Figure 1 Composition of CEO compensation

This graph illustrates the breakdowns of CEO compensation components for the S&P 500 index component companies during fiscal years ending on or after December 15th, 2006. *Salary* is the actual salary paid during the fiscal year; *Target AIP* is the target amount of annual incentive payout (whether paid in cash or equity) set during the first quarter of the fiscal year; *Target long-term incentive pay in cash* is the target amount of cash payout under a long-term incentive plan (over a period longer than one year); *Performance equity* includes performance shares, performance units, and restricted stock and options with vesting schedules based on performance over a period longer than one year; *Options* is the grant date fair value of stock options and stock appreciation rights granted during the fiscal year; and *Restricted stocks* is the grant date value of the time-vested restricted stocks granted during the fiscal year.

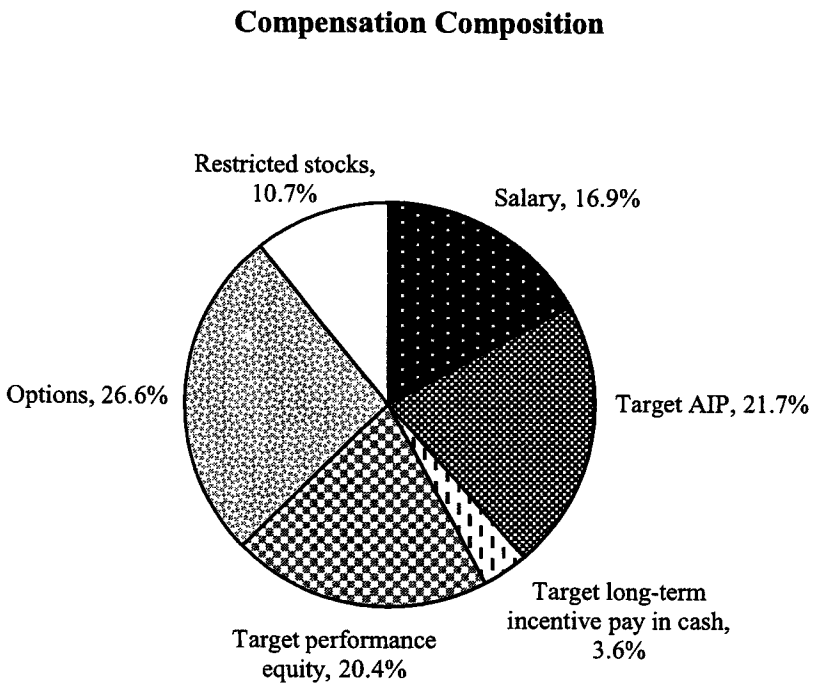

Figure 2 Structure of typical annual incentive plan

The graph below illustrates a typical annual incentive plan. No incentive is paid out until the performance threshold is achieved, and a minimum bonus is paid upon the achievement of the threshold. After the threshold is achieved, incentive payouts increase (often linearly) based on performance. If the performance reaches the stretch goal, no additional incentive is paid for above-stretch goal performance.

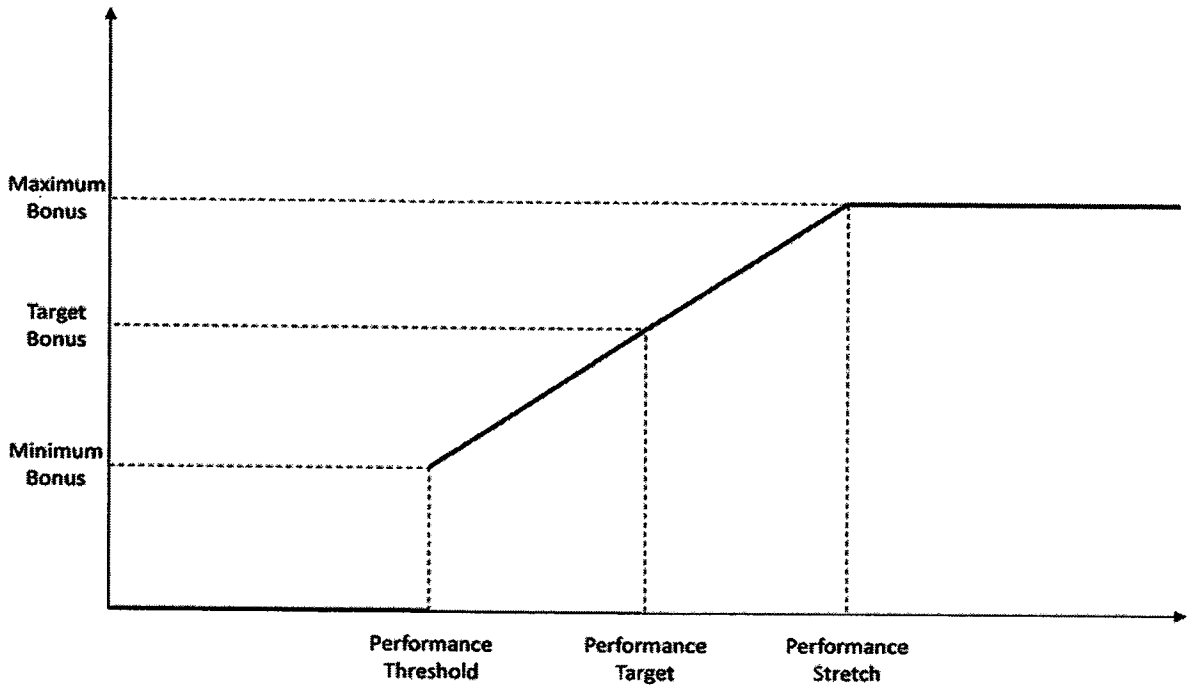

Figure 3 EPS targets, analyst consensus and corporate issued earnings guidance

The graph below plots evolvement of corporate earnings guidance and analyst consensus over the year, both normalized by the EPS target specified in the annual incentive plan of the firm. Corporate earnings guidance (target, lower bound, and upper bound) are obtained from the First Call database and updated once there is new earnings guidance. *Analyst consensus* is the median of analyst consensus which is updated once a new forecast is issued (First Call Summary Statistics database). The daily value of earnings guidance and analyst consensus scaled by EPS performance target is plotted. The horizontal axis is the number of days from the beginning of the fiscal year. The dashed line represents target earnings guidance, the solid line represents analyst consensus, and dotted lines represent the lower and upper bounds of earnings guidance. All values are based on the median values on each day.

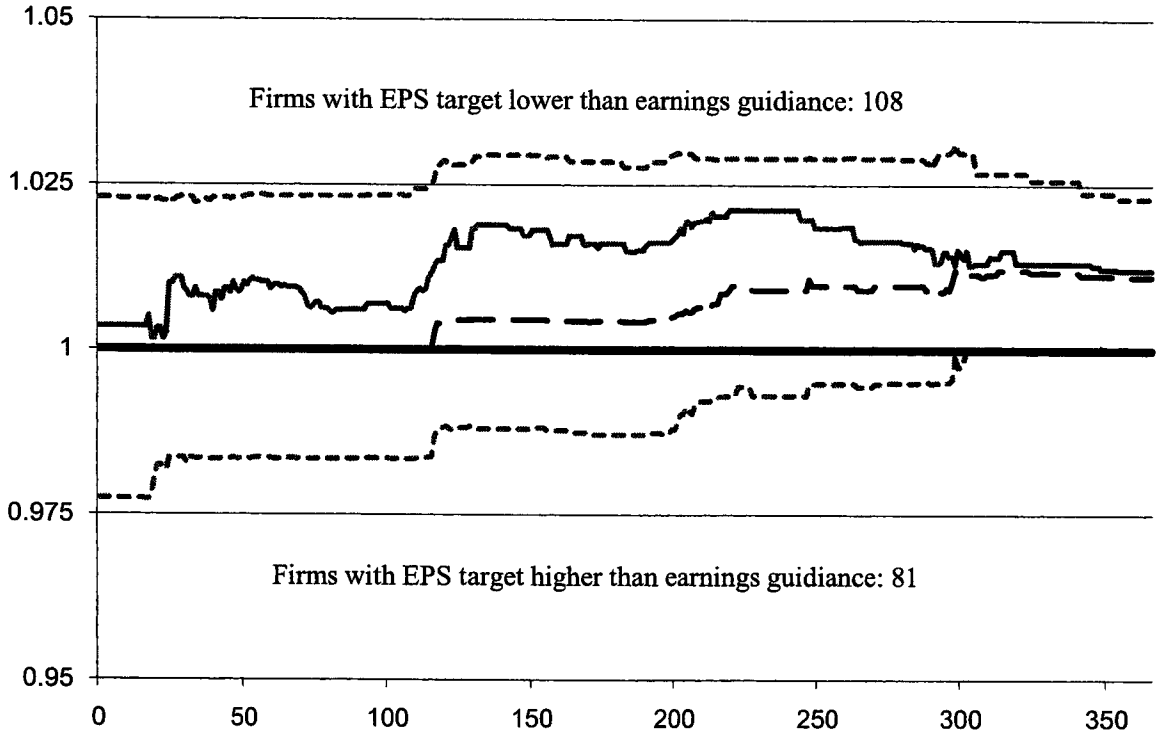

Figure 4 Histogram of actual EPS around EPS target and the last analyst forecast

These histograms exhibit the distribution of difference between a company's actual annual EPS and EPS performance target (Figure 4a) or the last analyst forecast during the fourth quarter of the fiscal year (Figure 4b). The bars represent the number of observations in each bin (bin width of two cents), and the line graph represents the average observation of five adjacent bins (two bins that are immediately above the current bin, two bins that are immediately below the current bin, and the current bin). Observations with differences greater than one dollar are truncated.

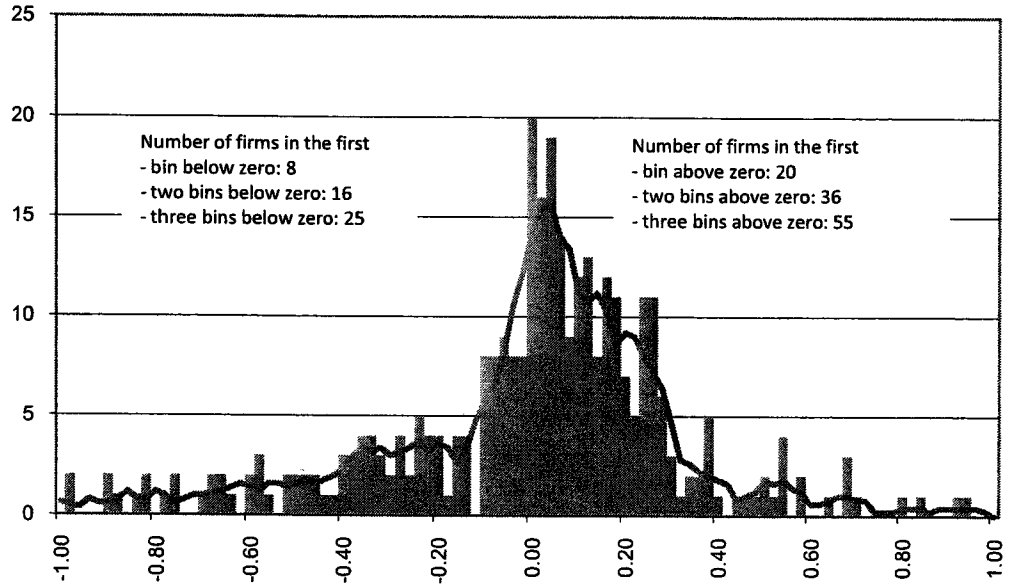

Figure 4a: EPS result - EPS target

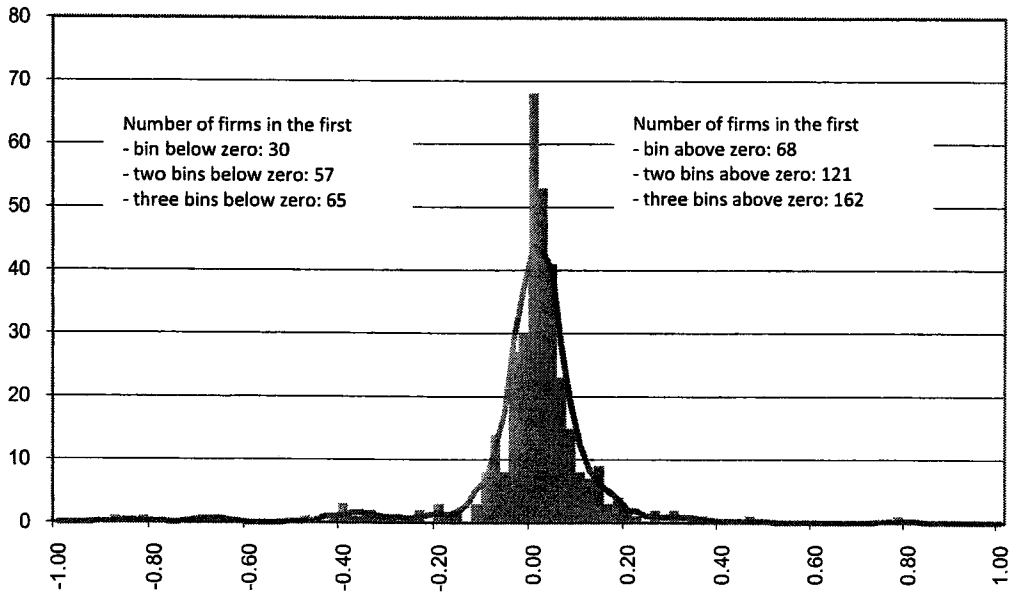

Figure 4b: EPS result - last analyst forecast

Figure 5 Ex-ante value of the annual incentive plan

The graph below illustrates the ex-ante value of the annual incentive plan of a sample company. The bold line represents the payout structure of the company's annual incentive plan. The dotted/dashed line represents the ex-ante value of the company's annual incentive plan, and the dashed line represents the ex-ante value of a hypothetical annual incentive plan when EPS target is replaced by analyst consensus on EPS. The value of each incentive plan is obtained based on 1,000 simulations of year-end EPS for every cent between $1.00 and $2.50, assuming annual EPS follows random walk process with a drift. Five-year historical data is used to calculate the drift and volatility. The vertical dashed line marks the point of the firm's actual EPS the previous year, and the slopes of the two value curves are compared at the point. When reading the graph, horizontal and vertical refer to the year-end EPS and annual incentive pay amount, respectively, for the bold line (annual incentive pay structure). They refer to the EPS in the previous year and ex-ante value of the annual incentive plan, respectively, for the dashed and dotted/dashed lines (ex-ante value of annual incentive pay).

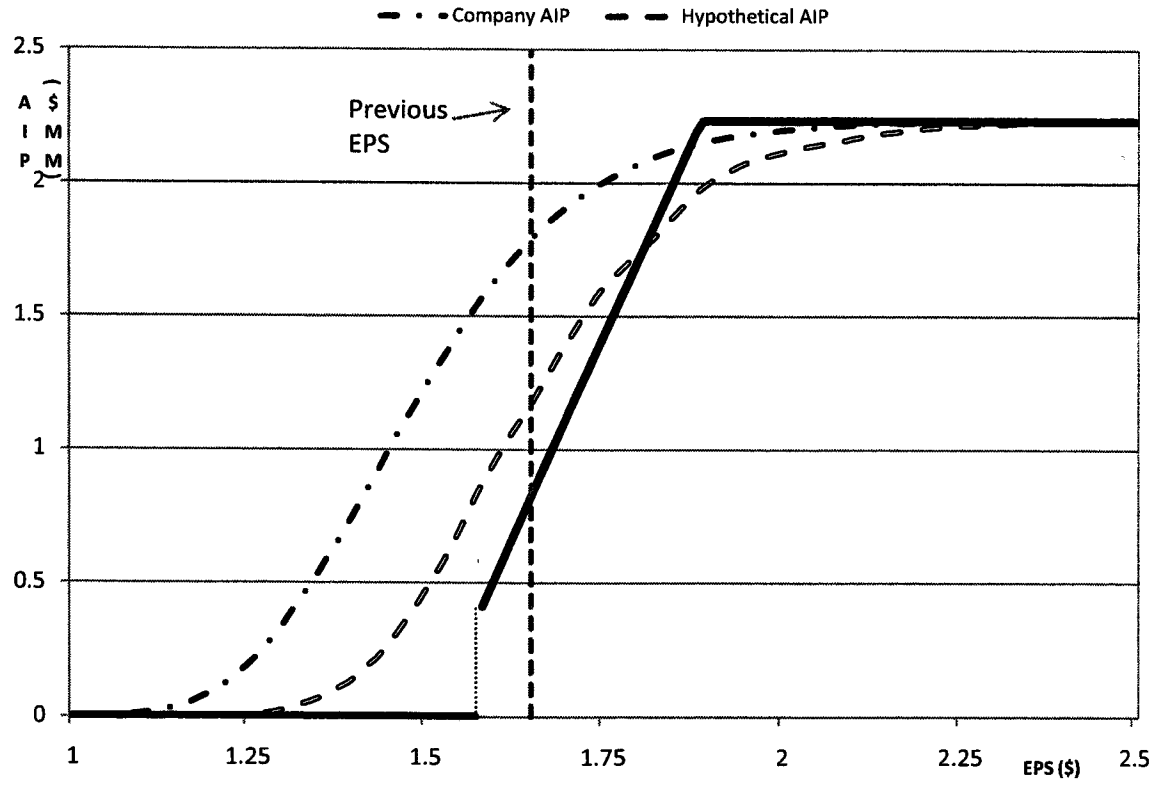

Figure 5

Illusory correlation in the remuneration of chief executive officers: It pays to play golf, and *well.*

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Abstract

Illusory correlation refers to the use of information in decisions that is uncorrelated with the relevant criterion. We document illusory correlation in CEO compensation decisions by demonstrating that information, that is uncorrelated with corporate performance, is related to CEO compensation. We use publicly available data from the USA for the years 1998, 2000, 2002, and 2004 to examine the relations between golf handicaps of CEOs and corporate performance, on the one hand, and CEO compensation and golf handicaps, on the other hand. Although we find no relation between handicap and corporate performance, we do find a relation between handicap and CEO compensation. In short, golfers earn more than non-golfers and pay increases with golfing ability. We relate these findings to the difficulties of judging compensation for CEOs. To overcome this – and possibly other illusory correlations – in these kinds of decisions, we recommend the use of explicit, mechanical decision rules.

Key words: Illusory correlation; executive compensation; golf handicaps; decision rules.

JEL classification: D03, D81, J33

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1. Introduction

Decisions concerning the remuneration of the chief executive officers (CEOs) of large corporations are important. Curiously, however, few studies have focused on the underlying judgmental processes that lead to these decisions. Instead, there seems to be an underlying belief that market forces will act to ensure that appropriate decisions are taken.[1]

[1] CEO's remuneration is just the price tag attached to the value of services that the CEO provides to the firm. According to the efficient market hypothesis (Samuelson, 1965; Fama, 1970) prices fully reflect all the available (relevant) information.

Whereas it would be foolish to ignore the corrective power of market forces, it would be equally foolish to ignore the fact that judgments involving the remuneration of CEOs are fraught with difficulties. Not least of these is that such judgments – like many other complex, decision tasks – depend on information that is only probabilistically related to the criterion of interest (Brunswik, 1952; Kahneman, Slovic, & Tversky, 1982). For example, imagine estimating the future performance of a potential CEO. Clearly, some information – or cues – will be more important than others, the track-record of the candidate, say, or the type of problems facing the corporation. However, no one cue will be a perfect predictor and humans typically consider and aggregate several (Karelaia & Hogarth, 2008).

The quality – or accuracy – of human judgment depends on factors that characterize the environment in which judgments are made and people's actions (Simon, 1956; Hammond, 1996). First, the predictive ability of available cues sets an upper limit on how well anyone can predict the criterion. Second, how people use these cues in their judgments, as well as their consistency in doing so, affects relative success. Ideal tasks for accurate judgment involve just a few highly predictive cues, repeated occasions on which judgments are made, and good feedback on outcomes (Karelaia & Hogarth, 2008).

Judgmental tasks concerning the remuneration of CEOs are not "ideal." There are few good, predictive cues, the task is not repeated frequently (compare judging distances when driving), and feedback is unclear (e.g., delayed and/or distorted by extraneous factors). In these circumstances, the psychological literature suggests that people will be susceptible to different types of bias in the selection and weighting of different sources of information (Einhorn & Hogarth, 1978; Gilovich, Griffin, & Kahneman, 2002).

One such phenomenon has been termed "illusory correlation" (Chapman & Chapman, 1967), and relates to using information systematically that is unrelated to the criterion of interest. This phenomenon was originally identified (and named) in the area of clinical psychology but it is not hard to see how it pervades many aspects of life. There have, for example, been many demonstrations of how physical height is used as a discriminating cue in situations such as job selection and political

elections even when there is no basis to assume a veridical correlation between height and, say, competence (for a comprehensive review, see Judge & Cable, 2004). Parenthetically, we add that people may or may not be aware that they are using illusory correlations. In some cases, these could arise from conscious beliefs that are just misconceived. In other cases, people might lack awareness about which cues affect their judgments.

This paper documents the role of illusory correlation in decisions about CEO remuneration. In short, in common with economic theory we assume that CEOs' remuneration should be related to the performance of the companies they manage. Second, we document a cue (or information about CEOs) that is unrelated to corporate performance. Third, we maintain that this cue is available to those making decisions about CEO performance, and that (a) those CEOs who exhibit the cue earn more than those that don't, and (b) remuneration is larger for CEOs who display more desirable values of the cue.

The cue in question is the CEO's golf handicap, a measure of how well a person plays the sport of golf. In short, possession of a handicap indicates whether or not a person plays golf on a regular basis and the actual handicap indicates ability.[2] Our argument that this cue is available to those making remuneration decisions is based on the fact that, in addition to providing recreational facilities, golf clubs in the USA serve as important venues where wealthy investors, top business executives, board members and other relevant luminaries can meet and discuss. A CEO, therefore, can choose to be visible in such circles of influence.

This paper is organized as follows. Before describing the data used to test for illusory correlation, we discuss some related literature. Our actual tests follow two steps. The first is to show that there is no relation between golf handicap and corporate performance. The second is to document that CEOs with handicaps earn more than those that don't as well as the relation between handicap and remuneration. We conclude by discussing implications.

[2] Handicaps are administered by golf clubs or national associations such as the United States Golf Association. A handicap reflects how many more shots an amateur is expected to take to complete a round of golf than a hypothetical excellent player (or "par") – thus, the lower the handicap, the better the player.

2. Related literature

This paper is most closely related to the small literature on pay for luck in CEO compensation in that it shows that this largely depends on a factor that has no place in standard principal-agent models. Indeed, one has to think hard and have a rich imagination to come up with a rational explanation for the empirical facts we report.

Bertrand and Mullainathan (2001) show that CEO pay responds as much to a lucky dollar as to a general dollar, contrary to what the basic principal-agent model predicts. As measures of luck in their analysis they use oil prices (for firms in the oil industry), average industry performance and exchange rate movements (for firms in the traded goods sector). Further they find that firms with stronger governance (e.g., firms where a large shareholder is present on the board of directors) pay less for luck.

Garvey and Milbourn (2006) demonstrate asymmetries in pay for luck – CEOs are rewarded for good luck, but are not punished for bad luck. The measure of luck they use is average industry performance.

Kolev (2008) shows that CEO pay is affected by the conditions in the public equity market, reflected in the number of IPOs and first day IPO returns. He argues that this is a manifestation of another judgmental bias, the "fundamental attribution error"[3] – shareholders confuse good public equity market conditions for CEO leadership and skill.

There are extensions to the basic principle-agent model, which can make pay for luck potentially optimal – see, e.g., Oyer (2004), Himmelberg and Hubbard (2000), and Celentani and Loveira (2006). The key feature of these models is that CEO marginal productivity or the value of a CEO's outside options fluctuates. As these fluctuations can be potentially correlated with the state of the economy, pay for luck is not necessarily suboptimal – the state variables that we label "luck" are plausibly beyond the CEO's control, yet they might reflect the CEO's marginal productivity or values of outside options.

[3] Classic studies demonstrating the fundamental attribution error, i.e., people's tendency to attribute observed outcomes to internal dispositions and characteristics of agents (ability, skill, effort) as opposed to situational factors (exogenous shocks, luck) are Jones and Harris (1967) and Ross, Amabile and Steinmetz (1977). More recent and more relevant for the CEO compensation literature are Weber, Camerer, Rottenstreich, and Knez (2001) and Durell (2001).

Blanchard, Lopez-de-Silanes, and Shleifer (1994) provide the most convincing evidence that CEO compensation in the USA has nothing to do with efficient compensation models and is a result of badly functioning corporate governance. They study the effect of cash windfalls, in the form of won or settled lawsuits, on CEO compensation. They start with a sample of 110 firms with settled lawsuits, and exclude all firms for which awards can be potentially connected to the firms' marginal Tobin's Q, thereby reaching a final sample of 11 firms. This method rules out the possibility that the effect of the cash windfall on CEO compensation is due to a change in the marginal productivity of the CEO. Further, their luck variable – cash windfall – is firm specific, hence the possibility that the effect of luck on pay is due to changing values of outside options is also discarded.

Blanchard et al. (1994) show that a median of 16% of the net award is given to the top three executives in the form of extra cash over the three years following the award. This increases cash compensation over the three years following the award by 84% compared to the three preceding years. Median management ownership rises from 14.5% before the award, to 16.5% after the award.

The empirical results in Blanchard et al. (1994) cast serious doubts on the empirical relevance of the models in Oyer (2004), Himmelberg and Hubbard (2000), and Celentani and Loveira (2006). Incidentally, none of the latter three papers quotes the former.

3. Data

The magazine *Golf Digest* compiles data on CEOs' golf handicaps biennially. For 1998, the *Golf Digest* ranking covers CEOs from the top 300 firms in the *Forbes 500* list, and only data on those having US Golf Association handicap indices are included. For 2000, the ranking covers the 200 CEOs with the lowest handicaps (i.e., the 200 best players). For 2002, the *Golf Digest* CEO handicap ranking lists the top 270 golfers among *Fortune 500* and *S&P 500* companies. For 2004, the ranking contains the top 234 golfers, again among *Fortune 500* and *S&P 500* companies. Figure 1 in the Appendix A shows histograms of golf handicap by year.

We merged the data for the years 1998, 2000, 2002, and 2004 from issues of *Golf Digest* with *Execucomp* data on CEO compensation, stock returns and other control variables. To study how playing golf affects CEOs' remuneration and shareholders' returns we define three regressors.

Handicap is the exact golf handicap of the CEO in the given fiscal year as reported in the corresponding year report of *Golf Digest. No handicap* is a dummy variable equal to 1 if the CEO does *not* appear in *any Golf Digest* ranking, and equal to 0 otherwise. We also compute the mean golf handicap for each CEO over the years in which he[4] appears in rankings (e.g., if the CEO appears only in year 2000 ranking, then his mean golf handicap is the handicap for year 2000; if he appears in both the 2000 and 2002 rankings, his mean handicap is the average value of the handicap for year 2000 and the handicap for year 2002). We classify CEOs according to their mean golf handicap and define two dummy variables taking the value of 1 if the given CEO falls in the middle or the top tercile, respectively, of the mean golf handicap distribution. In the instrumental variable regressions the dummies denoting in which tercile of the mean handicap distribution the CEO falls are used as instruments for the exact golf handicap, i.e., we use them to compute Wald (1940) type of estimator.

4. Results

4.1 CEO handicaps and shareholder returns

The first step in our analysis is to establish that CEO golf handicap is *not* a relevant cue regarding CEO's ability to generate shareholder returns.

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Tables 1 and 2 about here
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Table 1 compares contemporaneous and one year ahead shareholders' returns for the group of CEOs appearing in the *Golf Digest* ranking to shareholders' returns for the group of CEOs who are not in the rankings. If golfers are better shareholder value maximizers, we should observe that they generate higher returns. Table 1 shows that this is *not* the case. CEOs who do not appear in any *Golf Digest* ranking appear to outperform the rest, and the effect is significant in the specifications in columns 1, 3 and 4. However the statistical significance of this finding is not robust to truncation of the top half percentile or top one percentile of returns. Furthermore, nearest neighbour matching estimators (Imbens, 2004; Abadie, Drukker, Herr & Imbens, 2004) of the average treatment effect of not appearing in any ranking, a statistical method potentially more appropriate for a binary treatment

[4] The vast majority of CEOs were male.

variable like *No handicap*, show that CEOs not appearing in any ranking outperform the rest but the effect is insignificant (see the Table B.1 in Appendix B, columns 1 and 2). Even if the effect is present, and the evidence is not overwhelming, it suggests that CEOs appearing in the golf ranking are less effective value maximizers for shareholders. If anything, they should be paid less than the others.[5]

Table 2 shows that among the CEOs who appear in the *Golf Digest* ranking, golf handicap and shareholders' returns are unrelated. The sign of the relation changes across specifications, and in no case can we reject the null hypothesis that golf handicap and shareholders' returns are unrelated.[6]

Finally, Figures 2 and 3 in Appendix A show the scatter plots of shareholders' returns versus golf handicap, together with the linear least squares fit. Returns are apparently randomly distributed across different levels of golf handicap, and no apparent relation is visible, neither monotonic nor non-monotonic.

4.2 CEO handicaps and compensation

We start our analysis of the relation between golf handicap and CEO compensation by establishing that it exists. CEOs whose handicaps are good enough to warrant presence in the *Golf Digest* ranking are better paid and the effect is significant in all specifications at better than 1% significance level. As a robustness check we also employ nonparametric nearest neighbour matching estimators (see Appendix B). The average treatment effect of not playing golf from the matching estimators is much larger than the effect estimated from linear regression, and is significant at better than 0.1%.

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[5] As a further robustness check we compute mean excess risk-adjusted returns, i.e., Jensen's alphas, from Jensen-Fama-French-Carhart 4-factor models (Jensen, 1968; Fama & French, 1993; Jegadeesh & Titman, 1993; Carhart, 1997). We construct portfolios which are long in the stocks of CEOs not appearing in *Golf Digest* rankings, and short in the stock of the CEOs appearing in the rankings. When portfolios are constructed as equally weighted, CEOs without golf handicap seem to *outperform* the rest. When portfolios are constructed as value weighted, CEOs without golf handicap seem to *underperform* the rest. However, in no case is the Jensen's alpha statistically significant at conventional levels. For details see Appendix C, Table C.1. Overall and consistent with Table 1, whether the CEO appears in *Golf Digest* ranking or not does not seem to matter in a systematic way for long term CEO performance.

[6] As a further robustness check we compute excess risk-adjusted returns, i.e., Jensen's alphas, from Jensen-Fama-French-Carhart 4-factor models. We construct portfolios which are long in the stocks of CEOs who fall in the top and the middle tercile of the mean handicap distribution (not exceptionally good golf players), and short in the stock of the CEOs appearing in the bottom tercile of the mean handicap distribution (good golf players). The second tercile (average golf players) *outperforms* the first tercile (exceptionally good golf players), but the effect is insignificant at conventional levels (see Appendix C, Table C.2). The third tercile (relatively bad golf players) *underperforms* the first tercile (exceptionally good golf players), but the effect is insignificant at conventional levels (see Appendix C, Table C.3). Overall and consistent with results in Table 2, golf playing skills do not seem to matter for long term corporate performance.

Among the set of executives present in the ranking, the ones who have higher handicaps (i.e., are worse golfers) are paid less.

Tables 3 and 4 establish these facts for the log of total direct compensation [log(tdc1) item in *Execucomp*], and Tables 5 and 6 do the same in respect of the log of total current compensation [log(tcc) item in *Execucomp*].

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Tables 3, 4, 5, and 6 about here
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4.3 CEO handicaps and compensation, conditional on other covariates

Tables 3-6 show the results of regressing CEO compensation on golf handicap and other controls. Moving from column 1 to column 4 in each table, more regressors are included. Column 1 contains the bare minimum of controls relevant in this context – the size of the firm measured by the log of the market value. Column 2 adds a full set of year dummies. Column 3 adds other controls which might be relevant for explaining compensation – a dummy variable equal to 1 if the firm belongs to the *S&P500* index, log of book to market ratio to proxy for firms' growth opportunities, 1 and 3 year stock returns (including dividend distributions), return on assets, number of employees, 3 year sales growth, price to earnings ratio, and dividend yield. Column 4, which is our preferred specification, additionally includes a full set of industry fixed effects at the 2 digit SIC level.

Table 3 explains the log of total CEO compensation [Salary, Bonus, Other Annual, Total Value of Restricted Stock Granted, Total Value of Stock Options Granted (using Black-Scholes), Long-Term Incentive Payouts, and All Other Total, i.e., tdc1 item in *Execucomp*] with a regressor which is a dummy variable taking the value 1 if the CEO does not have a golf handicap, or the handicap was not good enough to merit inclusion in any of the *Golf Digest* rankings. CEOs who are not regular golf players receive about 17% less[7] in total ex-ante compensation and the effect is significant at the 1% significance level (Table 3, column 4).

Table 4 is limited to the set of executives appearing in the *Golf Digest* rankings and presents regressions of the log of total CEO compensation on the CEO's golf handicap. Better golfers are paid

[7] More precisely, the marginal effect on CEO compensation from switching the No golf handicap dummy from 0 to 1 is 100*[exp(-0.1789)−1] = -16.3810%

more: an increase of one point in handicap (i.e., being a marginally worse player) results in 2.14% decrease in total ex-ante pay (Table 4, column 4). The effect is statistically significant at the 1% significance level and economically large.[8]

Table 5 presents regressions of the log of total current compensation comprised of salary and bonus (tcc item in *Execucomp*) on a dummy variable equal to 1 if the CEO does not have a handicap or if the handicap is not good enough to merit inclusion in the rankings, and other controls. Not playing golf regularly costs about 17% in total current compensation (Table 5, column 4), and the effect is significant at the 1% significance level. The sizes of the estimated effects of not playing golf for total current compensation are fairly similar to the estimated effects for total direct compensation.

The evidence supports our claim that CEOs who are regular golfers earn more than those who are not. At the same time, we stress that the effect is economically large – 17% less in pay just because the CEO does not play golf or does not play golf regularly enough to have a decent handicap.

Table 6 presents regressions of the log of total current compensation on golf handicap and other covariates. Among the CEOs who have good golf handicaps – and hence appear in the *Golf Digest* rankings – an increase of one handicap point (i.e., being a marginally worse player) results in a decrease in salary and bonus of about 1% (Table 6, column 4). The effect is only statistically significant at the 12% significance level (i.e., insignificant at conventional levels), but economically quite large.

Finally, the mean CEO golf handicap in our sample is 14.85 with a standard deviation of 5.72. Hence an increase in golf handicap of one standard deviation (i.e., becoming a worse golfer) leads to about 12% decrease in total ex-ante compensation and about an 6% decrease in salary plus bonus. This is strong evidence in support of our claim concerning the relative effects of golf handicap on remuneration.

[8] A good but not outstanding golfer might have a handicap of, say, 15. An outstanding golf player might have a handicap of 2 (i.e., plays nearly at par). Thus, a decrease in handicap from 15 to 2., which is a move from being a good to an excellent golf player, results in about a 2.14*13 = 27.82% increase in total ex-ante compensation. This is a large effect.

4.4 CEO handicaps and compensation, instrumental variable regressions

We argue that good golf playing abilities confer a "halo" effect on the CEO. The presence of the illusory belief that golf playing abilities correlate with shareholder value maximization abilities prompts the relevant decision makers (board of directors, compensation committee members) to confer higher pay on CEOs who are good golfers. Hence the thought experiment we have in mind is to elicit and somehow aggregate the opinions of all relevant decision makers regarding how good a golfer their CEO is, and to correlate this (infeasible) measurement of CEO golf playing abilities with CEO compensation.

As this experiment is infeasible in practice, the best measurement of how good a golfer a CEO is in the eyes of the relevant decision makers, is the golf handicap in the fiscal year in question. The theoretical variable we wish we could have regarding golf playing abilities is a weighted average of the *opinions* of the people deciding how much the CEO should be paid, where the weights reflect how important each person is in the decision making process. Therefore the golf handicap is an imperfect measurement of the theoretical variable we are interested in, even if the true golf handicap is measured without error in our data for the year in question.

If the decision makers' estimates of the CEOs' golf playing abilities diverge from the golf handicap in a random manner, as in the classical errors in variables model, i.e., the noise is uncorrelated with the golf handicap and with the error term in the estimating equation, our regressions of CEO remuneration on golf handicap would suffer from attenuation bias and we would *underestimate* the true effect of golf playing abilities on CEO pay. To investigate this issue, and correct for potential attenuation, we estimate instrumental variable regressions following a suggestion by Wald (1940). We use the tercile to which a CEO belongs in the handicap distribution (of CEO average handicaps) as an instrument for the golf handicap in the given year in question.[9]

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Tables 7 and 8 about here

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[9] We firstly compute the average golf handicap by CEO, e.g., if the CEO is present in the handicap rankings for years 2000, 2002 and 2004 we take the average of the three; if he is present only for year 2000 we take the handicap for this year. Then we create dummy variables equal to 1 if the CEO belongs to the first, second or third tercile in this average handicap distribution, and use these dummy variables as instruments for the exact golf handicap in a given year. The idea is that this procedure provides another measurement of how good a golfer the CEO is in the eyes of the relevant decision makers.

We find some evidence that our OLS handicap regressions are subject to attenuation. In the instrumental variable regressions the marginal effects of the golf handicap on CEO compensation become larger and statistically significant both for total direct compensation and total current compensation. For total direct compensation the instrumental variable estimate of the marginal effect of a unit increase in golf handicap is −3.2% (Table 7, column 4) versus the OLS estimate of −2.14% (Table 4, column 4). For total current compensation the instrumental variable estimate of the marginal effect of a unit increase in golf handicap is −1.9% (Table 8, column 4) versus the OLS estimate of −1.1% (Table 6, column 4). In the instrumental variable regression, the golf handicap appears as a significant predictor for total current compensation too (p-value = 0.028, Table 8, column 4), whereas this effect was insignificant at conventional levels in the OLS regression (p-value = 0.120, Table 6, column 4).

5. Plausibility of alternative (rational) explanations of our results

We consider two alternative explanations of our results that relate to reverse causality and unobserved productivity, respectively.

5.1 Reverse causality – better paid CEOs are able to afford to play more golf

In our sample, a CEO at the 10th percentile of the distribution of total compensation receives about $1.5 million. A CEO at the median receives more than $5 million. Such levels of annual income are clearly not all spent on consumption.[10] Hence even the poorest CEOs in our sample are rich enough to afford playing as much golf as they want – let alone notice the accompanying expense.

Prima facie evidence that CEOs are not really optimizing golf-playing related expenses is the fact that most belong to more than one golf club.[11] Lastly, there is casual evidence that golf club memberships are considered a legitimate business expense and are often paid by the corporation (for examples, see the article quoted in the last footnote; for systematic evidence on this issue we will have to wait for improved *SEC* requirements for disclosure of executive perquisites).

[10] Notice that buying a multi-million dollar mansion at the waterfront is not consumption, but investment as it will appreciate in value with the passage of time.

[11] An article in *USA Today* (July 11, 2006) entitled "CEOs belong to fore — or 5 or even 6 golf clubs" states: "a USA TODAY analysis of 115 CEOs and chairmen of *Fortune* 1,000 companies who also score good to excellent at golf found 51 who belong to at least two clubs, and 25 who belong to three or more." This could be an underestimate, as the *Golf Digest* survey for 2006 reports that 65% of CEO golfers who run *Fortune* 1,000 companies belong to at least two private country clubs and 45% belong to four or more.

5.2 Golf playing abilities correlated with unobserved productivity

We admit that this is always a possibility and challenge readers to come up with a plausible explanation. What we have shown is that golf playing abilities are contemporaneously uncorrelated with a measurable and relevant criterion, shareholders' returns. Moreover, in the cross section, golf playing abilities do not meaningfully predict shareholders' returns one year ahead.

We conclude that the two alternative rational explanations are not plausible.

6. Conclusions and implications

Our results show clearly that information – or a cue – that is unrelated to corporate performance is related to the remuneration of CEOs. The presumption therefore is that this cue is used in remuneration decisions whether or not those making the decisions are conscious of its influence. We emphasize that given the inherent difficulty of assessing CEO compensation, it should come as no surprise that the underlying process of judgment is subject to bias. This is simply the nature of human information processing and leads to two questions. The first is why this particular cue – ability to play golf – plays an inappropriate role in these decisions. The second is what might be done to alleviate this, and possibly other biases, in the decision making process.

Given the social context in which CEO remuneration decisions are made, the underlying judgments undoubtedly involve a host of tangible and intangible measures ranging from concrete indicators of past performance to the observation of "soft" social skills and even physical appearance. Moreover, in the USA golf clubs provide locations in which the relevant actors socialize and can judge each other on a variety of dimensions. In this milieu, then, we suspect that being a good golfer is a positive attribute, generating its own "halo" effect.[12]

Since golf handicap does not predict corporate performance, what might be done about this – and possibly other – illusory correlates? Our suggestion goes back to clinical psychology (where illusory correlation was identified) and the classic work of Meehl (1954) who showed that, even for complex diagnostic tasks, predictive ability is improved if human judgment is replaced by simple,

[12] Interestingly, an article in the *Economist* (April 10, 2008) entitled "Addressing the ball" states: "Many chief executives are obsessed with golf. Warren Buffet and Bill Gates are both keen players. Jack Welch, a former boss of General Electric, considered handicaps a good measure of business acumen."

explicit statistical rules. Moreover, as demonstrated by a meta-analysis involving some 140 studies (Grove et al., 2000), these findings have only been reinforced with time. As stated by the authors:

> This study confirms and greatly extends previous reports that mechanical prediction is typically as accurate or more accurate than clinical prediction.....
> Even though outlier studies can be found, we identified no systematic exceptions to the general superiority (or at least material equivalence) of mechanical prediction. It holds in general medicine, in mental health, in personality, and in education and training settings. It holds for medically trained judges and for psychologists. It holds for inexperienced and seasoned judges. (Grove et al., 2000, p. 25).

This does not, of course, mean that no human judgment is involved in mechanical prediction. People still need to identify the variables that are used in formulas. Thus, if decision makers believe that golf handicap is a relevant variable for CEO compensation, it should be explicitly included in the equation. Given the inherent uncertainty in corporate performance, no decision rule – clinical or mechanical – can be a perfect predictor. However, to maximize expected shareholder value, one should clearly use the "best" rule available.

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Table 1: Mean shareholders' returns (%) for firms where CEO does and does not have a golf handicap. In columns 1 and 2 the returns are for the current fiscal year. In columns 3 and 4 the returns are for the one year ahead fiscal year, i.e., in columns 3 and 4 we forecast future yearly returns.

	(1) Return 1 year	(2) Return 1 year	(3) Future 1yr return	(4) Future 1yr return
NO handicap	66.8313**		32.4351**	
	[32.3557]		[16.1047]	
Year=1998	-9.7704	16.2955***	-9.3010	9.9403**
	[37.3396]	[2.6200]	[13.3879]	[4.2124]
Year=2000	-29.9329	19.1384***	49.4393	3.1673
	[27.4203]	[3.3448]	[38.6340]	[2.0888]
Year=2002	-18.3665	-12.1702***	34.6796**	39.6580***
	[40.0530]	[1.8408]	[16.1727]	[3.5517]
Year=2004	109.0499	19.0383***	-14.9413	8.4356***
	[77.9505]	[1.5299]	[13.7165]	[1.7355]
NO handicap X yr1998		35.8110		8.8916*
		[43.2945]		[4.9622]
NO handicap X yr2000		8.4573		87.8675
		[5.3756]		[61.6215]
NO handicap X yr2002		59.4349		26.4457*
		[49.7726]		[15.9652]
NO handicap X yr2004		172.5462		4.9316**
		[117.8137]		[2.1985]
Interactions jointly zero:				
F-statistic	F(4, 3264) =	1.72	F(4, 2716) =	3.36
(p-value)		(0.1419)		(0.0094)
Observations	6807	6807	5581	5581
R^2	0.001	0.001	0.001	0.001

Note: We regress shareholders' returns in percentage form (*Execucomp* data item trs1yr) for the fiscal year (columns 1 and 2) and for the next fiscal year (columns 3 and 4) on a full set of time dummies (without a constant) and an indicator for whether the CEO does *not* appear in any *Golf Digest* golf handicap ranking (column 1 and 3). Hence in columns 1 and 3 the estimated coefficients on the time dummies are the mean returns for CEOs present in the *Golf Digest* golf handicap rankings and the estimate on the NO handicap dummy reflects the differential return for CEOs *not* present in the ranking. In columns 1 and 3 the differential return is constrained to be the *same* across years. In columns 2 and 4 full set of interactions is included. Hence the estimated coefficients on time dummies reflect the mean returns for CEOs present in any ranking in the given year, and the estimated coefficients on the (No handicap X year) interactions reflect the differential performance of CEOs *not* appearing in any ranking for the given year. The F-statistics test the null hypothesis that the four (No handicap X year) interactions are jointly equal to zero.
Standard errors [in brackets] consistent in the presence of arbitrary within CEO autocorrelation and heteroskedasticity (see Wooldridge 2002, eq. 7.26).
* $p < .10$, ** $p < .05$, *** $p < .01$

Table 2: Measures of association between shareholders' returns (%) and golf handicaps of CEOs. In columns 1 and 2 the returns are for the current fiscal year. In columns 3 and 4 the returns are for the one year ahead fiscal year, i.e., in columns 3 and 4 we forecast future yearly returns.

	(1) Return 1 year	(2) Return 1 year	(3) Future 1yr return	(4) Future 1yr return
Handicap	-0.0164		0.1643	
	[0.2503]		[0.3494]	
Year=1998	16.3639***	10.1639	12.0601	39.4294
	[5.6320]	[12.5529]	[10.7881]	[28.2488]
Year=2000	9.0900	19.8486	3.2744	3.9078
	[6.1401]	[13.9483]	[5.8750]	[7.3718]
Year=2002	-13.1645***	-16.0547***	37.5630***	26.9578***
	[4.0737]	[5.6407]	[4.6584]	[9.5601]
Year=2004	18.9111***	16.0714***	7.4676	9.5077*
	[3.7443]	[3.5590]	[5.4135]	[5.2149]
Handicap X yr1998		0.3852		-1.6591
		[0.7438]		[1.5014]
Handicap X yr2000		-0.7117		0.1213
		[0.7699]		[0.4301]
Handicap X yr2002		0.1782		0.8803
		[0.3734]		[0.7799]
Handicap X yr2004		0.1844		0.0210
		[0.2423]		[0.3173]
Interactions jointly zero:				
F-statistic	F(4, 398) =	0.45	F(4, 331) =	0.61
(p-value)		(0.7729)		(0.6558)
Observations	685	685	565	565
R^2	0.148	0.153	0.098	0.106

Note: We regress shareholders' returns in percentage form (*Execucomp* data item trs1yr) for the fiscal year (columns 1 and 2) and for the next fiscal year (columns 3 and 4) on the golf handicap for the given year (column 1 and 3). In columns 2 and 4 full set of interactions (Handicap X year) is included. The F-statistics test the null hypothesis that the four (Handicap X year) interactions are jointly equal to zero.
Standard errors [in brackets] consistent in the presence of arbitrary within CEO autocorrelation and heteroskedasticity (see Wooldridge 2002, eq. 7.26).
* $p < .10$, ** $p < .05$, *** $p < .01$

Table 3: Regression of log of total compensation* on playing golf

	(1) Log(total comp. expected)	(2) Log(total comp. expected)	(3) Log(total comp. expected)	(4) Log(total comp. expected)
NO handicap	-0.2337***	-0.2359***	-0.1519***	-0.1789***
	[0.0495]	[0.0495]	[0.0578]	[0.0591]
Log(mktvalue)	0.3821***	0.3812***	0.3894***	0.4144***
	[0.0118]	[0.0119]	[0.0184]	[0.0192]
Log(book/mkt value)			0.0645***	0.0923***
			[0.0240]	[0.0249]
S&P 500 dummy			0.1215*	0.0687
			[0.0697]	[0.0704]
Return 1 year			0.0000**	0.0000**
			[0.0000]	[0.0000]
Return 3 years			0.0012**	0.0013**
			[0.0005]	[0.0005]
ROA			-0.0045***	-0.0050***
			[0.0011]	[0.0012]
Sales growth 3yrs			0.0016*	0.0013*
			[0.0008]	[0.0008]
Employees			0.0005	0.0004
			[0.0003]	[0.0003]
Dividend yield			-0.0072	-0.0000
			[0.0063]	[0.0026]
Price/earnings			-0.0000	-0.0000
			[0.0000]	[0.0000]
Time dummies	No	Yes	Yes	Yes
2 digit SIC dummies	No	No	No	Yes
Constant	5.2432***	5.0683***	4.9331***	4.8092***
	[0.1072]	[0.1091]	[0.1220]	[0.1215]
Observations	6706	6706	6099	6099
R^2	0.310	0.318	0.337	0.371

*The dependent variable is the log of total compensation, comprised of Salary, Bonus, Other Annual, Total Value of Restricted Stock Granted, Total Value of Stock Options Granted (using Black-Scholes), Long-Term Incentive Payouts, and All Other Total (tdc1 item in *Execucomp*). The main regressor of interest *NO handicap* is a dummy variable equal to 1 if the CEO does *not* appear in any of the *Golf Digest* golf handicap rankings.
Standard errors [in brackets] consistent in the presence of arbitrary within CEO autocorrelation and heteroskedasticity (see Wooldridge 2002, eq. 7.26).
* $p < .10$, ** $p < .05$, *** $p < .01$

Table 4: Regression of log of total compensation* on golf handicap

	(1) Log(total comp. expected)	(2) Log(total comp. expected)	(3) Log(total comp. expected)	(4) Log(total comp. expected)
Handicap	-0.0153**	-0.0149**	-0.0138*	-0.0214***
	[0.0072]	[0.0072]	[0.0077]	[0.0080]
Log(mktvalue)	0.3044***	0.3004***	0.2784***	0.2399***
	[0.0455]	[0.0453]	[0.0815]	[0.0864]
Log(book/mkt value)			0.0897	0.1526
			[0.1165]	[0.1026]
Return 1 year			0.0014	0.0023
			[0.0018]	[0.0016]
Return 3 years			0.0087**	0.0086**
			[0.0040]	[0.0037]
ROA			-0.0034	0.0028
			[0.0116]	[0.0127]
Sales growth 3yrs			-0.0065	-0.0067
			[0.0043]	[0.0041]
Employees			0.0004	0.0009
			[0.0005]	[0.0006]
Dividend yield			0.0041	0.0263
			[0.0252]	[0.0177]
Price/earnings			0.0003	0.0003
			[0.0002]	[0.0002]
S&P 500 dummy			0.2499	0.2442
			[0.1952]	[0.1827]
Time dummies	No	Yes	Yes	Yes
2 digit SIC dummies	No	No	No	Yes
Constant	6.1779***	6.0141***	5.9358***	6.3589***
	[0.4527]	[0.4461]	[0.6024]	[0.6989]
Observations	676	676	644	644
R^2	0.145	0.155	0.196	0.302

*The dependent variable is the log of total compensation, comprised of Salary, Bonus, Other Annual, Total Value of Restricted Stock Granted, Total Value of Stock Options Granted (using Black-Scholes), Long-Term Incentive Payouts, and All Other Total (tdc1 item in *Execucomp*). The main regressor of interest is *Handicap*, the golf handicap for the given year as reported in the relevant *Golf Digest* ranking.

Standard errors [in brackets] consistent in the presence of arbitrary within CEO autocorrelation and heteroskedasticity (see Wooldridge 2002, eq. 7.26).

* $p < .10$, ** $p < .05$, *** $p < .01$

Table 5: Regression of log of total current compensation* on playing golf

	(1) Log(total current comp.)	(2) Log(total current comp.)	(3) Log(total current comp.)	(4) Log(total current comp.)
NO handicap	-0.2594***	-0.2738***	-0.1888***	-0.1785***
	[0.0493]	[0.0492]	[0.0605]	[0.0599]
Log(mktvalue)	0.2465***	0.2404***	0.2698***	0.2628***
	[0.0134]	[0.0135]	[0.0191]	[0.0212]
Log(book/mkt value)			0.1337***	0.0945***
			[0.0209]	[0.0221]
S&P 500 dummy			0.0072	-0.0035
			[0.0689]	[0.0692]
Return 1 year			0.0000	0.0000
			[0.0000]	[0.0000]
Return 3 years			0.0020***	0.0014***
			[0.0006]	[0.0005]
ROA			0.0019**	0.0009
			[0.0008]	[0.0007]
Sales growth 3yrs			-0.0017**	-0.0016**
			[0.0007]	[0.0007]
Employees			0.0008*	0.0008**
			[0.0004]	[0.0004]
Dividend yield			-0.0010	0.0002
			[0.0015]	[0.0019]
Price/earnings			-0.0001*	-0.0001*
			[0.0000]	[0.0000]
Time dummies	No	Yes	Yes	Yes
2 digit SIC dummies	No	No	No	Yes
Constant	5.3149***	5.2408***	5.0764***	5.0841***
	[0.1213]	[0.1234]	[0.1406]	[0.1498]
Observations	6716	6716	6106	6106
R^2	0.204	0.215	0.231	0.281

*The dependent variable is total current compensation comprised of salary and bonus (tcc item in *Execucomp*). The main regressor of interest is *NO handicap*, a dummy variable equal to 1 if the CEO is *not* present in any of the *Golf Digest* rankings.
Standard errors [in brackets] consistent in the presence of arbitrary within firm autocorrelation and heteroskedasticity (see Wooldridge 2002, eq. 7.26).
* $p < .10$, ** $p < .05$, *** $p < .01$

Table 6: Regression of log of total current compensation* on golf handicap

	(1) Log(total current comp.)	(2) Log(total current comp.)	(3) Log(total current comp.)	(4) Log(total current comp.)
Handicap	-0.0050	-0.0050	-0.0066	-0.0110
	[0.0062]	[0.0062]	[0.0070]	[0.0070]
Log(mktvalue)	0.2005***	0.2005***	0.1489**	0.0972
	[0.0383]	[0.0383]	[0.0733]	[0.0721]
Log(book/mkt value)			0.1568*	0.2094***
			[0.0932]	[0.0652]
Return 1 year			0.0029**	0.0033***
			[0.0013]	[0.0010]
Return 3 years			0.0113***	0.0112***
			[0.0034]	[0.0031]
ROA			0.0080	0.0163***
			[0.0051]	[0.0053]
Sales growth 3yrs			-0.0037	-0.0036
			[0.0036]	[0.0034]
Employees			0.0010*	0.0013**
			[0.0006]	[0.0007]
Dividend yield			0.0116	0.0178
			[0.0168]	[0.0116]
Price/earnings			0.0000	0.0001
			[0.0002]	[0.0002]
S&P 500 dummy			0.2522	0.2672*
			[0.1773]	[0.1613]
Time dummies	No	Yes	Yes	Yes
2 digit SIC dummies	No	No	No	Yes
Constant	5.7475***	5.7475***	5.9012***	6.4156***
	[0.3757]	[0.3757]	[0.5289]	[0.5770]
Observations	675	675	643	643
R^2	0.124	0.124	0.225	0.338

*The dependent variable is total current compensation comprised of salary and bonus (tcc item in *Execucomp*). The main regressor of interest is Handicap, the golf handicap for the given year as reported in the relevant *Golf Digest* ranking.
Standard errors [in brackets] consistent in the presence of arbitrary within CEO autocorrelation and heteroskedasticity (see Wooldridge 2002, eq. 7.26).
* $p < .10$, ** $p < .05$, *** $p < .01$

Table 7: Instrumental variable regression of log of total compensation* on golf handicap

	(1) Log(total comp. expected)	(2) Log(total comp. expected)	(3) Log(total comp. expected)	(4) Log(total comp. expected)
Handicap	-0.0228**	-0.0231**	-0.0226**	-0.0320***
	[0.0090]	[0.0090]	[0.0098]	[0.0104]
Log(mktvalue)	0.3045***	0.3006***	0.2780***	0.2413***
	[0.0454]	[0.0452]	[0.0805]	[0.0881]
Log(book/mkt value)			0.0833	0.1392
			[0.1161]	[0.1064]
Return 1 year			0.0013	0.0022
			[0.0018]	[0.0017]
Return 3 years			0.0087**	0.0085**
			[0.0040]	[0.0039]
ROA			-0.0025	0.0039
			[0.0117]	[0.0134]
Sales growth 3yrs			-0.0067	-0.0070
			[0.0043]	[0.0044]
Employees			0.0004	0.0009
			[0.0005]	[0.0006]
Dividend yield			0.0054	0.0273
			[0.0250]	[0.0181]
Price/earnings			0.0003	0.0003
			[0.0002]	[0.0002]
S&P 500 dummy			0.2497	0.2386
			[0.1932]	[0.1876]
Time dummies	No	Yes	Yes	Yes
2 digit SIC dummies	No	No	No	Yes
Constant	6.2889***	6.1395***	6.0696***	4.9277***
	[0.4705]	[0.4687]	[0.6232]	[0.7063]
Observations	676	676	644	644
R^2	0.144	0.154	0.194	0.300

*The dependent variable is the log of total compensation, comprised of Salary, Bonus, Other Annual, Total Value of Restricted Stock Granted, Total Value of Stock Options Granted (using Black-Scholes), Long-Term Incentive Payouts, and All Other Total (tdc1 item in *Execucomp*). The main regressor of interest is *Handicap*, the golf handicap for the given year as reported in the relevant *Golf Digest* ranking. We compute the mean golf handicap for each CEO across the years in which he appears in the sample. The *Handicap* variable is instrumented with two dummy variables which take the value of 1 if the CEO falls in the top or middle terciles respectively of the distribution of the mean golf handicaps.

Standard errors [in brackets] consistent in the presence of arbitrary within CEO autocorrelation and heteroskedasticity (see Wooldridge 2002, eq. 8.33).

* $p < .10$, ** $p < .05$, *** $p < .01$

Table 8: Instrumental variable regression of log of total current compensation* on playing golf

	(1) Log(total current comp.)	(2) Log(total current comp.)	(3) Log(total current comp.)	(4) Log(total current comp.)
Handicap	-0.0113	-0.0111	-0.0140	-0.0199**
	[0.0076]	[0.0075]	[0.0086]	[0.0091]
Log(mktvalue)	0.2140***	0.2006***	0.1485**	0.0982
	[0.0388]	[0.0381]	[0.0724]	[0.0735]
Log(book/mkt value)			0.1513	0.1979***
			[0.0930]	[0.0681]
Return 1 year			0.0028**	0.0032***
			[0.0013]	[0.0010]
Return 3 years			0.0113***	0.0111***
			[0.0034]	[0.0032]
ROA			0.0087*	0.0172***
			[0.0052]	[0.0056]
Sales growth 3yrs			-0.0038	-0.0039
			[0.0036]	[0.0036]
Employees			0.0010*	0.0013*
			[0.0006]	[0.0007]
Dividend yield			0.0128	0.0186
			[0.0171]	[0.0123]
Price/earnings			0.0000	0.0001
			[0.0002]	[0.0002]
S&P 500 dummy			0.2520	0.2626
			[0.1755]	[0.1655]
Time dummies	No	Yes	Yes	Yes
2 digit SIC dummies	No	No	No	Yes
Constant	5.8205***	5.8406***	6.0141***	5.7454***
	[0.4043]	[0.3908]	[0.5461]	[0.5825]
Observations	675	675	643	643
R^2	0.101	0.123	0.223	0.335

*The dependent variable is total current compensation comprised of salary and bonus (tcc item in *Execucomp*). The main regressor of interest is *Handicap*, the golf handicap for the given year as reported in the relevant *Golf Digest* ranking. We compute the mean golf handicap for each CEO across the years in which he appears in the sample. The *Handicap* variable is instrumented with two dummy variables which take the value of 1 if the CEO falls in the top or middle terciles respectively of the distribution of the mean golf handicaps.
Standard errors [in brackets] consistent in the presence of arbitrary within CEO autocorrelation and heteroskedasticity (see Wooldridge 2002, eq. 8.33).
* $p < .10$, ** $p < .05$, *** $p < .01$

Appendix A

Figure 1: Histograms of golf handicap by year (superimposed theoretical normal density, calibrated to have the same mean and standard deviation as the golf handicap distributions)

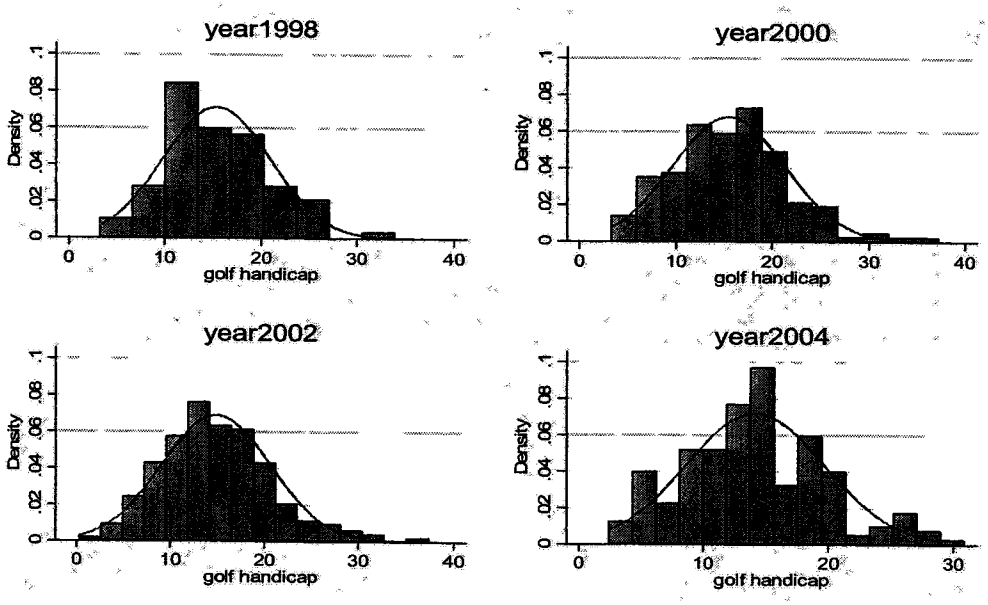


Figure 2: Scatter plot of current fiscal year shareholders' returns vs. current golf handicap

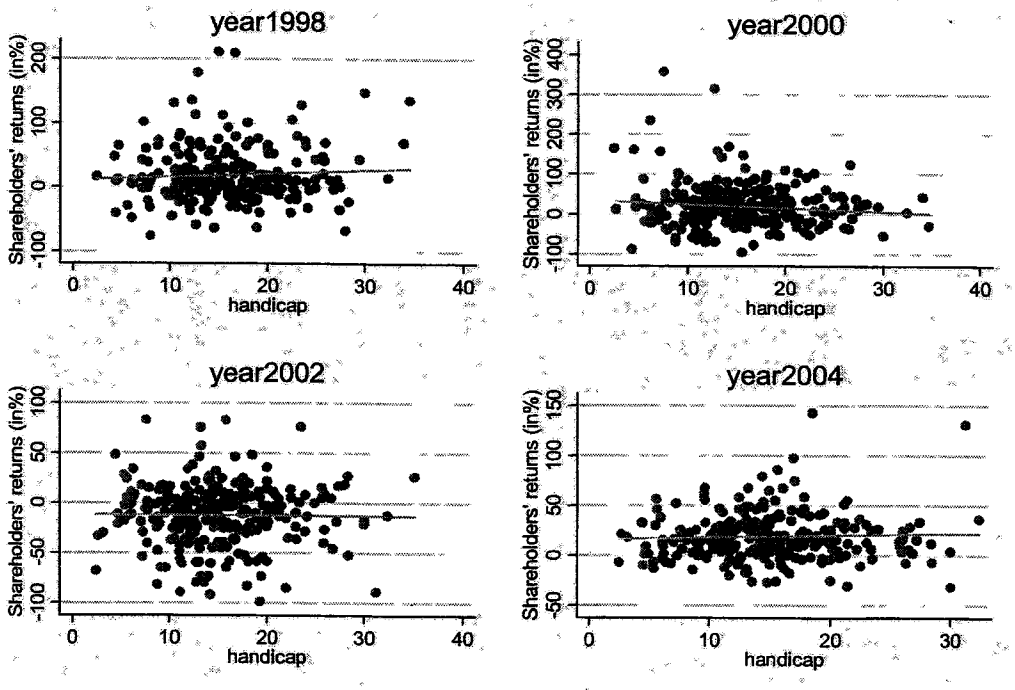
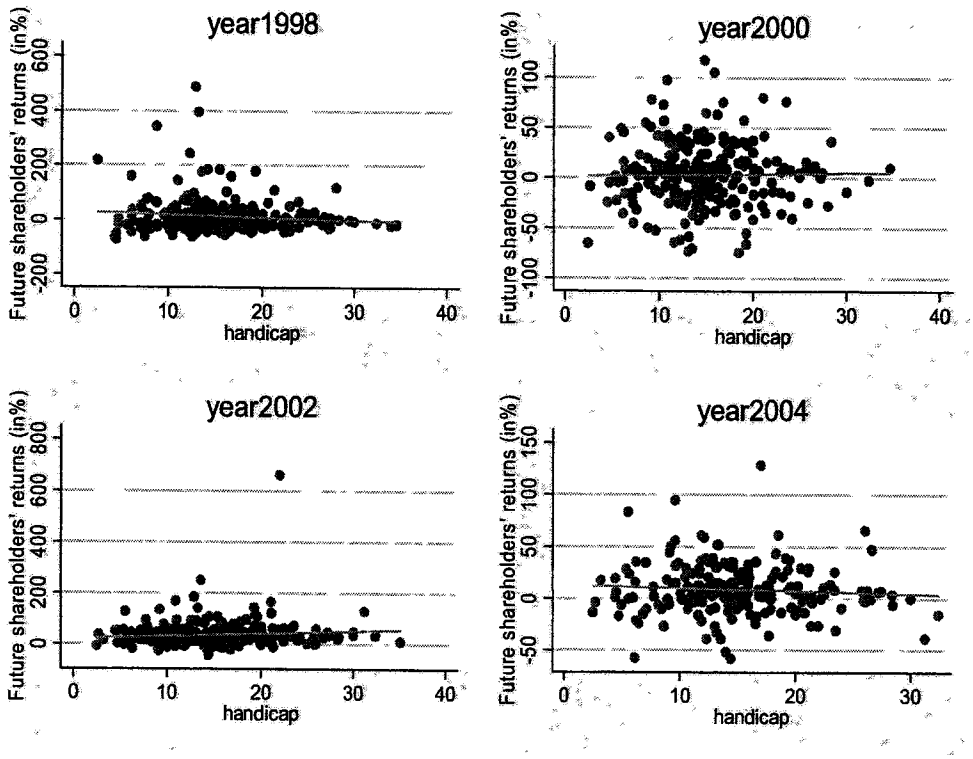


Figure 3: Scatter plot of next fiscal year shareholders' returns vs. current golf handicap



Appendix B

In this appendix we employ nonparametric nearest neighbour matching estimators (Imbens, 2004; Abadie, Drukker, Herr & Imbens, 2004), which are potentially more appropriate for a binary "treatment" variable like *No handicap*. We present estimates of the Average Treatment Effect of *not* playing golf. The idea is that semi-parametric regression methods that we employ in Table 3 and Table 5 control for other covariates, but impose linearity on the relation between CEO compensation and the *No handicap* dummy variable and the other controls. The nonparametric nearest neighbour matching estimator finds for each firm in the sample with given value of the *No handicap* dummy, a firm which has the opposite value of *No handicap*, but is otherwise closest in the covariates space to the firm being matched. Then the Average Treatment Effect of not playing golf is estimated by the average

difference between firms taking alternative treatment in the sample, where the average is taken over the set of matched pairs.

Overall, the effects estimated for CEO compensation from the nearest neighbour matching procedure are much larger than the effects estimated from the linear regression specifications, and they are significant at better than 0.1% level.

Table B.1: Nearest neighbour matching estimators of the Average Treatment Effect of the *No handicap* "treatment variable" on the dependent variable in the column's header (exact definitions of the dependent variables can be found in the notes to Tables 1, 3 and 5). Exact matching on Year, nearest neighbour matching on Log firm market value and Log book to market ratio

	(1) Return 1 year	(2) Future 1yr return	(3) Log(total comp. expected)	(4) Log(total current comp.)
NO handicap (ATE)	112.2687	4.0429	-0.2730	-0.2961
(Standard Error)	(218.2458)	(4.9336)	(0.0812)	(0.0701)
[p-value]	[0.607]	[0.413]	[0.001]	[0.000]

Table B.2: Nearest neighbour matching estimators of the Average Treatment Effect of the *No handicap* "treatment variable" on the dependent variable in the column's header (exact definitions of the dependent variables can be found in the notes to tables 3 and 5). Exact matching on Year and Two digit SIC industry classification, nearest neighbour matching on Log firm market value and Log book to market ratio, One year total shareholders returns and *all* the other covariates included in the Column 4 of Tables 3 and 5 regression specifications. Hence the estimate in Column (1) below is comparable to the estimate in Table 3, Column 4, and the estimate in Column (2) below is comparable to the estimate in Table 5, Column 4.

	(1) Log(total comp. expected)	(2) Log(total current comp.)
NO handicap (ATE)	-0.5035	-0.4210
(Standard Error)	(0.0729)	(0.063236)
[p-value]	[0.000]	[0.000]

Appendix C

In this appendix we carry out calendar time performance attribution regressions (Jensen, 1968; Carhart, 1997) to study the long term impact of golf playing on shareholders' returns. For each month from January 1998 to December 2006, for a total of 108 months, we compute the equally(columns 1, 2 and 3) and value weighted (columns 4, 5 and 6) returns of a portfolio which is

a) long in firms with CEOs who do *not* appear in any *Golf Digest* ranking and short in firms with CEOs who appear in any ranking (Table C.1)

b) long in firms with CEOs who are in the second tercile of the mean golf handicap distribution (good but not exceptional golf players) and short in firms with CEOs who are in the first tercile of the mean golf handicap distribution (exceptionally good golf players) (Table C.2)

c) long in firms with CEOs who are in the third tercile of the mean golf handicap distribution (relatively bad golf players) and short in firms with CEOs who are in the first tercile of the mean golf handicap distribution (exceptionally good golf players) (Table C.3).

The mean golf handicap distribution and its terciles are computed as for the instrumental variables used in Tables 7 and 8. The whole sample of firms on which the computations are based are the successful matches resulting from merging *Execucomp* to *CRSP* data.[13]

For each portfolio in a), b) and c) this results in time series of monthly returns, which are regressed on the monthly time series of returns of a set of "risk" factors. In the one factor model the only risk factor is the return on the value weighted market portfolio minus the risk free rate. In the three factor model (Fama & French, 1993) the risk factors are the returns on the value weighted market portfolio minus the risk free rate, the high book to market minus low book to market firms portfolio and the small firms minus big firms portfolio. In the four factor model the momentum factor (Jegadeesh & Titman, 1993; Carhart, 1997) is added to the previously mentioned three factors. Time series of the factor returns are downloaded from Kenneth R. French's website (http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html).

[13] The matching variable from *Execucomp* used to identify firms is *cusip*, and the matching variable from *CRSP* used to identify firms is *ncusip*.

The returns on the portfolios are regressed on the risk factors and the constant term of this regression, known as Jensen's alpha, represents the average risk adjusted abnormal return the portfolio generates after controlling for the known risk factors. For example if the portfolio strategy long in bad golf players (top tercile) and short in good golf players (bottom tercile) generates positive statistically significant and economically large Jensen's alpha, we can conclude that bad golf players outperform good golf players in the long run and generate abnormal returns even after appropriately controlling for risk.

The following three tables show that Jensen's alphas are never significant at conventional levels and the signs of the risk adjusted abnormal returns generated do not follow any consistent pattern. Hence we conclude that golf playing in *not* informative for long term performance of the CEOs.

Table C.1 The dependent variable is equally weighted (EW) and value weighted (VW) monthly return difference between firms with CEOs who do *not* appear in *any Golf Digest* ranking (long position) and firms with CEOs who appear in *any Golf Digest* ranking (short position)

	(1) EW ret diff	(2) EW ret diff	(3) EW ret diff	(4) VW ret diff	(5) VW ret diff	(6) VW ret diff
Mkt-rf	0.2583***	0.1087***	0.0893***	0.2293***	0.1335***	0.1608***
	[0.0447]	[0.0215]	[0.0223]	[0.0439]	[0.0416]	[0.0437]
High-Low		-0.0898***	-0.0977***		-0.0512	-0.0402
		[0.0277]	[0.0272]		[0.0536]	[0.0534]
Small-Big		0.4227***	0.4363***		0.2825***	0.2635***
		[0.0222]	[0.0222]		[0.0429]	[0.0436]
Momentum			-0.0381**			0.0537*
			[0.0149]			[0.0291]
Constant (Jensen's alpha)	0.1549	0.0967	0.1320	-0.1313	-0.1765	-0.2262
	[0.2066]	[0.0868]	[0.0857]	[0.2030]	[0.1678]	[0.1681]
Observations	108	108	108	108	108	108
R^2	0.240	0.878	0.885	0.205	0.506	0.521

Standard errors in brackets
* $p < .10$, ** $p < .05$, *** $p < .01$

Table C.2 The dependent variable is equally weighted (EW) and value weighted (VW) monthly return difference between firms with CEOs in the second tercile of the mean golf handicap distribution (long position consists of average golf players) and firms with CEOs in the first tercile of the mean golf handicap distribution (short position consists of excellent golf players)

	(1) EW ret diff	(2) EW ret diff	(3) EW ret diff	(4) VW ret diff	(5) VW ret diff	(6) VW ret diff
Mkt-rf	0.0862***	0.0520	0.0247	-0.1279**	-0.1337**	-0.1805***
	[0.0302]	[0.0350]	[0.0395]	[0.0600]	[0.0533]	[0.0577]
High-Low		-0.0466	-0.0576		-0.0214	-0.0403
		[0.0444]	[0.0443]		[0.1037]	[0.0950]
Small-Big		0.0483	0.0674		-0.0168	0.0158
		[0.0413]	[0.0449]		[0.1015]	[0.0893]
Momentum			-0.0536*			-0.0918
			[0.0285]			[0.0690]
Constant (Jensen's alpha)	0.0500	0.0692	0.1190	0.0447	0.0649	0.1499
	[0.1416]	[0.1515]	[0.1510]	[0.2635]	[0.2950]	[0.2690]
Observations	108	108	108	108	108	108
R^2	0.068	0.109	0.147	0.043	0.044	0.075

Standard errors in brackets
* $p < .10$, ** $p < .05$, *** $p < .01$

Table C.3 The dependent variable is equally weighted (EW) and value weighted (VW) monthly return difference between firms with CEOs in the third tercile of the mean golf handicap distribution (long position consists of relatively bad golf players) and firms with CEOs in the first tercile of the mean golf handicap distribution (short position consists of excellent golf players)

	(1) EW ret diff	(2) EW ret diff	(3) EW ret diff	(4) VW ret diff	(5) VW ret diff	(6) VW ret diff
Mkt-rf	-0.0512	0.0113	-0.0263	-0.2140**	-0.0712	-0.0869
	[0.0357]	[0.0349]	[0.0364]	[0.0871]	[0.0860]	[0.0912]
High-Low		0.1422***	0.1270**		0.3111***	0.3047***
		[0.0537]	[0.0509]		[0.1139]	[0.1117]
Small-Big		0.0179	0.0441		0.0150	0.0259
		[0.0370]	[0.0391]		[0.0917]	[0.0971]
Momentum			-0.0737**			-0.0308
			[0.0344]			[0.0665]
Constant (Jensen's alpha)	-0.0902	-0.1968	-0.1284	0.1345	-0.0918	-0.0632
	[0.1382]	[0.1386]	[0.1385]	[0.3041]	[0.2943]	[0.3037]
Observations	108	108	108	108	108	108
R^2	0.027	0.127	0.207	0.093	0.192	0.195

Standard errors in brackets
* $p < .10$, ** $p < .05$, *** $p < .01$

FINANCE BRIEFS

Allete January 21 declared an unchanged quarterly dividend of 44 cents/share ($1.76 annually). It had raised the payout for six straight years — for a 55.7% increase over that time frame — most recently by 2.3% in Q1 2009. Allete did not say why it held the payout steady, but net income was down 19% to $65.8 million in the 12 months ending September 30, 2009, mainly because its "Investments and Other" segment has been hit with losses this year at real estate unit Allete Properties. Also, in 2008 the unit had $3.8 million of gains on sales of securities and $5.3 million of non-recurring tax benefits. The dividend is payable March 1 to shareholders of record February 15, and represents a payout ratio of 83.4% of basic earnings per share of $2.11 in the 12 months ending September 30. On January 21, the stock fell 2% to $31.05, which was down 6.2% in a month, up 2.1% in a year, and down 23.3% in five years. At that price the dividend yield is 5.7%.

... The first power sector dividend hike of 2010 was by **Alliant Energy** which raised the quarterly payout 5.3% to 39.5 cents ($1.58 annually). Announced January 15, the new dividend is payable February 12 to shareholders of record January 29 and represents a payout ratio of 161% of reported earnings per share of 98 cents in the 12 months ending September 30, 2009. But that includes the $1.16/share Q3 2009 charge on the debt tender offer that resolved a federal court case, and the 36-cent Q1 2009 gain on adjustments to state deferred tax liabilities for changes in Wisconsin tax laws (Wisconsin Senate Bill 62). Without those, 12-month EPS were $1.78 and the payout ratio would be 88.7%. "This increase is consistent with our previously stated policy of targeting a dividend payout ratio of 60% to 70% of our utility earnings," said Chairman, President and CEO William Harvey, in a statement. The new payout ratio would be 74.9% of reported 12-month utility EPS of $2.11, but 88.2% of such EPS without the 30-cent utility segment gain on the Wisconsin tax changes. This is Alliant's fifth straight annual increase, but the dividend still remains below the $2 level reached with the last of 24 straight annual hikes in Q1 1997. Alliant then held the payout level for five years and halved it to $1 in Q1 2003. On January 21 Alliant stock fell 15 cents to $32.79, up 6.5% in a month, 18.4% in a year and 16.1% in five years. At that price the new dividend yield would be 4.8%,

... **Constellation Energy Group** January 21 said it would buy back at least $484.3 million of its $700 million of 7% notes due April 1, 2012, in the initial results of the debt tender offer launched January 6 (*EUW*, 11 Jan, 30). That was the amount of notes tendered by the "early tender date" of January 20. Those note holders get a $30/$1,000 of face value early tender payment, along with the $1,080 per $1,000 of face value buyback. Based on the response, CEG increased the amount of 7% notes it is offering to repurchase from $400 million to $500 million. The offer expires February 3. CEG had also offered to buy back 4.55% notes due June 15, 2015, but since the 7% notes had a higher priority level under the initial $400 million offer, none of the 4.55% notes will be bought back and any tendered will be returned to holders, CEG explained. The buyback is the first step in the company's plan to reduce debt by $1 billion using proceeds from the November 6, 2009 sale of 49.99% of Constellation Energy Nuclear Group to France's **EDF Group**. "Constellation Energy expects to fulfill this commitment by the end of the first quarter of 2010," it reiterated January 21. It had $6.17 billion of long-term debt as of September 30.

... **CenterPoint Energy** January 21 increased the quarterly dividend for the fifth straight year, by 2.6% to 19.5 cents (78 cents annually). The new dividend is payable March 10 to shareholders of record February 16, and represents a payout ratio of 72.9% of basic earnings per share in the 12 months ending September 30, 2009. "This increase demonstrates a strong commitment to our shareholders and the confidence the board of directors has in our ability to deliver sustainable earnings and cash flow," said President and CEO David McClanahan, in a statement. CenterPoint's announcement came after the New York Stock Exchange closed January 21, when the stock fell 2% to $14.56, down 9 cents in a month, but up 15.6% in a year and 32.5% in five years. At that price the new dividend yield would be 5.4%.

... Standard & Poor's Ratings revised its outlook on **DTE Energy**, **Detroit Edison** and Michigan Consolidated Gas from negative to stable, citing decreasing regulatory risk that offsets continuing economic deterioration in Detroit where "the unemployment rate is a staggering 27%," S&P noted January 15. S&P also affirmed their BBB corporate credit ratings and raised short-term debt from A-3 to A-2. Credit quality is supported by the Public Service Commission's January 11 approval of a $217 million Detroit Ed rate hike, including a pilot revenue decoupling mechanism and uncollectible bills cost tracker, as well as continuance of the "choice incentive mechanism" and vegetation control costs tracker, noted Associate Director Gabe Grosberg (*EUW*, 18 Jan, 6). "Reduced regulatory lag [in cost recovery] will provide financial stability despite a destabilized service territory. In addition, MichCon's recent self-implemented interim rate increase of $170 million reinforces our opinion that the decreased regulatory risk is sustainable. [It] is the culmination of management's long-term efforts to engage legislators and regulators to initiate permanent reform of the regulatory process," S&P continued. "Specifically, the 2008 legislatively approved a 12-month deadline for rate cases, an optional six-month self-implementation [of requested rate hikes], and an optional forward looking test year to enhance the credit quality of the Michigan regulated utilities. We expect that the improved regulatory environment will remain for the long term because the reforms are institutional and are intended to be permanent." But the recession has "exceedingly harmed" Detroit Ed's service territory and it will likely take many years for power sales to return to pre-recession level, so continued economic deterioration could over time increase regulatory risk, warned S&P which, like Platts, is a unit of The McGraw-Hill Companies.

... **Entergy** January 21 predicted a surge in fourth-quarter earnings, with "as reported" earnings per share jumping from 89 cents in Q4 2008 to about $1.63, and "operational" EPS rising from 99 cents to about $1.74. The company did not break out

FINANCE BRIEFS (*continued*)

expected EPS by segment, but predicted that gains in the Utility, Parent and Other, and Non-Nuclear Wholesale Assets segments would offset a decline at Entergy Nuclear. In Q4 2008, UP&O reported EPS were 43 cents, including a charge of $70 million or about 37 cents/share on an Arkansas Court of Appeals' order upholding the Public Service Commission's 2007 denial of rate recovery of storm and other costs. "Operational" Q4 2008 EPS were 33 cents, reflecting a 10-cent charge on the planned spinoff of non-utility nuclear assets to a new company called Enexus Energy. Entergy expects another such charge for Q4 2009, but UP&O benefited from lower income tax costs and higher revenue, with sales up in all customer classes. Entergy Nuclear EPS in Q4 2008 were $1.18 (reported and operational), but in 2009 profits fell because of higher income taxes and non-fuel operation and maintenance costs, partially offset by higher prices and output, with no refueling outages compared to 32 days in Q4 2008. Non-Nuclear Wholesale earned 14 cents in Q4 2008 and benefited from lower income taxes in Q4 2009.

... A Citigroup equity analyst January 20 removed **Sempra Energy** from a "Top Pick" stock list, pending the sale by the **Royal Bank of Scotland** of its stake in the RBS Sempra Commodities joint venture — or a sale of the whole thing. Analyst Faisel Khan said in a note that news reports over the past month suggest three financial institutions are interested in buying the entire joint venture led Citi to maintain its target stock price "pending more information on the possible sale ... We continue to believe that Sempra's preference is to continue operating under the current JV structure. However, given the steady flow of news, an outright sale is likely." Citi reiterated its "buy, medium risk" rating on Sempra's stock. Media reports indicated that Deutsche Bank, JPMorgan Chase and Macquarie Group submitted bids January 6. None would comment but a number of news accounts said Macquarie has dropped out. Because of extensive government aid it has received, RBS is being forced to sell its 51% stake in the joint venture that was formed in April 2008, as well as other assets. RBS provides the cash and credit needed to collateralize Sempra's trading books. If the buyer wants the entire joint venture, including Sempra's 49%, it must get Sempra's approval. On January 21, Sempra stock gained $32 cents or 0.6% to $52.20 — but that was enough to make it the day's third-best power sector gainer. Only six power companies rose on the worst day so far in 2010 for the overall markets. In his analyst note, Khan wrote, "While we could raise our target price to $65/share to reflect higher utility multiples in the group, we are maintaining our target of $60/share ... [w]e continue to believe the stock is undervalued versus other utilities whether or not Sempra sells its commodity division. Clarity on the sale of the joint venture is likely to be a positive catalyst for the stock."

... **Wisconsin Energy** January 21 hiked the dividend 18.5% to a quarterly rate of 40 cents ($1.60 annually). This is the sixth straight annual boost and follows a 25% increase paid in Q1 2009 — but as Chairman, President and CEO Gale Klappa acknowledged in a statement, only brings the payout about back to the $1.56 level to which it was raised in Q2 1998. In Q4 2000, to help finance the $7 billion Power the Future plan, the dividend was slashed 48.7% to 80 cents ,and held there for four years, he noted. "Although we're very pleased to provide for an increase in the dividend this year, we're mindful of the fact that our shareholders are just getting back to a dividend level that is roughly equivalent to ... 10 years ago. In addition, our payout ratio remains among the lowest in the electric utility industry," Klappa added. The new dividend is payable March 1 to shareholders of record February 12, and represents a payout ratio of 51.3% of basic earnings per share of $3.12 in the 12 months ending September 30, 2009. On January 21, the stock hit a new all-time high of $50.89, but closed down 37 cents at $50.16, on a generally down day for the power sector (only four companies rose in price) and stocks overall. That was up 2.7% in a month, 17.6% in a year and 48.5% in five years. At that price the new dividend yield would be 3.2%.

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slowdown in the development of PEF's 2,234-MW nuclear project in Levy County, Florida, Progress Energy's top executives said last week.

The PSC stunned Progress and shook the confidence of rating agencies with its January determination that PEF — the second-largest utility in Florida — is not entitled to any of the $499 million base rate increase it had been seeking, besides the $132 million the commission approved last July to recover costs associated with PEF's Bartow power station repowering project (*EUW*, 18 Jan, 1).

As a result of the PSC's ruling and continued weakness in the economy, Progress said it expects to earn only $2.85 to $3.05/share in 2010, which is equal to or less than it expects to earn in 2009. Progress also narrowed its 2009 ongoing earnings guidance to a range of $3.00 to $3.05/share. Its earlier estimate for 2009 was a range of $2.95 to $3.15/share.

During a January 19 conference call arranged after the PSC's ruling, Progress Chairman, President and CEO Bill Johnson said that while he "fully understand[s] the commission's desire to hold down rates," the PSC's "overt desire to avoid increasing rates has undercut our ability to maintain — let alone continue — the progress" he said PEF has made in improving its operations and reliability and in preparing for a lower-carbon future.

"As you would expect, the commission's decision is forcing us to reevaluate and cut our capital expenditure programs and [operation and maintenance] budgets," Johnson said, including PEF's planned development of two 1,117-MW Westinghouse AP1000 nuclear units at a greenfield site in Levy County.

While Johnson said that Progress continues to believe that developing nuclear capacity is "a crucial step in reducing the carbon intensity of electric generation in Florida," he anticipates that "if we move forward with the Levy project, it will be on a slower schedule and a much lower spending trajectory

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Electric Utility Week

February 8, 2010

Entergy tries to stave off investigation that could close key Vermont nuclear plant

Vermont Yankee owner Entergy last week attempted to ward off a show-cause investigation that could lead to immediate shutdown of the nuclear plant, following revelation that the company misinformed regulators about controversial piping.

Entergy — under fire from Vermont's governor — pleaded its case before the Public Service Board after it came to light that the company had provided contradictory information about the existence of underground pipes, a possible source of tritium, a radioactive material found recently in groundwater monitoring wells.

The pleading came after the Conservation Law Foundation called for a show-cause proceeding into why the plant, owned by Entergy, should not be closed immediately. The PSB had ordered Vermont Yankee to respond to CLF's request for the hearing by February 3.

In addition, the state attorney general is investigating the possibility of any criminal wrongdoing on the part of Entergy in the misreporting.

"To be clear at the outset, Entergy VY and Entergy

(continued on page 24)

Nuclear loan pitch sweetens pot for climate bill, but new votes for it still appear difficult to find

The White House and its Democratic allies on Capitol Hill made a concerted effort last week to court Republicans and reluctant Democrats to support climate legislation, offering up sweeteners such as additional loan guarantees for nuclear power.

But rather than offering concessions in return, most Republicans said they expect the nuclear loan guarantees and other proposals to move forward alone as items of consensus, not together with a cap on carbon emissions.

President Barack Obama last week urged passage of a combined energy and climate bill, but that was a day after he said he was open to an energy-only bill, which some favor especially because it could be seen as advancing the jobs agenda the Democrats are focusing on.

In his later remarks, Obama warned that a package that simply provided incentives for low-carbon resources like nuclear energy and clean coal would not have the desired effect of shifting the nation's energy portfolio.

"I don't want us to just say, 'The easy way out is just to give a

(continued on page 26)

Eyes are on Texas' Pedernales co-op as private equity firm pushes for buyout

Some private equity firms and pension funds seeking steady, reliable returns over the long term are looking at electric cooperatives as attractive acquisition targets, although co-ops could be difficult to corral.

A test case is developing at a giant co-op in Texas. Quentin Capital Management LLC last week said it would try for a third time to arrange for the acquisition of Pedernales Electric Cooperative, which has 226,000 members and a peak demand that tops 1,000 MW (*EUW*, 1 Feb, 22). It is the largest co-op in the US.

Quentin has been shot down twice so far in its pursuit of Pedernales, once in August 2008 and again last month. But if its third attempt is successful, investment firms "will be lining up" to pursue similar deals, suggested Kurt Holmes, Quentin Capital's managing director.

"Co-ops do have a number of positive attributes," agreed a pension fund source, who declined to be identified by name or affiliation, although he said he has no evidence so far that acquiring a co-op is a real possibility.

And, in fact, to date, no stand-alone financial group has acquired an electric co-op — private independent utilities owned by

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power in the United States and developing a safe, long-term solution for the management of used nuclear fuel and nuclear waste," Chu said. "The work of the Blue Ribbon Commission will be invaluable to this process."

Chu emphasized that the commission would be looking at the best possible science and not simply seeking another location for the repository.

"This is not a siting commission. This isn't about picking another spot. Instead, we are asking the commission to look at the full range of scientific and technical options, and develop a viable, responsible long-term strategy for dealing with the back end of the nuclear cycle," Chu said.

Chu said the commission will be co-chaired by Washington heavyweights Lee Hamilton, former member of Congress, and Brent Scowcroft, a former national security adviser.

DOE intends that the commission produce an interim report in 18 months and a final report in 24 months. Chu said he will then present the report to Congress and the president.

In the meantime, Senate Majority Leader Harry Reid asked the Government Accountability Office to investigate other uses for Yucca Mountain, which is in his home state of Nevada.

Reid made the request in a letter to Comptroller General Gene Dodaro Tuesday, a day after DOE filed a motion with the Nuclear Regulatory Commission to halt legal proceedings on its repository license application for 30 days.

The fiscal 2011 budget request that DOE released Monday said DOE would withdraw the license application within 30 days and eliminate the DOE office that worked on it this fiscal year, which ends September 30.

In his letter, Reid suggested that GAO consider how Yucca Mountain site — roughly 95 miles outside of Las Vegas — and related facilities and land could be used "for national security activities, included armed services readiness, intelligence gathering, and defense technology testing and demonstration; for renewable energy technology development, testing and demonstration."

— Elaine Hiruo and staff reports

Entergy tries to ward off investigation of key Vermont nuclear plant ... from page 1

Corporation take the current situation regarding tritium very seriously and are devoting the necessary resources to identify and resolve the tritium-release issue," the company told the PSB. "There is, however, no evidence of an immediate threat to the public health or safety."

On February 3, Entergy announced that former Federal Energy Regulatory Commission Chairman Curt Hebert, now executive vice president for external affairs, is leading a seven-person management team to deal with Vermont Yankee, which has meetings with public, business, labor and civic leaders.

Revelations that the pipes exist — and that the company provided contradictory reports of their existence — could jeopardize the future operation of the 650-MW plant, which provides one-third of Vermont's power.

The state PSB said in a notice posted on its website that it is "deeply concerned" that under oath Vermont Yankee may have "provided false information for an extended period of time" without making corrections. The board said the finding could influence its decision to extend the plant's certificate of public good and give other approvals that would allow Vermont Yankee to operate beyond March 21, 2012.

"Until questions regarding the current circumstances are answered, decisions about the long-term future of the plant should not be made," said Governor Jim Douglas.

Douglas called for state officials to put the brakes on review of Entergy's spin-off of 5,000 MW of nuclear assets into a new company called Enexus. The spin-off is under review before both Vermont regulators and the New York Public Service Commission, which may take up the issue at its February 11 meeting. (*related story on Entergy earnings, page 34*).

Douglas said that the contradictory statements by Entergy about the pipes created a "breach of trust that cannot be tolerated." He added that he has lost faith in Vermont Yankee's management team and that the "dark clouds of doubt" must be cleared before regulatory decisions can be made about the plant's future.

During the February 2 earnings call, Entergy CEO Wayne Leonard admitted to a "misstep" by the company that led it to provide regulators with conflicting information about the underground pipes.

Turmoil surrounding the underground piping is "of our own making and should never have happened," he said. The company had reported in various forums since fourth-quarter 2008 both that the pipes did and did not exist, according to Leonard. A December 2008 subcontractor's report said no such pipes were buried near the plant, but at the same time referenced 14 pages of documentation provided by Entergy "that clearly indicated there were such pipes," he said.

About a month after the report was issued, Entergy submitted a response to a discovery request in a state regulatory proceeding that indicated no such pipes exist. "That response was not accurate. It has been corrected and refiled," he said.

Then in May, Jay Thayer, Vermont Yankee vice president, testified that he did not believe the pipes existed but would get back to officials with a definitive answer. He did not report back to the state. As a result, he has been placed on administrative leave pending further investigation, Leonard said.

An independent counsel is now investigating emails, notes, computer files and other records to uncover the source of the discrepancies. "We will be both thorough and fully transparent in our investigation and findings. And we will restore trust and credibility with our stakeholders," Leonard said.

Leonard emphasized that the tritium has not been found in drinking water supplies and he defended Vermont Yankee as being among the elite when it comes to operating performance.

Vermont Yankee has offered Vermont utilities a 20-year below-market power purchase agreement that Leonard said

will save Vermont ratepayers at least $500 million or as much as $800 million over renewable energy. Leonard said he hoped that corrective action and the ongoing investigation will encourage lawmakers and regulators to "look beyond our misstep" and focus on the benefits of receiving the low-cost clean power.

— *Lisa Wood*

FEDERAL POLICY

Norris getting settled at FERC post with experience, goals for branching out

INTERVIEW

As a former state regulator taking a seat at the Federal Energy Regulatory Commission, John Norris is getting up to speed on the agency's agenda and finding that many issues are not new.

There are, however, areas Norris wants to bone up on, such as cybersecurity and power grid reliability, as he staffs his office and gets back in the utility regulation arena, he said in an interview last week.

Although he has a solid base of experience in utility regulation, having served nearly four years as chairman of the Iowa Utilities Board, Norris has spent the last year away from the energy industry as chief of staff for Agriculture Secretary Tom Vilsack.

During his time at the IUB, which included a stint as president of the Organization of MISO States, Norris played a leading role in areas that figure prominently on the FERC priority list, including: development and allocation of costs for transmission to serve renewable resources, demand response and competitive markets.

"I'm hesitant to give you an issue that I am going to hang my hat on," Norris said. Having "just gotten back on this train," he related, "I am naturally gravitating to those areas right now that I am most familiar with," such as cost allocation and demand response.

In addition, "two issues that I want to bring my own game to a higher level on are reliability and cybersecurity," Norris said. Those are "two critical issues we face," he maintained, and "we need to make sure that they are adequately in the mix as we look at smart grid, as we look at demand response, as we look at expansion of the transmission grid."

With the industry relying on a "somewhat antiquated infrastructure to do more and more," it is essential that "we do it in a way that is both reliable and has adequate cybersecurity safeguards," he said.

Norris was a driving force behind the Upper Midwest Transmission Development Initiative launched in late 2008 by the governors of Iowa, Minnesota, North Dakota, South Dakota and Wisconsin. The goal is to identify transmission projects, as well as allocate costs, needed to support development of wind generation in the region.

Discussing how UMTDI came to be, Norris recalled that "it seemed like we kept running into obstacles that the larger the footprint was, the more difficult the challenge was to reach consensus on cost allocation. So we tried to narrow it." The five states had some differing interests, but "overarching they had a mutual interest in expanding transmission capacity" to meet renewable standards in the most cost-effective way and to move wind resources to market.

"If we could tackle the cost-allocation issues within that region, hopefully we would become an example on how to expand beyond that," he said.

Since arriving at FERC, "one thing I have learned so far is that many of the issues are exactly the same" as when he left the IUB a year ago. "I don't want to say there hasn't been progress made, but we still haven't resolved some of those key issues that stand in the way of adequate transmission upgrades and expansion, and that is cost allocation and siting," Norris said.

Testifying at a December 2007 FERC technical conference on the clogged interconnection queues at the nation's regional transmission organizations, Norris was among many to advocate moving past the first-come, first-served approach initially adopted by the commission. Norris said Monday he is still getting "up to speed" on what changes implemented by FERC since then.

However, "I would be surprised if there has been substantial improvement" because the interconnection issue is a "tough nut to crack," he said. "You've got the combination of physics and economics and due process all converging at the same time and not necessarily with the same set of rules."

The challenge for FERC is, "have we adequately enabled those projects that are ready to go," and are feasible, "to navigate and accelerate through the queue, and not be held up by a tremendous amount of speculative projects?" It is important to protect "people's rights to get in the process," Norris asserted, but it should not be "overly cumbersome or expensive" to participate. The process must "make sure that we are getting projects approved and built."

Are organized markets competitive?

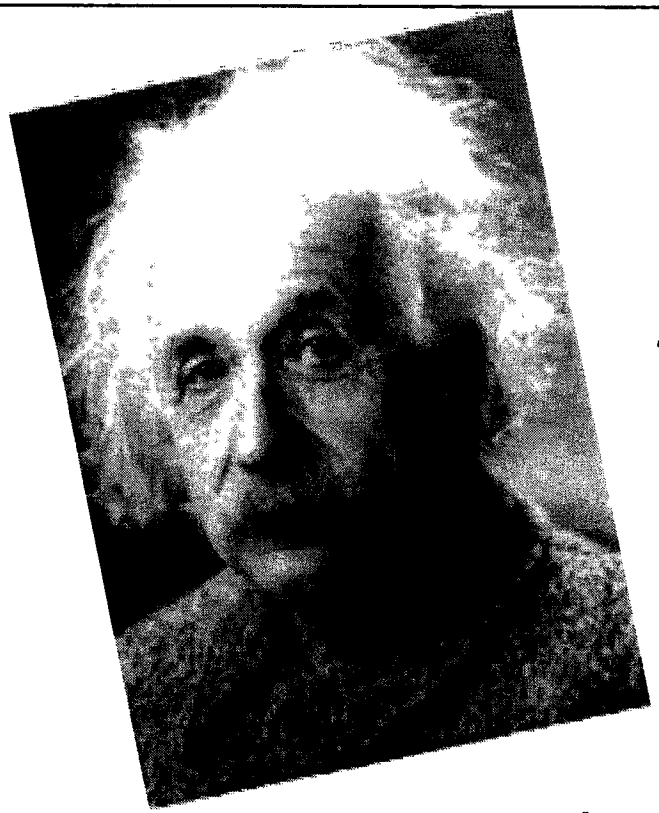
A perennial issue for FERC is debate over whether organized electric markets are competitive and producing fair prices. "While I was on the Iowa board and active in all this, I would like to think I had a healthy skepticism of whether [markets] were working. I thought in theory they made sense," and in general "were going in the right direction," Norris said.

The information he was getting at that time was it would prove itself out, Norris said. "As I sit here today," he continued, "I haven't changed my generally positive opinion that they will prove out." But that is not enough. "I'm looking for the real results that will factually prove itself out."

FERC's strategic plan calls for, and its new budget proposal would fund, the development of operational and performance metrics for RTOs.

"We are going to look at these metrics and try to be more definitive in the benefits," Norris explained. Having said that, for "folks who don't like the markets, I don't know if you are ever going to have enough information," he acknowledged.

While not convinced "you will ever win over the folks who



Einstein's Theory

42nd Edison Electric Institute Financial Conference

J. Wayne Leonard
Chairman and Chief Executive Officer
November 6, 2007

Entergy®

Caution Regarding Forward-Looking Statements and Reg G Compliance

In this presentation, from time to time, Entergy Corporation makes certain "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. Except to the extent required by the federal securities law, Entergy undertakes no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events, or otherwise.

Forward-looking statements involve a number of risks and uncertainties. There are factors that could cause actual results to differ materially from those expressed or implied in the forward-looking statements, including (a) those factors discussed in Entergy's Annual Report on Form 10-K under (i) Forward-Looking Statements, (ii) Item 1A. Risk Factors, (iii) Item 7. Management's Financial Discussion and Analysis, and (iv) Current Report on Form 8-K filed on November 5, 2007 and (b) the following transactional factors (in addition to others described elsewhere in this presentation and in subsequent securities filings): (i) risks inherent in the contemplated spin-off, joint venture and related transactions (including the level of debt incurred by SpinCo and the terms and costs related thereto), (ii) legislative and regulatory actions, and (iii) conditions of the capital markets during the periods covered by the forward-looking statements. Entergy cannot provide any assurance that the spin-off or any of the proposed transactions related thereto will be completed, nor can it give assurances as to the terms on which such transactions will be consummated. The transaction is subject to certain conditions precedent, including regulatory approvals and the final approval by the Board of Directors of Entergy.

This presentation includes the non-GAAP measures of operational earnings per share and earnings before interest, income taxes, depreciation and amortization when describing Entergy's results of operations and financial performance. We have prepared reconciliations of these measures to the most directly comparable GAAP measures. These reconciliations can be found on slide 49. Further information about these measures can be found in Entergy's investor earnings releases, which are posted on our website at www.entergy.com.

Albert Brooks' Theory

Overcoming Fears

Defender

For example, I use 50% of my brain. Do you know how much you use?

Brooks

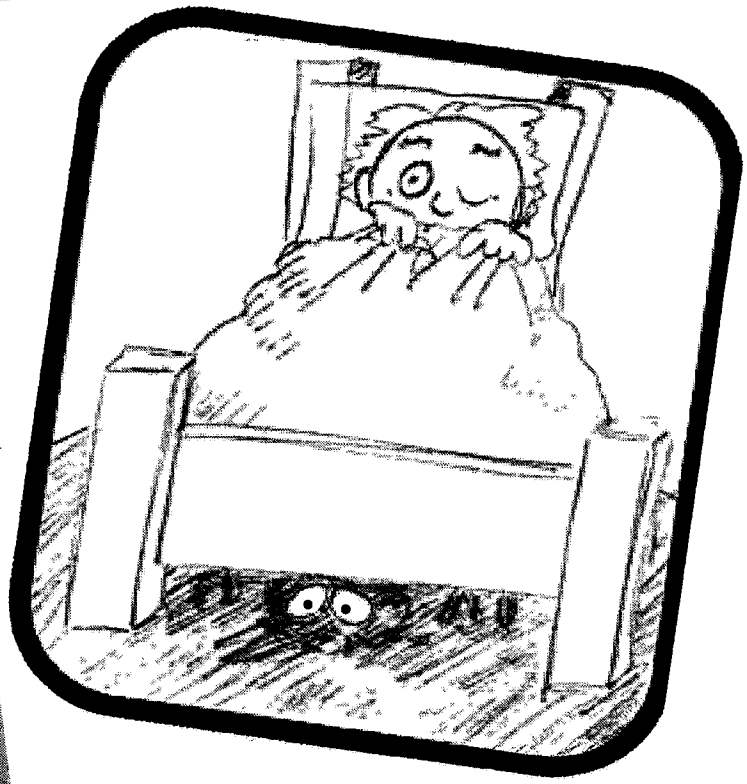
No.

Defender

Don't feel bad. Everyone on earth uses 3%, that's why they're there. (Chuckles)

You see, when you use only 3% of your brain, fear is pretty much all you think about. Now, the Universe wants you to move on, they want you to become smart, but they like to see you deal with that fear first. Fear is terrible. It's like a giant fog.

It invades the soul. True happiness, real joy, real feeling of any kind can't move through this fog.



Albert Brooks' Theory

Overcoming Fears

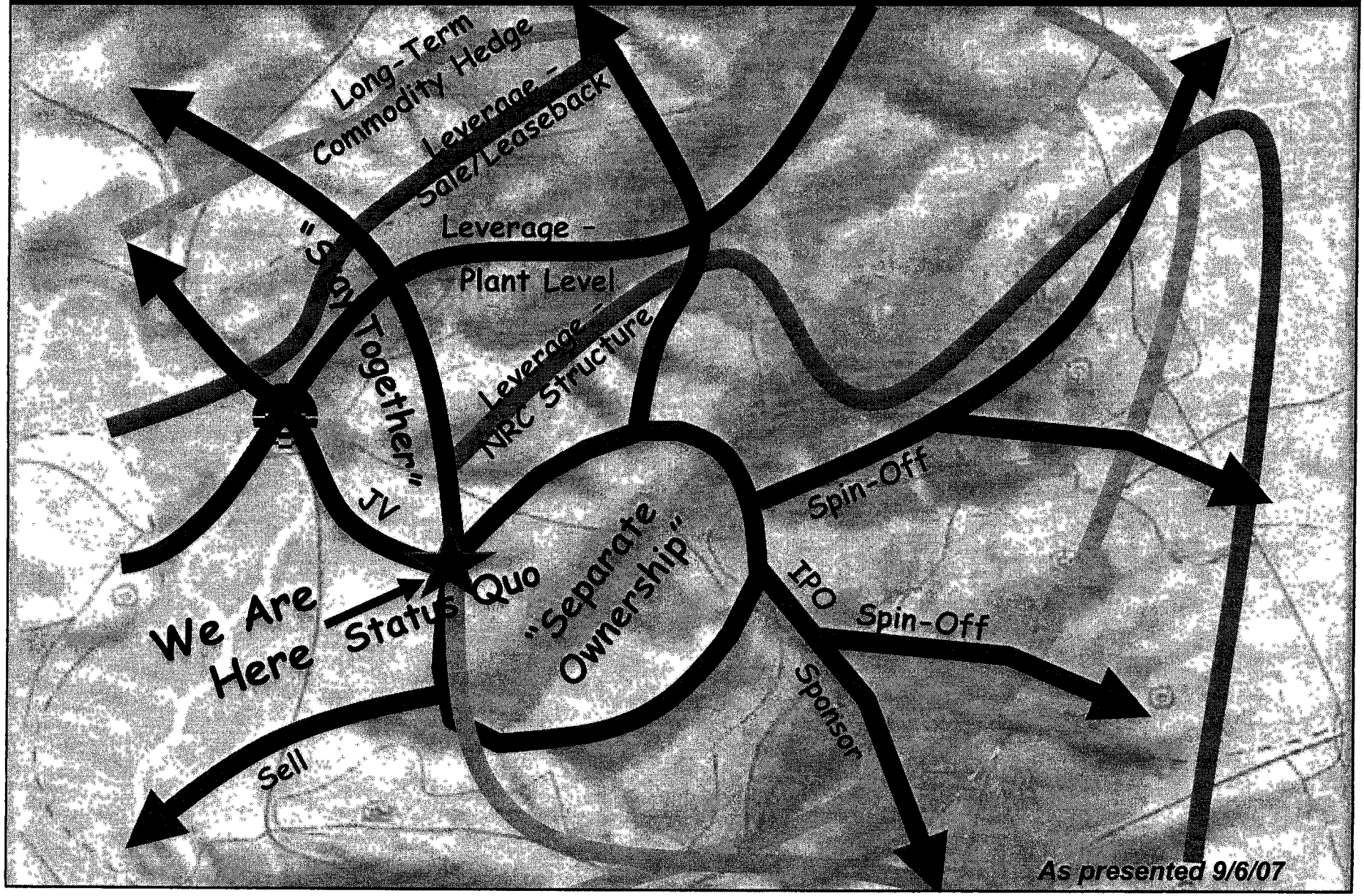
Brooks

When Nancy and I were married, we had dreams and plans, and I guess in the pursuit of those things, we kind of lost each other. Tomorrow morning, when we leave here, we have no destination. Our only goal is to find out who we really are and what it is that's really out there.

We're going to be adventurers in the classic sense of the word.

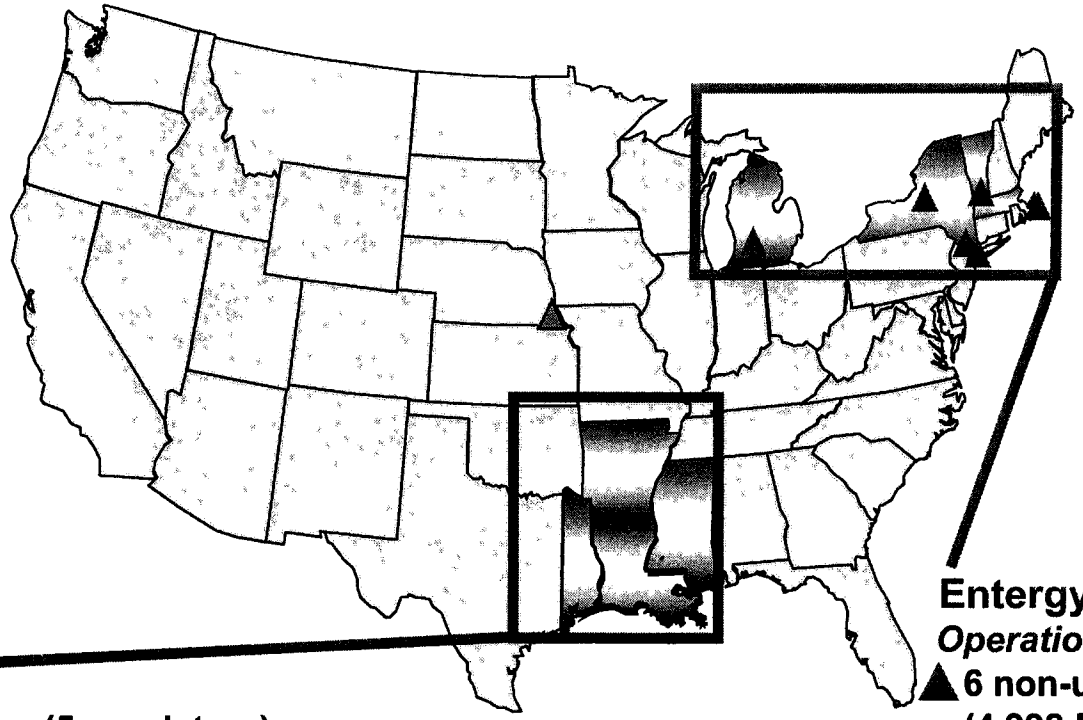
Lost in America

To Review – Why Consider?



To Review – Why Consider?
Entergy Has Two Principal Lines of Business

Principal Lines of Business



Utility
- 5 electric utilities (5 regulators)
- 4 contiguous states – Arkansas, Louisiana, Mississippi, Texas
- 22,000 MW of generating capacity
- 15,000 miles of transmission lines

Entergy Nuclear

Operations/Services Business

▲ 6 non-utility units at 5 sites (4,998 MW)

▲ 1 plant managed (800 MW)
- Decommissioning and license renewal

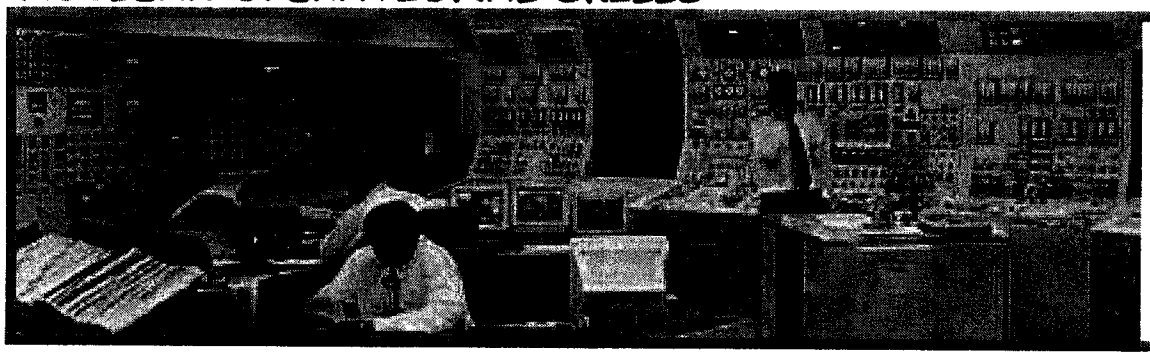
Commodity Marketing for Owned Assets

To Review – Why Consider?
Different Businesses Call for Distinct Skill Sets

UTILITY OPERATIONAL SKILLS

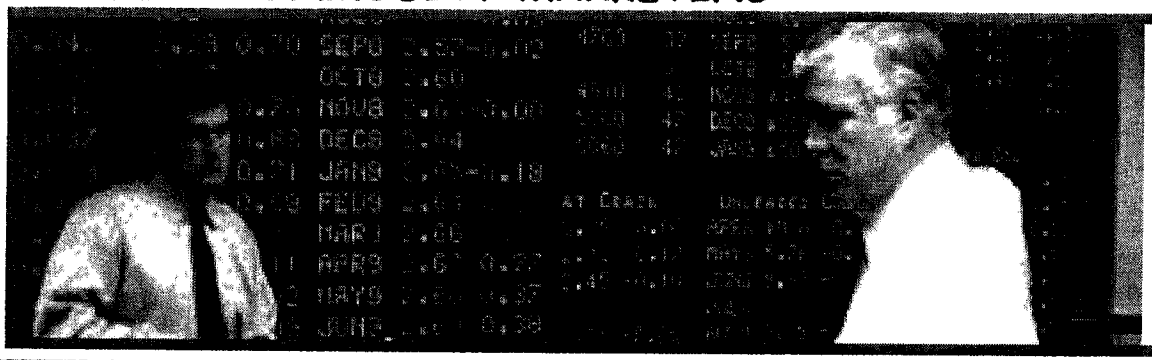
- ✓ Accomplished in safe work practices
- ✓ Tested skills in extreme weather conditions
- ✓ Diverse generation resource capabilities

NUCLEAR OPERATIONAL SKILLS



- ✓ Track record in safe and secure operations
- ✓ Deep knowledge of PWR and BWR technology
- ✓ Expertise in regulated and competitive environments

NUCLEAR COMMODITY MARKETING



- ✓ Technical knowledge of commodity markets
- ✓ Defined hedging strategy and risk management
- ✓ CO_2 advantaged, baseload resources

As presented 9/6/07 6

To Review – Why Consider?
Efficient Management of Financial Risk

Entergy's Business Model

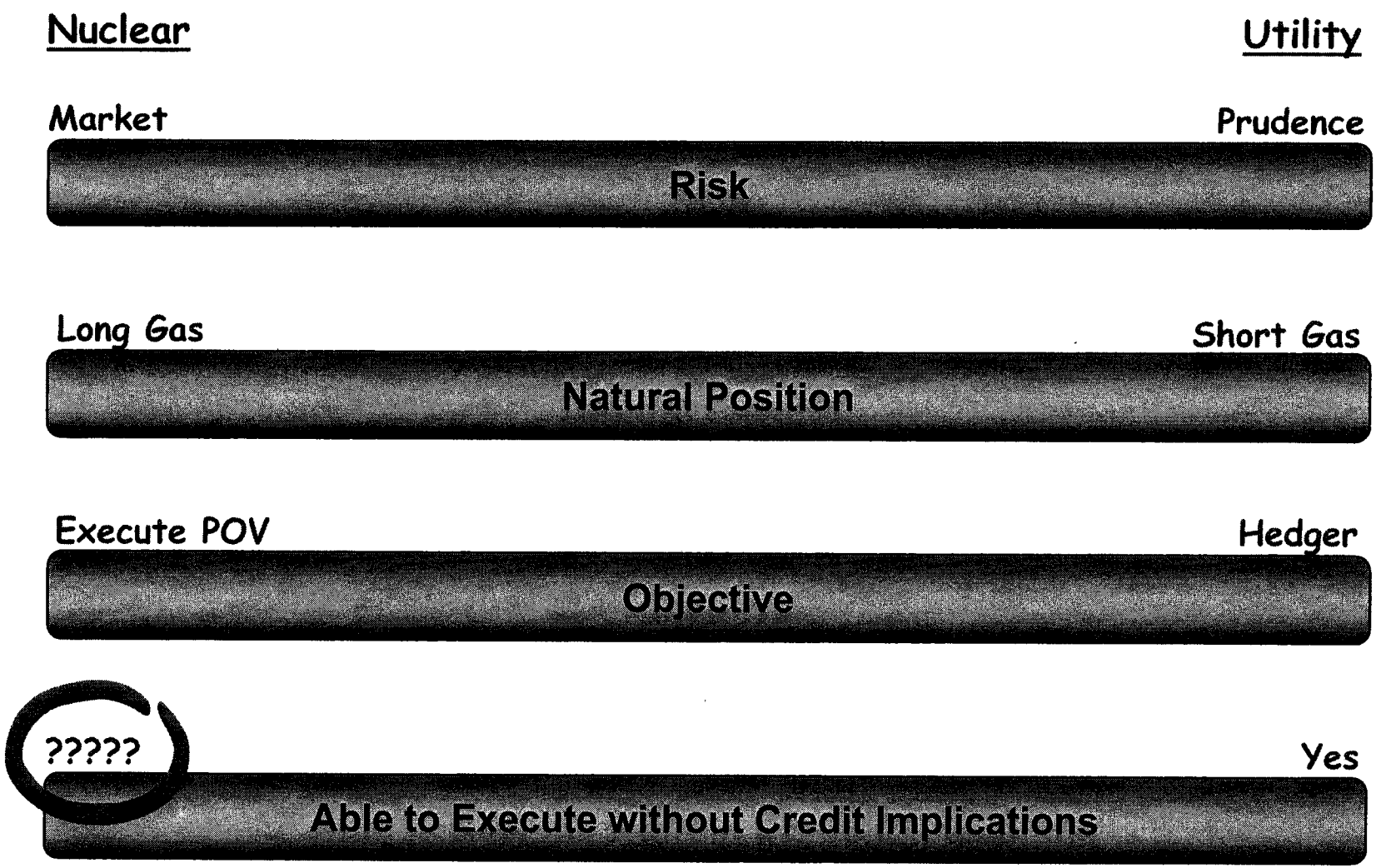
Operational Excellence

Portfolio Management

	Enhance the Value of What You Have	Grow the Business	Efficient Risk Management
Utility	Implement constructive regulatory strategies	Acquire generation through Supply Plan Build new solid fuel plants	Maintain financial flexibility Regulatory compact determines need for solid investment grade credit
Nuclear	Sell output under comprehensive hedging plan	Acquire assets Execute contracts	Efficient financing Market determines structure and optimal credit
Entergy	Execute overall business strategy	Execute other capital deployment/divestiture opportunities	Support subsidiary credit Allocate capital at risk Return capital to owners

As presented 9/6/07

To Review – Why Consider?
Commodity Exposure Affects Businesses Differently



To Review – Options
What to Consider

What	How
"Stay Together" Financing	✓Entergy Corporation ✓Entergy Nuclear Finance Holding ✓Plant Level
Ring Fence Risk	✓Entergy Nuclear Finance Holding
Reduce Commodity Risk/ Financing (Business Risk = Same)	✓Entergy Nuclear Finance Holding ✓Long-term Commodity Hedge
Expand Strategy	✓Entergy Nuclear Finance Holding ✓Joint Venture
"Separate Ownership"	
New Holders?	✓IPO ✓Private Sponsor
Same Holders – Different Preferences	✓Split-Off
Same Holders – Two Pieces of Paper	✓Spin-Off

As presented 9/6/07