The Board of Directors and Executive Compensation in the Context of Crisis: A Comparative Study Between the United States and France

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ABSTRACT

This study examines whether the characteristics of the board of directors may affect the level of remuneration, for two samples having different systems of governance for the period from 2002 to 2010. Given the importance the financial crisis for executive pay, investigations in executive compensation during periods of crisis are very limited. This study provides a contribution to the literature where we tried to determine if the manager takes advantage of this period of instability.

The results indicate the positive impact of the period of crisis on the level of compensation of the U.S. manager, which is not true with his French counterpart. To our knowledge, no study has been conducted on board effectiveness during periods of instability. The results show that during this period this mechanism is unable to control the manager who benefits from excessive compensation.

JEL Classification: G34

Keywords: agency theory; executive compensation; board of directors; financial crisis

I.   INTRODUCTION

Research on the role of the board as a governance mechanism has attracted the attention of researchers and professionals. The latest crisis has reactivated the debate on the effectiveness of this mechanism as a guarantee to protect the interests of shareholders (Ferrero-Ferrero et al. 2011). Given the importance of the remuneration of managers in the company, the main question is whether the board may have an important role in determining the level of compensation. Several empirical studies have examined the impact of board characteristics on the level of executive compensation such as Ramaswamy et al. (2000), Godard and Schatt (2004), Brick et al. (2006), Chhaochharia and Grinstein (2009), and Ozdemir and Upneja (2012). However, the results remain inconclusive due to the selected sample and the specificity that represents the board of directors in each country.

In this analysis, we attempted to determine, the characteristics of the board that can affect the level of remuneration for two samples characterized by different governance systems (market-oriented system vs. mixed governance system). In addition, given the importance of the factor "financial crisis" on executive compensation (Ferrero-Ferrero et al., 2011), we try to see if the manager takes advantage of this instability by excessive compensation.

This study attempts to make a significant contribution to the existing literature: First, it shows a comparison between two samples belonging to two different systems of governance. Then, referring to the work of Gupta et al. (2009) and Ferrero-Ferrero et al. (2011) we integrate in our model a variable indicating the presence of the financial crisis to determine if the executive takes advantage of this period of instability. The investigations in terms of executive compensation during the periods of crisis are very limited. This study provides a contribution to the literature where we try to determine if the manager takes advantage of this period of instability. Finally, we determine whether the board of directors is effective during the period of financial crisis. According to Broye and Moulin (2012), board effectiveness is explained by the possibility of controlling the executive to receive compensation in excess of what would be justified.

The rest of this paper is structured as follows. In Section II, we will present the research hypotheses about the relationship between board characteristics and the level of executive compensation. In Section III, we will determine the sample and the data sources. In Section IV, we will discuss the model and the variables selected. In Section V, we will interpret the results on the impact of the composition of the board on the remuneration received by the director. In Section VI, we will study the effectiveness of the board in determining the amount of managerial remuneration during the financial crisis. In Section VII, we will conclude the paper.

II.   THE RESEARCH HYPOTHESIS

A.   Board Size

According to Bebchuk and Fried (2004), a large board size is characterized by a problem of internal coordination and communication problems between its members, which makes it inefficient. Therefore, the leader will have an important part in the determination of his compensation (Eisenberg et al., 1998). Core et al. (1999) find that executive

compensation is higher when the board size is large. We will test the following hypothesis:

H1: There is a positive relationship between the board size and the remuneration received by the manager.

B.   Duality

According to Firth et al. (2007) when the chairman of the board of directors acts also as the company manager, the board's effectiveness in the supervision of the executive is weak. The duality can give to the manager excessive influence on the board and therefore compromises the ability of the latter to exercise adequate control over the executive compensation policy (Ryan and Wiggins, 2004). From these findings, the hypothesis to be verified is the following:

H2: A duality of managerial functions (manager and chairman of the board) is positively related to executive compensation.

C.   Independent Directors

According to Van Essen et al. (2015), the presence of independent directors has an impact on managerial power. Indeed, Kesner et al. (1986) and Malette et al. (1995) argue that a board having a high proportion of outside directors could compensate the manager in a reasonable manner, contrary to a board characterized by a high proportion of inside directors. Based on the foregoing, we can formulate the following hypothesis:

H3: A strong presence of independent directors has a negative effect on executive compensation.

D.   Directors Shareholding

According to Vigliano (2007), on the basis of the postulates of the agency theory about the importance of ownership in resolving conflicts of interest between the agent and the principal, a director holding shares will act in favor of shareholders by exercising a degree of control more important on the elements of management, including executive compensation. So the hypothesis to be verified is as follows:

H4: Directors shareholding has a negative influence on executive compensation.

E.   Women Directors

According to Adams and Ferreira (2009), women seem to behave differently from men in attendance. More specifically, women are least likely to have attendance problems than men. Bugeja et al. (2012) assume that the women directors exert a stricter control on the manager, and the latter's ability to extract rents through their compensation contracts will be reduced. Therefore, our hypothesis is as follows:

H5: The presence of women in the board of directors has a negative effect on executive pay.

F.   Compensation Committee

Petra and Dorata (2008) suggest that the compensation committee is a group composed of members of the board who are trying to create a more attractive pay system for executive by avoiding his opportunistic behavior. Companies without a remuneration committee can be less effective in the determination of the remuneration policy for executives (Newman and Mozes, 1999; Conyon and He, 2004). Conyon and Peck (1998) indicate that the presence of the committee is not a guarantee for its effectiveness, but the independence of its members improves the control over the level of remuneration. From these observations, we can formulate the following hypotheses:

H6.A: The presence of the remuneration committee has a negative effect on executive compensation.

H6.B: The presence of independent directors in the remuneration committee has a negative effect on executive compensation.

III.   SAMPLE DATA SOURCES

In this study, we focus on the impact of board characteristics on the determination of executive compensation levels for two markets with different governance systems, namely the French market (mixed system of governance) and the U.S. market (market-oriented system) for a study period of 9 years, from 2002 to 2010.

In case of the French market our initial sample consists of all companies belonging to the stock index CAC All-Tradable (ex SBF 250). In the case of the U.S. market, our initial sample covers the 300 largest U.S. companies by market capitalization and belonging to the S&P500 stock index. In both cases, we have eliminated financial firms because of their specificities, in order to keep a more homogeneous panel and we have excluded firms for which financial data or governance are lacking. The final sample to examine is composed of 159 French companies or 1,431 observations, and 203 U.S. companies or 1,827 observations.

Table 1 shows the sectoral breakdown for the two samples. It appears from this table that 30% of the sample belongs to the service sector, followed by industry at 26% and consumer sectors and information technology and communication with 18% for each of them and finally, the health sector represents only 8% of the total companies selected.

In order to build our database, we used several sources of information such as Compustat and annual reports (Table 2). Also, according to Ferrero-Ferrero et al. (2011), the recent financial crisis has revived the debate about the effectiveness of the board as a mechanism to protect shareholders against the opportunistic behavior of the manager as manifested by excessive remuneration. Bonazza (2008) and Broye and Moulin (2012) stipulate that during a period of financial crisis the managers continue to benefit from significant compensation even if the business performance is low. Thus, in this investigation we will incorporate a dummy variable indicating the period of instability (crisis) inspired by the work Gupta et al. (2009) and Ferrero-Ferrero et al. (2011) to determine whether the manager may take advantage of this crisis to increasing its compensation.

Table 1

Sample selection and distribution

	French Firms		U.S. Firms	
Initial sample	250		300	
Financial firms	36		48	
Number of companies whose data are unavailable	55		49	
Final sample	159		203	
	Number	%	Number	%
Industry (sec1)	42	26.41	53	26.10
Consumer goods (sec2)	28	17.61	37	18.22
Health (sec3)	12	7.55	16	7.88
Services (sec4)	48	30.18	61	30.04
Communications technology (sec5)	29	18.23	36	17.73

The statistics represented above are for the sample of 159 French Firms and 203 U.S firms for a period of nine years (2002-2010). The sample for two countries is distributed by sectors (Industry (Sec1), Consumer goods (Sec2), Health (Sec3), Services (Sec4), Information and Communications Technology (Sec5).

Table 2

Data sources (accounting and governance) of the sample selected

	Data Sources	
	French Firms	U.S. Firms
Accounting Data	Compustat Global	Compustat North America
Governance Data		
- CEO compensation	Reference Documents (Annual Reports)	Executive Compensation Database (Compustat ExecuComp)
- Characteristics of the board of directors	Reference Documents (Annual Reports)	Proxy Statement (DEF14a)

The data are collected from different sources: - Compustat Global and Compustat North America for accounting data. - Annual reports, Compustat ExcuComp and proxy statement (DEF14a) for governance data.

IV.   PRESENTATION OF THE MODEL USED

The model can be written in this manner:

$$Ln\,(1+Pay)_{it} = \alpha + \Sigma\beta_i Charact.BD + \Sigma\gamma_i Cont.Var + \delta_i Crisis + \Sigma\theta_i\,sec_i + \Sigma\lambda_i Y_i + \xi_{it} \tag{1}$$

where the dependent variable representing the level of annual compensation received by the CEO is measured by the natural logarithm of executive pay (Ln (1+ Pay)), which includes the sum of salary, bonus, other annual remuneration and the total value of shares and share options measured by the Black-Scholes model. This proxy is used by several authors such as Malette et al. (1995), Conyon and Peck (1998), and Conyon and He (2011).

The variable (Charact.BD) corresponds to the characteristics of the board, inspired by the financial literature and previous empirical studies (Ramaswamy et al., 2000;

Ozdemir and Upneja, 2012). Therefore, they include the board size, the presence of independent directors and women in the board of directors and the existence and the independence of the compensation committee.

In terms of control variables (Cont.Var), they are deduced from previous works, such as Li et al. (2007), Conyon and He (2011) and Bugeja et al. (2012). They mainly represent the characteristics of firms such as market-to-book, stock return volatility and the return on assets (ROA).

In referring to the work of Escaffre and Sefsaf (2010), the crisis variable is a dummy variable that takes the value 1 if year t is characterized by high instability and 0 otherwise.

As for the variables (Sec) and (Y), they help to detect respectively the effect of sector and year on the level of compensation paid to the officer.

The model can then be written in this way:

$$
\begin{aligned}
\text{Ln}\,(1+\text{Pay})_{it} = {} & \alpha + \beta_1 \text{Bd.Size}_{it} + \beta_2 \text{Dual}_{it} + \beta_3 \text{Ind.Dir}_{it} + \beta_4 \text{Dir.Own}_{it} \\
& + \beta_5 \text{Wom.Dir}_{it} + \beta_6 \text{Comp.Comm} + \beta_7 \text{Comp.Comm.Ind}_{it} \\
& + \gamma_1 \text{MTB}_{it} + \gamma_2 \text{ROA}_{it} + \gamma_3 \text{Volat}_{it} + \delta_1 \text{Crisis}_{it} + \Sigma \theta_i \text{Sec}_i \\
& + \Sigma \lambda_i Y_i + \xi_{it}
\end{aligned}
\tag{2}
$$

where Ln (1 + Pay)=The natural logarithm of total executive pay, with Pay the sum of salary, bonus, other annual compensation and the value of free shares and stock options; Bd.Size=The size of the board measured by the number of directors; Dual=Binary variable which equals 1 if the manager is also chairman, 0 otherwise; Ind.Dir=Percentage of independent directors on the board, measured by the ratio between the number of independent directors and the total number of members of the Board; Dir.Own=Percentage of stock owned by the directors; Wom.Dir=Percentage of women on the board of directors, measured by the ratio between the number of female directors and the total number of members of the board; Comp.Comm=A dummy variable equal to one if the firm has a compensation committee and zero otherwise; Comp.Comm.Ind=Percentage of independent directors within the compensation committee measured by the ratio between the number of independent members of the compensation committee and the total membership of the remuneration committee; MTB=The market to book measured by the ratio between the market capitalization in the last period (price of the share*number of outstanding shares) and the book value of common stock; ROA=Return on assets, calculated as the ratio of net income and book value of total assets; Volat=The stock volatility, measured by the standard deviation of the firm's stock returns; and Crisis=A dummy variable equals to 1 if year t corresponds to a period of instability and 0 otherwise.

The financial crises includes foreign exchange crises, banking crises and stock market crashes. However, our study focuses only on crises causing high volatility in the stock market (Escaffre and Sefsaf, 2010). In order to identify periods of instability for both American and French markets, we will use the stock index returns (CAC All-Tradable and S&P500) to determine the intervals that correspond to a high volatility of these indexes. The figures (1 and 2) illustrate the daily returns of stock index CAC All-Tradable and S&P500 for the period from 01/01/2002 to 31/12/2011, we note that the years 2002, 2008 and 2009 are characterized by high return daily.

Figure 1 : Daily return of stock index CAC All-Tradable (2002-2010)
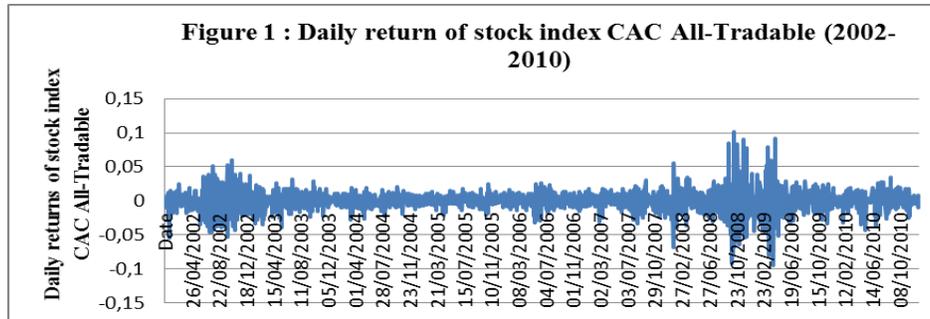
The daily return of the market index CAC All-Tradable is calculated from the price daily index CAC All-Tradable for the period 01/01/2002 to 31/12/2010. The daily return is determined by the natural logarithm of the daily price of the CAC All-Tradable at time t and at time (t-1).

Figure 2 : Daily return of stock index S&P 500 (2002-2010)
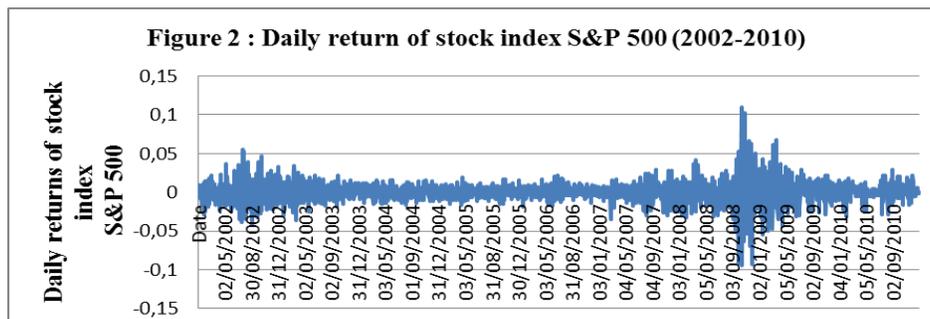
The daily return of the market index S&P500 is calculated from the price daily index S&P500 for the period 01/01/2002 to 31/12/2010. The daily return is determined by the natural logarithm of the daily price of the S&P500 at time t and at time (t-1).

Also in Table 3, we present the return volatility index CAC All-Tradable and S&P500. The three years 2002, 2008 and 2009 recorded a high volatility of returns of the two indexes compared to other years. This is explained by the burst of the dot-com bubble in the year 2002 and the subprime crisis that occurred during the summer of 2007 and became more important in 2008 and 2009 for both markets. In conclusion, the variable "Crisis" is a dummy variable that takes 1 for years 2002, 2008 and 2009 and 0 otherwise.

Table 3
Volatility index returns CAC all-tradable and S&P500

Year	CAC All-Tradable	S&P500
2002	0.0200	0.0164
2003	0.0114	0.0107
2004	0.0077	0.0069
2005	0.0065	0.0064
2006	0.0090	0.0063
2007	0.0103	0.0100
2008	0.0245	0.0258
2009	0.0228	0.0172
2010	0.0106	0.0086

The annual volatility indices (CAC All-Tradable and S&P500) for nine years (2002-2010) is determined from the standard deviation from daily return indices.

V.   INTERPRETATION OF THE RESULTS OBTAINED

Table 4 presents the descriptive statistics of dependent and independent variables for the period 2002 to 2010. It follows from this table that French companies have an average of 10 directors on the board of directors with a minimum of 3 and a maximum of 21 members. This result is very similar to the study of Godard and Schatt (2004) covering 97 French companies in which they have obtained an average of 11 members on the board of directors. U.S. companies have 11 members on average according to the work of Carter et al. (2003). According to agency theory, these average numbers are very high: Jensen (1993) suggests that the number of directors should be between 7 and 8 directors.

Table 4
Descriptive statistics of variables

	Number	Average	Min	Max	Std.dev	Difference
Ln (1+Pay(M$))						
FR	1431	0.835	9.41e-07	3.527	0.617	- 0.60*
US	1827	1.435	0.007	4.825	0.589	
Bd.Size						
FR	1431	9.532	3	21	3.937	-1.10*
US	1827	10.630	5	23	2.204	
Dual						
FR	1431	0.704	0	1	0.456	-0.11*
US	1827	0.809	0	1	0.393	
Ind.Dir						
FR	1431	0.362	0	1	0.243	-0.41*
US	1827	0.768	0	1	0.182	
Dir.Own						
FR	1431	0.340	0	0.973	0.279	0.29*
US	1827	0.046	0	0.601	0.075	
Wom.Dir						
FR	1431	0.090	0	0.750	0.122	-0.05*
US	1827	0.136	0	0.545	0.091	
Comp.Comm						
FR	1431	0.616	0	1	0.486	-0.35*
US	1827	0.970	0	1	0.169	
Comp.Comm.Ind						
FR	1431	0.319	0	1	0.349	-0.57*
US	1827	0.892	0	1	0.299	
MTB						
FR	1431	0.655	0.013	4.621	0.467	0.22*
US	1827	0.437	0.027	6.780	0.444	
ROA						
FR	1431	0.028	-0.808	0.481	0.121	-0.03*
US	1827	0.062	-0.889	0.449	0.109	
Volat						
FR	1431	0.026	0.007	0.293	0.198	0.00*
US	1827	0.022	0.013	0.134	0.007	
Crisis						
FR	1431	0.333	0	1	0.471	0.00*
US	1827	0.333	0	1	0.471	

*Significant at 1%

For the variable duality, we find that 50.4% of managers of French companies include the functions of management and control against 80.9% in the case of U.S. firms. The different average between these two samples is statistically significant at the 1% level. This is explained by the diversity of the governance systems adopted by each country.

The average percentage of independent directors in French and American companies is respectively 36.2% and 76.8%; this difference is explained by the diversity in regulations in each country. Indeed, the NASDAQ requires the board of directors to be composed of a majority of independent directors, but in France, the AFEP-MEDEF Code emphasizes that independent directors should be between one-third and one-half of the board members.

At the level of shareholders, directors of French firms holds on average 34% of the outstanding shares with a maximum of 97%, but in the U.S. case, they retain only 4% of capital. The United States have a much dispersed ownership structure; even the largest number of shares held by the directors does not exceed 7%, unlike France where actions are concentrated in the hands of holders block.

The statistics represented above are for the sample of 159 French Firms and 203 U.S firms for a period of nine years (2002-2010). The dependent variable is calculated by the natural logarithm of the total compensation received by the manager in U.S. dollars. Independent variables are: Bd.Size=The size of the board measured by the number of individuals on the main board; Dual=Leadership structure of the firm is a dummy variable set equal to one if the posts of CEO and chairperson are combined, and zero otherwise; Ind.Dir=The fraction of the board comprised of independent directors; Dir.Own=Percentage of stock owned by the directors; Wom.Dir=Percentage of women on the board of directors; Comp.Comm=A dummy variable equal to one if the firm has a compensation committee and zero otherwise; Comp.Comm.Ind=Percentage of independent directors on the compensation committee. Control Variables are: MTB=The market to book ratio measured by the market value divided by the book value of common stock; ROA=Return On asset, calculated as the ratio of net income and book value of total assets; Volat=The stock volatility, measured by the standard deviation of the firm's stock returns; Crisis=A dummy variable equal to 1 if year t corresponds to a period of instability and 0 otherwise.

On average, 13.6% of women are members of the board of directors for the American case. This result is higher than the proportion of women in the case of French firms which does not exceed 9% and the results found in similar studies, such as Adams and Ferreira (2009) and Bugeja et al (2011).
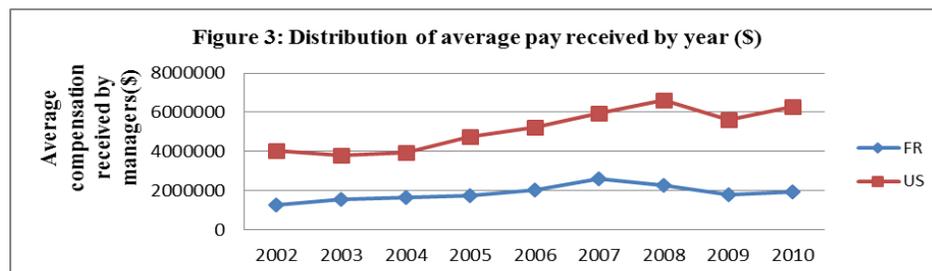
Distribution of average pay received by year for the sample of 159 French Firms and 203 U.S firms for a period of nine years (2002-2010).

Figure 3 illustrates the distribution of average pay received by year. We see that throughout the study period (2002-2010), American managers are better paid than their French counterparts. In addition, there is a tendency to increase even during the crisis period.

Table 5
Regression results of the relationship between executive compensation and board characteristics

	Pooled Ln (1+Pay)	French Ln (1+ Pay)		U.S Ln (1+ Pay)	
		Fixed Effects	Random Effects	Fixed Effects	Random Effects
U.S. indicator	0.70[a]				
	(14.58)				
Bd.Size	0.82[a]	0.36[a]	0.61[a]	0.17	0.37[a]
	(16.02)	(3.87)	(7.86)	(1.14)	(2.89)
Dual	0.36[a]	-0.78	-0.78	0.54[a]	0.59[a]
	(9.84)	(-1.11)	(-1.26)	(10.43)	(11.89)
Ind.Dir	0.76[a]	0.49[a]	0.55[a]	0.81[a]	0.72[a]
	(8.93)	(4.12)	(4.84)	(5.84)	(5.48)
Dir.Own	- 0.81[a]	-0.26[c]	-0.55[a]	-1.08[b]	-1.23[a]
	(-9.58)	(-1.78)	(-4.61)	(-2.33)	(-3.22)
Wom.Dir	0.10	0.05	-0.22	0.27	0.25
	(1.56)	(0.20)	(-0.97)	(0.83)	(0.87)
Comp.Comm	0.32[a]	0.17[b]	0.21[a]	-0.36	-0.24
	(5.46)	(2.34)	(3.02)	(-0.98)	(-1.03)
Comp.Comm.Ind	0.30[b]	0.20[b]	0.19[b]	0.24[b]	0.27[a]
	(2.06)	(2.22)	(2.19)	(2.15)	(2.68)
MTB	- 0.06[c]	0.12[a]	0.09[b]	-0.18[b]	-0.13[c]
	(-1.71)	(2.82)	(2.09)	(-2.20)	(-1.93)
ROA	0.65[a]	0.89[a]	0.85[a]	0.25	0.27
	(4.72)	(6.44)	(6.20)	(1.43)	(1.58)
Volat	1.29	0.73	0.76	0.96	1.55
	(1.28)	(0.91)	(0.95)	(0.57)	(0.94)
Crisis	0.04	- 0.56[c]	-0.04	0.08[b]	0.06[c]
	(1.02)	(-1.71)	(-1.28)	(2.07)	(1.69)
Constant	0.22	1.34[a]	0.72[a]	2.75[a]	2.10[a]
	(1.61)	(6.45)	(3.64)	(5.55)	(5.39)
sector	yes	No	yes	No	yes
year	yes	yes	yes	yes	yes
R^2	0.56	0.11	0.56	0.13	0.24
Fisher	262.47[a]				
Hausman		F(158, 1261) = 13.66		F(202, 1613) = 8.18	
		Prob > F = 0.0000		Prob > F = 0.0000	
N	3258	χ^2 = 49.41		χ^2 = 37.50	
		Prob > χ^2 = 0.0000		Prob > χ^2 = 0.0001	
		1431	1431	1827	1827

[a] Significant at 1%, [b] Significant at 5% , and [c] Significant at 10%

In Table 5 we present the regression results where the column (1) shows the impact of board characteristics on executive compensation. We aggregate the panel data for the French and American cases by using ordinary least squares; in this case the independent variable of interest is the indicator variable U.S. (U.S. indicator) (dummy variable equal to 1 for the U.S. and 0 for the French case).

We find that the variable (U.S. indicator) is positive and statistically significant at the 1% level; this result is consistent with the descriptive analysis according to which a U.S. executive compensation is significantly higher compared to the French case.

Firstly, based on the study of Conyon and He (2011), the international differences in executive compensation exist also in other professions such as doctors, teachers and engineers who all gain lot more in the United States than in France. Then, another reason for this difference is given by Conyon and Murphy (2000) and Rosen (1981) who consider that the market for managers is very active in the United States. Indeed, either because the demand for such talent leads to a higher salary, or because the leaders in the United States may face a greater risk of being fired for poor performance compared to French managers and therefore they require greater compensation. Finally, according to Conyon and He (2011), this difference is explained on the basis of social, legal and living standards that may exist between the two countries. Indeed, following the recent financial crisis, France limits the remuneration of managers of public firms.

For the columns (2) and (3), we check the effect of the board on remuneration levels for each country separately. The probability of Hausman test is equal to 0 which implies that we must retain the fixed effect model for the French and American cases.

The board size does not seem to weaken or strengthen the control in the American case in accordance with the studies of Li et al. (2007), and Ozdemir and Upneja (2012) and Masulis et al. (2012). In the case of French firms, the coefficient is positively significant at the 1% level as the work of Yermack (1996) and Lipton and Lorsh (1992). The large board is characterized by an intensification of communication problems and coordination between its members, which makes it inefficient the control officer. We can deduce that American leaders are less vigilant than the French to take advantage of the large size of the board of directors. The variable (Dual), where the leader occupies simultaneously the positions of CEO and Chairman of the board, it is positive and statistically significant at 1% for U.S. firms. This is proven in several studies as Conyon and Peck (1998) Core et al. (1999), Anerson and Bizjak (2003) and Masulis et al. (2012). In the French case, the result is not significant (p> 0.10), so the French leaders do not take advantage of the dual functions for extracting remuneration. This divergence in results is explained by the difference between systems of governance: France is characterized by a mixed system of governance where the function officer is monistic, that is to say, a separation between the control and management, unlike the U.S., where it is characterized by a duality of functions of the manager. So appears to it takes advantage of the dual function to ask for more pay, compared to the case where it occupies only the position of CEO.

Contrary to what is expected, the presence of independent directors is positively associated (significant at the 1% level) on executive compensation for both countries. This result converges with those obtained in previous studies such as Firth et al. (1999), Fahlenbrach (2008) and Masulis et al. (2012). This positive relationship is explained on the one hand, by the fact that independent directors may inflate executive compensation so they use it as a reference when negotiating their remuneration in companies where

they occupy the position of manager (Firth et al. 2007). On the other hand, this type of director occupies several posts in parallel, which makes their work ineffective in controlling manager (Chang et al, 2012).

Hypothesis four, which states that the ownership of directors (Dir.Own) has a negative influence on the compensation is checked whatever the selected sample. The coefficient of the variable (Dir.Own) is negative and statistically significant at the 10% threshold for the French case and 5% in the American case, according to the predictions of the agency theory and the study of Collin et al. (2012). The shareholding director allows it to act as a shareholder, so directors can exercise more control over the manager to avoid opportunistic behavior including obtaining excessive salaries.

In terms of effect of the compensation committee (Comp.Comm) for the sample of U.S. firms, we find an insignificant relationship, as did the studies of Conyon and He (2004) and Bugeja et al. (2012). This inefficiency in controlling remuneration is mainly due to the nature of the directors appointed to the committee. NASDAQ requires that the compensation committee should be composed exclusively of independent directors, but such directors have a positive effect on the level of compensation as shown above. For French companies, there is a positive and statistically significant relationship, at 5%, which was also shown by Broye and Moulin (2012). Contrary to the U.S., French legislation does not prohibit the compensation committee chairman from being the manager, while the remuneration policy can be dominated by the latter, which can allow of high compensation. The presence of the compensation committee is not effective in controlling the compensation of executives that allows us to reject the hypothesis H6a.

The presence of independent directors in the compensation committee has a positive effect and statistically significant at the 5% threshold on executive compensation for French and American companies, in accordance with Conyon and Peck's (1998) work. This positive impact is explained by the overlap of functions (Chang et al, 2012), where the independent directors are characterized by several selection committees (compensation committee and audit committee), since their nomination allows for better defending the interests of shareholders, however, a nomination committee leads to spread efforts, so it reduces the effectiveness of its members in the control of its executive and its compensation.

Our research shows that the presence of women in the board does not have an effect on the levels of executive compensation, so that hypothesis H5 is not verified, contrary to the results obtained by Bugeja et al. (2012). This result is explained by a low presence of women on the board. In fact women directors represent only 9% and 13% respectively for the French and American companies and therefore their presence does not affect the determination of the level of executive compensation.

VI.   THE EFFECTIVENESS OF THE BOARD OF DIRECTORS DURING THE FINANCIAL CRISIS

The mechanism responsible for determining the composition and amounts of compensation granted to executives is the board of directors and the compensation committee, especially when excessive compensation is explained by the inefficiency of the latter. According to Masulis et al. (2012), Ferrero-Ferrero et al. (2011), Linck et al. (2008) and Pathan and Skully (2010), the board of directors has two main roles. On the one hand, a strategic function (De Andres and Vallelado, 2008; Payne et al., 2009;

Sundaramurthy and Lewis, 2003),which is associated with the participation of directors in determining corporate strategy to maximize its economic value due to various risk factors (Pathan, 2009). On the other hand, a control function, the board of directors, is a mechanism of control of management decisions and of limiting undesirable behavior of managers (Fama and Jensen, 1983). According to Haspeslagh (2010), an external factor that affects the behavior of the board is the turbulent economic environment, in particular, financial crisis.

In this study, the effectiveness of the board is computed from a score that includes several variables including those used in the previously developed[1]. The model (1) can then be rewritten as follows, where we combine the features of the board in a single variable called (Bd.Index) to determine if the board of directors can reduce opportunistic behavior be explained by excessive executive compensation during the periods of crisis.

$$\text{Ln}\,(1+\text{Pay})_{it} = \alpha + \beta_i.\text{Bd.Index} + \sum \gamma_i.\text{Cont.Var} + \sum \theta_i\,\text{sec}_i + \sum \lambda_i Y_i + \xi_{it} \quad (3)$$

where Ln (1+Pay) is the natural logarithm of total compensation received by executives and Bd.Index is the functioning score of the board of directors calculated manually. The control variables (Cont.Var) include the market-to-book (MTB), return on assets (ROA) and stock return volatility (Volat), the variable (sec) indicates the sector and the variable (Y) indicates the year.

During the period of studies 2002 to 2010, U.S. firms have a higher score on the board of directors' index compared to French companies. The last recorded a lower score than average (20 points) until the year 2010 where they reached 20,459 points (Figure 4). However we notice in both cases an increase in scores of the board of directors, which can be explained by the fact that companies are following increasingly the recommendations of the rating agencies to improve the functioning of the board and therefore greater efficiency of the latter but with a very low growth rate.

Figure 4 :
Score of the Board of directors of French and American companies
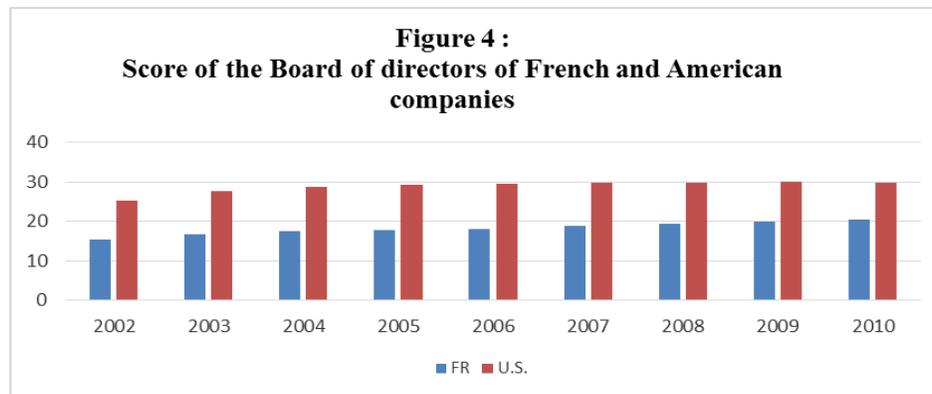
The score board of each company in year t is the sum of points obtained

Table 6 presents the regression results for the model presented earlier. Column 1 presents the results of the whole sample, the coefficient (U.S. indicator) is positive and statistically significant at the level of 1%. We can deduce that even during periods of

Table 6
Results of regression of the relationship between executive compensation and the score
board of directors during the crisis

	Pooled Ln (1+Pay)	France Ln(1+ Pay) (2002-2008-2009)		U.S. Ln(1+ Pay) (2002-2008-2009)	
		Fixed Effects	Random Effects	Fixed Effects	Random Effects
U.S. indicator	1.01[a]				
	(11.73)				
Bd.Index	0.06[a]	0.05[a]	0.06[a]	0.07[a]	0.06[a]
	(10.89)	(6.13)	(8.36)	(7.39)	(7.48)
MTB	-0.08	0.20[a]	0.12[c]	-0.34[b]	-0.21[b]
	(-1.45)	(3.07)	(1.92)	(-2.37)	(-2.14)
ROA	0.49[b]	1.18[a]	1.15[a]	0.08	0.10
	(2.44)	(5.43)	(5.43)	(0.28)	(0.41)
Volat	3.51	-1.37	-0.02	6.84[c]	6.11[c]
	(1.62)	(-0.65)	(-0.01)	(1.75)	(1.81)
Constant	1.24[a]	1.39[a]	0.99[a]	2.04[a]	2.31[a]
	(7.29)	(8.56)	(4.76)	(6.82)	(8.23)
sector	yes	No	yes	No	yes
year	yes	yes	yes	yes	yes
R2	0.46	0.21	0.16	0.13	0.03
Fisher	99.93[a]				
Hausman					
		F(158, 314) = 6.73		F(202, 402) = 2.68	
		Prob > F = 0.0000		Prob > F = 0.0000	
		χ^2 = 20.32		χ^2 = 4.98	
N		Prob > χ^2 = 0.0004		Prob > χ^2 = 0.2894	
	1086	477	477	609	609

[a] Significant at 1%, [b] Significant at 5%, [c] Significant at 10%
Ln(1+ Pay)=The natural logarithm of the total compensation received by the manager in U.S. dollars; Bd.Index=The score board of each company in year t is the sum of points obtained; MTB=The market to book ratio measured by the market value divided by the book value of common stock; ROA=Return On asset, calculated as the ratio of net income and book value of total assets; Volat=The stock volatility, measured by the standard deviation of the firm's stock returns.

crisis, U.S. leaders are paid more than their French counterparts. On the level of analysis by country, we perform the same tests of the first model (homogeneity test and Hausman test), the results show that we must choose the fixed effects model for French companies, since the probability test is less than 10% (Prob > χ^2 = 0.0000) and, in the case of U.S. firms, the probability of this test is equal to 0.2315 above 10%, which implies that the model of individual effects is random.

During the period of crisis the variable Bd.Index is positively and statistically significant at the 1% threshold for the two samples and even for the whole sample. The board is ineffective in the determining the level of remuneration of the manager. This result is not consistent with the findings of the agency theory developed by Jensen (1993), Weisbach (1988) and Boyd (1994), where the board exercises a high control on the

officer, and this due to a good score board of directors, and less compensation is needed to align the interests between shareholders and the manager.

During the crisis period the members of the board aim to maintain their positions by drawing attention to the strategic role of the board, and solving economic problems due to degraded performance of firms. During this phase of instability, the directors neglect their principal responsibilities by performing less supervision of the manager and consequently an increased risk of managerial opportunism as an excessive compensation. This result confirms the idea of Miller-Millesen (2002), which states that in an unstable environment the approach based on the strategic role of the board is preferred to its oversight role.

In conclusion, during the periods of crisis, managers benefit from the inefficiency of the board in the control for excessive compensation, which explains the positive results found in the American case between the variable measuring the level of compensation received by the CEO and the dummy variable indicating the periods of crisis. For the French case, the French managers do not benefit. From this extra compensation. This is not explained by the effectiveness of the board by regulation but at limiting compensation with the appearance of the new recommendation by AEFP-MEDEF in 2008 which states that the compensation of executive officers should reflect the evolution of recorded performance.

VII.   CONCLUSION

This study examines whether the characteristics of the board can affect the level of remuneration for two samples with different governance systems. In addition, given the importance that represents the factor of the financial crisis on executive compensation, investigations on executive compensation during periods of crisis is very limited.

First, we have determined the characteristics of the board which can give an influence on the remuneration received by the directors for a sample of 159 French firms and 203 U.S. firms for the period 2002 to 2010. We have concluded that in both cases, the shareholding of directors is a way to strengthen the control of the manager. The presence of independent directors, contrary to what is expected, is positively related to the compensation of directors for the American and French cases. Also the presence of the woman has no impact for both cases. In terms of other variables (board size, duality of functions and the presence of the compensation committee) the results remain inconclusive and depend on the nature and characteristics of the study sample. Then, we have shown that the leader benefits from the crisis period for excessive compensation despite a decreasing performance, which confirms the idea of Bonazza (2008).

Finally, the results obtained at the relationship between the presence of the instability and the level of compensation leads us to test the effectiveness of the board, which is the main mechanism responsible for determining the composition and amount compensation manager. The results of this part lead to the conclusion that the board of directors during the period of instability has a role more strategic than the control of the manager. Faced with an inefficiency of the board during this period, state intervention through enactment of laws limiting the amount of remuneration and particularly the variable component linked to the performance of the firm is essential, as the French case in order to limit managerial opportunism.

In conclusion, this study provides an overview of the remuneration of managers during the crisis, and more, it can open perspectives for interesting research questions such as the effect of the crisis on each component of remuneration and specifically equity based compensation. In addition in our study, we have used a score on the functioning of the board and it would be useful to develop a global score including other control mechanisms of the manager such as the presence of the audit committee and shareholding concentration.

ENDNOTE

1. The score board for each company in year t corresponds to the total of points obtained. The items and their measurements are deducted Globe and Mail corporate governance rating.

REFERENCES

Adams, R., and D. Ferreira, 2009, "Women in the Boardroom and Their Impact on Governance and Performance," *Journal of Financial Economics,* 94(1), 291–309.

Anderson, R., and J. Bizjak, 2003, "An Empirical Examination of the Role of the CEO and the Compensation Committee in Structuring Executive Pay," *Journal of Banking and Finance,* 27(7), 1323-1348.

Basu, S., L. Hwang, T. Mitsudome, and J. Weintrop, 2007, "Corporate Governance, Top Executive Compensation and Firm Performance in Japan," *Pacific-Basin Finance Journal*, *15*(1), 56-79

Bebchuk, L., and J. Fried, 2004, "Pay Without Performance: The Unfulfilled Promise of Executive Compensation," *Working Paper*, Harvard University, Cambridge.

Bonazza, P., 2008, *Les patrons sont-ils trop payés ?,* A vrai dire Larousse, collection, Paris.

Boyd, B.K., 1994, "Board Control and CEO Compensation.," *Strategic Management Journal*, *15*(5), 335-344.

Brick, I.E., O. Palmon, and J.K. Wald, 2006, "CEO Compensation, Director Compensation, and Firm Performance: Evidence of cronyism?," *Journal of Corporate Finance*, *12*(3), 403-423.

Broye, G., and Y. Moulin, 2012, "Les déterminants de la rémunération des administrateurs externes dans les sociétés françaises du SBF 120 ," *Finance Contrôle Stratégie*, (15-1/2).

Bugeja, M., S. Ghannam, Z. Matolcsy, and H. Spiropoulos, 2012, "Does Board Gender-Diversity Matter in M&A Activities?" *Working Paper*, University of Technology, Sydney.

Carter, D., B. Simkins, and W.G. Simpson, 2003, "Corporate Governance, Board Diversity, and Firm Value," *Financial Review,* 38(1), 33-53.

Chang, J.C., H.L. Sun, and M. Luo, 2012, "The Impact of Independent and Overlapping Board Structures on CEO Compensation, Pay-performance Sensitivity and Earnings Management," *Quarterly Journal of Finance and Accounting,* Forthcoming.

Chhaochharia, V., and Y. Grinstein, 2009, "CEO Compensation and Board Structure," *Journal of Finance*, 64(1), 231-261.

Collin, S.O., L. Gustafsson, E. Petersson, and E. Smith, 2012, "Options are a CEO's Best Friend: Executive Compensation and Ownership in Swedish Listed Corporations,"

Working Paper,

Conyon, M.J., N. Fernandes, M. Ferreira, P. Matos, and K. Murphy, 2011, "The Executive Compensation Controversy: A Transatlantic Analysis," Working Paper,

Conyon, M.J., and L. He, 2004, "Compensation Committees and CEO Compensation Incentives in US Entrepreneurial Firms," *Journal of Management Accounting Research*, 16(1), 35-56.

Conyon, M.J., and L. He, 2011, "Executive Compensation and Corporate Governance in China," *Journal of Corporate Finance*, 17(4), 1158-1175.

Conyon, M.J., and K.J. Murphy, 2000, "The Prince and the Pauper? CEO Pay in the United States and United Kingdom," *The Economic Journal,* 110(467), 640–671.

Conyon, M.J., and S. Peck, 1998, "Board Control, Remuneration Committees, and Top Management Compensation," *Academy of Management Journal*, 41(2), 146-157.

Core, J.E., R.W. Holthausen, and D. Larcker, 1999, "Corporate Governance, Chief Executive Officer Compensation, and Firm Performance," *Journal of Financial Economics,* 51(3), 371-406.

De Andres, P., and E. Valledo, 2008, "Corporate Governance in Banking: The Role of the Boards of Directors," *Journal of Banking and Finance*, 32(12)*,* 2570-2580.

Eisenberg, T., S. Sundgren, and M.T. Wells, 1998, "Larger Board Size and Decreasing Firm Value in Small Firms," *Journal of Financial Economics,* 48(1), 35-54.

Escaffre, L., and R. Sefsaf, 2010, "L'impact comptable de la crise financière sur la volatilité des titres bancaires : Cas de la France, l'Italie et l'Allemagne," 31éme congrès de l'AFC, Nice, France.

Fahlenbrach, R., 2008, "Shareholder Rights, Boards, and CEO Compensation," *Review of Finance,* 13(1), 81-113.

Fama, E.F., and M.C. Jensen, 1983, "Agency Problems and Residual Claims," *Journal of Law and Economics,* 26(2), 327-349.

Ferrero-Ferrero, I., M.J. Muñoz Torres, and M.A. Fernández Izquierdo, 2011, "Changes in the Influence of Board Characterisitcs on Corporate Results Due to the Recent Global Financial Crisis," Working Paper, Instituto Politécnico de Lisboa,Lisbon.

Firth, M., P. Fung, and O. Rui, 2007, "How Ownership and Corporate Governance Influence Chief Executive Pay in China's Listed Firms," *Journal of Financial Economics,* 84(2), 330-357.

Firth, M., M. Tam, and M. Tang, 1999, "The Determinants of Top Management Pay," *Omega,* 27(6), 617-635.

Godard, L., and A. Schatt, 2004, "Caractéristiques et fonctionnement des conseils d'administration français: un état des lieux," *Working Paper*, Université de Bourgogne, Bourgogne.

Gupta, P.P., D.B. Kennedy, and S.C. Weaver, 2009, "Corporate Governance and Firm Value: Evidence from Canadian Capital Markets," *Corporate Ownership and Control Journal,* 6(3).

Haspeslagh, P., 2010, "Corporate Governance and the Current Crisis," *Corporate Governance,* 10(4), 375-377.

Jensen, M.C., 1993, "The Modern Industrial Revolution, Exit, and the Failure of Internal Control Systems," *Journal of Finance,* 48(3), 831-880.

Kesner, I.F., B. Victor, and B.T. Lamont, 1986, "Board Composition and Commission of Illegal Acts: An Investigation of Fortune 500 Companies," *Academy of Management Journal,* 29(4), 789-799.

Li, D., F. Moshirian, P. Nguyen, and L. Tan, 2007, "Corporate Governance or Globalization: What Determines CEO Compensation in China?" *Research in International Business and Finance,* 21(1), 32-49.

Linck, J., J. Netter, and T. Yang, 2008, "The Determinants of Board Structure," *Journal of Financial Economics,* 87(2), 308-328.

Lipton, M., and J.W. Lorsch, 1992, "A Modest Proposal for Improved Corporate Governance," *Business Lawyer* 48(1), 59-77.

Malette, P., R Middlemist, and W. Hopkins, 1995, "Social, Political and Economic Determinants of Chief Executive Compensation," *Journal of Managerial,* 7(3), 253-276.

Masulis, R.W., C. Wang, and F. Xie, 2012, "Globalizing the Boardroom - The Effects of Foreign Directors on Corporate Governance and Firm Performance," *Journal of Accounting and Economics,* 53(3), 527-554.

Miller-Millesen, J.L., 2002, "Understanding the Behavior of Nonprofit Boards of Directors: A Theory Driven Approach," *Nonprofit and Voluntary Sector Quarterly,* 32(4), 521-547.

Murphy, K.J., and T. Sandino, 2010, "Executive Pay and 'Independent' Compensation Consultants," *Journal of Accounting and Economics,* 49(3), 247-262.

Newman, H.A., and H.A. Mozes, 1999, "Does the Composition of the Compensation Committee Influence CEO Compensation Practices?" *Financial Management,* 28(3), 41-53.

Ozdemir, O., and A. Upneja., 2012, "Board Structure and CEO Compensation: Evidence from U.S. Lodging Industry," *International Journal of Hospitality Management,* 31(3), 856-863.

Pathan, S., 2009, "Strong Boards, CEO Power and Bank Risk-taking," *Journal of Banking and Finance,* 33(7), 1340-1350.

Pathan, S., and M. Skully, 2010, "Endogenously Structured Boards of Directors in Banks," *Journal of Banking and Finance,* 34(7), 1590-1606.

Payne, G.T., G.S. Benson, and L. Finegold, 2009, "Corporate Board Attributes, Team Effectiveness and Financial Performance," *Journal of Management Studies,* 46(4), 704-731.

Petra, S.T., and N.T. Dorata, 2008, "Corporate Governance and Chief Executive Officer Compensation," *Corporate Governance,* 8(2), 141-152.

Ramaswamy, K., R. Veliyath, and L. Gomes, 2000, "A Study of the Determinants of CEO Compensation in India," *Management International Review,* 40(2), 167-191.

Rosen, S., 1981. "The Economics of Superstars," *The American Economic Review,* 71(5), 845-858.

Ryan, H., and R. Wiggins, 2004, "Whose is in Whose Pocket? Director Compensation, Board Independence, and Barriers to Effective Monitoring," *Journal of Financial Economics,* 73(3), 497-524.

Sundaramurthy, C., and M. Lewis, 2003, "Control and Collaboration: Paradoxes of Governance," *Academy of Management Review,* 28(3), 397-415.

Van Essen, M., J. Otten, and E. Carberry, 2015, "Assessing Managerial Power Theory: A Meta-analytic Approach to Understanding the Determinants of CEO Compensation," *Journal of Management,* 41(1), 164-202.

Vigliano, M.H., 2007, "Contrôle exercé par le conseil d'administration et rémunération des dirigeants : réplication de la recherche de Boyd (1994) au contexte français,"

Working Paper, Centre de recherche DMSP, Paris.

Weisbach, M.S., 1988, "Outside Directors and CEO Turnover," *Journal of Financial Economics,* 20(1), 431-460.

Yermack, D., 1996, "Higher Market Valuation of Companies with a Small Board of Directors," *Journal of Financial Economics,* 40(2), 185-211.