Is there a Social Circle Premium in CEO Compensation?[1]

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Abstract

We seek to provide an explanation of why CEOs demand pay above and beyond that justified by their firms' performance, which is not simply attributed to their greed. We analyze the effect of social interactions and social comparisons on CEO compensation and verify that CEO compensation does include a social circle premium: pay attributable to social pressure and is in excess of what can be explained by firm characteristics, corporate governance, and local economic variables. We predict and empirically confirm that (1) the social circle premium increases with the size of the social circle albeit at a decreasing rate; (2) CEOs who previously had the highest pay within their social circle receive greater social circle premiums; (3) the wealth hurdles for outsiders to join social circles are high; (4) greater compensation disclosure intensifies social comparisons and increases the social circle premium; and (5) the magnitude of the social circle premium depends on the regulatory environment in which a firm operates.

The primary measure of the size of a CEO's social circle is the number of CEOs whose firms are located within a 60-mile radius of the firm's headquarters. Using the S&P 500 companies during the period of 1993-2005, we find that the average pay for CEOs in a social circle with 31 CEOs (the 75th percentile of social circles) is $1.29 million higher than the average pay for CEOs in a social circle with six CEOs (the 25th percentile of social circles), after controlling for an array of other factors previously documented to affect CEO compensation. Additionally, we show that the number of golfing contacts, luxury house values in the metropolitan area, and the number of directors who also serve on other boards in the same social circle are among the channels through which social comparisons might occur. Our results suggest two conditions for the social circle premium to be incorporated into CEO compensation: CEOs have influences on the pay setting process; and boards of directors are sympathetic to location specific social norms, considering them necessary to attract, retain, and motivate CEOs.

Is there a Social Circle Premium in CEO Compensation?

"I think that what Larry Ellison and Bill Gates have is phenomenal wealth," Netscape cofounder Jim Clark once remarked. "I'm just a two-bit billionaire." [Sources: *Globe and Mail*, March 10, 2004].

1. Introduction

The dramatic and uneven increases in CEO compensation since the early 1990's have attracted the attention of activist shareholders, the media, scholars, as well as regulators and politicians. Much progress has been made in understanding CEO compensation – how CEOs should be paid (the pay to performance relationship)[2], and whether CEOs' interests could ever be aligned with shareholders'.[3] Still, what might have caused CEOs to demand greater pay and whether the board of directors (BOD) should endorse such a demand remain far from being fully understood. In this paper, we investigate the effect of social interactions and social pressure on CEO compensation. In particular, we show that CEO compensation contains a social component (which is referred to as the *social circle premium*) that is positively related to the number of CEOs in the same geographic area. The social circle premium is unique and is beyond what can be explained by economic and governance factors previously documented to affect CEO compensation.

Most CEOs engage in social interactions with other CEOs and social elites, for example, through attending various social and charitable functions, sharing membership in exclusive golf clubs and country clubs, or simply competing for attention in the local news coverage. Their activities in social circles inevitably create social comparisons and generate social ranks based on various indicators of wealth. As is well documented in the sociology and economics literature,[4] the utility of a CEO depends on not only his own

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[2] See Murphy (1999) for a comprehensive review of the literature on executive compensation.
[3] Bebchuk and Fried (2004) exemplify the criticisms of the economic model to explain executive pay.
[4] Sociologists, particularly those engaging in happiness research, have long realized that one's utility (i.e. happiness) at least in part depends on the incomes of one's comparison group, after controlling for one's own income. Azar (2007) attributes its origin to the Weber's Law written in the early 17th century; Seidl, Raub, and Marone (2002) document the effect of relative income in experimental studies and McBride (2001) does it in empirical studies. Veblen (1934) and Frank (1997) show that a 'consumption arm race' or 'conspicuous consumption' could occur if one must consume more to keep up with the consumption of

wealth but also the wealth of his peers; that is, a CEO's utility increases in his social rank. It is reasonable to assume that the main source of wealth for most CEOs is CEO compensation.[5] Periodic social comparisons make CEO pay relevant at the margin and thus increasing relative wealth is implemented by increasing pay at a rate higher than that of peers. As the social circle grows bigger, social interactions and social comparisons get intensified, and as a result, the social circle premium becomes greater.

To test the relationship between CEO compensation and a CEO's social circle, we first define a social circle. Our study focuses primarily on the S&P 500 companies during the period of 1993-2005. The main proxy for the size of a CEO's social circle is the number of peer firms headquartered within a 60-mile radius of the firm's headquarters.[6] Empirically, we measure the *social circle premium* by the increase in CEO compensation associated with the increase in the social circle size, in excess of the level explained by an array of factors previously documented to affect CEO compensation. These factors include economic factors (size, market-to-book, stock performance, accounting performance, and firm risk), governance factors (whether a CEO serves as the chairman of the board, percentage shares held by blockholders, institutions and insiders, number of directors, percentage of inside directors, the Gompers, Ishii, and Metrick (2003) index (*GIM*), and CEO tenure versus the median board tenure), and local economic factors (excess return of the local stock market and local housing price index).

Our investigation of a CEO's social circle yields the following findings. First, CEO compensation contains a social circle premium. Using total compensation including option grants (the ExecuComp variable *TDC1* in 2005 dollars), we find that the total pay for the average CEO in a social circle with 31 CEOs (the 75th percentile of social circles)

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one's comparison group. The resulting continual demand for raising pay is known as the 'hedonic treadmill' hypothesis (Firebaugh and Tach (2005)). In economics, Hamermesh (1975) models the influence of relative wages on efforts and incentives, and Luttmer (2005) documents that one feels worse off when one's neighbors earn more.

[5] Using the information on the Social Register, we find that only 16 CEOs in our sample (of about 800 unique CEOs) belong to the Social Register in year 2004. Therefore, CEOs' wealth is more likely due to executive compensation rather than from inheriting old money.

[6] We choose the headquarters' locations because the vast majority of CEOs live near their headquarters. Additionally, many social activities occur in the community where the firm's headquarters is located even if a CEO commutes to work. Firms' location choices are made for various reasons. The factors that affect firms' location choices range from the origin of the founding family, the proximity to raw materials, suppliers, infrastructures, and customers, to other practical considerations, such as local taxes, incentives to relocate, and costs. CEOs often have to take the locations of their firms as given.

is $1.29 million higher than the total pay for the average CEO in a social circle with six CEOs (the 25th percentile of social circles), after controlling for other factors previously documented to affect compensation. Social circle premiums are incorporated into all components of CEO compensation: salary payment, total cash pay (salary + bonus), and the ex post total pay (the *ExecuComp* variable *TDC2* in 2005 dollars), and are not unduly influenced by the pay practices in the largest social circles. Additionally, we show that the effect of social comparisons on CEO compensation increases with the social circle size at a decreasing rate, as CEOs can only socialize regularly with a limited number of peers.

Within a social circle, we find that the social circle premium is higher for CEOs ranked higher on the social ladder where the social rank is determined by CEO compensation in the previous year. As the size of a social circle increases, the pay level in excess of performance and firm characteristics of the average CEO ranked in the top deciles of their social circles increases 20 times more than that of the average CEO ranked in the bottom half of the social circles. This effect leads to greater pay dispersions and ratcheting in pay in large social circles.

To solve the puzzle of why the most richly compensated CEOs in a social circle still "insatiably" demand greater pay, we modify the social circle model to incorporate two asymmetric features. (1) The value of social ranks can be described by the tournament theory: the tournament prize is increasing and convex in the number of participants in the tournament. This captures the notion that achieving a high social status is highly desirable and much more so for those among the top ranks in a big social circle. (2) A CEO puts greater disutility on losing his current social rank than he does on the value in gaining the same rank: the pride gained from advancing in social standing is highly desirable but it could not offset the social embarrassment or even humiliation from losing the same social rank.[7] The combination of a high probability of losing a top spot on the social ladder and the resulting greater disutility motivates top CEOs in big social circles to demand the greatest pay.

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[7] This is consistent with the endowment effect as demonstrated in the 'coffee mug' experiment in Kahneman and Knetsch (1990) and Thaler (1981).

The increased divergence of CEO pay in large social circles helps distinguish our findings from other models, such as keeping up with the Joneses and striving for fairness/equity, that predict the convergence of pay to the peer median pay. Keeping up with the Joneses describes the attempt to catch up to the group median (the Joneses). Striving for fairness/equity makes a better case when comparing with peers in the same industry with similar performance. For example, Bizjak, Lemmon and Naveen (2007) show that the pay raise of CEOs whose compensation was below the industry and size matched peer median in the previous year is higher than that of other CEOs. While applied to social comparisons, these two mechanisms could not explain why those at or near the top still want more nor do they predict that the demand for greater pay increases with the size of the peer group.[8]

What are the venues where CEOs and social elites conduct social comparisons? We first examine three venues of social interactions: exclusive golf clubs (using the USGA data), CEOs in the same local area, and social elites (listed on the *Social Register*) in the same local area. We find that membership in each of the three venues has its incremental influence on CEO pay – more peers in various social settings boost CEO compensation. Next, we examine one specific channel that CEOs and social elites who live in the same area may use to display and compare wealth: luxury houses. Using the 90th percentile of house value in the Metropolitan Statistical Area (MSA) of the firm's headquarters, we find that comparing luxury houses is another important channel of social comparisons.

We next investigate whether it requires more wealth for an outsider to get admitted to a social circle than an insider to stay in. Using CEO education background as a proxy for the likelihood that a CEO was raised in a socially prominent family, we show that non-Ivy-educated CEOs (likely outsiders) have higher social circle premiums.

A key link for social pressure to affect the dynamics of CEO compensation is that a CEO needs to know about peer compensation in order to figure out his standing/rank on the social ladder. Thus, more accessible information on peer pay is expected to intensify the race for greater pay. We test this by showing that the social circle premium in CEO

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[8] Previous studies on the effect of 'social comparison' on executive pay are concerned with directors' network, or regarding outside directors as their social circles. See, for example, Larcker, Richardson, Seary, and Tuna (2005), Kovacevic (2005), O'Reilly, III., Main and Crystal (1988), and Barnea and Guedj (2006).

compensation became larger and more significant after 1991: note that 1992 is the year when the Securities and Exchange Commission (*SEC*) started to require publicly traded companies to disclose the pay components of their top executives.

Ultimately, it is shareholders of a firm who pay for the social circle premiums granted to their CEOs. Should boards of directors endorse such social circle premiums in CEO compensation? We examine two board characteristics that are related to social networks: the number of interlocking directors and the number of directors who sit on multiple boards in the same social circle (*common directors*). Both sets of directors are well connected and might be sympathetic to endorsing large social circle premiums in CEO compensation, probably for different reasons. We find some interesting differences between the two: more common directors are associated with a higher social circle premium, while the number of interlocking directors does not matter. Additionally, we find that firms with higher institutional ownership and lower GIM index (better governance) tend to grant higher social circle premiums to their CEOs. These findings are consistent with the notion that a board grants the social circle premium to its CEO to follow the norm of CEO pay practice in the social circle rather than being driven by self-interests of its members.

We next investigate whether the influence of social pressure on pay is resilient to external, say regulatory, changes. First, we look at the heterogeneity of the social circle premiums across industries and find that the social circle premium is the strongest among financial CEOs and the weakest among utility CEOs, who have always been under great scrutiny from regulators. Additionally, we examine the effect of the 2002 NYSE regulation that bans CEOs from sitting on the compensation committee and from being involved in hiring external consultants.[9] The social circle premium among NYSE CEOs essentially disappeared after the regulation took effect in 2004, consistent with the notion that social pressure induces CEOs to demand more pay, but only those who influence the

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[9] See NYSE Regulation/Listed company manual/Section 303A.05: Corporate Governance Standards/Compensation committee (Nov. 2004). "The compensation committee should be composed entirely of independent directors." "Additionally, if a compensation consultant is to assist in the evaluation of director, CEO or executive officer compensation, the compensation committee charter should give that committee sole authority to retain and terminate the consulting firm, including sole authority to approve the firm's fees and other retention terms."

pay setting process can actually receive it. This experiment demonstrates that regulatory changes do matter, even though the effect of this particular act on CEO compensation is short-lived as CEOs manage to find alternative channels to receive greater pay (in forms other than social circle premium).

Our research contributes to the literature by applying concepts in sociology, in particular, the dependence of happiness on income relative to the comparison group, to empirical finance research. Social comparisons and social pressure provide an explanation to what have motivated highly paid CEOs to demand even greater pay, rather than simply labeling these CEOs as "greedy". Increasing disclosure on CEO compensation without restricting CEOs' influence on the pay setting process could rather intensify the race for greater pay, which has contributed to the observed rise in levels and dispersions of CEO compensation in recent years.

The paper proceeds as follows. Section 2 proposes empirical hypotheses. Section 3 describes the data and develops our empirical strategy. Section 4 presents the first evidence and regression results. Section 5 summarizes and concludes.

2. Empirical Hypotheses

We summarize empirical predictions generated by the social circle model in this section.

Hypothesis 1: There exists a social circle premium in CEO compensation. This social circle premium increases with the size of the social circle albeit at a decreasing rate.

To test the prediction above, we need to control for standard factors that influence CEO compensation, which include performance, size, growth, risks, corporate governance of the firm, and local economic conditions. Additionally, we list both the size of the social circle and its square as independent variables in one regression. A positive coefficient on the linear term and negative coefficient on the quadratic term, if both are statistically significant, would confirm Hypothesis 1.

Next is our unique prediction on the heterogeneity of the social circle premium within the social circle: CEOs ranked higher in a social circle (in terms of the pay level in previous year) receive higher social circle premiums. It explains why CEOs who got paid

above the peer median pay level demand even greater pay that cannot be rationalized by economic factors.

Hypothesis 2: The social circle premium in CEO compensation increases with the CEO's rank in the social circle.

A CEO's social rank is determined by the relative pay level in the social circle in the previous year. To test Hypothesis 2, we divide CEOs into four groups of social ranks: the bottom half, the 50-75th percentile, the 75-90th percentile and those above the 90th percentile of their social circles and study how their pay changes differently as the size of social circles increases. The top ranked CEOs are expected to receive a larger pay raise, not only in dollar value but also in percentage terms.

We now consider the reality that admittance to be among social elites is not automatic for outsiders. Established members might set explicit or implicit requirements, such as minimum wealth and pedigrees, for aspiring members. For those without pedigree, the wealth hurdles to overcome are higher and the hurdles rise with the size of the social circle. Thus, we hypothesize:

Hypothesis 3: The social circle premium in CEO compensation is higher for outsiders.

Our empirical test identifies a CEO as an outsider if the CEO did not graduate from a prestigious university (the *Ivy-educated* proxy). Non-Ivy-educated CEOs are postulated to be less likely to come from wealthy families or to have direct social connections with those in social circles. Yet, they might have to prove their qualification by displaying more wealth to get admitted. This is even more so in bigger social circles.[10] The next two hypotheses focus on the influence of information and regulatory environment on social circle premiums in CEO compensation.

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[10] Palmer and Barber (2001) use various measures of social 'outsiders' including education at prestigious schools to show that those who are not pedigreed would desire more wealth and engage in more acquisitions.

Hypothesis 4: *Social competition and social circle premiums are greater when CEOs are better informed about peer CEO pay.*

We test this hypothesis by examining whether the social circle premium after 1991 is higher than before, using both ex post total pay (TDC2) and cash pay (Salary + Bonus).[11] In 1992, the SEC started to require publicly traded firms to disclose the compensation components for top executives in the proxy statements (DEF-14A), thus, making compensation information of social peers more accessible. Although it might be argued that Forbes magazine started their survey on the top 800 paid CEOs much earlier, the proxy statements in SEC filings inarguably provide more comprehensive (in coverage and numbers) and precise information on peer pay for the purpose of effective social comparisons.

Hypothesis 5: *The social circle premium in CEO compensation is lower for firms in a regulatory environment where CEO compensation is under great scrutiny.*

We test this hypothesis in two ways. First, we check whether social circle premiums differ across industries. The social circle premium is expected to be lower in an industry under greater scrutiny. Second, we study the effect of regulatory changes on the social circle premium. In particular, the NYSE, starting in 2004, prohibited CEOs of NYSE firms from selecting compensation committee members and from being involved in hiring external consultants. Given that this change could mitigate CEOs' influence on the pay setting process, we examine whether the social circle premium for NYSE firms decreases after this regulatory change, using non-NYSE firms as the benchmark.

3. Data, preliminary analysis, and empirical strategy for multivariate analysis

We describe the data, conduct a preliminary analysis, and list our main empirical strategy for multivariate analysis.

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[11] The total compensation (TDC1) variable is not available before 1992. We thank Kevin Murphy for providing the Fortune 800 data.

3.1 Variable descriptions

The empirical pay determination models contain subsets or all of the following variables:

1. Firm performance (stock performance and accounting performance);
2. Complexity of managerial tasks (size, growth opportunity (market-to-book, and growth), and risks);
3. Corporate governance variables (CEO serving as the chairman of the board, percentage ownership of block holders, institutions and insiders, number of directors, percentage of inside directors, the GIM index, and CEO tenure less the median board tenure);
4. Local economic environment (excess return of the local stock market, and the Metropolitan Statistical Area (*MSA*) housing price index). The housing price index is particularly important to ensure that the social circle effect is not merely reflecting pay adjustment for local living expenses;
5. Social variables (number of local CEOs, golfing contacts and social elites, interlocking directorship, the number of common directors, luxury home values in MSAs, and the Ivy-educated dummy).

In the rest of the paper, we refer to the variables in groups #1 and #2 as the *economic variables*. Our main study covers the S&P 500 companies in the period 1993-2005.[12] The S&P 1500 companies are used in some regressions as robustness checks. Share price information is from University of Chicago's Center for Research in Security Prices (*CRSP*), company financial and accounting information is from Standard and Poor's *Compustat* database, and CEO compensation data are taken from the Standard and Poor's *ExecuComp* database. Headquarters locations of firms are primarily derived using state and county information derived from the Federal Information Processing Standard (*FIPS*) codes, in *Compustat*. These codes are linked to their latitude and longitude found at www.census.gov/geo/www/gazetteer. The housing price indices by MSA are provided

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[12] Because we often use lagged variables, in many regressions we mention that variables are during 1994-2005. We also use Forbes pre-1992 data to test the effect of SEC's disclosure requirement on executive compensation.

by the Office of Federal Housing Enterprise Oversight (*OFHEO*). The luxury home value is provided by a private source.

The number of CEO golfing contacts for a CEO of an S&P 500 firm is the number of other S&P 500 CEOs who are members of the same golf clubs. Golf club membership is found by using the *USGA*'s handicap lookup system at http://www.ghin.com/lookups/index.html. Each club's zip code is found on the club website. Only clubs within 60 miles of the firm headquarters are recorded. If multiple people with the same name as the CEO are listed for the same club, then golf club membership is set to unknown.[13] The location of social elites is found via the zip codes of all people listed in the *Social Register* of the 2004 Edition. *Forbes* magazine and *Who's Who America* provide CEOs' educational background. Other sources used in the study include: *Corporate Proxy, Compact Disclosure,* and the Investor Responsibility Research Center (*IRRC*) for governance and director variables.

A Glossary of variables, their constructions and sources are listed in Appendix A. These variables are classified into compensation, social circle, economic, governance, and local economic variables.

3.2 Preliminary analysis

Table 1 provides descriptive statistics for the variables used in the analysis. Two samples are summarized in Table 1 (S&P 1500 and the S&P 500). The sample of Standard and Poor's (S&P) 1500 companies is comprised of the S&P 500, the mid-cap 400, and the small-cap 600 companies (Panel A). Due to data availability, more detailed analyses focus on the S&P 500 sample (Panels B-E of Table 1).

Panels A and B show that the traditional compensation variables in both samples have ample variation to explain the cross sectional variation in CEO compensation. Specifically, performance and other firm characteristics play a meaningful role in rationalizing CEO compensation related to firm performance and complexity. Thus, the specification ensures that the social circle premium in CEO pay only captures compensation beyond what firm characteristics and performance warrant.

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[13] The golf club membership data is acquired in early 2007 but the membership does show consistency over time.

Local economic conditions are potentially related to the social pressure on CEOs to demand higher compensation. Prosperous geographical areas might have a greater display of wealth among social elites, ranging from acquisitions of luxury items to balls and events, thus, creating more pressures on CEOs to demand greater compensation.[14] It is worth noting that there is also ample variation in the two geographical (local) variables – the local housing price index, and local economic activities as measured by the value-weighted return (TRS1YR) of all firms headquartered within 60 miles of the firm's headquarters less the CRSP value-weighted monthly market return (VWRETD).

Panels C – E describe an extended list of variables for the S&P 500 firms. Panel C includes nine variables for corporate governance that might affect CEO compensation, according to earlier studies.[15] Panel D lists social circle variables. The first three capture different venues of social interactions: the number of CEOs in the same exclusive golf club, the number of CEOs, and the number of social elites listed in the Social Register living in a 60-mile radius. We discuss these avenues of social interaction next.

Interestingly, we find the membership in exclusive golf clubs is truly exclusive, as there are only 113 CEOs (669 CEO years) who are members. CEOs in the same golf or country club are more likely to have face-to-face interactions. It allows us to add a dimension of interaction frequencies to the definition of the social circle. The average number of CEOs of S&P 500 firms headquartered in a social circle is 21, the median is 14, and the 25th and 75th percentiles are 6 and 31, respectively. The largest metropolitan areas are New York-Northern New Jersey-Long Island (NY-NJ-PA) and Bridgeport-Stamford-Norwalk, CT, each holds about 70 CEOs of the S&P 500 firms. On the other hand, there are 71 CEOs who have no peer CEOs within the 60-mile radius (for example, Tampa-St. Petersburg-Clearwater, FL and Boise City-Nampa, ID each has only one CEO of S&P 500 firms). Social elites include those who inherit wealth, former CEOs, current CEOs, and etcetera. The average and median numbers of social elites within a social circle are 469 and 498, respectively.

We use the Ivy-educated variable as a proxy for whether a CEO is originally from a socially prominent family. There are 32% of CEOs who received their undergraduate or

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[14] For example, Liu and Yermack (2007) link CEO purchases of trophy mansions to subsequent poor firm performance.
[15] See, for example, Core, Holthausen and Larcker (1999) and Gompers, Ishii and Metrick (2003).

graduate degrees from Ivy League or prestigious universities. [16] The number of interlocking directors and the number of common directors in the 60 miles radius are proxies for how sympathetic the board is to the CEO's argument for pay congruent with the size of their respective social circles, and for the social status in line with the company's status in the community. Interlocking directors, often CEOs or former CEOs, understand the importance of social ranking in a CEO's personal life. On average, there are 0.14 interlocking directors. The number of common directors is the head count of directors who also sit on the boards of other S&P 500 firms in the same social circle. Common directors presumably understand better about the norm of social circles. The average number of common directors is 1.39. Finally, luxury homes may be used to display wealth, so we proxy for luxury housing prices with the 90th percentile of home values within each CEO's MSA. The average luxury home value is $446 thousand, while the 75th percentile is $581 thousand.

Table 2 gives the correlation matrix among the social variables and that among pay variables. The number of nearby CEOs is highly correlated with the number of social elites, the number of common directors, and luxury home values in the MSAs. Thus, in the empirical studies, we are going to orthogonalize different social variables to capture the incremental influence of each variable on the social circle premium.

3.3 Empirical Strategy

Our multivariate analyses examine the effect of social comparisons on CEO compensation in excess of the pay levels explained by previously-documented pay determinants. The baseline model has mainly two components: the size of the social circle and firm characteristics.

$Ln\ (TDC1)$

$= f(\ ln(\#\ of\ local\ CEOs),\ market\text{-}to\text{-}book,\ \sigma\ (ROA),\ \sigma\ (stock\ return),\ ln(sales),\ ROA,\ lagged\ ROA,\ stock\ return,\ lagged\ stock\ return).$

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[16] Ivy League and prestigious universities include Brown, Columbia, Cornell, Dartmouth, Harvard, Princeton, University of Pennsylvania, Yale, MIT, Northwestern, Stanford, Berkeley, UCLA, Chicago, and University of Michigan.

The number of local CEOs is the number of firms that headquartered within a 60-mile radius of a firm's headquarters. This model specification is in line with the economic model for executive pay, in which CEOs are compensated for stock and accounting performance, for managing complex operations, for taking risks and generating growth. We take the log transformation of the ex ante total compensation (*TDC1*) and the number of local CEOs to overcome the large skewness in the data. The coefficient estimate of ln (# of local CEOs) measures the elasticity of CEO pay to social circle size. In all regressions, we include the Fama-French 48 industry dummies and year dummies. Because we use panel data over 12 years and CEO compensation tends to show persistence from year to year, we cluster standard errors by firm.

Corporate governance variables and local economic variables are further added into this baseline model. Governance variables include whether a CEO is serving as the chairman of the board, the percentage ownership of block holders, institutions and insiders, the number of directors and the percentage of inside directors, the GIM index, and CEO tenure. Local economic variables include the excess return of the local stock market, and the Metropolitan Statistical Area (*MSA*) housing price index.

4. Results

4.1 First evidence of the social circle premium

Figure 1 plots the average level of CEO pay (TDC1 in the *ExecuComp* database) in a social circle against the size of the circle. We find that the average pay of CEOs in a social circle increases with the size of the social circle under all three size measures: a) the number of CEOs who are members of the same exclusive golf clubs, b) the number of CEOs of firms headquartered within a 60-mile radius, and c) the number of social elites (whose names appear in the Social Register) in the same vicinity. These three size measures capture most of the social interactions among CEOs and social elites, where social comparisons tend to occur.

The relationship between average CEO pay and the size of the social circle is also economically significant. For example, the fitted line in the second figure suggests that

the average pay of CEOs in a social circle increases by $72 thousand by adding one CEO to the circle.

4.2 Multivariate regression evidence of the social circle premium

The positive link between the average CEO pay and the size of the social circle depicted in Figure 1 continues to hold in multivariate regression analyses. Table 4 summarizes the main empirical findings in our multivariate analyses: the average level of CEO compensation increases in the size of the social circle. We examine the S&P 1500 and S&P 500 firms separately and further analyze the S&P 500 sample under three specifications, the second and the third of which have expanded sets of explanatory variables.

Column 1 reports the results for the S&P 1500 firms. The number of CEOs within a 60-mile radius in a firm's size category (large, mid-cap or small-cap) is our proxy for the size of the CEO's social circle. Categorizing CEOs by firm size is appropriate as a CEO of a small-cap firm is less likely to make social comparisons with a CEO of a large firm because they often participate in different (sub) social circles: local chamber of commerce and Rotary Clubs versus exclusive clubs and charity balls. The coefficient estimate of ln(# of local CEOs) has the predicted positive sign and is statistically significant at the 1% level. Not surprisingly, CEOs of large firms, firms with higher risks, higher growth and better performance tend to receive higher pay.

The next three columns focus on the S&P 500 firms for which we could obtain more complete data on social circles, corporate governance, as well as local economic variables. Column 2 is identical to column 1 except it uses exclusively S&P 500 firms. The social circle premium is higher among the S&P 500 CEOs. We find that the average excess pay for CEOs in a social circle with 31 CEOs (the 75th percentile of social circles) is $1.29 million higher than the average pay for CEOs in a social circle with six CEOs (the 25th percentile of social circles), after controlling for economic factors. [17] Statistically, the incremental explanatory power of the number of local CEOs is about

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[17] The average pay in a social circle with six CEOs is 6.628 million dollars. The predicted average pay for CEOs in a social circle with 31 CEOs is calculated as follows: ln(pay(31))-ln(pay(6))=0.1083*(ln(31)-ln(6)). Thus Pay(31)=6.628*exp(0.1083*ln(31/6))=7.918 million. This is 7.918 -6.628 = $1.29 million higher than the average compensation for CEOs in circles with only six CEOs.

two thirds of the explanatory power of governance variables altogether.[18] Note that the existence of the social circle premium does not hinge on the largest social circles such as New York or Connecticut. In unreported regressions, we drop CEOs in the top quartile of social circles (circles with 31 or more local CEOs) and the social circle premium in the remaining circles gets even higher.

Column 3 adds corporate governance variables and local economic variables into the pay determination equation.[19] Two governance variables are statistically significant: CEO and COB duality and the % of shares held by institutions. In our sample, 78% of CEOs serve as the chair of the board. The duality variable is positively associated with CEO pay. Percentage shares held by institutions are also positively associated with CEO pay, consistent with findings in Hartzell and Starks (2003) and Bizjak, Lemmon and Naveen (2007).

The two local variables in Columns 3 and 4 measure local economic conditions that may affect pay determination: performance of the local stock market in excess of market return and the average cost of homes sold in the Metropolitan Statistical Area. The coefficients of both variables are positive but not statistically significant. After discussing this finding with a number of leading compensation consultants, we believe this is perhaps because the majority of a CEO's compensation for local living expenses, such as interest free loans and allowances, has not been included in the definition of total CEO pay, *TDC1*.

Column 4 adds a dummy variable for ratcheting and its interaction with the size of the social circle. This is designed to remove the effect of industry/size peers on CEO pay from the social circle premium. According to Bizjak, Lemmon, and Naveen (2007), a CEO whose pay was below the industry/size peer median in the previous year tends to have a higher pay raise. The ratcheting dummy takes a value of 1 in year t if the CEO received a pay higher than the median pay of his industry/size peers in year t-1. The positive coefficient on the ratcheting dummy suggests that excess pay in year t is higher

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[18] The adjusted R squared for regression using economic variables plus dummies is 0.4161, for the regression using economic, governance variables and dummies is 0.4373, for the regression using economic, governance variables, the number of local CEOs and dummies is 0.4515. So the explanatory power of the social variable relative to that of the governance variables as whole is (0.4515-0.4373)/(0.4373-0.4161) = 0.6698.

[19] Core, Holthausen and Larcker (1999) and Bebchuk and Cohen (2005) examine the role of corporate governance on executive pay. Nguyen-Dang (2005) shows the adverse influence of social elites on boards.

for a CEO whose pay was above the industry/size median in year t-1.[20] Note that the industry/size ratcheting dummy does not affect the social circle premium (the coefficient of the interaction term is insignificant), and the magnitude of the social circle premium remains virtually unchanged. To summarize, the social circle premium is not merely a reflection of the ratcheting effect among industry/size peers.

Table 5 reports the regression result using a quadratic model, controlling for economic, governance and local factors as in Table 4. The coefficient on (# of local CEOs) is positive and that on the square of (# of local CEOs) is negative, both are statistically significant, supporting the weighted model of social interactions.

The existence of social circle premium in CEO compensation is further shown to be robust to various specifications. First, we repeat the main regression of the pay level on the number of local CEOs using three alternative measures of pay: salary, cash pay (salary + bonus), and the ex post total pay (TDC2, same as TDC1 except replacing the value of options granted with the value of options exercised during the year); see the results summarized in Table 6. The social circle premium exists for all components of CEO compensation. Not surprisingly, the evidence is weaker for the salary payment and stronger for the ex-post total pay.

4.3 Social ranks and pay dispersion

In this section, we test one of our model's unique implications – the elasticity of CEO pay to social circle size is higher for those ranked higher in their circles. This implication clearly distinguishes our model from fairness-based models that predict pay convergence toward the median pay and smaller pay dispersion over time. Given that both our model and the fairness model predict that CEOs receiving below the median peer pay would demand greater pay, we focus on the CEOs receiving pay above the median peer pay in their social circles to distinguish the two models.

The regression result presented in Table 7 supports Hypothesis 2. It includes all economic variables, governance variables, local variables, industry dummies and year

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[20] This seemingly contradicts the findings in Bizjak, Lemmon and Naveen (2007), but it is not necessarily the case. The pay of a CEO whose lagged pay was above the industry/size median could be still higher than his peers' (whose lagged pay was below the industry/size median) even though his pay raise is lower. This occurs if the difference in pay raises is not sufficient to offset the difference in the lagged pay.

dummies used in Table 4. Additionally, it has dummy variables indicating the rank of a CEO in his social circle in terms of the pay level in the previous year. First, using social circles with at least four CEOs, we divide CEOs into the bottom half, the third quartile, and fourth quartile. Next, we focus on CEOs in the top deciles of social circles using circles with at least 10 CEOs. We divide CEOs into the bottom half, the 50-75th percentile, the 75-90th percentile, and the top deciles. The coefficients of interaction terms of these dummy variables with ln(# of local CEOs) are of our interest, as they test the prediction that the size of the social circle has the greatest impact on the highest paid CEOs. We find that the estimated coefficient is positive and significant for the CEOs in the top deciles of pay. Economically, after controlling many other factors previously documented to affect CEO compensation, for each additional CEO, the percentage pay increase for the average CEO whose pay in year t-1 was in the top deciles is more than 20 times higher than that for the average CEO whose pay in year t-1 was in the bottom half of the social circle. This transfers into a much higher pay raise in dollars because of the much greater lagged pay for the CEOs in the top deciles in a social circle.

Next, we examine directly the relationship between pay dispersion in a social circle and the characteristics of the circle. Table 8 reports the result of regressing pay dispersion in a social circle on ln(# of local CEOs) and the average levels of governance variables, controlling for the average level of economic variables and the average level of local variables in the circle. We find that pay dispersions are indeed greater in larger social circles, consistent with the notion that the intensified social pressure in larger social circles motivates highly paid CEOs to demand even greater raise and thus increases the pay dispersion in the circle. Additionally, the pay dispersion in a social circle increases with the average institution ownership and decreases with the average GIM index of the firms in the circle. Recall that both higher institutional ownership and lower value of GIM index indicate better corporate governance.[21] Our findings in general suggest that good boards do grant social circle premiums to their CEOs.[22]

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[21] See Hartzell and Starks (2003) and Bizjak, Lemmon and Naveen (2007).

[22] The fact that pay dispersions are greater in larger social circles helps differentiate our social circle story from an alternative explanation asserting that the higher CEO pay in larger social circles results from the coincidence of larger social circles with deeper CEO labor markets. First, the labor market for CEOs is very unlikely to be local. Additionally, according to Edward Lazear in a private communication about this paper,

4.4 Social Channels

We have shown the impact of social circle size on CEO pay. In this section we examine how social pressure motivates CEOs to demand greater pay by investigating channels through which they might conduct comparisons. First, we look at three tiers of interactions in social circles: golfing contacts, local CEOs, and social elites. To capture the incremental effect of different frequencies of social interactions, we orthogonalize the three measures. The estimated coefficients shown in column 1 of Table 9 are positive and significant for all three layers of social interactions. The average level of CEO compensation increases by 1.41% for each additional golf contact in the circle, which is equivalent to an increase of $121,000. CEOs in a social circle influence pay beyond golfing contacts, while social elites are also relevant in setting the pay dynamics.

Second, in column 2 we look at the luxury home value in the Metropolitan Statistical Area (MSA) of the company's headquarters. Our conjecture is that comparing luxury houses/mansions is likely to be one way social elites and CEOs who live in the same metropolitan area to display and to compare wealth. The main independent variables, the *luxury MSA house value* (the 90th percentile of houses sold in the MSA) and the number of local CEOs, are orthogonalized in the regression. The positive and significant coefficients on both the residual term and ln(Luxury MSA home value) suggest that comparing luxury houses is another channel of social comparisons. Note that we have already included the average MSA housing price index, ln(HPI), to control for the variations in living expenses across geographic areas.

Lastly, in column 3 we examine two additional board related variables that might influence CEO pay: the number of interlocking directors[23] and the number of common directors. Interlocking directors may tend to grant social circle premiums to CEOs because of the implied reciprocity, an inherent source of conflicts of interests. On the other hand, directors who sit on multiple boards in the same social circle may understand better about the norm of CEO compensation in that particular social circle and may be

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all else equal, the pay dispersion in a more competitive labor market (larger social circles) should be smaller. We find the opposite.

[23] See, Fich and White (2003) and Hallock (1997) for evidence on the adverse effect of interlocking board on executive pay.

more sympathetic to granting social circle premiums to CEOs, if other boards in the circle do the same. We orthogonalized the number of common directors and the number of local CEOs, and find that the number of common directors is among the channels through which social comparisons influence CEO pay. The number of interlocking directors does not affect CEO pay.[24] These finding together suggest that a board that grants the social circle premium to its CEO is more likely to follow the norm of the pay practice in the social circle rather than to be driven by self-interests of its members.

4.5 High wealth hurdles for outsiders

In this section, we test whether CEOs who were not born into prestigious social circles need to overcome higher wealth hurdles to get admitted into the circle. We use the Ivy-educated status (value of 1, if graduated from an Ivy-league or prestigious university) as a proxy for a higher probability that a CEO was from the upper crust. Acknowledging that the Ivy-educated proxy is imperfect, it is still a reasonable proxy for social status as long as the children of social elites who often went to prep schools are more likely to get admitted into Ivy-league or prestigious universities. Table 10 summarizes the results. The negative coefficient estimate on the interaction term indicates that after controlling for performance, CEOs lacking a degree from prestigious universities need higher compensation and more wealth to get into the social circle, consistent with higher admission hurdles for outsiders. These results support Hypothesis 3.[25]

4.6 Information on peer pay

We have shown that there is a social circle premium caused by social comparisons and the social circle premium increases with the rank within the circle. One

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[24] In an unreported regression, we replace CEO tenure with the difference of CEO tenure and the median of director tenure (a proxy for how many directors were appointed after the CEO took office), which measures the relative power of the CEO over the board. A board mainly chosen by the CEO is more likely to endorse generous CEO compensation. The coefficient is positive and statistically significant at the 5% level.

[25] In unreported regressions, we treat CEOs in the Social Register (Edition of 2004) as CEOs within the social circles, or, in other words, insiders. These CEOs receive significantly higher compensation (at the 10% level). The interaction term between his social elite status and the size of social circle is negative, which seems to suggest that insiders do not demand as much pay as outsiders to get admitted to the circle because they are already in. The coefficient is, however, not statistically significant. This could potentially be attributed to the small number of CEOs in the Social Register: only 16 out of 800 S&P 500 CEOs are in the Social Register.

critical link in the process of social comparisons is that the member (CEO) needs to know about the pay of his peers to determine his social rank. We predict that the intensity of pay comparisons increases with the amount of available information on peer pay. Since 1992, all publicly traded firms have disclosed pay components for top executives in their proxy statements under the SEC's requirement. This provides a natural experiment for testing the roles of pay information in social comparisons.

Lacking information on ex ante total pay (TDC1) before 1992, we use the ex post total pay (ExecuComp variable TDC2)[26] and cash pay (Salary + Bonus) during 1985-2005. As shown in Table 11, the pay level and the social circle premium are higher after 1991 (1992-2005), and the social circle premium is statistically significant only after 1991. These results support Hypothesis 4.

4.7 Industry heterogeneity

This section studies the heterogeneity of social circle premiums across different industries. We use the industry categorization of Murphy (1999): manufacturing, utility, financial, and new economy.[27] Table 12 summarizes the results, using a sample of S&P 1500 and a sample of S&P 500 firms. Consistent with the findings in Table 4, the social circle effect is stronger among the S&P 500 CEOs. The social circle premium exists for manufacturing firms (the base), but only for ones in the S&P 500 index. Additionally, the financial industry has a significantly higher social circle premium. The social pressure for demanding greater pay is higher for CEOs of financial companies, who are usually in social circles full of their wealthy clients, investment bankers, hedge fund managers, etc. CEOs in the heavily regulated and greatly scrutinized utility industry, on the other hand,

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[26] TDC2 is the total compensation including options exercised during the fiscal year. It is comprised of salary, bonus, other annual, total value of restricted stock granted, net value of stock options exercised, long-term incentive payouts, and all other total.

[27] According to Murphy (2003), the new economy firms are defined as companies competing in the computer, software, internet, telecommunications, or networking fields. Specifically, new economy firms are defined as companies with primary SIC designations of 3570 (Computer and Office Equipment), 3571 (Electronic Computers), 3572 (Computer Storage Devices), 3576 (Computer Communication Equipment), 3577 (Computer Peripheral Equipment), 3661 (Telephone & Telegraph Apparatus), 3674 (Semiconductor and Related Devices), 4812 (Wireless Telecommunication), 4813 (Telecommunication), 5045 (Computers and Software Wholesalers), 5961 (Electronic Mail-Order Houses), 7370 (Computer Programming, Data Processing), 7371 (Computer Programming Service), 7372 (Prepackaged Software), and 7373 (Computer Integrated Systems Design). Old economy firms are firms with SIC codes less than 4000 not otherwise categorized as new economy.

receive essentially no social circle premium. These results suggest that the environment in which a firm operates affects the magnitude of the social circle premium. These results support Hypothesis 5.

4.8 NYSE regulation on curtailing CEOs' influence on pay determination

Our results provide one explanation of why CEOs demand pay in excess of what could be attributed to economic factors: the pressure of social comparisons. Social circle premiums may have become an essential component of CEO reservation wage that many boards are compelled to grant. However, granting the social circle premium may not improve shareholders value while increasing the expenses to the firm. Can external reforms on the pay setting process help to eliminate the premium? A recent event provides a natural experiment for testing this.

As shown earlier, one important factor for explaining CEO pay is whether the CEO serves as the chairman of the board. Being the chairman of the board may give a CEO more opportunities to, directly and indirectly, influence the pay setting process. CEOs' influences include hiring compensation consultants, thereby making the consultants aware of whose hands they are feeding from, nominating board members, and serving on the compensation committee themselves. We examine how the change in CEO's influence on the board and compensation consultants affects the social circle premiums in CEO pay. NYSE recently passed a set of rules (which were implemented in 2004) that specifically curtailed CEOs' involvement in nominating directors and hiring compensation consultants. It also prohibited CEOs of NYSE firms from sitting on compensation committees.

The impact of this NYSE regulation is illustrated in Figure 2A and Figure 2B for NYSE firms in the pre-2003 and post-2003 periods. The regression results are summarized in Table 13. The social circle premium among NYSE firms has decreased dramatically after the regulatory changes. These results suggest that the NYSE regulation to some extent curtailed the social circle premiums in CEO compensation.

We investigate whether, as after many previous attempts to limit CEO pay, NYSE CEOs have found some alternative means to influence pay in the post 2003 period. We use the measure of *excess pay,* the pay level in excess of what economic variables

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predicted based upon the CEO pay in prior year. To calculate the excess pay, we first run a regression of the pay level in the previous year on economic variables of that same year. We record the coefficient estimates of the regression, and then substitute for the current value of economic variables to predict the level of compensation for the same year. Excess pay equals the natural logarithm of actual pay divided by the predicted pay: ln (actual pay /predicted pay), where actual pay /predicted pay is referred as the *pay ratio*. Table 14 shows the pay ratios for NYSE CEOs over time. The pay ratio (pay beyond performance) only dipped in 2003, and bounced back to exceed the pre-2002 level by 2004 (see Panel C of Table 14). This suggests that NYSE CEOs might have discovered alternative channels to influence pay after 2003.

5. Conclusion

"Let me tell you about the very rich. They are different from you and me".[28]

We test predictions derived from social interactions and social comparisons on why highly paid CEOs still demand greater pay. Our approach explicitly recognizes that a CEO's view of one's well-being, by definition, has to be in the context of one's social setting. CEOs socialize with other CEOs and social elites in their community and compare wealth through published sources (corporate proxy, Forbes' list of the wealthiest people) as well as the visible display of wealth with luxury homes, aircrafts, and yachts. CEOs are aware of their social rankings and thus have the impetus to demand greater pay to secure or improve their rankings, anticipating other CEOs would do the same. Thus, we analyze the motives for well-paid CEOs to demand greater pay rather than simply label them as "greedy".

We empirically verify the existence of social circle premiums in CEO compensation: CEOs receive compensation over and above what could be explained by performance and firm characteristics, and this premium increases with the size of the social circle and the rankings within the circle. Economically, the social circle premium in CEO compensation is meaningful: going from the 25th percentile of social circles to the 75th percentile of social circles increases CEO compensation by $1.29 million, after

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[28] By F. Scott Fitzgerald in the short story "Rich Boy" in "All the Sad Young Men".

controlling for various known pay determinants. Statistically, the size of social circles alone explains 2/3 of pay variations explained by all governance variables. The results are robust to various measures of pay levels.

We also consider various venues and different frequencies of social interactions: exclusive golf clubs, CEOs and social elites (listed in the Social Register) living in a 60-mile radius. Each tier has its incremental influence on CEO compensation. Additionally, we find that comparing luxury houses and directors sitting on multiple boards in the same social circle seem to be important but not exclusive channels for social comparisons. Moreover, the legal environment and the accessibility to peer pay information affect the magnitude of the social circle premium in CEO compensation.

This study leaves open the question whether it is rational for the board to endorse the social circle premium in CEO compensation. The evidence presented suggests that the board of directors is aware of the social circle premium in the top executives' labor market. The compensation for an otherwise identical executive varies from being in one location versus another, not simply due to differences in living expenses, but due to the wealth level needed to maintain the CEO's status in the respective social circle. In essence, the board regards the social circle premium as an inevitable component of CEOs' reservation wage. If there are compelling reasons for a company's headquarters to be located in a certain geographical area, the board would be compelled to follow the norm and grant the social circle premium to retain its highly valuable CEO.[29] However, putting all firms together, granting social circle premiums to CEOs might further speed up the "hedonic treadmill", which the board and shareholders could hardly keep up with.

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[29] Ezzamel and Watson (2002) differentiate two types of equity. The first is 'lateral equity' which is close to the concept of labor market pay, and the second is 'vertical equity' which relates magnitude of pay and pay changes over time to reflect hierarchical, symbolic, and political differences between executives.

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Table 1: Sample statistics

All pay data are reported in 2005 dollars. The sample in Panel A is composed of S&P 500, Mid Cap, and Small Cap firms between 1994 and 2005 with the listed economic variables and **# of local CEOs**: the number of same type (S&P 500, Mid Cap, or Small Cap) CEOs within 60 miles of the headquarters for the firm of the CEO including the firm's own CEO. The sample in panels B-E are all S&P 500 firms between 1994 and 2005 with the listed economic, local, governance variables, and the # of local CEOs. **Sales** (data12) is in millions of 2005 dollars. **Market-to-book** is the ratio of the market value of common stock to the book value of equity (data25*data199/data216). **Stock return** is the trailing year stock return (ExecuComp variable TRS1YR). **ROA** is return on assets (data237/data6). **Firm risk (stock return)** is the standard deviation of the trailing five years of monthly stock returns. **Local stock return minus market** is the value weighted return (TRS1YR) of all firms headquartered within 60 miles of the firm's headquarters less the CRSP value weighted monthly market return (VWRETD). The base year for the **MSA housing price index** is set to 100 in 1990. Tenure is the number of years since the CEO gained the title of CEO. **% of Shares held by blockholders** is the % of shares held by entities who own more than 5% of the outstanding shares. This variable, **% of shares held by institutions**, and **% of shares held by insiders** are obtained from Compact Disclosure. **% of inside directors** is the % of board members who are the firm's officers. **GIM index**, as defined in Gompers, Ishii and Metrick (2003), measures the anti-takeover provisions. **# of golfing contacts** is the number of same type CEOs who golf at the same clubs as the firm's CEO; these contacts must be made at clubs within 100 miles of the firm's headquarters. **# of nearby social elites** is the number of individuals listed in the 2004 Social Register that are within 60 miles of the firm's headquarters. **Ivy educated** indicates (1=yes; 0=no) whether the CEO graduated from an Ivy League graduate or undergraduate school in the MSA. **Number of board interlocks** is the number of board members who have interlocking directorships. **Number of common directors** is the number of other firms within 60 miles that a firm's directors serve at. Luxury housing price is the **90th percentile MSA home value,** measured in dollars. **Total CEO pay** (ExecuComp variable TDC1) is the value of salary plus bonus, plus the total value of restricted stock granted, plus the total value of stock options granted, plus long-term incentive payouts, plus other compensation granted. **TDC2** is the same as TDC1 except replacing options granted by options exercised. **Pay ratio** is actual pay/pay predicted by economic variables.

Panel A: S&P 1500 Economic and local variables

Statistic	Sales ($millions)	Market-to-book	Stock return (%)	ROA(%)	Firm risk (stock return %)	Local stock return minus market (%)	MSA housing price index
average	6,019	3.46	19.8	5.17	11.3	8.9	152.9
SD.	16,555	6.04	53.2	10.02	18.5	52.2	43.1
25th percentile	651	1.63	-8.4	1.93	7.6	-18.6	121.4
50th percentile	1,604	2.34	13.0	4.84	10.0	1.8	145.1
75th percentile	4,739	3.66	37.0	8.63	13.6	26.0	173.4
Sample size	10,670	10,670	10,670	10,670	10,670	10,670	10,301

Panel B: S&P 500 Economic & local variables

	Sales ($millions)	Market-to-book	Stock return (%)	ROA(%)	Firm risk (stock return %)	Local stock return minus market (%)	MSA housing price index
average	12,931	4.33	18.7	5.85	9.9	7.3	150.6
SD.	24,790	7.03	44.2	10.30	15.4	42.2	42.9
25th percentile	2,535	1.93	-5.8	2.01	6.9	-15.3	118.1
50th percentile	5,904	2.90	13.5	5.09	8.9	2.2	142.7
75th percentile	12,911	4.65	36.5	9.28	11.6	23.4	172.0
Sample size	3,717	3,717	3,717	3,717	3,717	3,717	3,717

Table 1 continued

Panel C: S&P 500 governance variables

Statistic	CEO chairs the board (1=yes; 0=no)	Tenure (years)	% of shares held by blockholders	% of shares held by institutions	% of shares held by insiders	% inside directors	# of directors	GIM index	CEO tenure minus median director tenure (years)
average	0.78	8.34	24.8	65.5	4.2	26.9	10.86	9.60	-0.65
SD.	0.41	6.66	19.5	19.4	9.6	24.6	4.09	2.64	7.24
25th percentile	1	4	9.8	55.07	0.32	11.1	9	8	-5.0
50th percentile	1	6	21.4	67.89	0.83	20.0	11	10	-1.0
75th percentile	1	11	36.6	79.1	2.86	30.0	13	11	2.5
Sample size	3,717	3,717	3,717	3,717	3,717	3,717	3,717	3,717	2,637

Panel D: S&P 500 social variables

Statistic	# of local CEOs	# of golfing contacts	Ln(# of nearby social elites)	Ivy educated (1=yes; 0=no)	# of board interlocks	# of common directors	The 90th percentile MSA home value in $
average	21.4	1.35	6.15	0.32	0.14	1.39	445,512
SD.	20.3	4.23	1.92	0.47	0.44	2.15	271,998
25th percentile	6	0	4.98	0	0	0	255,000
50th percentile	14	0	6.21	0	0	0	370,000
75th percentile	31	0	7.80	1	0	2	580,750
Sample size	3,717	2,789	3,705	3,313	3,141	3,195	3,110

Panel E: S&P 500 pay variables

Statistic	Total pay (TDC1, $thousand)	Pay ratio (actual pay/predicted pay)	Salary ($thousand)	Salary + bonus (TCC, $thousand)	Ex post total pay (TDC2, $thousand)
average	8,537	1.367	997	2,529	9,386
SD.	10,462	1.074	411	2,282	20,160
25th percentile	3,106	0.725	769	1,262	2,121
50th percentile	5,641	1.109	973	1,998	4,218
75th percentile	10,384	1.639	1,155	2,978	9,468
Sample size	3,717	3,717	3,717	3,717	3,717

Table 2: Correlations matrix for social variables and pay variables

The sample is S&P 500 CEOs between 1994 and 2005; a complete description is given in Table 1. All variables are in 2005 dollars. Ex ante total pay is ExecuComp variable TDC1. Ex post total pay is ExecuComp variable TDC2; it is the total cash received by a CEO for all cashed out options, stocks sold, salary, bonus, and all other sources of cash. The remaining variables are defined in Table 1. The Pearson correlation coefficient is denoted by **Corr**. Significance is given by t-statistic, which is labeled **tstat**. Sample size is indicated by **N**.

Panel A: Social variables

	Ln(# local CEOs)			Ln(# of social elites)			Ln(Luxury home price)			Ivy league			# of common directors		
	Corr.	tstat	N	Corr.	tstat	N	Corr.	tstat	N	Corr.	tstat	N	Corr.	tstat	N
# of golf contacts	0.292	>10	2,789	0.259	>10	2,778	0.165	7.95	2,296	-0.026	-1.33	2,549	0.392	>10	2,361
Ln(# local CEOs)				0.840	>10	3,705	0.552	>10	3,110	0.034	1.93	3,313	0.318	>10	3,195
Ln(# of social elites)							0.600	>10	3,100	0.113	6.50	3,302	0.221	>10	3,185
Ln(Luxury home price)										0.039	2.02	2,754	0.117	6.35	2,908
Ivy-educated													-0.059	-3.14	2,821

Panel B: Pay variables

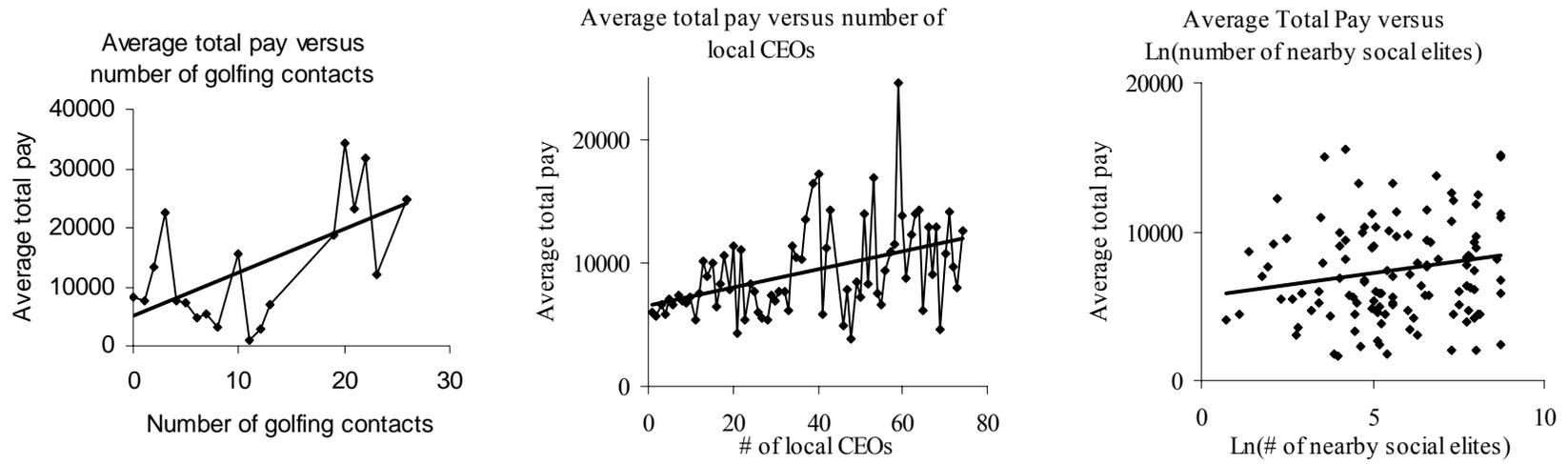|	Salary + bonus			Ex ante total pay			Ex post total pay		
	Corr.	tstat	N	Corr.	tstat	N	Corr.	tstat	N
Salary	0.408	>10	3,717	0.279	>10	3,717	0.164	>10	3,717
Salary + bonus				0.543	>10	3,717	0.389	>10	3,717
Ex ante total pay							0.505	>10	3,717

Figure 1: Effect of social factors on average total pay for S&P 500 CEOs

The sample is the same as in Table 1 (all S&P 500 CEOs between 1994 and 2005 with required data). Total CEO pay (ExecuComp variable TDC1), the number of golfing contacts, local CEOs, and nearby social elites are defined in Table 1.

Table 4. Social, economic, governance and local determinants of CEO pay: S&P 1500, S&P 500

All pay variables are in 2005 dollars. Total pay is **TDC1** and it is defined in Table 1. The **S&P 1500** sample and the **S&P 500** sample are described in Table 1. **Firm risk (ROA)** is the standard deviation of return on assets (ROA = 100*data237/data6) in the previous five years. The dummy for ratcheting, **D[ratcheting]**, is defined as in Bizjak, Lemmon and Naveen (2007). We first sort firms into two size groups by sales within their two-digit SIC code industries. The ratcheting dummy is set to 1 for CEOs who in the prior year had above the median pay (*TDC1*) in their industry/size groups. All remaining variables are defined in Table 1. Standard errors are corrected for firm level clustering when computing significance; t-statistics are given in parentheses below each reported coefficient; ***, **, and * denote p-value <= 0.01, 0.05 and 0.10 respectively

Dependent variable	Ln(TDC1)			
Sample	S&P 1500	S&P 500		
Intercept	3.4525***	4.2741***	3.6163***	3.7653***
	(28.38)	(15.79)	(12.16)	(11.21)
Social variables				
Ln(number of local CEOs)	0.0956***	0.1083***	0.1031***	0.1063***
	(5.08)	(5.08)	(5.16)	(3.45)
Economic variables				
Market-to-book	0.0082***	0.0048*	0.0041	0.0037
	(3.02)	(1.91)	(1.59)	(1.64)
Firm risk (ROA)	0.0051*	0.0064	0.0066**	0.0043
	(1.89)	(1.60)	(2.13)	(1.61)
Firm risk (stock returns)	0.0233***	0.0238***	0.0250***	0.0209***
	(6.42)	(3.63)	(3.34)	(3.23)
Ln(sales)	0.4817***	0.3960***	0.3762***	0.3453***
	(45.68)	(19.84)	(16.97)	(17.69)
ROA	0.0033**	0.0028	0.0030	0.0021
	(2.17)	(1.19)	(1.52)	(1.11)
Prior year ROA	0.0033**	0.0033*	0.0064***	0.0051***
	(2.33)	(1.71)	(2.92)	(2.57)
Stock return	0.0014***	0.0019***	-0.0014	-0.0014
	(7.54)	(5.21)	(-0.59)	(-0.59)
Prior year stock return	0.0014***	0.0020***	0.0019***	0.0019***
	(7.15)	(5.47)	(4.23)	(4.51)

Table 4 continued

Governance variables				
CEO chairs the board			0.1435***	0.1111***
			(3.08)	(2.71)
% of shares held by blockholders			-0.0014	0.00
			(-1.28)	(-1.12)
% of shares held by institutions			0.0057***	0.0049***
			(5.16)	(4.96)
% of shares held by insiders			-0.0008	-0.0013
			(-0.76)	(-0.59)
% inside directors			-0.0008	-0.0007
			(-0.97)	(-0.99)
Number of directors			0.0024	0.0008
			(0.43)	(0.16)
GIM index			0.0137	0.0104
			(1.61)	(0.15)
Tenure as CEO			0.0041	0.0041
			(1.28)	(1.43)
Local variables				
Local stock return – market Return			0.0031	0.0034
			(1.36)	(1.41)
MSA housing price index			0.0009	0.0010
			(1.31)	(1.61)
Controls for ratcheting				
D[ratcheting]				0.5157***
				(6.71)
D[ratcheting] * Ln(# of local CEOs)				-0.0359
				(-1.09)
Fama French 48 industry dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Clustering at firm level	Yes	Yes	Yes	Yes
R-squared	0.5243	0.4421	0.4523	0.4992
Sample size	10,670	4,386	3,717	3,717

Table 5 Frequencies of social interactions

The sample is S&P 500 CEOs between 1994 and 2005. All pay variables are in 2005 dollars. Total pay is **TDC1** and it is defined in Table 1. Number of local CEOs is defined in Table 1. The economic, governance, and local variables are the same as in Table 4. Standard errors are corrected for firm level clustering when computing significance; t-statistics are given in parentheses below each reported coefficient. ***, **, and * denote p-values <= 0.01, 0.05 and 0.10, respectively.

Dependent variable	TDC1
Intercept	-30047.980***
	(-5.67)
Social variables	
Number of local CEOs	156.034***
	(3.89)
(# of local CEOs)^2	-1.408**
	(-2.29)
Economic variables (*see Table 4*)	Yes
Governance variables (*see Table 4*)	Yes
Local variables (*see Table 4*)	Yes
Fama French 48 industry dummies	Yes
Year dummies	Yes
Clustering at firm level	Yes
R-squared	0.2934
Sample size	3,717

Table 6: Determinants of salary, salary + bonus, and ex post total pay (TDC2)

The sample is S&P 500 CEOs between 1994 and 2005. All pay variables are in 2005 dollars. **Salary**, **Bonus**, and **Ex post total pay** (TDC2) are all given by ExecuComp. The economic, governance, and local variables are the same as in Table 4. The number of local CEOs is defined in Table 1. Standard errors are corrected for firm level clustering when computing significance; t-statistics are given in parentheses below each reported coefficient. ***, **, and * denote p-values <= 0.01, 0.05 and 0.10, respectively.

Dependent variable	Ln(Salary)	Ln(Salary + bonus)	Ln(Ex post total pay)
Intercept	5.3780***	4.5027***	3.5526***
	(32.80)	(20.36)	(9.03)
Social variable			
Ln(number of local CEOs)	0.0168*	0.0610***	0.1113***
	(1.65)	(4.06)	(5.04)
Economic variables (*see Table 4*)	Yes	Yes	Yes
Governance variables (*see Table 4*)	Yes	Yes	Yes
Local variables (*see Table 4*)	Yes	Yes	Yes
Fama French 48 industry dummies	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes
Clustering at firm level	Yes	Yes	Yes
R-squared	0.4851	0.5201	0.4133
Sample size	3,701	3,695	3,729

Table 7: Social ranks

The sample (1994-2005) is drawn from all S&P500 CEOs who were in social circles with at least 4 members the previous year. TDC1 is total pay in 2005 dollars; it is defined in Table 1. The dummy **D[50-75%]** is set to 1 if the CEO's pay fell between the 50th percentile and the 75th percentile of pay in his social circle the previous year. The dummy **D[>75%]** is set to 1 if the CEO's pay was above the 75th percentile of pay in his social circle the previous year. The dummy **D[75-90%]** is set to 1 if the CEO's pay was between the 75th percentile and 90th percentile of pay in his social circle the previous year, and The dummy **D[>90%]** is set to 1 if the CEO's pay was in the top deciles of pay in his social circle the previous year.. The other dummies are similarly defined. The number of local CEOs and all remaining variables are defined in Table 1 and Table 2. Standard errors are corrected for firm level clustering when computing significance; t-statistics are given in parentheses below each reported coefficient. ***, **, and * denote p-values <= 0.01, 0.05 and 0.10, respectively.

Dependent variable	Ln(TDC1)		
	At least 4 local CEOs – upper quartile	At least 10 local	At least 10 local CEOs – top decile
Sample:	dummy	CEOs	dummy
Intercept	4.6577***	4.3113***	5.1340***
	(13.16)	(9.65)	(11.57)
Social variables			
Ln(number of local CEOs)	0.1012***	0.0301	0.0150
	(2.76)	(0.67)	(0.30)
D[50-75%]	0.3414**		0.2005
	(2.21)		(0.75)
D[50-75%] * Ln(# of local CEOs)	0.0218		0.0674
	(0.40)		(0.81)
D[>75%]	0.4169**		
	(2.07)		
D[>75%] * Ln(# of local CEOs)	0.0527		
	(0.74)		
D[75-90%]			0.5351
			(1.46)
D[75-90%] * Ln(# of local CEOs)			0.0182
			(0.16)
D[>90%]			-0.5178
			(-0.94)
D[>90%] * Ln(# of local CEOs)			0.3453**
			(1.98)
Economic variables (*see Table 4*)	Yes	Yes	Yes
Governance variables (*see Table 4*)	Yes	Yes	Yes
Local variables (*see Table 4*)	Yes	Yes	Yes
Fama French 48 industry dummies	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes
Clustering at firm level	Yes	Yes	Yes
R-squared	0.5045	0.4305	0.4923
Sample size	2,332	2,038	1,756

Table 8: Determinants of pay dispersion in social circles

Total pay is **TDC1** in 2005 dollar, as defined in Table 1. The sample is **S&P 500** firms. The number of local CEOs, economic, governance, and local variables are defined in Table 1. The values of governance, economic and local variables used in this table are **averages** over all CEOs in a social circle. Standard errors are corrected for firm level clustering when computing significance; t-statistics are given in parentheses below each reported coefficient. ***, **, and * denote p-values <= 0.01, 0.05 and 0.10, respectively.

Dependent variable	Ln(Standard deviation of total pay within the CEO's social circle)
Intercept	6.1819***
	(24.00)
Social variable	
Ln(number of local CEOs)	0.5308***
	(18.61)
Governance variables (average over CEOs in a social circle)	
CEO chairs the board	0.0627
	(1.32)
Tenure	0.0046
	(1.22)
% of shares held by blockholders	-0.0017
	(-1.54)
% of shares held by institutions	0.0036***
	(3.03)
% of shares held by insiders	-0.0008
	(-0.51)
% inside directors	0.0006
	(0.78)
# of directors	0.0002
	(0.04)
GIM index	-0.0270***
	(-2.88)
Economic variables (see Table 4; circle average)	Yes
Local variables (see Table 4; circle average)	Yes
Year dummies	Yes
Clustering at firm level	Yes
R-squared	0.4632
Sample size	3,520

Table 9: Channels of social interactions

All pay variables are in 2005 dollars. Total pay is **TDC1** and it is defined in Table 1. The sample is **S&P 500** firms from 1994 to 2005. **Residual of # of local CEOs on golfing contacts** is the error value in a regression of # of local CEOs on number of golfing contacts. **Residual of Ln(# of nearby social elites) on # of local CEOs** is the error value in a regression of Ln(# of nearby social elites) on the # of local CEOs. **Luxury home value** is the 90th percentile value of homes sold in the Metropolitan Statistical Area (MSA) where the CEO's firm is headquartered. **Residual Ln(# of local CEOs) on Ln(luxury home value)** is the error value in a regression of Ln(# of local CEOs) on Ln(luxury home value). **Residual Ln(# of local CEOs) on (# of common directors)** is the error value in a regression of Ln(# of local CEOs) on (# of common directors). All remaining variables are defined in Tables 1 and 2. Standard errors are corrected for firm level clustering when computing significance; t-statistics are given in parentheses below each reported coefficient. ***, **, and * denote p-values <= 0.01, 0.05 and 0.10, respectively.

Dependent variable	Ln(TDC1)	Ln(TDC1)	Ln(TDC1)
Intercept	3.5108***	1.1199	4.3791***
	(8.14)	(1.30)	(11.10)
Social variables			
Number of golfing contacts	0.0155***		
	(3.13)		
Residual of (# of local CEOs) on (# of golfing contacts)	0.0051***		
	(4.06)		
Residual of Ln(# of nearby social elites) on (# of local CEOs)	0.0443**		
	(2.49)		
Ln(luxury home value)		0.1784***	
		(3.37)	
Residual of Ln(# of local CEOs) on Ln(luxury home value)		0.0712**	
		(2.35)	
Interlocking directors			0.0120
			(0.27)
Number of common directors			0.0391***
			(4.07)
Residual of Ln(# of local CEOs) on (# of common directors)			0.1102***
			(4.34)
Economic variables (*see Table 4*)	Yes	Yes	Yes
Governance variables (*see Table 4*)	Yes	Yes	Yes
Local variables			
Local stock return – market Return	0.0024	0.0027	0.0034
	(0.95)	(1.16)	(1.34)
MSA housing price index	0.0007		0.0007
	(0.74)		(0.83)
Ln(MSA housing price index)		0.1689	
		(1.31)	
Fama French 48 industry	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes
Clustering at firm level	Yes	Yes	Yes
R-squared	0.4697	0.4275	0.3947
Sample size	2,778	3,110	2,637

Table 10: High wealth hurdles for outsiders

All pay variables are in 2005 dollars. Total pay is **TDC1** and it is defined in Table 1. The sample is **S&P 500** firms from 1994 to 2005. **Ivy educated** indicates (1=yes; 0=no) whether the CEO graduated from an Ivy League or prestigious graduate or undergraduate school in the USA: Brown, Columbia, Cornell, Dartmouth, Harvard, Princeton, U of Pennsylvania, Yale, MIT, Northwestern, Stanford, Berkeley, UCLA, Chicago, and U of Michigan. All remaining variables are defined in Table 1. Standard errors are corrected for firm level clustering when computing significance; t-statistics are given in parentheses below each reported coefficient. ***, **, and * denote p-values <= 0.01, 0.05 and 0.10 respectively.

Dependent variable	Ln(TDC1)	
Intercept	3.616***	3.679***
	(11.21)	(10.19)
Social variables		
Ln(number of local CEOs)	0.1031***	0.1202***
	(5.16)	(4.88)
D[Ivy educated]		0.1626
		(1.50)
D[Ivy educated]* Ln(# of local CEOs)		-0.0871**
		(-2.15)
Economic variables (*see Table 4*)	Yes	Yes
Governance variables (*see Table 4*)	Yes	Yes
Local variables (*see Table 4*)	Yes	Yes
Fama French 48 industry dummies	Yes	Yes
Year dummies	Yes	Yes
Clustering at firm level	Yes	Yes
R-squared	0.4523	0.4757
Sample size	3,717	3,313

Table 11: Influence of the 1992 regulation on pay disclosure

The sample is S&P 500 CEOs from 1985 to 2005. All pay variables are in 2005 dollars. Before 1992 ex post total pay is the cash value all exercised options, stocks sold, salary and bonus as reported by Kevin Murphy for S&P 500 CEOs in the Forbes 800; from 1992 on the ex post total pay is the value of ExecuComp variable TDC2. **Cash pay** is the sum of salary and bonus; before 1992 values are obtained from the Forbes 800 data; from 1992 on ExecuComp values are used. **D[After 1991]** is 1 if the year is 1992 or after and zero otherwise. Governance variables are not included because they are not available before 1992. Standard errors are corrected for firm level clustering when computing significance; t-statistics are given in parentheses below each reported coefficient. ***, **, and * denote p-values <= 0.01, 0.05 and 0.10 respectively.

Dependent variable	Ln(Salary+Bonus)	Ln(Ex-post total pay)
Intercept	4.6127***	3.7494***
	(27.78)	(14.85)
Social and disclosure variables		
Ln(number of local CEOs)	0.0163	0.0034
	(0.81)	(0.13)
D[After 1991]	0.1783***	0.4253***
	(3.95)	(6.56)
D[After 1991] * Ln(# of local CEOs)	0.0559***	0.1224***
	(2.91)	(4.53)
Economic variables (*see Table 4*)	Yes	Yes
Fama French 48 industry dummies	Yes	Yes
Clustering at firm level	Yes	Yes
R-squared	0.4746	0.4193
Sample size	6,349	6,361

Table 12: Industry heterogeneity

The sample for column 1 is all CEOs of S&P 1500 firms between 1994 and 2005; for column 2 the sample is just S&P 500 CEOs. All pay variables are in 2005 dollars. **D[Financial]** is 1.00 for firms with SIC codes between 6000 and 6999; 0 otherwise. **D[Utility]** is 1.00 for firms with SIC codes between 4900 and 4999; 0 otherwise. **D[New economy]** is 1.00 for firms with SIC codes of 3570, 3571, 3572, 3576, 3577, 3661, 3674, 4812, 4813, 5045, 5961, 7370, 7371, or 7372; 0 otherwise (Murphy (2003) defines this variable). **D[S&P 500]** is 1.00 for all firms in the S&P 500; 0 otherwise. All other variables are defined in Table 2. Standard errors are corrected for firm level clustering when computing significance; t-statistics are given in parentheses below each reported coefficient. ***, **, and * denote p-values <= 0.01, 0.05 and 0.10 respectively.

Dependent variable	Ln(TDC1)	
Sample	S&P 1500 firms	S&P 500 firms
Intercept	3.9687***	4.3360***
	(23.14)	(15.47)
Industry segments		
D[Financial]	0.0605	-0.0629
	(0.60)	(-0.45)
D[Utility]	-0.1657**	-0.2415**
	(-2.11)	(-1.97)
D[New economy]	-0.0387	0.1981
	(-0.22)	(1.45)
D[S&P 500]	0.2008***	
	(2.64)	
Social variables		
Ln(number of local CEOs)	0.0197	0.0882***
	(0.84)	(3.29)
D[Financial] * Ln(# of local CEOs)	0.0916**	0.1288**
	(2.15)	(2.30)
D[Utility] * Ln(# of local CEOs)	-0.0805**	-0.0788*
	(-2.49)	(-1.84)
D[New economy] * Ln(# of local CEOs)	0.1079*	0.0542
	(1.84)	(1.13)
D[S&P 500] * Ln(# of local CEOs)	0.0713**	
	(2.48)	
Economic variables (*see Table 4*)	Yes	Yes
Governance variables (*see Table 4*)	Yes	Yes
Local variables (*see Table 4*)	Yes	Yes
Year dummies	Yes	Yes
Clustering at firm level	Yes	Yes
R-squared	0.5349	0.4121
Sample size	8,349	3,717

Table 13: The effect of the NYSE regulation on total pay

All pay data are reported in 2005 dollars. The sample is drawn from S&P 1500 firms between 1994 and 2005. **Total pay** (TDC1) is defined in Table 1. Ln(TDC1) is the dependent variable in all regressions. **D[After 2003]** is 1.00 if the year is 2004 or after; otherwise it equals zero. Compliance with the NYSE regulation on compensation consultants and CEOs was required by 2004; some members started complying in 2003. The regulation prohibits CEOs from (a) hiring compensation consultants (their boards must hire the consultant), (b) nominating directors, or (c) serving on their firm's compensation committee. Number of local CEOs and all remaining variables are defined in Table 1 and Table 2. Standard errors are corrected for firm level clustering when computing significance; t-statistics are given in parentheses below each reported coefficient. ***, **, and * denote p-values <= 0.01, 0.05 and 0.10 respectively.

Sample	S&P 1500 firms	NYSE firms	Non-NYSE firms
Intercept	2.9216***	3.0109***	3.0368***
	(17.25)	(16.13)	(7.59)
Social variables			
Ln(number of local CEOs)	0.0935***	0.0593***	0.2128***
	(6.24)	(3.56)	(5.47)
D[After 2003]	0.2118***		
	(3.50)		
D[NYSE]	0.1030**		
	(2.11)		
D[After 2003] * Ln(# of local CEOs)	-0.0484**		
	(-2.04)		
D[After 2003] * Ln(# of local CEOs) * D[NYSE]	-0.0059		
	(-0.32)		
D[2003]		0.2734***	-0.1440
		(4.11)	(-0.96)
D[2004]		0.3248***	-0.0597
		(4.68)	(-0.35)
D[2005]		0.4070***	0.0510
		(6.06)	(0.27)
D[2003] * Ln(# of local CEOs)		0.0065	-0.0368
		(0.31)	(-0.80)
D[2004] * Ln(# of local CEOs)		-0.0432*	-0.0310
		(-1.87)	(-0.61)
D[2005] * Ln(# of local CEOs)		-0.0640***	-0.0693
		(-2.69)	(-1.23)
Governance variables (*see Table 4*)	Yes	Yes	Yes
Local variables (*see Table 4*)	Yes	Yes	Yes
Fama French 48 industry dummies	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes
Clustering at firm level	Yes	Yes	Yes
R-squared	0.549	0.587	0.464
Sample size	8,349	6,344	2,005

Table 14: Statistics on total pay

All pay data is reported in 2005 dollars. Total pay (TDC1) is defined in Table 1; units are thousands of dollars. The sample for Panel A is all firms in ExecuComp with the regression variables used in Table 9. The sample for Panels B and C is a subset of the sample for Panel A; it is only NYSE CEOs. **Pay ratio** = Actual pay / predicted pay. The predicted pay is done in two steps. First, we regress the CEO pay in year t-1 on the values of economic variables in year t-1 to get coefficient estimates. Next, we substitute for the values of the economic variables in year t into the equation to get the predicted pay level in year t. The pay prediction model is *Ln(Pred_Pay) = f(market-to-book, std(ROA), std(stock return), ln(sales), ln(MV), ROA, lagged ROA, stock return, lagged stock return, Dfinancial, Dutility, DnewEconomy, DS&P500)* using S&P 1500 firms.

Panel A: Total pay statistics for NYSE and non-NYSE CEOs

Statistic	TDC1 ($thousands)			Pay ratio	
	NYSE	Non-NYSE		NYSE	Non-NYSE
Average	5,725	3,978		1.343	1.201
SD.	8,062	6,988		1.023	1.003
25th percentile	1,693	1,057		0.739	0.557
50th percentile	3,357	2,089		1.080	0.930
75th percentile	6,652	4,117		1.597	1.483
Sample size	6,343	2,006		6,343	2,006

Panel B: Total pay statistics for NYSE CEOs over time

Statistic	Sample period			
	1994-2002	2003	2004	2005
Average	5,409	6,042	6,261	7,172
SD.	8,461	6,760	6,385	7,902
25th percentile	1,550	1,901	2,187	2,336
50th percentile	3,048	3,701	4,277	4,589
75th percentile	6,082	7,573	7,911	8,557
Sample size	4,425	668	685	566

Panel C: Pay ratio statistics for NYSE CEOs over time

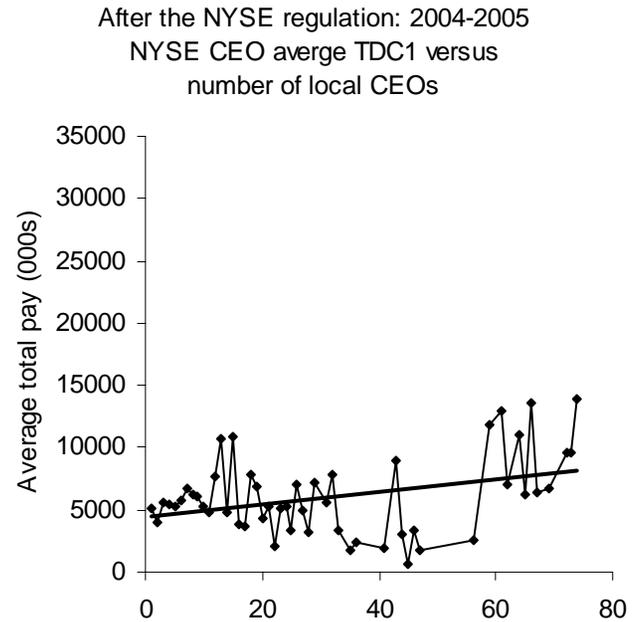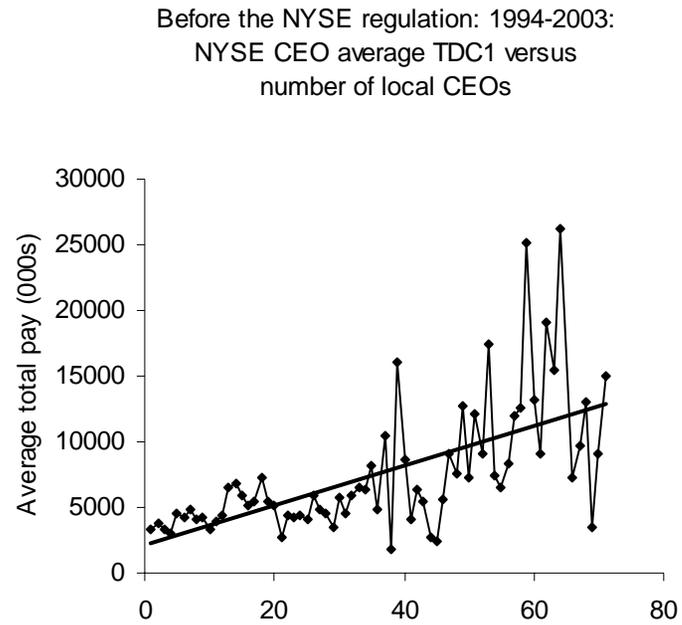| Statistic	Sample period			
	1994-2002	2003	2004	2005
Average	1.351	1.237	1.320	1.435
SD.	1.043	0.926	0.929	1.074
25th percentile	0.738	0.686	0.749	0.820
50th percentile	1.073	1.016	1.120	1.167
75th percentile	1.605	1.467	1.564	1.690
Sample size	4,422	668	686	567

Figure 2: Total pay for NYSE firms before and the 2004 regulation regarding compensation consultants
The sample is all NYSE firms from 1994 to 2005. The NYSE regulation took effect in 2004. It required: 1) CEO could no longer hire the compensation consultant; the board was required to hire the consultant (2) the CEO could not serve on the compensation committee, and (3) the CEO could not nominate directors. **Local CEOs** are defined in Table 1.

Appendix A. A Glossary of variables by groups: definition, construction, and sources

Variables, by grouping	Definition	Construction	Sources
I. Dependent variables			
Total pay	Total CEO pay is the value of salary plus bonus, plus the total value of restricted stock granted, plus the total value of stock options granted, plus long-term incentive payouts, plus other compensation granted. ExecuComp variableTDC1	Ln (TDC1)	ExecuComp
Excess pay	Ln(actual pay divided by predicted pay from a regression)	Predicted pay regression: pay = f(performance, size, risk, industry,…)	ExecuComp and Compustat
II. Independent variables			
A. Social circle variables			
Number of CEO golfing contacts	Use golf club as a specific venue for social interactions.	The number of same type CEOs who golf at the same clubs as the firm's CEO; these contacts must be made at clubs within 100 miles of the firm's headquarters. We only collect this information for S&P 500 CEOs.	United States Golf Association (USGA)
Number of local CEOs	The number of CEOs of firms headquartered in the same 60 miles radius	Count the number of CEOs in the geographical area. Separate counts are for S&P500, Mid-cap, and Small-cap.	Zip codes and mapping program
Number of social elites	Social elites are the socially prominent people in a community	Count numbers of socially prominent people who live in the 60-mile radius and are listed in the Social Register.	Social Register, 2004 edition
Number of local CEOs adjusted for number of CEO golfing contacts	Number of local CEOs adjusted for the number of CEO golf contacts	The residual in a regression of ln (# of local CEOs) on (# of CEO golfing contacts).	See above
Adjusted number of social elites	Number of social elites adjusted for the number of local CEOs	The residual in a regression of ln (# of nearby social elites) on ln (# of local CEOs).	See above
Luxury home value	90th percentile of housing values ' within a Metropolitan Statistical Area	The luxury home value is obtained for each CEO's Metropolitan Statistical Area	Business Week

		Number of directors serving on other boards headquartered in the same 60 miles radius.	
Number of common directors	Board members who also serve on other boards in the same social circle.		IRRC
Interlocking directors	CEO's social and political connections	The of board members who have interlocking directorships as determined by IRRC data.	IRRC
Ivy League educated	CEOs attended an Ivy league or other prestigious university	Yes, if a CEO received either an undergraduate or a graduate degree from an Ivy-educated university: Brown, Columbia, Cornell, Dartmouth, Harvard, Princeton, U of Pennsylvania, Yale, MIT, Northwestern, Stanford, Berkeley, UCLA, Chicago, and U of Michigan.	Forbes Magazine list of the Forbes 800, Who's Who America
B. Economic variables			
Stock return	Stock return in the fiscal year	ExecuComp variable TRS1YR.	ExecuComp
Prior year stock return	Lagged stock return	Same as above, lagged by one year.	ExecuComp
Return on assets (ROA)	Earnings before extraordinary terms	ROA = 100*(data237/data6).	Compustat
Prior year return on assets	Previous year's ROA	Same as ROA above, lagged one year.	Compustat
Firm risk (stock returns)	Standard deviation of monthly stock returns in the previous five years	Standard deviation of stock returns calculated from 60 monthly returns.	CRSP
Firm risk (ROA)	Standard deviation of ROA in the previous five years	$\sigma(ROA)_{5years}$	CRSP
Market–to-book	The ratio of the market value of common stock to the book value of equity	data25*data199/data216	Compustat
Firm Size	Ln (Sales)	Sales (data12) is in millions of 2005 dollars	Compustat
C. Governance variables			
CEO/COB Duality	CEO serving as the Chairman of the Board	Determined from Compact Disclosure's list of board members and officers.	Edgar/SEC, Lexis/Nexis, ExecuComp
CEO Tenure	Number of years since CEO's appointment to the current position	Current year minus year of CEO's appointment.	Corporate proxy, ExecuComp
% of shares held by blockholders	The role of blockholders	The % of shares held by entities who own more than 5% of the outstanding shares	Compact Disclosure, Corporate proxy
% of shares held by institutions	The role of institutional shareholders	The % shares held by all reporting	Compact Disclosure, Corporate

		institutions	proxy
% of shares held by insiders	The stake of corporate insiders	The % held shares owned and beneficiary held by corporate officers and directors.	Compact Disclosure, Corporate proxy
% inside directors	Influence of insiders on firm's board	The number of executives who are board members.	Compact Disclosure, Corporate proxy
Number of directors	Size of the board	The number of board members.	Compact Disclosure, Corporate proxy
CEO tenure minus median director tenure	Proxy for the number of board members appointed by the CEO	CEO tenure less the median of the number of years since the directors' first election to the board.	Corporate proxy, IRRC
GIM index	Gompers, Ishii, and Metrick (2003) index	GIM tabulated mostly anti-takeover measures for firms.	IRRC
D. Local and labor market variables			
Local housing price index	Average price of all houses sold by Metropolitan Statistical Area (MSA)	The base for the MSA housing price index is set to 100 in 1990	Office of Federal Housing Enterprise Oversight (OFHEO)
Local economic activity	Returns on stocks of local companies minus that of the market portfolio.	Value-weighted return (TRS1YR) of all firms headquartered within 60 miles of the firm's headquarters less the CRSP value-weighted monthly market return (VWRETD).	CRSP, ExecuComp

The sample is the S&P 500 firms between 1994 and 2005. All dollar values are reported in 2005 dollars. Headquarters locations are primarily found using Federal Information Processing Standard (FIPS) codes for the state and county of the firm in *Compustat*. These codes are linked to the latitude and longitude for those codes found at www.census.gov/geo/www/gazetteer. For tests involving headquarter moves, the zip code of the firm's headquarters is obtained from Compact Disclosure and then linked to latitude and longitude at the above website by using ZTAC codes. The location of social elites is found from the zip codes of all people listed in the 2004 Social Register. The number of golfing contacts is the number of other S&P 500 CEOs who golf at the same clubs as the S&P 500 firm's CEO. Golf club membership is found by using the USGA's handicap lookup system at http://www.ghin.com/lookups/index.html. Each club's zip code is looked up on the club website. Only clubs within 100 miles of the firm headquarters are recorded. If multiple people with the same name as the CEO are listed for the same club, then golf club memberships is set to unknown.