THE INFLUENCE OF THE SUBPRIME CRISIS ON DIRECTOR COMPENSATION OF FINANCIAL VERSUS NON-FINANCIAL FIRMS

by

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Abstract

This paper focuses on how the subprime crisis affects the director compensation of financial and non-financial firms as well as whether director compensation is correlated with firm performance, stock performance, leverage ratio and other factors. I find that for financial firms, the director total compensation is positively related to ROE before and after the crisis while negatively related during the crisis. The total compensation has a positive relation with P/E before and during the crisis while a negative relation after the crisis. The director total compensation is also positive related to leverage ratio in the subprime crisis while negative related before and after the crisis. As for non-financial firms, the director total compensation has the same correlation with ROE as financial firms. But the relationship between the total compensation of non-financial firms and P/E is completely adverse to the relationship for financial firms while the relationship with the leverage ratio is still same for two groups of firms.

Keywords: Director Compensation; Firm performance; Leverage; Subprime Crisis

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1. Introduction

The subprime crisis is generally regarded as the most serious financial crisis since the Great Depression. It originated in the financial firms and had a negative influence on the whole U.S. economy. Recent studies try to examine the relation between executive compensation and firm performance throughout the crisis. However, limited research is available for how director compensation is affected by the subprime crisis.

My motivation for focusing on the board of directors is as follows. Firstly, boards are one of the internal corporate governance mechanisms that monitor and advise management in fulfilling the mandate to protect stockholder interests. This role should be particularly important during the crisis. Hermalin and Weisbach (1998) indicate that in a booming economy, boards tend to be reactive because good firm performance increases executives' bargaining power and reduces board independence. However, in an economy recession, boards become more proactive and independent as the bad firm performance reduces executives' negotiation power. Secondly, a key mandate of the board is to review and guide a firm's risk-management policy. As one of the major reasons of the subprime crisis is the managerial excessive risk-taking behaviour, I wish to research the relation between board directors and firm performance as well as the leverage of firms' capital structure before, during and after the subprime crisis period.

The purpose of this paper is to examine whether and to what extent the subprime crisis affects the compensation of corporate boards, which is an important internal corporate governance mechanism, both for financial firms as well as nonfinancial firms. I focus on both director total compensation and director cash compensation. I also try to examine whether and to what extent the director compensation is correlated with firm performance, stock performance, leverage ratio and other control variables before, during and after the subprime crisis. To reach these targets, I use t-test and multi-variable regression to check

the significance level of the results. I find that except for firm size, there are no significant results between any of the variables and total compensation. Thus, though I report in this study the correlation of the results, it is important to emphasize that one should be cautious in interpreting these results as suggesting a strong relation between these variables and director compensation. My analysis reveals that directors' cash compensation is relatively stable and increases over time, while total compensation seems to move somewhat with the performance of the stock market.

I find that after the end of the subprime crisis, the average director total compensation of financial firms went up sharply and in the aftermath of these crises, during the years 2010 to 2011, compensation had a large dip again. Compared with financial firms, during the period of 2009 to 2011, the average director total compensation of non-financial firms was relatively stable. I also find that for financial firms, the director total compensation is positively correlated to ROE before and after the crisis while negatively related during the crisis. The total compensation has a positive relation with P/E before and during the crisis while negative relation after the crisis. The director total compensation is positive related to leverage ratio in the subprime crisis while negative related before and after the crisis. In terms of non-financial firms, the director total compensation has the same correlation with ROE as financial firms while the cash compensation is different. The relationship between the total compensation of non-financial firms and P/E is completely adverse to the relationship for financial firms. As far as for leverage ratio, the director total compensation of non-financial firms have the same relationship as financial firms.

2 Literature Review

Although there are different payment practices among firms in different industries, the executive and director compensation packages are usually composed of five basic components: cash salary, annual bonus, payouts from inventive plans, restricted stock grants and restricted option grants. The relative importance of these components changes over time while they are correlated with diverse factors, including the firm performance.

A number of papers have researched the relevant determinants of executive and director compensation packages. A large number of literatures examine the correlation between risk and compensation, but the results are mixed. Holmstrom (1979) presents a model which predicts a negative relation between risk and compensation incentives. Prendergast (2002) shows a positive relation between risk and incentives. In terms of the factor firm size, different researchers used different measurements. Baker and Hall (2004) take the perspective that if the strength of incentives is measured by the change in executive compensation for every $1000 in shareholders' wealth, firm size is negatively correlated to incentives; if the strength of incentives is measured by the change in executive compensation for every $1000 in shareholders' wealth, firm size is negatively correlated to incentives. Researchers also find that firms with more growth opportunities provide their executives with stronger incentives (Mehran, 1995). As for the factor leverage, John and John (1993) find that except aligning managerial incentives with shareholder interest, executive compensation plays the role of a commitment mechanism to mitigate risk-shifting incentive and they predict that firms with higher leverage provide their executives with weaker incentives. Some researchers also think importance of executives and directors' abilities when determining their compensation. Milbourn (2003) finds that executives with higher perceived abilities are given much stronger compensation.

The subprime crisis of 2007 to 2008 has been partly blamed on remuneration policies in financial institutions. Turner (2009) states that there is a strong prima facie evidence that inappropriate incentive structures play a role in encouraging behaviour which contributed to the financial crisis. After examining corporate governance policies in 306 financial institutions among 31 countries during the financial crisis, Erkens (2009) finds that financial firms which used executive compensation packages with more emphasis on non-equity incentives such as salary and bonuses rather than equity-based compensation, performed worse during the financial crisis and took more risk before the crisis. Using a cross-country comparison among the performance of banks during the financial crisis, Beltratti and Stulz (2010) find that it is the fragility of banks' balance sheets, and especially their dependence on short-term capital market funding that led to their poor firm performance.

A series of researchers also have investigated whether the performance of US banks in the financial crisis was correlated with executive compensation and incentives before the financial crisis. Conyon (2010) states that the importance of compensation in stimulating excessive risk taking before the crisis was decreased by the roles of loose monetary policy, social housing policies, and financial innovation. Adams (2009) shows that the governance of financial firms is not worse than non-financial firms in S&P 500, and that US banks receiving bailout money had boards that were more independent than the banks of other countries. Fahlenbrach and Stulz (2011) take the perspective that perverse incentives are restrained if the interests of executives are aligned with shareholders through their ownership of firm stocks; they do not find evidence that banks with chief executive officers whose incentives were less well aligned with the interests of their shareholders performed worse in the financial crisis.

Apart from research on executive aspect, there are a number of recent studies which focus on whether internal corporate governance has an impact on firm performance during the subprime crisis and most focus on financial companies. Early studies also have some findings relevant to the relation between internal corporate governance and firm performance. Breach and Friedman (2000) and Mitton (2002) indicate that corporate

governance is of the first importance in determining firm performance during a crisis and this is mainly caused by two factors: firstly, expropriation by managers is likely to become more severe during these periods and secondly, the quality of corporate governance is likely to attract more scrutiny during the crisis.

Although limited empirical research exists on the relationship between corporate boards and firm performance, the results are still mixed. I then follow this stream to evaluate how the compensation of board directors is affected by the subprime crisis and whether director compensation is closely correlated with firm performance and other factors. As there is limited recent research on non-financial firms in this stream, I also compare the director compensation of financial firms with that of non-financial firms to have a relatively comprehensive picture.

3 Data and Methodology

3.1 Data and Variables

To research how director compensation is affected by the subprime crisis for both financial and non-financial firms, I use two databases to collect targeted data. Firstly, we use Director Compensation database under Compustat Quarterly Updates file to collect data for annual director compensation. I select the year from 2006 to 2012 and using the format of company codes gvkey (Company ID Number), we select the variables: (1) total_sec (Total Compensation), (2) cash_fees (Cash Compensation, (3) year (Fiscal Year), (4) sic (SIC code). Secondly, I use Fundamental Annual database under Compustat North American Annual Updates file to collect data for financial information of the financial and non-financial firms. I also select the year from 2006 to 2012. With the same format of company codes gvkey (Company ID Number), I select the variables: (1) fyear (Fiscal Year), (2) at (Total Assets), (3) epspi (Earnings Per Share – Including Extraordinary Items), (4) ni (Net Income), (5) seq (Stockholders Equity), (6) costat (Active/Inactive Status Marker), (7) prcc_f (Price Close-Annual-Fiscal).

Through dropping the inactive status firms ("costat" equals "I") and matching two databases using the common variables "gvkey" and "year", I finally target my sample which is composed of 2134 firms and years: 188 financial firms and years with the first two digits of sic 60 and 1996 non-financial firms and years. This sample is also equivalent to 61 financial firms and 685 non-financial firms totally. To avoid the extreme left tail of compensation amount, I choose to use the highest director total compensation each year for each company to represent the level of director total compensation for corresponding company each year.

According to the Figure I, I find that the average director total compensation is more volatile than the average director cash compensation throughout the whole period. This is

mainly because director total compensation consists of not only cash salary and bonus, but also restricted stock awards and option awards, which are quite dependent on the performance of changing stock price and more volatile than cash incentives.

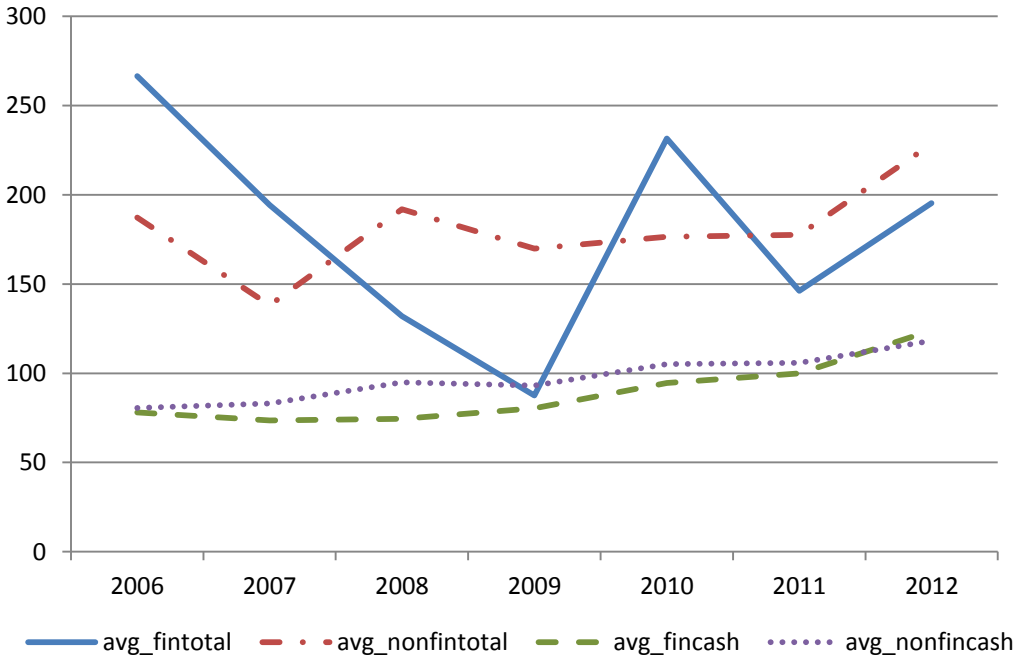
To be specific, in terms of the director total compensation, from 2006 to 2007, for both financial and non-financial firms, the average director total compensation went down while the average director total compensation of financial firms kept higher than that of non-financial firms. Over the period of 2008 to 2009, which is subprime crisis period, the average director total compensation of financial firms decreased sharply, starting at a level of 160 and ending at a level of less than 90. In the meantime, the average director total compensation of non-financial firms fluctuated smoothly, increasing a little from a level of 140 to 190 between 2007 and 2008 and then decreasing a small amount from a level of 190 to 170 between 2008 and 2009. This indicates that the non-financial industries were not largely affected by the subprime crisis while the financial industry was exposed to great risk and uncertainty.

After 2009, the end of the subprime crisis, the average director total compensation of financial firms went up significantly during the period of 2009 to 2010, starting at a level of 90 and ending at a level of almost 230. From 2010 to 2011, the average director total compensation of financial firms had a dip again from a level of 230 to nearly 145. This probably implies that after the crisis, the financial industry went on recovery but still got exposure to diversified risks and uncertain challenges of future development and business modes. In contrast to financial firms, during the period of 2009 to 2011, the average director total compensation of non-financial firms was relatively stable, staying at a level of almost 170. Since 2011, for both financial and non-financial firms, the average director total compensation increased greatly and kept nearly parallel. The average director total compensation of financial firms kept lower than that of non-financial firms.

As for the director cash compensation, I find that over the whole period of 2006 to 2012, the average director cash compensation of financial firms had a slow uptrend, which is quite similar to that of non-financial firms, starting at a level of 80 and ending at a level

of almost 110. This proves again that the cash components of director compensation are relatively stable before, during and after the subprime crisis. Before 2011, the average director cash compensation of financial firms was a little lower than that of non-financial firms. However, after 2011, the average director cash compensation of financial firms increased more quickly than that of non-financial firms and became larger than the average director cash compensation in non-financial firms, reaching a level of more than 120.

Figure I: Director Compensation for financial and non-financial firms ($thousands)



3.2 Methodology

3.2.1 T-test

To ensure that the director compensation is correlated with firm performance, I use t-test to evaluate both whether the difference of average director total compensation is significant between financial and non-financial firms and whether the difference of average director cash compensation is significant between financial and non-financial firms.

Table I shows that the difference of average director total compensation is not significant between financial and non-financial firms during the following periods 2006 to 2012, 2006 to 2007 and 2010 to 2012, because all the Pr(|T| > |t|) in the above three periods are largely greater than 0.05. However, only during the period of 2008 to 2009 which is the subprime crisis period, the Pr(|T| > |t|) is very close to 0.05 and this proves that the difference of average director total compensation is significant between financial and non-financial firms at the 5% significance level.

Table I: Director total compensation t-test

		Mean	Std. Dev.	Std. Err.	N	t-value	df
2006-2012	**Non-financial**	181.94	254.72	5.77	1946	0.44	2132
	Financial	173.16	332.21	24.23	188		
	Difference	8.78		20.04			
2006-2007	**Non-financial**	157.12	309.90	16.42	356	-1.13	380
	Financial	227.63	281.03	55.12	26		
	Difference	-70.51		62.59			
2008-2009	**Non-financial**	177.54	258.72	10.93	560	1.91	602
	Financial	102.66	105.37	15.89	44		
	Difference	74.88		39.28			
2010-2012	**Non-financial**	192.91	229.78	7.16	1030	0.22	1146
	Financial	187.45	390.77	35.97	118		
	Difference	5.46		24.39			

Table II shows that the difference of the average director cash compensation is not significant between financial and non-financial firms at the 5% significance level, both during the whole period and during all the sub-periods (2006 to 2012, 2006 to 2007, 2008 to 2009 and 2010 to 2012). This is because all the Pr(|T| > |t|) in the above four periods are largely greater than 0.05.

Table II: Director cash compensation t-test

		Mean	Std. Dev.	Std. Err.	N	t-value	df
2006-2012	**Non-financial**	99.90	111.30	2.52	1946	0.14	2132
	Financial	98.66	152.47	11.12	188		
	Difference	1.24		8.82			
2006-2007	**Non-financial**	82.06	107.53	5.70	356	0.30	380
	Financial	75.64	59.71	11.71	26		
	Difference	6.41		21.34			

2008-2009	**Non-financial**	93.71	134.33	5.68	560	0.75	602
	Financial	78.33	62.13	9.37	44		
	Difference	15.39		20.43			
2010-2012	**Non-financial**	109.43	96.96	3.02	1030	-0.18	1146
	Financial	111.32	185.84	17.11	118		
	Difference	-1.89		10.63			

In summary, comparing financial firms with non-financial firms during the period of 2006 to 2012, the difference of average director total compensation is significant between financial and non-financial firms at the 5% significance level only in the subprime crisis period (2008 to 2009) and not significant in other sub-periods. Moreover, the difference of average director cash compensation is not significant between financial and non-financial firms in all the sub-periods from 2006 to 2012. This conclusion also coincides with the findings of Figure I.

3.2.2 Regression Model

Based on the previous findings, I expect to further research how the director compensation related to the firm performance, growth opportunity, leverage ratio and other factors for both financial firms and non-financial firms respectively. I hypothesize that if the subprime crisis has an obvious influence on the firms' performance, the board director compensation would be affected correspondingly. The linear regression models are as follows:

$$\ln(\text{Total Compensation}) = a_1 + \beta_1 * \text{ROE} + \beta_2 * \left(\frac{P}{E}\right) + \beta_3 * (\text{norm\_leverage}) + \beta_4 * \ln(\text{firm size}) + \varepsilon_1$$

$$\ln(\text{Cash Compensation}) = a_2 + r_1 * \text{ROE} + r_2 * \left(\frac{P}{E}\right) + r_3 * (\text{norm\_leverage}) + r_4 * \ln(\text{firm size}) + \varepsilon_2$$

$$\ln(\text{Total Compensation}) = a_3 + \mu_1 * \text{ROE} + \mu_2 * \left(\frac{P}{E}\right) + \mu_3 * (\text{norm\_leverage}) + \mu_4 * \ln(\text{firm size}) + \text{year\_effects} + \varepsilon_3$$

$$\ln(\text{Total Compensation}) = a_4 + v_1 * \text{ROE} + v_2 * \left(\frac{P}{E}\right) + v_3 * (\text{norm\_leverage}) + v_4 * \ln(\text{firm size}) + \text{year\_effects} + \text{industry\_effects} + \varepsilon_4$$

Table III illustrates the independent variables and dependent variables used in the models. The independent variables are firm performance variable (ROE), growth opportunity variable (P/E) and normalized leverage ratio. The control variable is firm size. The dependent variables are director total compensation and director cash compensation respectively. To remove trends in volatility, I choose to use the natural logarithm of director total compensation, director cash compensation and firm size variables rather than directly use the real numbers.

Table III: Variable definitions and descriptions

Variable name	Variable description
Total compensation	total_sec: The sum of salary, bonus, restricted stock granted, restricted options granted, non-equity incentive plans and other compensation.
Cash compensation	cash_fees: cash compensation including salary and bonus
ROE	ni/seq: Net income divided by stockholders equity
P/E	prcc_f/epspi: Price Close-Annual-Fiscal divided by Earnings Per Share – Including Extraordinary Items
firm size	at: total assets
norm_leverage	leverage ratio: at/seq: total assets divided by stockholders equity. Make leverage ratio divided by industry leverage ratio median to get normalized leverage ratio.
industry_effects	An industry dummy variable used to control for unobserved industry heterogeneities that are correlated with compensation
year_effects	A year dummy variable used to control for unobserved year heterogeneities that are correlated with compensation

4 Results

Table IV indicates the relationship between director total compensation and firm performance for financial firms and non-financial firms respectively during the whole period (2006 to 2012). Interestingly, the director total compensation is negatively correlated with firm performance variable ROE for both groups of firms. Besides, the total compensation has a negative relation with both P/E and leverage ratio for financial firms while a positive relation for non-financial firms. In terms of firm size, both groups

of firms has a positive relation between their director total compensation and firm size (total assets).

Table IV: Total compensation and firm performance from 2006 to 2012		
	Financial firms	**Non-Financial firms**
Time period	2006-2012	2006-2012
Variables		
ROE	-0.0117	-0.0034
	(-0.25)	(-0.69)
PE	-0.0001	0.0001
	(-0.06)	(0.30)
norm_leverage	-0.0069	0.0006
	(-0.31)	(1.11)
ln(firm size)	0.2538***	0.1868***
	(4.95)	(19.48)
Intercept	2.4196***	1.9142***
	(4.79)	(3.08)
year_effects	+	+
industry_effects		+
Number of obs (N)	141	1,584
Adjusted R-squared	0.211	0.368

t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1

To be specific, the following tables indicate the relationships before, during and after the subprime crisis comparatively. Table V and Table VI shows that for financial firms, both director total compensation and director cash compensation are correlated with firm performance, P/E, leverage ratio and firm size, as the coefficients are different from zero. However, the correlation is different. To be specific, the director total compensation is positively related to ROE before and after the crisis while negatively related during the crisis. The cash compensation is always negatively correlated with ROE throughout the whole period. In addition, the total compensation has a positive relation with P/E before and during the crisis while negative relation after the crisis. The cash compensation relationship has a positive relation with P/E before and after the crisis while negative relation during the crisis. In terms of leverage ratio, the director total compensation is positive related to it in the sub-period of 2008 to 2009 (subprime crisis) while negative

related in the other two sub-periods 2006 to 2007 and 2010 to 2012. The cash compensation is only negative related to leverage ratio after the subprime crisis.

Table V: Financial firms: total compensation and firm performance

Time period	2006-2007	2008-2009	2010-2012	2006-2007	2008-2009	2010-2012
Variables						
ROE	0.9384*	-0.2830	0.0036	0.9410	-0.2535	-0.0765
	(1.73)	(-0.33)	(0.02)	(1.67)	(-0.29)	(-0.43)
P/E	0.0072	0.0002	-0.0052	0.0073	0.0000	-0.0027
	(0.41)	(0.09)	(-0.80)	(0.40)	(0.01)	(-0.40)
norm_leverage	-1.4217*	0.0468	-0.0050	-1.4266	0.0496	-0.0224
	(-1.77)	(0.10)	(-0.11)	(-1.70)	(0.11)	(-0.48)
ln(firm size)	0.4067**	0.3624***	0.2199***	0.4066**	0.3624***	0.2301***
	(2.67)	(3.84)	(3.14)	(2.61)	(3.78)	(3.33)
Intercept	2.0816	1.0202	2.9675***	2.0862	1.0179	2.8431***
	(1.44)	(0.99)	(4.29)	(1.40)	(0.97)	(4.17)
year_effects				+	+	+
Number of obs (N)	25	34	82	25	34	82
Adjusted R-squared	0.276	0.340	0.124	0.277	0.342	0.175

t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table VI: Financial firms: cash compensation and firm performance

Time period	2006-2007	2008-2009	2010-2012	2006-2007	2008-2009	2010-2012
Variables						
ROE	-0.3415	-0.9998	-0.0776	-0.4228	-0.6081	-0.0710
	(-0.44)	(-0.71)	(-0.56)	(-0.53)	(-0.40)	(-0.48)
P/E	0.0087	-0.0007	0.0032	0.0075	-0.0016	0.0030
	(0.35)	(-0.15)	(0.63)	(0.30)	(-0.33)	(0.56)
norm_leverage	0.5502	0.0003	-0.0195	0.6961	0.1321	-0.0185
	(0.48)	(0.00)	(-0.53)	(0.58)	(0.16)	(-0.49)
ln(firm size)	-0.0493	0.0156	0.2225***	-0.0466	0.0021	0.2216***
	(-0.21)	(0.08)	(4.17)	(-0.20)	(0.01)	(4.04)
Intercept	3.7051*	3.6951	2.2478***	3.5456	3.7009	2.2584***
	(1.76)	(1.53)	(4.40)	(1.65)	(1.52)	(4.29)
year_effects				+	+	+
Number of obs (N)	23	43	112	23	43	112
Adjusted R-squared	0.021	0.027	0.142	0.047	0.042	0.142

t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table VII and Table IX indicates that for non-financial firms, the director total compensation has the same correlation with ROE as financial firms while the cash compensation is positively related with ROE before and during the crisis and negative related after the crisis. Moreover, the relationship between the total compensation of non-financial firms and P/E is completely adverse to the relationship for financial firms. And the relationship between the director cash compensation of non-financial firms and P/E is also different from the relationship for financial firms. As for the leverage ratio, same as financial firms, the total compensation is positively correlated to leverage ratio during the crisis while negatively correlated before and after the crisis. However, the relationship between the cash compensation of non-financial firms and leverage ratio is completely adverse to the relationship for financial firms: for non-financial firms, the relationship is negative before and during the crisis while positive after the crisis.

Furthermore, after considering the year effects, for both financial firms and non-financial firms, the results of relationships between compensation and other variables including ROE, P/E and leverage ratio keep same. After considering the year effects and industry effects, in terms of non-financial firms, there are only three changes. The total compensation becomes positively correlated to P/E after 2009 (subprime crisis). The cash compensation turns out to be negatively related to P/E and leverage ratio after the subprime crisis.

Moreover, indicated from the tables, for both financial firms and non-financial firms, director total compensation and director cash compensation are always positively related to firm size, no matter whether year effects and industry effects are considered.

Table VII: Non-financial firms: total compensation and firm performance

Time period	2006-2007	2008-2009	2010-2012	2006-2007	2008-2009	2010-2012
Variables						
ROE	0.0019	-0.0170	0.0045	0.0017	-0.0159	0.0045
	(0.20)	(-0.73)	(0.47)	(0.18)	(-0.68)	(0.47)
P/E	-0.0004	-0.0002	0.0003	-0.0004	-0.0002	0.0003
	(-0.66)	(-0.52)	(0.99)	(-0.59)	(-0.52)	(1.00)
norm_leverage	-0.0003	0.0009	0.0015*	-0.0004	0.0008	0.0014

	(-0.14)	(0.54)	(1.65)	(-0.16)	(0.50)	(1.59)
ln(firm size)	0.2220***	0.1531***	0.1847***	0.2226***	0.1530***	0.1838***
	(9.07)	(8.43)	(19.31)	(9.09)	(8.41)	(19.16)
Intercept	3.0396***	3.8675***	3.7426***	3.0348***	3.8685***	3.7498***
	(15.98)	(26.92)	(48.83)	(15.94)	(26.91)	(48.81)
year_effects				+	+	+
industry_effects						
Number of obs (N)	297	434	853	297	434	853
Adjusted R-squared	0.234	0.145	0.306	0.235	0.146	0.307

t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table VIII: Non-financial firms: total compensation and firm performance (year effects and industry effects)

Time period	2006-2007	2008-2009	2010-2012
Variables			
ROE	0.0143	-0.0276	-0.0075
	(1.43)	(-1.13)	(-0.72)
P/E	-0.0005	0.0000	0.0003
	(-0.68)	(0.10)	(1.25)
norm_leverage	-0.0011	0.0017	0.0004
	(-0.47)	(1.01)	(0.50)
ln(firm size)	0.2033***	0.1478***	0.1998***
	(7.12)	(6.81)	(18.53)
Intercept	3.0874***	4.4404***	1.9343***
	(6.22)	(9.89)	(3.82)
year_effects	+	+	+
industry_effects	+	+	+
Number of obs (N)	297	434	853
Adjusted R-squared	0.422	0.303	0.438

t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table IX: Non-financial firms: cash compensation and firm performance

Time period	2006-2007	2008-2009	2010-2012	2006-2007	2008-2009	2010-2012
Variables						
ROE	0.0037	0.0249	-0.0023	0.0037	0.0250	-0.0023
	(0.37)	(1.17)	(-0.22)	(0.37)	(1.17)	(-0.22)
P/E	-0.0010	-0.0002	0.0000	-0.0010	-0.0002	0.0000
	(-1.44)	(-0.47)	(0.06)	(-1.42)	(-0.46)	(0.13)
norm_leverage	-0.0003	-0.0020	0.0002	-0.0004	-0.0020	0.0001

	(-0.15)	(-1.39)	(0.20)	(-0.15)	(-1.37)	(0.08)
ln(firm size)	0.1633***	0.1801***	0.1763***	0.1635***	0.1799***	0.1735***
	(6.30)	(9.07)	(17.74)	(6.29)	(9.06)	(17.46)
Intercept	2.8997***	2.9440***	3.1674***	2.8977***	2.9458***	3.1889***
	(14.82)	(19.56)	(40.01)	(14.75)	(19.56)	(40.29)
year_effects				+	+	+
industry_effects						
Number of obs (N)	328	490	940	328	490	940
Adjusted R-squared	0.120	0.148	0.253	0.120	0.149	0.262

t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table X: Non-financial firms: cash compensation and firm performance (year effects and industry effects)

Time period	2006-2007	2008-2009	2010-2012
Variables			
ROE	0.0091	0.0078	-0.0112
	(0.83)	(0.32)	(-0.96)
P/E	-0.0011	-0.0001	-0.0001
	(-1.41)	(-0.24)	(-0.31)
norm_leverage	-0.0001	-0.0011	-0.0009
	(-0.03)	(-0.64)	(-0.95)
ln(firm size)	0.1466***	0.1579***	0.1793***
	(4.76)	(6.51)	(15.48)
Intercept	3.2718***	3.8904***	2.1013***
	(6.04)	(7.64)	(3.75)
year_effects	+	+	+
industry_effects	+	+	+
Number of obs (N)	328	490	940
Adjusted R-squared	0.265	0.253	0.376

t-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1

5. Conclusion

I focus on the studies of how the board director compensations of financial firms and non-financial firms are affected by subprime crisis and whether board director compensation is closely related to firm performance, leverage ratio and other factors. I also distinguish director total compensation from director cash compensation in the research and identify the changes of these relations before, during and after the subprime crisis.

Firstly, I compare the compensation changing trends between financial firms and non-financial firms, using the average director total compensation and the average director cash compensation respectively. Secondly, I do several simple t-test to prove the trends and relative changing trends. I find that during the period of 2008 to 2009, the average director total compensation of financial firms decreased sharply while that of non-financial firms fluctuated smoothly. After the end of the subprime crisis, the average director total compensation of financial firms went up sharply and from 2010 to 2011, had a large dip again. Compared with financial firms, during the period of 2009 to 2011, the average director total compensation of non-financial firms was relatively stable. After 2011, for both financial and non-financial firms, the average director total compensation increased greatly and kept nearly parallel.

Thirdly, I use multi-regression method to evaluate the relations between board director compensation and firm performance, P/E and leverage ratio as well as other factors. I find that for financial firms, the director total compensation is positively correlated to ROE before and after the crisis while negatively related during the crisis. The director cash compensation is always negatively correlated with ROE throughout the whole period. Moreover, the total compensation has a positive relation with P/E before and during the crisis while negative relation after the crisis. The director total compensation is positive

related to leverage ratio in the subprime crisis while negative related before and after the crisis. The cash compensation is only negative related to leverage ratio after the subprime crisis. As for non-financial firms, the director total compensation has the same correlation with ROE as financial firms while the cash compensation is positively related with ROE before and during the crisis and negative related after the crisis. In addition, the relationship between the total compensation of non-financial firms and P/E is completely adverse to the relationship for financial firms. In terms of the leverage ratio, same as financial firms, the total compensation is positively correlated to leverage ratio during the crisis while negatively correlated before and after the crisis. However, the relationship between the cash compensation of non-financial firms and leverage ratio is completely adverse to the relationship for financial firms: for non-financial firms, the relationship is negative before and during the crisis while positive after the crisis.

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