	9.77	0.4389	10.41	0.3561	7.70
Additions dummy	-0.1280	-2.00	-0.0269	-0.45	0.0839	1.29
Adjusted R- square	3.50%		-0.96%		0.92%	
observations	83		84		72	

Table 3. Cross-sectional Regressions of CEO compensation

A cross-sectional regression is estimated with proportion of options awarded to CEOs as the dependent variable, and an indicator dummy that takes a value of 1(0) if the firm is added (deleted) to the DJSI. A separate regression is estimated in each of the three event years, the year of addition/deletion (Year'0), the year before additions/deletions (Year'-1'), and the year after additions/deletions (Year'+1').

R-square of 3.5%.

Robustness of the result in Table 4 to the inclusion of other firm-specific characteristics is studied by including variables to capture the size of the firm, leverage, and profitability in the OLS regressions. Although Table 2 showed no significant differences in these characteristics between the two samples, a robustness check is still warranted if the characteristics subsume sustainability in explaining compensation through options. In results not reported in the paper for brevity, we confirm that the explanatory power of the additions dummy in year '0' remains robust. Overall, the evidence confirms the hypothesis that firms added to the index award fewer stock options to their CEO than do firms that are deleted from the sustainability index.

4.2 Top Management compensation

The third hypothesis in section 2 argues that sustainable firms do not award fewer options to top-management below the CEO. We test this hypothesis in this section by essentially duplicating the analysis in section 4.1, except that it is the proportion of options in total compensation of top-management that is the variable being studied. This variable is calculated as the sum of options paid to the top four executives expressed as a proportion of the sum of total compensation paid to these executives. Table 4 has univariate statistics for year '0'. The other event years are ignored based on the results for CEO compensation, which showed that it is the event year that magnifies the impact of sustainability on compensation.

A cross-sectional OLS regression is estimated in year '0' to test if the additions dummy has explanatory power for the

	Proportion of stock options					Propo	ortion of sa	lary
	and stock (%)					and	d bonus (%	5)
	Mean	Median	25™ percentile	75 th percentile	Mean	Median	25™ percentile	75 th percentile
Additions	35.41	35.29	14.00	54.70	44.77	40.23	27.00	57.90
Deletions	38.47	40.76	19.80	56.90	38.45	37.88	30.60	44.80
Test of statistical significa- nce of difference	0.55	0.51			0.13	0.38		

Panel A : Compensation data in year of additions/deletions

Compensation data is obtained from Execucomp for the period from 2002 to 2008. Total compensation for the top four executives below the CEO is calculated as the sum of stock options granted, restricted stock and stock grants, salary, bonus, and all other compensation, identified as such by Execucomp. The proportion of options and stock grants in total compensation, and the proportion of salary and bonus in total compensation are reported here.

Independent variable	coefficient	t-statistic
Intercept	0.3847	10.64
Additions dummy	-0.0306	-0.60
adjusted R-square	-0.78%	
observations	83	

Panel B: Cross-sectional regressions of proportion of options awarded to top management

Table 4. Compensation of Top Management

A cross-sectional regression is estimated in year '0' with proportion of options awarded to top management as the dependent variable, and an indicator dummy that takes a value of 1(0) if the firm is added (deleted) to the DJSI.

proportion of options in total compensation paid to top management. The results, reported in Panel B of Table 4 show that the additions dummy has no explanatory power confirming that hypothesis H_c cannot be rejected.

4.3 Risk and option compensation

This sub-section studies how option compensation affects CEO incentives to take risks in sustainable firms. Hypothesis H_B in section 2 predicts that option compensation does not lead to an increase in idiosyncratic risk at sustainable firms. To test this hypothesis, the two components of firm risk, namely beta risk, and idiosyncratic risk are estimated for each firm in the list of additions and deletions.

Daily stock returns are obtained for each firm added to or deleted from the index from the Center for Research in Stock Prices (CRSP) for each of the three event years. The event years cover January through December of each year. Hence if a firm is added to DJSI in September 2005, year 0 includes returns from January 2005 to December 2005, year -1 includes returns from January 2004 to

December 2004, and year +1 includes returns from January 2006 to December 2006.

Daily returns to a market index created by CRSP called the value-weight CRSP index are also obtained. Market model regressions are estimated for each firm, i and for each event year as:

$$R_{it} = \alpha + \beta R_{mt} + \varepsilon_{it} \tag{2}$$

 $R_{i,t}$ is the return to the firm on day t and $R_{M,t}$ is the return to the market index. The coefficient β is the beta coefficient for firm i. Idiosyncratic risk is the standard deviation of the residuals ϵ .

Figure 2 plots beta and standard deviation for the additions/deletions. As is clear from merely eyeballing the graphs, betas and standard deviations are much higher for the deleted firms. Statistical significance of the difference in betas and standard deviations is confirmed by tests, but not reported in the tables for brevity. Moreover, beta continues to increase for the deleted



Panel A: Beta risk is calculated for all additions/deletions as the regression coefficient obtained by regressing daily stock returns in the year firms were added/deleted from DJSI, on daily returns to a value-weighted CRSP index compiled by the Center for Research in Security Prices (CRSP). The figure presents the average beta for each category of firms. Time period is from January 2003 to December 2007.



Figure 2. Risk Characteristics and Additions/Deletions

Panel B: The standard deviation of daily returns for all additions/deletions in the year firms were added/deleted from the DJSI. The figure presents the average standard deviation for each category of firms. Time period is from January 2003 to December 2007.

firms even after they have been deleted. Thus, firms deleted from the index, have higher firm risk.

But more, interestingly, the second hypothesis in this paper associates the higher risk with compensation of CEOs accounted for by stock options. This hypothesis is tested next by cross-sectional OLS regressions estimated in year '0', the event year, with beta and idiosyncratic risk as explanatory variables:

 $\beta_i = a0 + b0 * I * CEO_options + c0*I*TOP_options + \zeta_I$

 $\beta_i = a1 + b1 * I * CEO$ options + c1*I*TOP options + v_i (3)

where I is an indicator dummy that takes a value 1(0) if a firm is added to (deleted from) the DJSI index, and σ is the standard deviation idiosyncratic risk for firm i. CEO_options is the proportion of options and stock grants in total compensation paid to the CEO, and TOP_options is the proportion of options and stock grants in total compensation paid to the top four executives.

Results from the regression are reported in Table 5. The interesting result comes from the regression involving standard deviation of returns. The coefficient b1 is negative and statistically significant, confirming hypothesis $H_{\scriptscriptstyle B}$ that options given to CEOs in non-sustainable firms gives them incentive to increase idiosyncratic risk in the firm. The coefficient c1 is statistically insignificant, confirming Hall and Murphy (2003) that management who hold unhedged positions have no incentive to increase firm risk.

Table 5 also shows that coefficient b0 is statistically

	Standard	deviation	bet	a
Independent variable	Coefficient	t-statistic	Coefficient	t-statistic
intercept	0.014	38.22	1.072	34.46
CEO *addition dummy	-0.003	-1.65	-0.161	-1.00
Top mgmt.* addition dummy	0.001	0.33	0.010	0.06
Adjusted R-square	1.88%		0.55%	
observations	227		227	

Table 5. Regression of risk on option compensation to CEOs and top management

Cross-sectional regressions are estimated with the standard deviation of daily returns in year '0', the year when firms are added to/deleted from the DJSI, and the beta, as the dependent variables. The independent variables are (i) the proportion of options and stock awarded to CEOs multiplied by an indicator dummy that takes a value 1(0) if the firm is added (deleted) from the DJSI, and ii) the proportion of options and stock awarded to top management below the CEO, multiplied by an indicator dummy that takes a value 1(0) if the firm is added (deleted) from the DJSI. Time period is January 2003 through December 2007.

Appendix 1

Firms Added to and Deleted from the DJSI

2003	2004	2005	2006	2007
Adobe Systems Inc.	General Electric Co.	Abbott Laboratories	Alcoa Inc.	Electronic Data Systems
Aetna Inc.	Genzyme Corp.	Bear Stearns Cos.	Amgen Inc.	FMC Technologies
Air Products & Chemicals	Herman Miller	Chicago Mercantile Exchange	Becton Dickinson	H&R Block Inc.
Beckman Coulter Inc.	MeadWestvaco	Colgate-Palmolive Co.	Cisco Systems Inc.	Health Net Inc.
Cinergy Corp.	Motorola Inc.	Cummins Inc.	Dow Chemical Co.	Humana Inc.
Delphi Corp.	Noble Corp.	Goldman Sachs Group	Kraft Foods Inc.	Motorola Inc.
Fannie Mae	Quest Diagnostics	H&R Block Inc.	ServiceMaster Co.	Newmont Mining
FleetBoston Financial.	Staples Inc.	IBM	Smith International	PepsiCo Inc.
Gannett Co. Inc.		Investors Financial Services	State Street Corp.	Target Corp.
Gap Inc.		Johnson Controls Inc.	Walt Disney Co.	
H.J. Heinz Co.		Kimberly-Clark Corp.		
Hewlett-Packard Co.		McDonald's Corp.		
Merrill Lynch & Co.		New Century Financial.		
Omnicom Group Inc.		Waste Management Inc.		
Praxair Inc.		Whirlpool Corp.		
		Whole Foods Market Inc.		

Additions to the DJSI

2003	2004	2005	2006	2007
Bank of America Corp.	Amgen Inc.	Alcoa Inc.	Adobe Systems Inc.	Aetna Inc.
Boeing Co.	Beckman Coulter	Applied Materials Inc.	Bear Stearns Cos.	Air Products & Chemicals
Bristol-Myers Squibb	Gannett Co. Inc.	Delphi Corp.	Chicago Mercantile	CA Inc.
Duke Energy Corp.	OCA Inc.	Dow Chemical Co.	Colgate-Palmolive.	Dow Jones & Co. Inc.
Herman Miller Inc.	Omnicom Group	ENSCO International Inc.	DuPont	Fairchild Semiconductor.
IDEC Pharmaceuticals	Parametric Technology	Fannie Mae	Eastman Kodak.	Gap Inc.
Kimberly-Clark.	Royal Caribbean	Freescale Semiconductor	Electronic Data Sys	Harrah's Entertainment
Novell Inc.	Texas Instruments	GlobalSantaFe Corp.	Equity Office Properties	Johnson & Johnson
Pitney Bowes Inc.		H.J. Heinz Co.	Ford Motor Co.	Pfizer Inc.
Plantronics Inc.		Home Depot Inc.	Goldman Sachs.	Time Warner Inc.
		Mattel Inc.	H&R Block Inc.	Unisys Corp.
		Mentor Graphics Corp.	Investors Financial Services	United Parcel Service
		NiSource Inc.	Motorola Inc.	Whirlpool Corp.
		Tetra Tech Inc.	New Century Financial	
			Pulte Homes Inc.	
			Visteon Corp.	
			Whole Foods	

Deletions from the DJSI

Appendix 2

Criteria for inclusion in the Dow Jones Sustainability Index (DJSI)

Criteria	Weight (%)	Sub-Criteria
Corporate Governance	6.0	Structure consists of its Board Size, Board Structure, Non- Executive Chairman/Lead Director, Responsibilities and Committees.
		External Auditor, Diversity in regards to Gender, Board Effective ness, Entrenchment provisions, Stock options expensing, Transp arency of Senior Management, Remuneration
Risk & Crisis Management	6.0	Responsibility Risk & Crisis Management, Uniform Risk Analysis, Definition of Risk & Risk Mapping, Sensitivity analysis & Stress testing
Conduct/ Compliance/ Corruption & Bribery	6.0	Codes of Conduct: Focus/System/Procedures, Corruption & Bribery Policy: Scope & Business Relationships, Breach of Codes of Conduct: Public Reporting,
Environmental Reporting*	3.0	Environmental Management Systems, Climate Strategy, Biodiversity Impacts, Productive Stewardship, etc.
Human Capital Development	5.0	Human Resources skill mapping and developing process, Personal and organizational learning and development
Talent Attractior & Retention	n 5.5	Predefined performance appraisal, Percentage of performan ce related compensation, Balance of variable compensation based on corporate and individual performance Employee Satisfaction and Additional Benefits
Labor Practice Indicators	5.0	Grievance Resolution, KPIs & Reporting: Diversity, Discrimination Equal remuneration; Freedom of Association, Layoffs', HSE Grie vance resolution, Public Commitment
Corporate Citizenship/ Philanthropy	3.0	Measuring the results of contributions Philanthropy / Social Investments Volume
Social Reporting	3.0	Qualitative: material societal, labor related issues Quantitative key performance indicators, suppliers, community Assurance Coverage
Industry Specific	**	Brand Management, Customer Relationship Management, Supply Chain Management Marketing Practices, Innovation & R&D, Renewable Energy, etc Product Information, Product quality, Recall management, Global Sourcing, Occupational Health & Safety

**Industry Dependent

insignificant which confirms our intuition that CEOs are reluctant to increase beta risk even in non-sustainable firms as it adversely affects the value of their options.

Conclusion

This study confirms that the compensation contract for top executives in sustainable firms, as identified by the DJSI, is different from the contract for firms that do not have sustainable corporate policies. Our methodology of relying on additions and deletions to the DJSI to identify sustainable firms is successful in that it is an efficient instrumental variable which is uncorrelated with firm characteristics such as size and profitability. Strong evidence is presented with this variable that sustainable firms rely less on rewarding their CEO with stock options, and when stock options are awarded to these executives, there is no corresponding increase in the incentive to amplify idiosyncratic firm risk.

References

[1]. Aggarwal, Rajesh K. and Andrew A Samwick, (2003), Performance Incentives within Firms: The Effect of Managerial Responsibility, *The Journal of Finance*, pp.1613-1649

[2]. Bertrand, M., and Mullainathan, S., (2001), Are CEOs rewarded for luck? The ones without principals are, *Quarterly Journal of Economics*, Vol.116, No.3, pp.901-933.

[3]. Bebchuk, Lucian and Yaniv Grinstein: (2005) The Growth of Executive Pay, Oxford Review of Economic Policy, pp.283-304

[4]. Carpenter, J., (2000), Does Option compensation increase managerial risk appetite? *Journal of Finance*, 55(5), 2311-pp.23-32.

[5]. Garen, J., (1994), Executive compensation and principal-agent theory, *Journal of Political Economy*, 102(6), pp.1175-2000.

[6]. Guay, W., (1999), The sensitivity of CEO wealth to Equity risk: An analysis of the magnitude and determinants, *Journal of Financial Economics* 53(1), pp.43-71.

[7]. Hall, B., and Murphy, K., (2003), The trouble with stock options, *The Journal of Economic Perspectives*, Vol.17, No.3, pp.49-70.

[8]. Kadan, O., and Swinkels, J., (2008), Stocks or Options? Moral hazard, firm viability and the design of compensation contracts, *Review of Financial Studies*, 21(1), pp.451-483.

[9]. Klock, M., Mansi, S., and Maxwell, W., (2005), Does corporate governance matter to bondholders? *Journal* of *Financial* and *Quantitative Analysis*, 40(4), pp.693-719.

[10]. Lambert, R., and Larcker, D., (1987), An analysis of the use of accounting and market measures of performance in executive compensation contracts, *Journal of Accounting Research*, 25(suppl.), pp.85-125.

[11]. McWilliams, A. and D. Siegel, (2000), Corporate

Social Responsibility and Financial Performance: Correlation or Misspecification?, *Strategic Management Journal*, 21(5), pp.603–610.

[12]. McGuire, J., T. Schneeweis and A. Sundgren, (1988), Corporate Social Responsibility and Firm Financial Performance, Academy of Management Journal, 31(4), pp.854–872.

[13]. Smith, C., and Stulz, R., (1985), The determinants of firms' hedging policies, *Journal of Financial and Quantitative Analysis*, 20(4), pp.391-406.

ABOUT THE AUTHOR

Padma Kadiyala is currently working as an Associate Professor of Finance at Pace University. She received her Ph.D in finance from the Ohio State University, and a PGDM from Indian Institute of Management, Bangalore. Her articles have been published in the Review of Financial Studies, Journal of Business, Financial Management, Journal of Law and Economics, Journal of Fixed Income and other reputed finance Journals.