

CHIEF EXECUTIVE COMPENSATION: AN EMPIRICAL STUDY OF FAT CAT CEOS

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ABSTRACT

This paper empirically tests the determinants of executive pay. In order to gain more understanding of the fat cat problem that have been subject to hot debate, we also examine a sample firms that suffer from the “fat cat problem”, defined as firms with poor performance while their Chief Executive Officers (CEOs) receive high compensation. Based on a sample of 903 US firms between 2007 and 2010, we find that there is a substitution effect between CEO compensation and the level of CEO ownership and that larger firms give higher pay to their CEOs. When the sample is limited to fat cat companies only, we find that tenure and firm size are significantly positively associated with CEO compensation. The firm size, leverage ratio and investment opportunities are found to be significantly associated with the CEO total compensation when the sample is limited to fat cat companies in the financial services industries. Overall, firm size appears to be the most important determinant of CEO compensation and that there is a general lack of linkage between pay and performance. The evidence thus calls for public attention for reexamining the effectiveness of current pay system.

JEL: G34, M52

KEYWORDS: Executive Compensation, Fat Cat, Pay-Performance Relationship

INTRODUCTION

The issue of “fat cats” became a hot button issue during the recent financial crisis in 2007 and 2008. Blinder (2009) suggests that the “perverse” incentive built into the compensation plans of many financial firms is one of the most fundamental causes of the financial crisis and surprisingly receives little public attention. The incentives given to Chief Executive Officers (CEOs) and other top executives of large banks or investment banks have encouraged the excessive risk-taking by top managers, leading to the financial crisis. Most financial institutions link incentives of executives to short-term securities trading performance. Executives are encouraged to engage in short-term gambles and to focus their attention on short-term objectives instead of achieving sustainable growth objectives (Abou-El-Fotouh, 2010). Specifically, these institutions have failed to recognize that high incentives could lead to uncontrollable risks and this problem has been blamed for causing the financial crisis.

Additionally, there have been increasing concerns about the escalation in executive compensation (Dong & Ozkan, 2008). In particular, the substantial rises in executive pay have far exceeded the increases in underlying firm performance (Gregg, Jewell, & Tonks, 2005). The review on CEO compensation by Frydman and Jenter (2010) shows that there was a dramatic increase in compensation levels from the mid-1970s to the early 2000s in the US. Especially in the 1990s, the annual growth rates were more than 10% by the end of the decade. The increase in executive compensation was evident in firms of all sizes with larger firms experiencing even greater growth. The high level of CEO pay in the US has therefore brought about considerable debate and a lot of attention from academia and policy makers regarding executive compensation, in particular, the pay-setting process and the effectiveness of the compensation contracts.

In the US market, the regulations place a strong emphasis on shareholder protection and information disclosure. As a result, most US firms are characterized by dispersed share ownership and low managerial ownership (Core, Guay, & Larcker, 2003). Compensation contracts therefore become particularly important in aligning the interests of managers and shareholders. The level of executive compensation and the linkage between compensation and firm performance have been extensively researched while no consistent results have been reported. For example, studies by Murphy (1985), Jensen and Murphy (1990), Hubbard and Palia (1995), and Ozkan (2011) all find a positive relation between pay and performance, supporting the agency theory. The agency theory argues that managers are self-serving and therefore, formal mechanisms such as compensation contracts are required in an attempt to align the interests of managers with that of shareholders (Jensen & Meckling, 1976; Fama & Jensen, 1983). In contrast, Ozkan (2007) does not find a significant relationship between CEO compensation and firm performance based on a sample of large UK companies for the fiscal year 2003-2004. In a more recent study, based on a sample of 390 UK non-financial firms for the period 1999-2005, Ozkan (2011) reports a significantly positive relationship between firm performance and CEO's cash compensation but an insignificantly positive relationship between firm performance and total compensation.

Therefore, the objectives of this study are twofold: exploring the determinants the executive pay and examining a sample of "fat cat companies", defined as having poor performance while giving high compensation to their CEOs. Specifically, to achieve the first objective, we examine whether CEO and board characteristics, including CEO experience, measured by CEO tenure and CEO age, CEO shareholdings, and board size, are related to CEO compensation for a sample US companies between 2007 and 2010. The second objective is achieved by analyzing the characteristics of fat cat CEOs and fat cat companies, and investigating the determinants of fat cat CEO compensation. Thus, although there has already been extensive research on executive compensation, this paper contributes to the literature by focusing on fat cats that have been subject to hot debate.

The remainder of this paper is organized into six sections. In Section 2, we review the prior empirical literature on executive compensation. The hypotheses tested in this study are discussed in Section 3. In Section 4, we describe the data and sample and specify the model used in the tests. Empirical results for the full sample and fat cat companies are presented in Section 5. A conclusion is provided in Section 6.

LITERATURE REVIEW ON EXECUTIVE COMPENSATION

Most companies are characterized by the separation of ownership and control where the ownership is held by diverse shareholders and the control is in the hands of top executives. As a result, shareholders are not able to monitor managers' actions directly. According to the agency theory, these companies are likely to suffer from agency problems. That is, managers as the agents may not always act in the interest of the shareholders (i.e., the principals), thereby giving rise to conflicts of interests. One important control mechanism to align the interests of shareholders and managers and to mitigate the agency problems is to structure CEO compensation so that changes in executive wealth are linked to changes in stock price. By creating a pay-performance linkage in compensation contracts, executives have more incentives to maximize shareholder wealth (Core et al., 2003). Moreover, the risks between the principals and agents can be shared more equitably (Jensen & Meckling, 1976; Holmstrom, 1979; Cordeiro & Veliyath, 2003).

An early paper by Finkelstein and Hambrick (1988) provides a synthesis on CEO compensation and suggests that there are two main set of factors that affect CEO compensation: first, the *market factors*, including managerial labor market, marginal products of CEOs, CEO discretion, firm size, firm performance, and human capital; secondly, the *power and preferences of the board and CEO*.

Consistent with this view, Ozkan (2007) finds that corporate governance mechanisms have a significant effect on the level of CEO compensation. Specifically, measures of board and ownership structures are found to explain a significant amount of cross-sectional variation in the CEO total compensation.

Prior empirical research on the pay-performance link is extensive but conflicting results have been reported. For example, Jensen and Murphy (1990) find that increases in shareholder wealth are positively related with CEO pay. Main et al. (1996) find that the relation between pay and performance becomes more significant when executive options are included in total compensation. In contrast, Brick et al. (2006) document that firm underperformance is related to excessive pay to managers and directors, providing evidence of cronyism between CEOs and directors. Gregg et al. (2005) based on a sample of large UK firms find a weak relationship between pay, measured by total board and highest director pay, and performance while board structure, firm size, industry and firm risk are all significant determinants of executive compensation. Ozkan (2007) finds a positive but insignificant relationship between performance and executive compensation.

To extend on earlier research that often reports weak or statistically insignificant relationship between pay and performance, Barkema and Gomez-Mejia (1998) propose a general research framework and argue that the inclusion of other criteria (such as the market, peer compensation, and individual characteristics), a firm's governance structure, and contingencies (such as a firm's strategy, R&D level, market growth, industry concentration, regulation, and national culture), can enhance our understanding of the determinants of executive pay. Therefore, in addition to performance, there are other factors that can affect executive pay. As argued by agency theorists, the governance structure of firms can mitigate the potential agency problem between managers and shareholders arising from the separation of ownership and control, and therefore, influence the way firms set their compensation packages (Ozkan, 2011). In fact, the board of directors plays an essential role in setting CEO compensation (Finkelstein & Hambrick, 1988; Boyd, 1994; Barkema & Gomez-Mejia, 1998; Chhaochharia & Grinstein, 2009).

One theoretical explanation for the rapid acceleration in CEO compensation in recent years is the rent extraction behavior of managers; that is, the managerial power hypothesis. The theory argues that the excessive CEO pay is due to the greater power of executives over directors that allows the former to set their own pay and extract rents (Bebchuk et al, 2002; Bebchuk & Fried, 2004). Thus, an implication of the theory is that enhancing the independence of the board will improve corporate governance and prevent managers from extracting rents in the form of higher pay (Guthrie, Sokolowsky, & Wan).

Chhaochharia and Grinstein (2009) conduct tests on whether independent directors are better monitors of CEOs and find that non-independent directors are associated with excessive CEO pay, consistent with the agency theory. However, Guthrie et al. argue that the results of Chhaochharia and Grinstein's (2009) study are driven by two extreme outliers. Guthrie et al. re-test Chhaochharia and Grinstein's (2009) data after removing outliers and find contrasting results; that is, independent directors do not constrain CEOs from obtaining excessive pay. Both Cosh and Hughes (1997) and Core et al. (1999) also do not find support for the agency theory. In particular, they find that firms with a higher proportion of non-executive directors, which are expected to be associated with greater monitoring by the board of directors, tend to pay more to their CEOs.

Moreover, Ozkan (2007) based on a sample of UK companies in the year 2003 finds that board and ownership structures are significantly associated with CEO's total compensation. Core et al. (1999) report that larger boards pay more to their CEOs in terms of both cash compensation and total compensation. Guest (2010) who examines a comprehensive and long period dataset of 1,880 UK firms over the period 1983-2002 also reports a positive relationship between board size and the rate of increase in executive compensation, providing support for the argument that large boards suffer from the problems of less efficient decision-making and poor communication. In addition, Guest (2010) reports that the

proportion of non-executive directors is negatively associated with the rate of increase in executive compensation and is positively related to the pay-performance link, highlighting the monitoring role of non-executive directors in setting executive pay. Further, Alonso and Aperte (2011) examine whether board independence and equity-linked compensation are alternative instruments of corporate governance based on a sample of European firms and find that these two mechanisms are complementary. Specifically, CEOs receive less cash compensation but higher equity-linked compensation when the proportion of non-executive directors is higher. Thus, this paper adds to the literature on executive compensation by examining the determinants of executive compensation and focusing on a sample of fat cat companies.

HYPOTHESES

This study tests if CEO and board characteristics, including CEO experience, CEO shareholdings, and board size, are related to CEO compensation. The hypotheses tested are outlined below.

CEO Experience

As CEOs build a power base and gain voting control over time, they may exert influence over board composition and consequently, demand compensation packages that serve their own interests rather than the shareholders' (Hill & Phan, 1991; Cordeiro & Veliyath, 2003; Ozkan, 2011). The experience of a CEO may be measured by his/her tenure and age. As suggested by Finkelstein and Hambrick (1990), the tenure of an executive can also affect and proxy for his/her attitudes to risk. This is because long-tenured executives have established high firm-specific human capital and become less mobile (Finkelstein & Hambrick, 1990). Consequently, they will be unwilling to take on any unnecessary risks that are likely to bring more harms than benefits. Hill and Phan (1991) further argue that the positive relationship between pay and firm risk will be stronger the longer the tenure of the CEO. Hence, CEO experience, measured by CEO tenure and CEO age, is expected to be *positively* associated with CEO compensation.

H1a: CEO tenure will be positively related to CEO compensation.

H1b: CEO age will be positively related to CEO compensation.

CEO Shareholdings

The level of CEO shareholdings shows the extent to which the wealth of the CEO is linked with firm value and is related to the extent of agency problems faced by companies (Ozkan, 2007). CEOs with greater shareholdings in the firm have stronger incentives to boost the firm's stock value. Consequently, less incentive compensation is needed for aligning the interests of CEO and shareholders. That is, CEO shareholdings can act as a substitute for CEO compensation (Cordeiro & Veliyath, 2003) and a *negative* relationship is expected between CEO compensation and CEO shareholdings. The study by Allen (1981) provides evidence supporting this view in that the level of CEO compensation is negatively related with the equity held by the CEO. Therefore, a *negative* relationship between CEO shareholdings and CEO compensation is proposed.

H2: CEO shareholdings will be negatively related to CEO compensation.

Board Size

The size of the board affects the effectiveness of the board in monitoring management. For example, when the board size grows large, more resource networks and independent and professional views can be brought to board. However, these advantages may be overwhelmed by the efficiency losses in

communication, decision-making and coordination between board members as the number of board members increases. In other words, a large board may in effect reduce the effectiveness of board monitoring and therefore be associated with higher CEO compensation. Based on a sample of 414 UK companies between 2003 and 2004, Ozkan (2007) finds supports for this view and reports that firms with larger board size are associated with higher CEO compensation, measured by total compensation and cash compensation. Therefore, this study expects a *positive* relationship between board size and CEO compensation.

H3: Board size will be positively related to CEO compensation.

DATA AND METHOD

Data and Sample Selection

The data used in this study are obtained from the Standard and Poor's ExecuComp database. ExecuComp provides key financial information and compensation data of the top five executives and directors for each firm in the S&P 500, S&P Midcap 400, and S&P SmallCap 600. To be included in the sample, the sample firms must have all the required financial information. As the information on board of directors in the ExecuComp database is more complete from the year 2006 and onwards, the sample period for this study is between 2007 and 2010. The final sample includes 903 firms (or 3,612 firm-years).

Model Specification and Variable Definitions

The hypotheses are tested based on the following model using panel data estimation method as shown in Equation (1). The advantage of using panel data estimation is that it allows us to exploit time series variation in executive compensation, firm performance and other variables while controlling for unobserved time-invariant firm-specific effects. Therefore, the potential bias due to omitted variables can be eliminated (Ozkan, 2011).

$$\begin{aligned} \text{Log(CEO compensation}_{i,t}) &= \alpha_{i,t} + \beta_1 \text{CEO tenure}_{i,t} + \beta_2 \text{CEO age}_{i,t} + \beta_3 \text{CEO shareholdings}_{i,t} \\ &+ \beta_4 \text{Log(Board size}_{i,t}) + \beta_5 \text{Log(Firm size}_{i,t}) + \beta_6 \text{Firm performance}_{i,t-1} + \text{Year}_t + \text{Industry}_t \end{aligned} \quad (1)$$

where *CEO compensation* is measured in two ways, CEO total compensation and CEO cash compensation. Ozkan (2011) suggests that firm performance may affect cash and equity-based components of compensation differently. Thus, it is important to incorporate multiple measures for compensation. The first measure, *CEO total compensation*, comprises salary, bonus, other annual payment, restricted stock grants, long-term incentive payouts, value of options granted and all other payments provided by ExecuComp database. The second measure, *CEO cash compensation*, consists of salary and bonus. Note that all compensation variables are log transformed so that extreme values would not drive the results. *CEO tenure* is measured by the number of years the CEO has held the position in a given company. *CEO age* is the age of the CEO. *CEO shareholdings* is calculated as shares owned by the CEO, excluding options that are exercisable or will become exercisable within 60 days, divided by the number of common shares outstanding. *Board size* is measured by the number of directors on the board.

Firm size is measured by total assets. This controls for the fact that larger firms, which are typically more complex, will require directors to spend more time and put more effort in monitoring managers. In other words, larger firms are associated with greater complexity and information processing demands and therefore, CEOs of larger firms are expected to receive higher compensation (Smith & Watts, 1992; Core

et al. 2003). The study by Conyon (1997) reports a significantly positive relationship between firm size and CEO compensation levels. Hence, a *positive* relationship is expected between CEO compensation and firm size. *Firm performance* is measured by the return on average equity (ROE), which are lagged one year to reduce potential endogeneity; that is, to avoid measuring the effect of compensation on firm performance. The lagged performance measure can also account for the fact that CEO compensation paid in one year is usually determined by the firm performance in the previous year. Agency theory suggests that one way to align the interests of managers with that of shareholders is to tie compensation contracts to firm performance (Firth et al., 2006; Chhaochharia & Grinstein, 2009); that is, to create a pay-for-performance linkage. Thus, making the CEOs hold accountable for firm performance is essential for motivating the CEOs to initiate strategies that boost firm value. Hence, a *positive* relationship between CEO compensation and firm performance is expected.

Year dummies are included to control for unobserved differences between years. The inclusion of these dummies can capture common factors that are driven by industry- and economy-wide effects. *Industry* dummies are based on the SIC division structure. As the pay of CEOs is likely to be set with reference to the pay of other CEOs in an industry, this variable controls for inter-industry differences in compensation levels. For example, Hilburn (2010) reports that directors of technology companies have higher pay than their counterparts at general industry companies. Moreover, previous literature has suggested that banks are likely to face greater potential conflicts of interests than industrial firms due to its distinct characteristics such as the existence of deposit insurance, high debt-to-equity ratios and asset-liability issues (Becher, Campbell II, & Frye, 2005). Therefore, the differences in industry structure, complexity and industry custom are likely to affect the level of compensation (Hempel & Fay, 1994).

Sample Characteristics

Table 1 presents the descriptive statistics for the full sample of 903 firms between 2007 and 2010. The average and median age of CEOs is both 55, ranging from 34 to 80. The mean CEO shareholdings is 1.51% and ranges from 0 to 75.8% of outstanding shares. CEO tenure, which measures the number of years the CEO has held the position in a given company, has an average of 7.3 years and ranges from 0 to 47 years. The mean (median) value of CEO cash compensation is \$1.1 million (\$876,000). The CEO total compensation has an average of \$5.7 million, ranging from \$30,000 to \$128 million.

The average board size is 9 and ranges from 3 to 32 directors. The average firm size is \$17.9 billion if measured by total assets and \$7.3 billion if measured by sales. The average ROA is 3.48% and ranges from -163% to 53%. The average ROE is 9.26% and ranges from -906% to 524%. The mean and median “average director compensation per board” is \$175,000 and \$161,000. The mean “total board compensation” is \$1,574,000.

Table 2 reports the correlations between variables. As expected, there is a high correlation between board size and total board compensation (0.503), and between CEO cash compensation and CEO total compensation (0.611).

Table 1: Descriptive Statistics of the Sample between 2007 and 2010

		Mean	Median	Max	Min	SD
<i>CEO characteristics</i>						
CEO age		55	55	84	34	7
CEO shareholdings	(%)	1.51	0.31	75.80	0.00	4.63
CEO tenure	(years)	7.33	6.00	47.00	0.00	6.68
<i>CEO compensation</i>						
CEO cash comp	(\$000)	1,128	876	77,926	7	2,259
CEO total comp	(\$000)	5,731	3,915	128,706	30	6,636
<i>Firm characteristics</i>						
Board size		9	9	32	3	3
Total assets	(\$m)	17,936	3,072	2,175,052	10	88,762
Sales	(\$m)	7,334	1,872	425,071	0	23,660
ROA	(%)	3.48	4.04	52.85	-163.38	10.86
ROE	(%)	9.26	11.66	524.38	-906.03	33.54
<i>Director compensation</i>						
DIRCOMP_AVE	(\$000)	175	161	1,796	4	110
DIRCOMP_MAX	(\$000)	303	216	7,779	14	435
DIRCOMP_TOT	(\$000)	1,574	1,361	14,686	33	1,086

This table provides the descriptive statistics of the sample between 2007 and 2010. The sample includes 903 firms (or 3,612 firm-years). CEO shareholdings are calculated as shares owned by the CEO divided by the total number of common shares outstanding. CEO tenure is the number of years the CEO has held the position in a given company. CEO cash compensation includes salary and bonus. CEO total compensation includes salary, bonus, other annual, total value of restricted stock granted, total value of stock options granted (using Black-Scholes), long-term incentive payouts, and all other compensation. DIRCOMP_AVE is the average director compensation for each firm (or each board), that is, the per capita compensation of directors. DIRCOMP_MAX is the compensation of the highest paid director on each board. DIRCOMP_TOT is the total board compensation. Director compensation includes cash fees, stock awards, option awards, non-equity incentive plan, change in pension value and non-qualified deferred compensation earnings, and other compensation.

Table 2: Correlation Matrix

	1	2	3	4	5	6	7	8	9	10
	CEO age	CEO holdings	CEO tenure	Board size	Assets	Sales	ROE	ROA	CEOCOMP_CASH	CEOCOMP_TOT
1. CEO age	1									
2. CEO holdings	0.118 ***	1								
3. CEO tenure	0.417 ***	0.377 ***	1							
4. Board size	0.048 ***	-0.221 ***	-0.195 ***	1						
5. Assets	0.013	-0.048 ***	-0.056 ***	0.238 ***	1					
6. Sales	0.038 **	-0.069 ***	-0.075 ***	0.254 ***	0.417 ***	1				
7. ROE	-0.004	0.002	0.003	0.040 **	0.018	0.081 ***	1			
8. ROA	-0.010	0.021	0.014	0.008	-0.011	0.070 ***	0.666 ***	1		
9. CEOCOMP_CASH	0.087 ***	-0.019	0.051 ***	0.094 ***	0.130 ***	0.126 ***	0.020	0.008	1	
10. CEOCOMP_TOT	0.089 ***	-0.104 ***	-0.015	0.284 ***	0.223 ***	0.330 ***	0.114 ***	0.091 ***	0.611 ***	1

This table reports the correlations of variables for a sample of 903 firms (or 3,612 firm-years) between 2007 and 2010. ***, ** and * indicate the significant level at the 1%, 5% and 10%, respectively.

EMPIRICAL RESULTS

Table 3 presents the regression results for the full sample on CEO compensation estimated using random effects model of the panel data estimation. The results demonstrate that CEO shareholdings are significantly negatively associated with CEO total compensation at the 1% level and the evidence is slightly weaker for CEO cash compensation, which is significant at the 10% level. The results provide support for the hypothesis that CEO shareholdings and CEO compensation contracts are substitute mechanisms for aligning the interests of CEO and shareholders (Cordeiro & Veliyath, 2003). In addition,

CEO age is significantly positively related to CEO cash compensation at the 1% level. Therefore, the results suggest that more experienced CEOs tend to receive higher cash-based compensation.

Table 3: Regression Analysis of CEO Compensation

Dependent Variable	Log(CEO Total Compensation)	Log(CEO Cash Compensation)
Intercept	4.160 *** (6.535)	3.666 *** (8.183)
CEO TENURE	0.001 (0.384)	0.002 (1.001)
LOG(CEO AGE)	0.103 (0.823)	0.484 *** (5.654)
CEO HOLDING	-0.009 *** (-3.281)	-0.003 * (-1.679)
LOG(BSIZE)	0.025 (0.455)	0.050 (1.353)
LOG(ASSETS)	0.409 *** (30.603)	0.197 *** (20.635)
ROE _{t-1}	0.000 (0.178)	0.000 (-0.193)
Industry and year dummies	Yes	Yes
Adjusted R ²	0.505	0.168

*This table presents the regression analysis of CEO compensation for 903 firms (or 3,612 firm-years) between 2007 and 2010. The model is estimated using random effects model of the panel data estimation. The dependent variables are CEO total compensation and CEO cash compensation. CEO TENURE is measured by the number of years the CEO has held the position in a given company. CEO AGE is the age of the CEO. CEO HOLDING is calculated as shares owned by the CEO divided by the number of common shares outstanding. BSIZE is measured by the number of directors on the board. ROE is lagged one year. The t-statistics are presented in parentheses. ***, ** and * indicate coefficient is significant at the 1%, 5% and 10% level, respectively.*

Consistent with the expectation, firm size, measured by total assets, are significantly positively related to CEO compensation at the 1% level. Since larger firms are typically more complex, CEOs of these firms are more highly compensated. Interestingly, we find no evidence that firm performance, measured by ROE and ROA (not reported), is related to both measures of CEO compensation. This suggests that the pay-performance link does not exist and highlights the current concerns that pay to CEOs does not depend on firm performance.

Since there have been harsh criticisms about fat cat CEOs, we also analyze “fat cat companies”, defined as firms that have low (or below median) performance but give high (or above median) compensation to CEOs. Accordingly, firms are categorized according to two factors, firm performance (measured by ROA) and CEO total compensation. Panel A of Table 4 shows that based on the two-way tabulation, there are 803 fat cat companies and 803 underpaid companies, defined as firms that have high (or above median) performance but give low (or below median) compensation to CEOs, during the sample period 2007-2010. Panel B of Table 4 shows that over the sample period, the number of fat cat companies increases at an increasing rate while the number of underpaid companies decreases at a decreasing rate. The results suggest the problem of “fat cat” highlighted in recent years has become worse over time and should receive more public attention.

Table 4: Fat Cat and Underpaid Companies

Panel A: Identification of Fat Cat and Underpaid Companies					
Count (No. of firm-years)	ROA		Total		
	Below median	Above median		Below median	Above median
	Below median	1003	803		1806
CEO total compensation	Above median	803	1003		1806
	Total	1806	1806		3612

Panel B: Number of Fat Cat and Underpaid Companies Each Year					
Count (No. of firm-years)	2007	2008	2009	2010	Total
No. fat cat companies	158	166	205	274	803
Annual % change		5.1%	23.5%	33.7%	
No. of underpaid companies	248	241	191	123	803
Annual % change		-2.8%	-20.7%	-35.6%	

Panel A identifies fat cat and underpaid companies based on two dimensions, CEO total compensation and ROA. CEO total compensation includes salary, bonus, other annual, total value of restricted stock granted, total value of stock options granted (using Black-Scholes), long-term incentive payouts, and all other compensation. Panel B shows the number of fat cat and underpaid companies during the sample period. Fat cat companies are defined as having low performance (or below median ROA) but giving high (or above median) compensation to CEOs. Underpaid companies are defined as firms that have high performance (or above median ROA) but give low (or below median) compensation to their CEOs.

Table 5 summarizes the number and percentage of fat cat companies and underpaid companies in each industry. If we do not consider industries that have small sample size, the Table shows that fat cat companies are concentrated in industry 5 (transportation, communications, electric, gas, and sanitary services) and industry 10 (finance, insurance, and real estate). On the contrary, the underpaid companies are concentrated in industry 7 (retail trade) and industry 8 (services). The fact that fat cat companies are concentrated in financial services industries coincides with the news critics that the fat cat problem is pervasive in financial companies.

Table 5: Number and Percentage of Fat Cat and Underpaid Companies in Each Industry

Industry	High Comp Low ROA (fat cat)	%	Low Comp High ROA (underpaid)	%	High Comp High ROA	%	Low Comp Low ROA	%	Total (firm- years)
1	4	50.0	0	0.0	4	50.0	0	0.0	8
2	49	23.1	47	22.2	88	41.5	28	13.2	212
3	6	13.6	15	34.1	10	22.7	13	29.5	44
4	204	15.2	332	24.8	511	38.1	293	21.9	1340
5	145	33.3	76	17.4	71	16.3	144	33.0	436
6	18	23.7	33	43.4	14	18.4	11	14.5	76
7	41	13.1	104	33.3	114	36.5	53	17.0	312
8	60	14.4	134	32.2	122	29.3	100	24.0	416
9	4	50.0	0	0.0	4	50.0	0	0.0	8
10	272	35.8	62	8.2	65	8.6	361	47.5	760
Total	803	22.2	803	22.2	1003	27.8	1003	27.8	3612

This table shows the number and percentage of fat cat and underpaid companies. Based on the SIC system, the industry classification in this study is defined as follows: (1) agriculture, forestry, and fishing; (2) mining; (3) construction; (4) manufacturing; (5) transportation, communication, electric, gas and sanitary services; (6) wholesale trade; (7) retail trade; (8) services; (9) public administration; and (10) finance, insurance and real estate.

Based on the two-sample t-test, Table 6 shows that compared with the rest of sample firms, CEOs of fat cat companies are less experienced with shorter tenure and have significantly lower shareholdings in the firms. These characteristics fit the descriptions of a fat cat CEO. In addition, fat cat companies have more directors on the boards and are larger in terms of firm size. Director compensation is also significantly higher for fat cat companies than the rest of firms.

Table 6: Descriptive Statistics of Fat Cat Companies and Two-Sample T-Test Mean Comparison with the Rest of Sample Firms

	Fat Cat Companies (803 Firm-years)					Rest of Sample (2,809 Firm-Years)		
	Mean	Median	Max	Min	SD	Mean	t-test	
<i>CEO characteristics</i>								
CEO age		56	56	84	37	6	55	1.51
CEO holdings	(%)	0.78	0.20	28.00	0.00	2.10	1.72	-5.11 ***
CEO tenure	(years)	6.88	5.00	46.00	0.00	6.14	7.46	-2.20 **
<i>CEO compensation</i>								
CEO cash comp	(\$000)	1,643	1,050	77,926	277	3,345	981	7.37 ***
CEO total comp	(\$000)	9,085	7,012	112,465	3,917	7,573	4,772	16.87 ***
<i>Firm characteristics</i>								
Board size		10	10	32	4	3	9	14.04 ***
Total assets	(\$m)	50,391	9,936	2,175,052	202	165,915	8,658	11.98 ***
Sales	(\$m)	10,368	4,439	180,929	97	19,620	6,467	4.13 ***
ROA	(%)	-1.14	1.47	4.03	-110.44	9.22	4.80	-14.03 ***
ROE	(%)	-0.80	6.18	320.14	-906.03	43.48	12.13	-9.76 ***
<i>Director compensation</i>								
DIRCOMP_AVE	(\$000)	207	187	1,028	25	105	166	9.50 ***
DIRCOMP_MAX	(\$000)	390	250	6,431	52	608	278	6.53 ***
DIRCOMP_TOT	(\$000)	2,062	1,823	9,255	252	1,152	1,434	14.89 ***

This table presents the descriptive statistics of fat cat companies (or 803 firm-years), defined as firms that have poor performance but give high compensation to their CEOs, and the two-sample t-test of mean comparison between fat cat companies and the rest of sample firms. ***, ** and * indicate the significant level at the 1%, 5% and 10%, respectively.

Table 7 then compares the characteristics of underpaid companies with the rest of sample firms using the two-sample t-test. The Table shows that underpaid CEOs are younger, have longer tenure and hold more shares in the companies than other CEOs. In addition, underpaid companies have smaller board size and firm size, and give lower pay to board of directors. In other words, the results suggest that underpaid companies are typically smaller firms and are more likely to expropriate younger CEOs who have worked in the companies for a longer period of time and have greater interest in the companies.

Furthermore, to examine the determinants of fat cat CEOs' compensation, panel estimation with the random effects model is used. Table 8 shows that CEO tenure, a measure of CEO experience, and firm size are significantly positively related with both measures of CEO compensation, consistent with the expectation. Thus, the results suggest that more experienced CEOs with longer tenure are more likely to receive higher pay and that larger firms give higher pay to their CEOs.

While the corporate governance of manufacturing firms has received heightened attention, the corporate governance of financial companies has been less researched (John & Qian, 2003). According to John and Qian (2003), financial companies differ from manufacturing firms in two aspects. Firstly, financial companies are more highly regulated than manufacturing firms. Secondly, banks have much higher leverage than manufacturing firms. In addition, the remuneration policies of financial institutions have been blamed to contribute to the global financial crisis between 2007 and 2008 (Gregg, Jewell, & Tonks, 2011). Therefore, we conduct further analysis of fat cat companies that belong to financial services industry (i.e., industry 10: finance, insurance, and real estate).

Table 7: Descriptive Statistics of Underpaid Companies and Two-Sample T-Test Mean Comparison with the Rest of Sample Firms

	Underpaid Companies (803 Firm-Years)					Rest of Sample (2,809 Firm-Years)	
	Mean	Median	Max	Min	SD	Mean	t-test
<i>CEO characteristics</i>							
CEO age	54	54	79	34	7	56	-6.22 ***
CEO holdings (%)	2.67	0.51	61.39	0.00	6.85	1.18	8.08 ***
CEO tenure (years)	7.85	6.00	45.00	0.00	7.41	7.19	2.48 ***
<i>CEO compensation</i>							
CEO cash comp (\$000)	717	664	2,583	26	307	1,246	-5.88 ***
CEO total comp (\$000)	2,071	1,997	3,913	30	932	6,777	-18.55 ***
<i>Firm characteristics</i>							
Board size	7	7	28	3	2	9	-18.45 ***
Total assets (\$m)	1,659	836	27,397	57	2,390	22,589	-5.92 ***
Sales (\$m)	1,748	918	50,703	22	3,199	8,931	-7.65 ***
ROA (%)	9.43	8.02	52.85	4.05	5.24	1.78	18.41 ***
ROE (%)	19.69	15.71	220.85	4.99	16.13	6.27	10.13 ***
<i>Director compensation</i>							
DIRCOMP_AVE (\$000)	141	130	795	11	79	184	-10.08 ***
DIRCOMP_MAX (\$000)	231	171	4,615	14	279	323	-5.30 ***
DIRCOMP_TOT (\$000)	1,048	989	5,563	33	638	1,724	-16.12 ***

This table presents the descriptive statistics for underpaid companies (or 803 firm-years), defined as firms that have high performance but give low compensation to their CEOs, and the two-sample t-test of mean comparison between underpaid companies and the rest of sample firms. ***, ** and * indicate the significant level at the 1%, 5% and 10%, respectively.

Table 8: Regression Analysis of CEO Compensation for Fat Cat Companies

Dependent Variable	Log(CEO Total Compensation)	Log(CEO Cash Compensation)
Intercept	6.793 *** (8.328)	6.081 *** (6.024)
CEO TENURE	0.009 *** (2.679)	0.007 ** (1.796)
LOG(CEO AGE)	-0.130 (-0.708)	0.047 (0.211)
CEO HOLDING	-0.002 (-0.198)	0.013 (1.206)
LOG(BSIZE)	0.044 (0.533)	0.080 (0.801)
LOG(ASSETS)	0.198 *** (10.646)	0.151 *** (6.519)
ROE _{t-1}	0.000 (-0.556)	0.000 (-0.694)
Industry and year dummies	Yes	Yes
Adjusted R ²	0.194	0.093

This table presents the regression analysis of CEO compensation for 373 fat cat companies (or 803 firm-years) between 2007 and 2010, using panel estimation with the random effects model. The dependent variables are CEO total compensation and CEO cash compensation. CEO TENURE is measured by the number of years the CEO has held the position in a given company. CEO AGE is the age of the CEO. CEO HOLDING is calculated as shares owned by the CEO divided by the number of common shares outstanding. BSIZE is measured by the number of directors on the board. ROE is lagged one year. The t-statistics are presented in parentheses. ***, ** and * indicate coefficient is significant at the 1%, 5% and 10% level, respectively.

As the nature of financial services industry is different from that of other industries, such as the existence of deposit insurance, high debt-to-equity ratios and asset-liability issues (Becher et al., 2005), additional variables, including financial leverage and investment opportunities, are included as control variables in the following analysis of fat cat financial companies as shown in Equation (2). According to Fahlenbrach and Stulz (2011), one explanation of the financial crisis is that financial companies have excessive leverage. As for levered firms, shares are effectively options on the value of the assets, CEOs of financial companies attempt to increase the volatility of the assets and thereby, the value of their shares. Hence, the leverage ratio, defined as one minus the ratio of equity over assets, is added to the model as a control variable. Moreover, Finkelstein and Boyd (1998) suggest that the executive compensation is influenced by contingencies such as industry concentration and investment opportunities. Accordingly, we also include investment opportunities, measured by the firm's market value divided by the book value of shareholders' equity, as a control variable.

$$\begin{aligned} \text{Log}(\text{CEO compensation}_{i,t}) = & \alpha_{i,t} + \beta_1 \text{CEO tenure}_{i,t} + \beta_2 \text{CEO age}_{i,t} + \beta_3 \text{CEO shareholdings}_{i,t} \\ & + \beta_4 \text{Log}(\text{Board size}_{i,t}) + \beta_5 \text{Log}(\text{Firm size}_{i,t}) + \beta_6 \text{Firm performance}_{i,t-1} + \beta_7 \text{Leverage}_{i,t} + \\ & \beta_8 \text{MB}_{i,t} + \text{Year}_t \end{aligned} \quad (2)$$

where *CEO compensation* is measured by CEO total compensation and CEO cash compensation. *CEO tenure* is measured by the number of years the CEO has held the position in a given company. *CEO age* is the age of the CEO. *CEO shareholdings* is calculated as shares owned by the CEO, excluding options that are exercisable or will become exercisable within 60 days, divided by the number of common shares outstanding. *Board size* is measured by the number of directors on the board. *Firm size* is measured by total assets. *Firm performance* is measured by lagged return on average equity (ROE). *Leverage* is measured by one minus the ratio of equity over assets. *MB* is the investment opportunities, measured by the firm's market value divided by the book value of shareholders' equity. *Year* dummies are included to control for unobserved differences between years.

Table 9 presents that panel estimation of CEO compensation for fat cat financial companies. The results show that fat cat financial companies with lower leverage ratio and higher investment opportunities give higher pay to CEOs, in terms of total compensation. The significant negative relationship between financial leverage and CEO total compensation is contrary to what is suggested by public critics that CEOs of financial companies have the incentive to take on excessive leverage to increase their compensation. In addition, firm performance, measured by lagged ROE, is found to be negatively associated with CEO cash compensation, significant at the 5% level. The results thus suggest that there is a strong positive relationship between the non-cash (or equity-based) compensation paid to fat cat CEOs in financial companies and firm performance.

CONCLUSION

The global financial crisis in 2008 sheds light on the significance of reviewing the compensation packages of top executive. Based on a sample of 903 US firms between 2007 and 2010, this study examines the determinants of CEO compensation and conducts further tests on a subsample of "fat cat companies", which are defined as having poor performance while giving high compensation to their CEOs. The results show that CEOs with older age are associated with higher cash compensation. This finding provides support for the argument that CEO age is related to CEO's ability to influence the board's pay determination process. The results also suggest that there is a substitution effect between CEO compensation and the level of CEO ownership and that larger firms give higher pay to their CEOs.

Table 9: Regression Analysis of CEO Compensation for Fat Cat companies in Finance, Insurance and Real Estate Industries

Dependent Variable	Log(CEO Total Compensation)		Log(CEO Cash Compensation)	
Intercept	8.421 *** (5.754)	8.120 *** (5.687)	7.827 *** (4.178)	7.885 *** (4.126)
CEO TENURE	0.008 (1.230)	0.009 (1.457)	0.011 (1.432)	0.012 (1.492)
LOG(CEO AGE)	-0.294 (-0.793)	-0.255 (-0.695)	-0.448 (-0.944)	-0.481 (-0.980)
CEO HOLDING	0.004 (0.250)	0.003 (0.208)	0.004 (0.190)	0.004 (0.210)
LOG(BSIZE)	0.009 (0.069)	-0.108 (-0.808)	-0.010 (-0.060)	-0.013 (-0.074)
LOG(ASSETS)	0.167 *** (5.415)	0.263 *** (6.546)	0.111 *** (2.754)	0.140 *** (2.578)
ROE _{t-1}	0.002 (0.999)	0.001 (0.722)	-0.004 ** (-2.056)	-0.004 ** (-2.099)
Leverage		-0.919 *** (-2.813)		-0.346 (-0.809)
MB		0.076 *** (2.552)		0.027 (0.692)
Year dummies	Yes	Yes	Yes	Yes
Adjusted R ²	0.172	0.214	0.059	0.056

*This table presents the regression analysis of CEO compensation for 101 fat cat companies (or 272 firm-years) between 2007 and 2010 in finance, insurance and real estate industries, using panel estimation with the random effects model. The dependent variables are CEO total compensation and CEO cash compensation. CEO TENURE is measured by the number of years the CEO has held the position in a given company. CEO AGE is the age of the CEO. CEO HOLDING is calculated as shares owned by the CEO divided by the number of common shares outstanding. BSIZE is measured by the number of directors on the board. ROE is lagged one year. LEVERAGE is defined as one minus the ratio of equity over assets. MB is measured by the firm's market value divided by the book value of shareholders' equity. The t-statistics are presented in parentheses. ***, ** and * indicate coefficient is significant at the 1%, 5% and 10% level, respectively. Note that Hausman test has been conducted and the null hypothesis cannot be rejected.*

Moreover, this study finds that over the sample period, the number of fat cat companies, defined as having low firm performance while giving high compensation to CEOs, increases at an increasing rate and is concentrated in industry 5 (transportation, communications, electric, gas, and sanitary services) and industry 10 (finance, insurance, and real estate). In addition, fat cat CEOs are characterized by shorter tenure and lower shareholdings. The panel analysis shows that tenure and firm size are significantly positively associated with the compensation of fat cat CEOs. Furthermore, firm size, leverage ratio and market-to-book ratio are significantly associated with the total compensation of fat CEOs in the finance, insurance and real estate industries. Overall, we find that firm size is the most important determinant of CEO compensation, which is consistently significant throughout the analyses, and that there is a general lack of linkage between pay and performance even though the number of fat cat CEOs is increasing over the years. These results thus call for public attention that there is a strong need for reexamining the pay setting process and the effectiveness of current pay system. One limitation of this study is that due to the constraint on the availability of board of directors' data, the sample period of this study is limited to four years only. Future research could extend the sample period by dropping the board size variable to see if similar results can be reached.

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