The institutional determinants of CEO compensation: An international empirical evidence

Habib Jouber
Lartige, Faculty of Economic, Sciences & Management, University of Sfax
Airport Road, P.O Box 1088, Sfax 3018, Tunisia
Telephone: +216 96672732
Email: habib.jouber@yahoo.com

Hamadi Fakhfakh
Lartige, Faculty of Economic, Sciences & Management, University of Sfax
Airport Road, P.O Box 1088, Sfax 3018, Tunisia
Telephone: +216 98657007
Email: hamadi.fakhfakh@fsegs.rnu.tn

Abstract

Corporate governance literature suggests that the relationship between CEO effort and outcomes such as firm performance is highly uncertain due to the influence of numerous organizational and environmental contingencies that are outside CEOs' control. The major focus of this study is to determine whether institutional factors explain cross-sectional differences in CEO pay structure and sensitivity to performance and luck. Thus, we address three ultimate questions; Are CEOs rewarded for luck? Does institutional features matter for CEO pay for luck? How do systematic incentive effect is sensitive to luck's nature? Ordinary Least Squares (OLS) and Instrumental Variables (I.V.) estimations based on a sample of 300 publicly traded firms covering four countries from the Anglo-American and Euro-Continental corporate governance models between 2004 and 2008 show that the answers to the two first questions are a surrounding yes. Robustness check tests relying to the third question provide evidence that pay for luck is asymmetric. That is, executives are rewarded for good luck but they are safe of bad luck.

Keywords: CEO compensation, performance, institutional factors, luck, corporate governance

1 INTRODUCTION

At the heart of the issue of the managerial compensation's impact on shareholder value is the conflict of interests between corporate shareholders and managers. The assumption is that compensation contracts may resolve or alleviate these conflicts (Jensen and Meckling, 1976). Existing research on this issue is based primarily on the optimal contracting theory. Under this theory, CEO performance-based compensation helps tying the CEO's personal wealth to his firm's stock price and, hence casting doubts on the possibilities that CEOs take self-serving actions to harm shareholders. That is, management rewards should motivate executives to take real actions that increase firm value. This view asserts however, that executives are rewarded only for firm-specific performance's improvements and that executive pay is the outcome of market mechanisms. Or, it is commonly known that contractible performance measures capture the interaction between both specific and systematic incentives (Holmstrom, 1979). With this in mind, one could rationalize this evidence in terms of the principal's disability to draw conclusions about the level of skills or effort the agent exerted. Such disability occurs because a real portion of firm performance may be due to something over which executives have no control, such as, for example macroeconomic trends or input and output price movements (Feriozzi, 2011). Thus, a serious problem facing a shareholder is to determine how much of the firm performance is due to luck and how much is due to skill. This is in fact the crux of Bertrand and Mullainathan's (2001) pay for luck hypothesis. This hypothesis has been spun under the auspice that CEO pay responds as much to a lucky dollar as to a general dollar. Supporting this hypothesis, controlling for CEO pay economic determinants, and using two instruments for luck, we define two types of CEO performance based incentive effect; a lucky (systematic) incentive effect which corresponds to implicit impacts of exogenous events on corporate profitability, and a purely (specific) incentive effect which reflects human skills and efforts. Consequently, we appoint pay for luck and pay for performance to design pay sensitivity respectively to each effect.

Finding pay for luck is not new. However, relatively little is known about how pay depends on its nature that is; are CEOs rewarded for good luck as for bad luck? We show that the answer to this question is a surrounding no. Besides, although a growing stream of research has linked many financial decisions to institutional settings, few are the works that have highlighted how the institutional environment affects the structure of management compensation and its sensitivity to luck. We aim to fill this gap in knowledge by examining how CEO based performance grants relate to luck and institutional factors. To ascertain the validity of such factors' impacts on the systematic incentive effect, we consider the differences made between the Euro-continental and the Anglo-American corporate governance models regarding the law enforcement level, the degree of investors' right protection, and the corporate governance system's quality.

The remainder of this paper is organized as follow. In the next section, we briefly review research related to executive pay and specify our hypotheses regarding potential effects of institutional factors on executive pay. The section thereafter describes the data sources and the methodology that we use. Section 4 describes robustness checks, while Section 5 concludes.

2 THEORETICAL BACKGROUND AND HYPOTHESIS DEVELOPMENT

2.1 CEO pay theoretical foundations

There is a growing body of literature on CEO performance-based pay. There is, moreover, a large consensus that the economics of executive remuneration contracts are normally understood in the context of a principal-agent relationship whereby the manager experiences different incentives to the owner (Jensen and Meckling, 1976; Gregory-Smith, 2011). We can split the recent related studies into to two groups. The first group combines works that admit the orthodox (optimal contracting) of the agency approach to assess whether CEO pay is set by the board to wait on shareholders. Supporting the premises of the hegemony (self-serving) theory, the second group list together researches that argued that observed compensation contract deviate from the optimum and that this deviation is contingent on systematic firm performance primarily driven by exogenous market and industry related factors[1].

Amongst the first set of theoretical and empirical advancements in the understanding of the management based performance rewards' impacts on shareholder value, numerous studies have pointed out that observed compensations are optimally determined and respond likely to agency concerns. Measuring the magnitude of the pay-performance correlation has been the standard for good number of these researches for testing the ability of incentive contracts to enhance corporate profitability. The seminal representative study is that of Jensen and Murphy (1990). Whereas the authors have failed to find strong evidence of a pay response to performance[2], rival

---

[1] There are evidences that CEO pay is strongly and positively related to such factors. Researchers supporting these evidences have coined this relationship as relative performance evaluation, pay for luck, pay for sector performance, etc (Bertrand and Mullainathan, 2001; Garvey and Milbourn, 2003; 2006; Gopalan *et al*., 2010; Hoffmann and Pfeil, 2010).

[2] Jensen and Murphy (1990) find that the median wealth of a CEO rises by $3.25 when the value of the corporation increases by $1000 for a sample consisting of CEOs listed in the Forbes Executive Compensation Surveys.

studies conducted post the increase in equity based compensation of the 1990s find a much stronger relationship. These studies cover the U.S. (Hall and Liebman 1998; Core *et al.*, 1999; Harford and Li, 2007; Zheng and Zhou, 2009; Jiménez-Angueira and Stuart, 2010, etc.), Canada (Zhou, 2000; Park *et al.*, 2001; Craighead *et al.*, 2004; Swan and Zhou, 2006; Chourou *et al.*, 2008; Kalyta and Magnan, 2008; Geremia *et al.*, 2010), France (Alcouffe and Alcouffe, 2000; Llense, 2010), the U.K. (Ozkan, 2009; Guest, 2009a; Conyon and Sadler, 2010; Voulgaris et *al.*, 2010; Renneboog and Zaho, 2011), Allemande (Elston and Goldberg, 2003), Australia (Evans and Evans, 2001; Merhebi *et al.*, 2006; Heaney *et al.*, 2010), Japan (Abe *et al.*, 2005; Kato and kubo, 2006), Chine (Conyon and He, 2011; Chen *et al.*, 2011), Hong Kong (Cheung et *al.*, 2005), Sweden (Oxelheim *et al.*, 2010), Italy (Brunello et *al.*, 2001), Denmark (Erickssson, 2000), Netherlands (Jansen *et al.*, 2009), Slovenia (Gregoric *et al.*, 2010), and Portugal (Fernandes, 2008).

A contrario, results from "neighbour" studies by Tosi *et al.* (2000) and Gabaix and Landier (2008) may seem surprising. The authors advocate that firm size accounts for more than 40% of the variance in total CEO pay while firm performance accounts for only less than 5% and that the 600% increase in CEO pay in US firms between 1980 and 2003 can be explained by the 600% increase in firm size.

The second set of works is consistent with the view that CEO pay outcome is far from being an agency problem solution and it may reflect an element of chance (Bertrand and Mullainathan, 2001) or managerial power (Bebchuk and Fried, 2003; 2004). This view goes further arguing that executives are rewarded for luck but not for performance. That is, CEOs seem to benefit from windfall earnings beyond their control. Bebchuk *et al.* (2006) argue this is likely to be most keenly observed in cases where pay sensitivity to macroeconomic influences is substantial. When this happen, pay arrangements are viewed as rewarding CEOs' failures rather than success. Consequently, modeling CEO compensation with reference to the principal-agent backgrounds may weaken or mislead shareholders' overcomes about reward for chance's dramatic impact on their wealth. Among researchers arguing against the assumptions that directors could resist the systematic influences and negotiate at arm's length with managers under the agency theory, we can mention Bertrand and Mullainathan (2001), Garvey and Milbourn (2003; 2006), Gopalan *et al.* (2010), Feriozzi (2011), Oyer (2004), Jiménez-Angueira and Stuart (2010), Chiu *et al.* (2011), Oxelheim *et al.* (2010), Oxelheim and Wihlborg (2003), and Oxelheim and Randoy (2005).

Bertrand and Mullainathan (2001) question the effectiveness of executive pay as an incentivizing mechanism. They show that pay for luck is as large as pay for general pay for performance; in other words, CEOs are rewarded as much to a lucky dollar as to a general dollar. Garvey and Milbourn (2003; 2006) argue that executives can set pay in their own interests; that is, they can enjoy pay for luck as well as pay for performance. Gopalan *et al.* (2010) and Chiu *et al.* (2011) point out that management can take advantage of lucky external events and dampen the effects of unlucky external events by taking strategic choices vis-à-vis the firm's performance relative to the industry's performance[3] or exchange rate and macroeconomic fluctuations. Oyer (2004) find that if managerial outside opportunities are positively related to wide industry movements, managers might receive a larger pay during an upswing simply because their participation constraints are more demanding. By considering implicit CEOs' incentives to avoid bankruptcy in a simple hidden action model, Feriozzi (2011) documents that luck cannot be filtered out of managerial pay. Jiménez-Angueira and Stuart (2010)'s study testing whether there is asymmetric use of IRPE and pay-for-luck that indicates CEO power over the compensation process suggests that CEO bonus compensation is more sensitive to industry-adjusted performance when the firm outperforms its industry benchmark and when the industry benchmark is positive. Oxelheim *et al.* (2010), Oxelheim and Wihlborg (2003), and Oxelheim and Randöy (2005) find macroeconomic influences on Swedish CEOs' compensation to be substantial.

In summary, it is striking to notice two interesting findings. First, as related literature mentioned, management rewards are sensitive to performance as well as to luck. Second, except of Oxelheim et *al.*, (2010), all cited researches have focused on the U.S. setting. To make sure of the first finding's truth in other contexts, we propose our first hypothesis as follow:

Hypothesis 1: CEO pay is sensitive to firm's performance (specific incentive effect) as much as to luck (systematic incentive effect) even in non-U.S. countries.

2.2 Institutional features' impacts on management compensation structure and sensitivity to luck and performance

Drawing aspiration from La Porta *et al.*'s (1997) seminal models, a large stream of research has linked firm's financial decisions to institutional features. For example La Porta *et al.* (2000; 2006), Giannetti (2003), Bartram *et al.* (2009), Denis and McConnel (2003), Djankov et al. (2008) have established that legal characteristics affect presumably firm's decisions regarding dividend pay-out, capital structure, derivatives usage, financing, and ownership structure4. Nevertheless, issues on such features' impacts on management

---

[3] This is known as Relative Performance Evaluation (RPE).
[4] The reader is referred to Bryan *et al.* (2010) for a thorough review of legal system's effects on other firm's financial policies.

compensation design and international pay difference are scarce. To our knowledge, apart from Bryan et al. (2010; 2011), no other study has examined if or how institutional environment affects executive compensation. We extend Bryan et al.'s (2010; 2011) results by addressing whether law enforcement level, investors' right protection degree, and the corporate governance system's quality index are significant determinants of compensation structure and if international pay differences respond really to variations in these attributes' strength across countries. The following findings advocate why CEO compensation design and sensitivity to luck and performance are expected to depend on such attributes and differ across institutional environments.

2.3 Legal system

Legal rules commonly instituted at the national level or exercised within nations may contribute to between-countries management practices homogeneity (La Porta *et al*., 1997). Yet, cross national differences in legal systems may however breed within-countries corporate decisions heterogeneity. We base our hypothesis on the law and finance theory to explore the possibility that differences in national legal system can lead to differences in compensation structure. La Porta *et al*. (1997; 1998) provide undeniable evidence that most commercial law derives from one of two broad traditions: common law or civil law. The former is based on English tradition where laws are determined by judges. The latter relies more on statutes and comprehensive codes which are primarily articulated by legal scholars and governmental authorities. La Porta *et al*. (1998) contend that common law systems prevalent in Anglo-Saxon frameworks (such as U.S. and U.K.) provide significantly stronger protection shareholders' rights than do civil law ones (such as France). Greater protection of shareholders' rights protection has many financial and behavioural implications. First, La Porta *et al*. (2006) report that countries with stronger legal protection have more efficient stock markets, but smaller and narrower debt markets, make so much use of public equity, and rely more on equity based compensation to mitigate agency costs. Second, Ali and Hwang (2000) show a highly value relevance of accounting information amongst such countries that provides effective direct link between stock price and firm performance. Third, Bryan et *al*., (2010) point out that common law's nations are highly democratic and accept further compensation systems that reward individual talents and achievement. Fourth, Brenner and Schwalbach (2009, p. 3) argue that over the period 1995-2005, about 9 per cent to 10 per cent flaw of CEOs compensation in the common law countries have led to a positive pay gap relative to French civil law countries of about U.S. $150,000 per year. Accordingly, we hypothesize;

Hypothesis 2: In common law countries, CEO pay is more sensitive to firm's performance than to luck.

2.4 Shareholder rights protection

Under stronger shareholder rights, boards are more accountable for their actions. Shareholder rights are protected when shareholders are equipped with options that help them to more effectively exercise their control rights. These rights are enforced by public authorities such us courts or administrative agencies and differ presumably across jurisdictions. La Porta *et al*. (1997; 1998), Djankov *et al*. (2008), Spamann (2006), Brenner and Schwalbach (2009), and Bryan *et al*. (2010; 2011) have showed that shareholder protection is guaranteed within common law system nations. Bryan *et al*. (2010) have focused on how variation in shareholder rights protection affects managerial compensation structure. They found evidence that this institutional feature is the primary determinant of variation in equity mix for a sample of 381 non-US firms from 43 countries during the 1996-2000. Brenner and Schwalbach (2009) contend moreover, that the stronger anti-director rights of shareholders, the smaller is the risk-adjusted level of CEO pay. Still, they suggest that directors in countries with higher level of anti-director rights take their duty to achieve the best CEO compensation contract for shareholders more seriously. On the other hand, shareholder rights enforcement may encourage dutiful behaviour by executives and deter management self-serving practices. Hence, our third hypothesis reads as follows:

Hypothesis 3: CEO pay for performance (for luck) is positively (negatively) related to shareholder rights protection level.

2.5 Corporate governance quality

Several pundits have recognized the potential impact of corporate governance on firm's financial decisions and choices. Concerning CEOs pay decisions, there has been an admitted consensus regarding the positive link between corporate governance and managerial compensation design. For example, the extant literature has established that equity-based reward is related to compensation committee quality (Sun and Cahan, 2009; Gregory-Smith, 2011), board independence (Chourou *et al*., 2008; Ozkan, 2007; Faleye, 2011), institutional ownership (Hartzell and Starks, 2003; Gallagher *et al*., 2006), voluntary corporate disclosure (Beyer *et al*., 2010), compensation consultants (Murphy and Sandino, 2010; Cadman *et al*., 2010; Voulgaris *et al*., 2010), say on pay (Dew-Becker, 2009; Conyon and Sadler, 2010; Ferri and Maber, 2009). External aspects of corporate

governance, such as regulatory environment or the market for CEO talent, influence also both the level and composition of executive compensation (Sapp, 2008; Geremia *et al*., 2010; Chalevas, 2011; Cremers and Grinstein, 2011). Internal and external corporate governance-related factors have moreover, effects on the association between CEOs pay and firm's performance. Related empirical literature is full of stories suggesting too low pay-performance sensitivity in presence of governance failures. In their influential papers, Bertrand and Mullainathan (2001) and Garvey and Milbourn (2003; 2006) find that in poorly governed firms[5], managers are not compensated in line with their performance; that is, they can enjoy pay for luck. Minnick *et al*. (2010) and Feriozzi (2011) contend however, that pay-for-performance sensitivity is higher within well governed firms. Supporting these assertions, we develop our fourth hypothesis as follow:

Hypothesis 4: Well governed firms reward their CEO more for performance than for luck.

3 RESEARCH DESIGN AND METHODOLOGY

In this section, we describe our data, provide our variables' outline, and ultimately lay out our empirical methodology.

3.1 Sample selection and data source

This study aims shed light on whether institutional environment features may influence CEO pay structure and efficiency. To reveal such influence, we consider the distinction made between the Anglo-American and Euro-Continental corporate governance models. Hence, we select a sample of U.S. and Canadian firms as to represent the former and a group of U.K. and French firms as to refer to the latter.

Our starting target sample covers a random group of 100 U.S. companies from S&P 500 index, all U.K. listed firms of the FTSE 100 index, all Canadian companies of TSX100 index, and all firms of SBF 120 index. The discarding procedure, either because of incomplete needed information for the period under analyses which covers years from 2004 to 2008, or because of insufficient number of observations per sector, left us with seventy-five firms in each country. All selected firms are shared out their corresponding industries using the Fama-French 12 industry classification[6].

Needed information is hand collected from various sources. For U.S. firms, data on executives' compensation, ownership structure, board and CEO characteristics are collected from DEF 14A proxy statement reports available on the SEC files and download from the EdgarScan's website (edgarscan.com). Financial and accounting firm's characteristics come from the 10K annual reports contained in the same database. For the Canadian firms set, data on CEO pay, ownership and corporate governance are provided by the firms' proxy circulars available from the System for Electronic Document Analysis and Retrieval (SEDAR) database. Data on French observations are exhausted from various sources such as the Expansion, the Financial Market Authority, and the Euronext websites. Data on the U.K. firms are exclusively collected from their websites[7]. Shareholder right protection indices are provided by the World Bank Doing Business (2008)'s report.

3.2 Variables selection and measurement

Our dependent variable is measured by the natural logarithm value of cash and equity-based compensation for the CEO. This logarithm procedure mitigates heteroskedasticity resulting from extreme skewness. Cash compensation is base salary and bonus. Equity-based compensation is computed as (stock price) × (the member of newly granted shares) + (stock price) × (option delta) × (the number of newly granted stock options).

We emphasize the effects of institutional factors on executives' compensation design and sensitivity to performance and luck. However, the management pay's academic and practitioner related literature has suggested a number of economic determinants for CEO compensation. Hence, we include a set of firm's (performance, size, growth opportunities, and specific risk) and CEO (managerial horizon, tenure, and ownership) characteristics to our models as additional explicative variables to facilitate the comparison of our results with previous studies. Table 1 provides a summary of the measurements for all the variables and their predicted signs in the regressions.

---

[5] Are firms with concentrated ownership structure, higher entrenched managers, smaller boards, and lower fraction of outside directors.

[6] The Fama/French 12 industry classification is: Consumer Non-durables, Consumer Durables, Manufacturing, Energy, Chemicals, Business Equipment, Telecommunications, Utilities, Shops, Healthcare, and Other. Authors' definitions for these groupings are accessible from Kenneth R. French's website http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data Library/det_12_ind_port.html. The distribution of the sample firms by industry is available from the authors.

[7] Since 2003, listed U.K. companies are required to establish a transparent disclosure for developing policies on executives' compensation and corporate issues allowing to more detailed analyses.

Table1: Variables definition and their predicted effects on executives' pay

Variable	Label	Predicted effect	Definition
CEOs compensation	COMP		Natural log of cash and equity-based compensation for CEO
Institutional factors			
Legal system's origin	LEG	+/-	Equal to 1 if common law, 0 otherwise
Shareholder right protection	SPI	+/-	Shareholder Protection Index from the world bank doing business (2008) report
Corporate governance quality	G-Ind	+/-	Corporate governance index*
Systematic chocks			
Firm's to industry relative performance variation	IRPE	+	Variation in the firm's economic performance relatively to mean industry's economic performance evaluation
Firm's to market relative performance variation	MRPE	+	Variation in the firm's economic performance relatively to mean market's economic performance evaluation
Firm and CEO characteristics			
Firm performance	PER	+	Total shareholder return TSR
Firm size	SIZE	+	Total assets in logarithm
Growth opportunities	GROW	+	Market to book ratio ((market value of equity+ book value of debt)/total assets)
Firm specific risk	RISQ	+	Total risk less systematic risk, where the latter is estimated using the market model
CEO tenure	TEN	-	Number of years since the CEO is in position
CEO ownership	OWN	-	% of common share owned by the CEO
CEO age	AGE	+	CEO age in years

*Note; * This index assigns a value of 1 if the firm meets the threshold level to each of these attributes; chairman and CEO positions are separated, nominating and compensation committees are composed solely of independent outsiders, board meet at least twice time annually, at least the CEO serves on the board of one of other public firms, board is controlled by more than 50% grey directors, and CEO don't serves as a member neither in the nominating committee, nor in the compensation committee.*

3.3 Models

To test the first hypothesis, we should estimate two sets of models. The first one allows us to estimate the general sensitivity of pay to performance whereas the second is used to estimate the sensitivity of pay to luck. The first model is an OLS regression with firm and time fixed effects and can be developed as follows:

$$COMP_{it} = \alpha + \beta*Perf_{it} + \chi_i + \gamma_t + \delta_x*X_{it} + \varepsilon_{it} \qquad (Eq.1)$$

where $COMP_{it}$ is the CEO's cash and equity-based compensation in firm i at time t; $Perf_{it}$ is the total shareholder return; χ_i are firm fixed effects; γ_t are time fixed effects, X_{it} are firm, CEO and institutional characteristics, and β is an estimator to capture the (global) pay-performance link.

The second model helps estimating the sensitivity of pay to luck, that is unobserved chocks that may cause performance. The most popular way to deal with unobserved causality is to use an Instrumental Variables (I.V.) approach. To do so, we should identify a valid instrument for the performance measure and estimate model (1) using two-stage least squares (2SLS). Hence, we estimate as a first stage this equation:

$$Perf_{it} = \eta*Chock_{it} + \alpha_x X_{it} + y_i + z_t + e_{it} \qquad (Eq.2)$$

where, $Chock_{it}$ represents the instrument for luck[8]. In the second stage, 2SLS estimates are obtained by regressing COMP on the predicted values of Perf, computed using the parameters from the first-stage regression:

$$COMP_{it} = \alpha + \beta_{luck}*P\hat{e}rf_{it} + \delta_f*F_{it}*P\hat{e}rf_{it} + \chi_i + \gamma_t + \delta_x*X_{it} + \varepsilon_{it} \qquad (Eq.3)$$

---

[8] There are two important characteristics that Chock must have to be a valid instrument. First, it should be sufficiently correlated with Perf, so we expect $\eta \neq 0$. Second, Chock should be uncorrelated with e, in other words, E[Chock, e] = 0. The insight here is that Chock should not have its own direct influence on COMP and therefore not be an omitted variable in Equation (1).

The estimated coefficient β_{luck} captures pay sensitivity to performance that comes from luck (incentive systematic effect), and F is a vector of the institutional factors. We include industry dummies per the Fama-French 12 industry classification to each of the three above models.

4 EMPIRICAL RESULTS AND ROBUSTNESS CHECKS

4.1 Descriptive statistics

Table 2 provides the descriptive statistics for the variables in the regression analysis. In panel A, we observe that the mean (median) cash and equity based compensation of the American and Canadian chief executive officers, is 6807.195 U.S. million dollars (5904.305 U.S. million dollars). These figures are much higher in comparison with their counterpart levels in France and U.K. The mean (median) French and British CEOs compensation is 3890.541 U.S. million dollars (2630.268 U.S. million dollars). The statistics show however, significant dissimilarities between the two sub-sample specially regarding the institutional features. On the one hand, it is noteworthy that the Anglo-American framework safeguards shareholder interests more than the Euro-Continental one. Panel A proves a mean (median) value of shareholder protection index of 6.01 (5.47). Panel B indicates however, values of 4.51 (4.06) which are remarkably lower. On the other hand, U.S. and Canadian settings show higher level of corporate governance indices when compared to their British and French peers. Moreover, American and Canadian firms are significantly much larger, exhibit higher growth opportunities levels, incur less specific risk, and perform well. Notably, French and British CEOs hold relatively much shares (23.3%) and have larger tenure (11 years). T-statistics for mean differences and Wilcoxon z-scores for median differences confirm these findings. In fact, univariate difference tests reveal highly significant T-statistics and z-statistics coefficients[9].

Pearson correlation matrices show significant pair wise correlations between some explanatory variables. First, the origin of legal system is highly positively correlated to CEO pay, to shareholder protection index as well as to governance index (panel A) suggesting that firms from common law countries use greater amount of cash and equity based compensation, provide greater protection of shareholder rights, and support well qualified corporate governance tools. Indeed, the significant correlation between these variables is noteworthy. These univariate links approve, a priori, Bryan *et al.*'s (2010, 2011) results of the legal system's positive impacts on the executive compensation's equity mix. Second, executive pay is positively correlated with firm size and performance showing that incentive policies are widely used in large and healthy firms. Two main reasons may explain this finding: (1) large firms are more likely to hire higher talented managers who can claim and justify higher compensation and (2) companies with higher performance may also offer higher executive compensation to further improve their performance**.** These correlations parallel the ones obtained by Conyon *et al.* (2010) who find that size and performance explain by about 37.7% and 28.1% of CEO incentives gap between large and small firms. Third, we don't record any association between management reward and CEO characteristics. Fourth, contrary to the U.S.-Canadian group of firms, we note from panel B that there is no significant link between executive compensation and any of the institutional factors. Unless, shareholder right protection and governance quality are highly correlated. We note moreover, a highly positive link between CEO ownership and top executives compensation within the British-French case. The other statistics are comparable to those obtained by similar researches dealing with the economic determinants of management incentives.

---

[9] For the sake of brevity, the results of these tests are not reported here. Nevertheless, they are available from the authors under request.

Table 2: Descriptive statistics and Pearson correlations

Variable	Mean	Median	1	2	3	4	5	6	7	8	9	10	11	12	13
Panel A: U.S.-Canadian sub-sample															
1.COMP	3.83	3.77	1												
2.LEG	1	-	**.18**	1											
3.SPI	6.01	5.47	**.36**	**.19**	1										
4.G-Ind	4.38	3.79	**.28**	**.11**	**.09**	1									
5.IRPE	0.103	0.07	.13	.02	.01	.03	1								
6.MRPE	0.141	0.103	.21	.01	.00	.03	**.31**	1							
7.PER	0.271	0.208	**.11**	.01	**.01**	**.07**	**.17**	.03	1						
8.SIZE	11.45	10.39	**.08**	.06	.04	.01	.10	.01	.07	1					
9.GROW	1.71	1.37	.1	.05	.01	.01	.02	.11	.10	.21	1				
10.RISQ	0.033	0.021	**.21**	.02	.01	.02	-.01	.00	.01	.05	.00	1			
11.TEN	9.816	8.039	.09	.01	**-.21**	-.16	.04	.01	.00	.01	.01	.01	1		
12.OWN	0.114	0.093	.01	.01	-.13	-.11	.01	.03	.00	.05	.01	-.1	**.20**	1	
13.AGE	57.97	54.62	.00	.01	.00	.05	.01	.03	.00	.01	.01	.00	**.11**	**.10**	1
Panel B: U.K.-French sub-sample															
1.COMP	3.59	3.42	1												
2.LEG	0.53	0.37	.01	1											
3.SPI	4.51	4.06	.01	.01	1										
4.G-Ind	4.09	3.37	.03	.00	**.11**	1									
5.IRPE	0.111	0.087	**.07**	.00	.09	.03	1								
6.MRPE	0.107	0.076	**.02**	.00	.03	.03	.09	1							
7.PER	0.173	0.161	.05	.01	.01	**.02**	.03	.07	1						
8.SIZE	8.39	8.07	.10	.01	.01	.01	.01	.02	**.05**	1					
9.GROW	1.19	0.093	.10	.00	.05	.01	.01	.01	.02	.01	1				
10.RISQ	0.051	0.037	.05	.04	.00	.00	-.01	-.1	.01	-.1	-.1	1			
11.TEN	11.101	9.037	.01	.01	-.01	**-.10**	.00	.00	.00	.01	.00	.00	1		
12.OWN	0.233	0.175	**.10**	.01	-.10	**-.01**	.00	.01	.01	.01	.01	-.1	**.01**	1	
13.AGE	59.13	56.83	.05	.01	.01	.01	.00	.01	.00	.01	.00	.01	**.05**	.1	1

This table presents the univariate analysis of the CEO's compensation as well as firms and institutional characteristics of our sub-samples. Panel A (B) shows results for U.S.-Canadian (U.K.-French) sub-sample. Pearson correlations for each sub-sample appear respectively below the principal diagonal of the correspondent panel. Variable descriptions and measurement are provided in Table 1. Bold numbers indicate significance at the 1% one-tailed level or better.

4.2 Regression results

The generalized and separated estimation results for the three sets of models are reported in Tables 3 and 4. Table 3 reports the results of our test of global sensitivity of pay to performance, where performance measure is the total shareholder return. The first column shows the results of estimating Eq. (1) using the overall observations. The second and the third columns point out results using sub-sample observations. Models (1a), (2a), and (3a) include the full independent variables whereas models (1b), (2b), and (3b) control only for performance and institutional factors. In all specifications, the coefficients for the firm's performance are significantly positive indicating that the incentive effect is supported. The magnitude of this effect ranges between 21% and 39% showing that shareholder wealth rises by nearly one quarter to one third points when the three highest paid top executives' cash and equity based compensation increases by one per cent point. This positive sensitivity of pay to performance is in line with optimal contracting orthodox of the agency approach. It is noteworthy that the performance's estimated coefficients are larger in the U.S.-Canadian specification suggesting that executives' incentives wait more on American and Canadian shareholders than on British and French ones. The coefficient for shareholder protection provides strong evidence of positive associations between the strength of investor rights and the relative use of incentive compensations. The hypothesized effect of law enforcement quality on executives' pay is exclusively hold for the U.S.-Canadian sub-sample. The sign and magnitude of this effect are similar to those reported by Bryan *et al*. (2010).

Corporate governance quality has also a significant positive impact on CEO compensation. This impact is notably larger in specifications (2b) and (3b). The coefficient for firm size is significantly positive confirming univariate analysis that executive pay is positively impacted by firm size. This coefficient is in turn greater than that of growth opportunities in all models. This difference indicates that although market-to-book ratio has a positive impact on pay, firm size has a relatively larger impact.

Concerning the remainder estimations, the coefficients for the CEO tenure and ownership are the most noteworthy. The regression estimates of model (3a) show a significant monotone association between the tenure in the CEO position and the top three executives' cash and equity based compensation. The coefficient is economically important (0.139) implying that an increase in the CEO's tenure by one year will increase executives' rewards by roughly 14%. This finding stands in line with the previous evidence of Nourayi and Mintz (2008). Moreover, the estimate for the CEO ownership is positive and statistically significant at the 1% level. This is may be consistent with the managerial power approach contending that powerful CEO may influences the pay process to his own interest.

To further thin the impact of contextual features on executives' pay, we include interactive variables that are equal to the shareholder wealth multiplied by each of the three institutional features, that is ($TSR_{it} \times LEG_{it}$), ($TSR_{it} \times SPI_{it}$), and ($TSR_{it} \times G\text{-}ind_{it}$). Unreported results keep constant the previous findings; all interactive terms are positive and statistically significant (notably for the full and U.S.-Canada sample based regressions).

Table 3: Results of OLS regression analysis of pay-to-performance sensitivity

Variable	Model (1): Full sample (N=1500)		Model (2): U.S.-Canadian subsample (N=750)		Model (3): U.K.-French subsample (N=750)	
	Model (1a)	Model (1b)	Model (2a)	Model (2b)	Model (3a)	Model (3b)
Intercept	0.058**	0.027***	0.019***	0.024***	0.097**	0.035***
	(2.2)	(2.65)	(2.87)	(3.06)	(2.49)	(3.44)
Perf	0.388*	0.37*	0.251**	0.299**	0.217**	0.236**
	(1.8)	(1.64)	(2.26)	(2.31)	(2.09)	(1.96)
LEG	0.021*	0.03*	0.105***	0.113***	0.044	0.053
	(1.63)	(1.81)	(3.01)	(2.24)	(0.96)	(0.83)
SPI	0.018*	0.021**	0.037**	0.041**	0.022	0.026*
	(1.31)	(1.96)	(2.01)	(2.11)	(0.91)	(1.63)
G-Ind	0.011**	0.016**	0.027**	0.031***	0.017*	0.023**
	(2.41)	(2.5)	(2.32)	(2.73)	(1.89)	(2.56)
SIZE	0.105**		0.211**		0.177**	
	(2.03)		(2.15)		(2.01)	
GROW	0.091*		0.119**		0.095*	
	(1.87)		(1.96)		(1.83)	
RISQ	0.047		0.031*		0.019	
	(0.91)		(1.81)		(1.1)	
TEN	-0.121*		-0.1		-0.139**	
	(-1.76)		(1.27)		(-1.96)	
OWN	-0.201		-0.191*		0.217***	
	(-0.87)		(-1.64)		(2.87)	
AGE	0.091		0.085		0.107*	
	(1.03)		(1.31)		(1.8)	
Adjusted R²	0.301	0.498	0.393	0.579	0.377	0.435

This table shows coefficients from the OLS full and separated regression of the CEO pay against shareholder return, firm and CEO characteristics, and institutional factors. Parameter estimates appear first and standard errors appear in parenthesis. All models include complete sets of time and industry dummy variables. Variables are as defined in Table 1. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% one tailed levels or better respectively.

Table A of the Appendix summarizes estimation results of Eq. (2). Remind that the premise of this equation is to check firm performance sensitivity to exogenous systematic pressures. That is, we have to decompose the predicted performance into its 'real' part, which is taken cover of these pressures; and its 'problematic' part, which is potentially endogenous them. Two interesting observations emerge from the regression estimates where shareholder wealth is the dependent variable. First, we find that shareholder return is increasing in the firm's to industry relative economic performance evaluation and firm's to market relative economic performance variation. These interactions show that variations in both relative performance evaluations are strong instruments for unobservable chocks. Second, firms perform well when growth opportunities are positively expected, but worst when specific risk is higher and manager is powerful.

To test for the hypothesized systematic incentive effect, we perform the second stage of the instrumental variables (I.V.) technique. In this stage, 2SLS estimates are obtained by regressing executives' pay using the predictable changes in performance due to luck (Pêrf) computed from the first stage. Estimated results appear in Table 4. From this table, we remarkably note two striking findings. On the one hand, CEO compensation is positively sensitive to luck. The coefficients for shareholder adjusted return are significantly positive approving that managers are potentially rewarded for performance beyond their control. Hence, we support our first hypothesis. It is noteworthy, but not surprising, that firm adjusted performance coefficients are clearly much

smaller in the U.S.-Canadian sub-sample based regressions showing that firms in these settings reward less for luck than do their peers in the U.K.-French frameworks. On the other hand, the coefficients for the interaction between adjusted performance and institutional variables are significantly negative meaning that contextual factors have moderate effects on the sensitivity of pay-to-luck. The coefficient for the legal system-adjusted shareholder return interaction term is (-0.194) suggesting that the systematic incentive effect may be mitigated by until one fifth point when law enforcement quality is sustained. Shareholder right protection and governance index exert also significant moderate effects on the pay sensitivity to luck. These effects are much conspicuous for the U.S.-Canadian subsample based regressions. Taken together, these results find straightforward evidence that systematic incentive effect is more moderate in well governed firms or in those providing strong protection of shareholder rights. This effect is moreover, less important within nations of common law system. Thus, we support our expectations regarding the impacts of the specific Anglo-American and Euro-Continental institutional features on CEO pay sensitivity to luck. Indeed, we rely on previous evidences of pay-for-luck (Bertrand and Mullainathan, 2001; Garvey and Milbourn, 2003; 2006) and pay-for- firm relative performance (Farmer *et al.*, 2010; Gopalan *et al.*, 2010; Jiménez-Angueira and Stuart, 2010).

Table 4: Results of 2SLS regression analysis of pay-to-luck sensitivity

Variable	Model (1): Full sample (N=1500)	Model (2): U.S.-Canadian subsample (N=750)	Model (3): U.K.-French subsample (N=750)
Intercept	0.029** (1.96)	0.031** (2.08)	0.047** (2.21)
Pêrf	0.317** (2.11)	0.273*** (2.6)	0.375** (2.31)
LEG* Pêrf	-0.117* (-1.73)	-0.194*** (-3.39)	-0.101* (-1.76)
SPI* Pêrf	-0.201** (-2.27)	-0.270*** (-2.96)	-0.159** (-1.96)
G-Ind* Pêrf	-0.187* (-1.89)	-0.237** (-2.01)	-0.212** (-2.27)
SIZE	0.513* (1.77)	0.308* (1.81)	0.271* (1.88)
GROW	0.317 (1.21)	0.405* (1.7)	0.273 (0.83)
RISQ	0.083 (1.01)	0.117* (1.72)	0.091 (0.82)
TEN	-0.076 (-1.8)	-0.095* (-1.89)	-0.107** (-2.11)
OWN	-0.069* (-1.71)	-0.053 (-0.48)	-0.097** (-2.31)
AGE	0.04 (0.57)	0.034 (1.33)	0.041* (1.73)
Adjusted R²	0.371	0.596	0.479

This table shows coefficients from the 2SLS full and separated regression of the CEO pay against shareholder adjusted return, firm and CEO characteristics, and firm performance-institutional factors interaction terms. Parameter estimates appear first and standard errors appear in parenthesis. All models include complete sets of time and industry dummy variables. Variables are as defined in Table 1. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% one tailed levels or better respectively.

4.3 Sensibility analyses

To check for robustness of our results against the unspecified nature of luck, we refer the above tasks after controlling for the luck nature. Hence, we split each subsample into two groups of firms. We restrict the first group to just those observations for which the variation in the firm's to industry relative economic performance evaluation and/or the variation in the firm's to market economic performance evaluation is negative (bad luck). Similarly, we restrict the second group to just those observations for which the variation in these instruments is positive (good luck)[10]. We define $Perf^{(-)}$ and $Perf^{(+)}$ as to refer to the respectively impacts of these specifications on shareholder return. Check results are shown in Table 5. Such results could normally help us to test whether pay is similarly sensitive to good luck as to bad luck. We note from this table that the most coefficients of the $Perf^{(+)}$ variable are significantly positive showing that executives' pay rises presumably when systematic chocks are favourable. Moreover, we view that the pay-$Perf^{(+)}$ links are much reliable in the U.S.-Canadian sub-sample based estimations than in those ruled on the U.K.-French settings. Unless, the estimation outputs point out that pay-sensitivity to bad luck is statistically insignificant. Surprisingly, the coefficients for the $Perf^{(-)}$ variable are positive and significantly different from zero in both models meaning that there is no observable constraining significant effect of downward systematic pressures on CEOs payment. That is, managers are not penalized when the market is unfavourable. This finding meets Garvey and Milbourn's (2006) asymmetry pay-for-luck thesis which asserts a significantly less CEOs pay for luck when luck is down than when it is up.

The estimated interaction links provide strong support for the moderated impacts of the institutional variables on the systematic incentive effect when luck is positive. Unless, these absorbed impacts disappear when luck turns to be negative. The results for firm and CEO characteristics are presumably similar to those explored above and are conform to evidences of comparable studies.

---

[10] Separating each subsample into two groups has also the advantage of not constraining the coefficients on the performance control variables to be the same across the two groups of firms.

Table 5: Robustness check results

Variable	Model (1): U.S.-Canadian subsample (N=735)		Model (2): U.K.-French subsample (N=670)	
	Model (1a)	Model (1b)	Model (2a)	Model (2b)
Intercept	0.013* (1.87)	0.01** (1.99)	0.093* (1.83)	0.011* (1.78)
Perf$^{(+)}$	0.273** (2.13)		0.362*** (2.89)	
Perf$^{(+)}$*LEG	-0.175** (2.07)		-0.106 (1.18)	
Perf$^{(+)}$*SPI	-0.319*** (3.01)		-0.211* (1.81)	
Perf$^{(+)}$*G-Ind	-0.201** (1.96)		-0.167** (2.21)	
Perf$^{(-)}$		0.171** (2.37)		0.202** (2.04)
Perf$^{(-)}$*LEG		-0.071 (0.34)		-0.056 (0.51)
Perf$^{(-)}$*SPI		-0.101 (1.11)		-0.117 (0.48)
Perf$^{(-)}$*G-Ind		-0.19 (0.37)		-0.214 (1.01)
SIZE	0.316** (2.27)	0.271** (2.1)	0.219* (1.83)	0.231* (1.88)
GROW	0.121* (1.78)	0.103* (1.8)	0.107* (1.76)	0.095 (1.34)
RISQ	0.099* (1.88)	0.067* (1.81)	0.084** (2.31)	0.078** (2.2)
TEN	-0.074 (0.32)	-0.058* (1.78)	-0.077* (1.8)	-0.069* (1.86)
OWN	-0.091 (0.11)	-0.059 (1.21)	-0.071** (1.96)	-0.073** (2.03)
AGE	0.068* (1.73)	0.07 (1.35)	0.051* (1.83)	0.066* (1.88)
Adjusted R^2	0.561	0.483	0.601	0.535

This table displays test sensibility results. Perf$^{(+)}$ measures the positive variation in the firm's to industry relative economic performance evaluation and/or the variation in the firm's to market economic performance evaluation. Perf$^{(-)}$ measures the positive variation in the firm's to industry relative economic performance evaluation and/or the variation in the firm's to market economic performance evaluation. Results on full sample estimations are suppressed for expositional convenience. Parameter estimates appear first, and standard errors appear in parenthesis. All models include complete sets of time and industry dummy variables. Variables are as defined in Table 1. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% one tailed levels or better respectively.

5 CONCLUSION

The suitability of executive compensation and incentives continues by academics, media, and practitioners. Nonetheless, some affiliated questions remain unanswered. The premise of this paper is to address the followings; Are CEOs rewarded for luck? Do institutional features matter for CEOs pay for luck? How does systematic incentive effect sensitive to luck's nature?

By answering these questions, we attempt several contributions to the management pay literature. Our first contribution is to extend this literature by investigating still not sufficiently investigated research fields. To do so, we tackle the Anglo-American and the Euro-Continental corporate governance areas. Numerous contextual factors differ across these frameworks and may presumably explain the remarkable differences in executive pay between them. From these factors we select the legal system's origin, the shareholders' rights protection, and the corporate governance quality. Links between these features and firms' financial decisions have been largely studied. Nevertheless, their impacts on CEO pay structure and sensitivity to performance and systematic chocks are not still explored. Revealing these impacts forms our second contribution. Our last contribution is to approve the asymmetric character of the systematic incentive effect using instruments for luck not rounded up before.

Taken together, several results from the paper provide answers to the above questions and stand out as new or important. We find that the answers for to the two first questions are a surrounding yes. On the one hand, instrumental variables estimators show that the coefficients for the adjusted (to luck) shareholder return are significantly positive showing that CEOs, in both settings, are potentially rewarded for luck. That is, for systematic chocks beyond their control. Per sub-sample analysis clarify that Anglo-American managers benefit more from luck than their European peers. On the other hand, we provide evidence that the selected institutional factors are the primary determinants of pay intensity and sensitivity to performance and to luck. Especially, we find that CEO pay to performance elasticity is positively associated with the strength of shareholder rights, the quality of corporate governance tools, and the level of law enforcement. Pay to luck sensitivity is however, significantly strong within nations where these features are less sustained. Consequently, we support the two agency approach's orthodox previously claimed by Bertrand and Mullainathan (2001); well governed firms fit the predictions of the contracting view whereas, poorly governed ones fit those of the skimming view.

By discerning favourable exogenous chocks (good luck) from unfavourable ones (bad luck), we agree Garvey and Milbourn's (2006) and Gopalan *et al.*'s (2010) pay for luck asymmetry theses; executive are rewarded for good luck while they are insulated from bad luck. Or, otherwise, CEO pay-setting process involves 'carrots' (rewards for high performance), rather than 'sticks' (punishment for poor performance).

Even though our findings answer the above addressed questions, other CEO pay determinants are still to be decided. Further researches are needed in order to have a full understanding of some of these determinants.

As further directions, future studies should highlight the impacts of cultural, ethical, and political countries specific factors on the management compensation contracts design and efficiency.

APPENDIX

Table A: Results of the first stage of the instrumental variables (I.V.) estimation approach

Variable	Model (1): Full sample (N=1500)		Model (2): U.S.-Canadian subsample (N=750)		Model (3): U.K.-French subsample (N=750)	
	Model (1a)	Model (1b)	Model (2a)	Model (2b)	Model (3a)	Model (3b)
Intercept	0.068* (1.67)	0.051* (1.88)	0.077** (2.01)	0.056* (1.89)	0.039** (1.96)	0.045* (1.68)
IRPE		0.135*** (3.39)		0.71** (2.46)		0.644*** (3.14)
MRPE	0.41** (2.26)		0.56** (2.00)		0.77*** (2.88)	
SIZE	0.031 (1.01)	0.023 (0.86)	0.019* (1.81)	0.011* (1.89)	0.027 (1.33)	0.03* (2.11)
GROW	0.053 (1.22)	0.047* (1.88)	0.071** (1.96)	0.059** (2.11)	0.037* (1.89)	0.028* (1.9)
RISQ	-0.049* (1.81)	-0.031* (1.81)	-0.017** (1.96)	-0.022* (1.88)	-0.037** (2.07)	-0.044** (2.13)
TEN	0.001 (1.21)	0.001 (1.01)	0.01 (0.86)	0.018 (0.91)	0.022* (1.86)	0.019 (1.31)
OWN	-0.02* (1.87)	-0.017 (1.33)	-0.023* (1.8)	-0.027** (1.96)	-0.036*** (2.87)	-0.041*** (3.08)
AGE	-0.001 (0.83)	0.007 (0.76)	-0.011 (1.11)	-0.009 (0.53)	0.017 (1.01)	0.011 (1.27)
Adjusted R²	0.173	0.131	0.27	0.249	0.314	0.298

This table shows coefficients from the I.V. estimation of the firm performance sensitivity to luck due to unobserved chocks. Variation in the firm's to industry relative economic performance evaluation and variation in the firm's to market economic performance evaluation are used as instruments for luck. Dependent variable is shareholder total return. Parameter estimates appear first and standard errors appear in parenthesis. All models include complete sets of time and industry dummy variables. Variables are as defined in Table 1. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% one tailed levels or better respectively.

REFERENCES

Abe, N., Gaston, N., & Kubo, K., (2005). Executive pay in Japan: the role of bank appointed monitors and the main bank relationship. *Japan and the World Economy*, 17, 371–394.

Alcouffe, A., & Alcouffe, C., (2000). Executive compensation setting practices in France. *Long Range Planning*, 33 (4), 527-543.

Ali, A., & Hwang, L., (2000). Country specific factors related to financial reporting and the value relevance of accounting data. *Journal of Accounting Research*, 38, 1-21.

Bartram, S., Brown, G., & Fehle, F., (2009). International evidence on financial derivatives usage. *Financial Management*, 38, 185-206.

Bebchuk, L.A., & Friend, J.M., (2003). Executive compensation as an agency problem. *Journal of Economic Perspective*, 17, 71-92.

Bebchuk, L.A., & Friend, J.M., (2004). Pay without performance; the unfulfilled promise of executive compensation. Harvard University Press.

Bebchuk, L.A., Grinstein, Y., & Peyer, U., (2006). Lucky CEOs. NBER Working Paper Series.

Bertrand, M., & Mullainathan, S., (2001). Are CEOs rewarded for luck? The ones without principals are. *The Quarterly Journal of Economics*, 116 (3), 901-932.

Beyer, A., Cohen, A., D., Lys, Z., T., & Walther, R., B., (2010). The financial reporting environment: Review of the recent literature. *Journal of Accounting and Economics*, in press.

Brenner, S., & Schwalbach, J., (2009). Legal institutions, board diligence, and top executive pay. *Corporate Governance: An International Review*, 17 (1), 1-12.

Brunello, G., Graziano, C., & Parigi, B., (2001). Executive compensation and firm performance in Italy. *International Journal of Industrial Organization*, 19 (1-2), 133-161.

Bryan, S., Nash, R., & Patel, A., (2010). How the legal system affects the equity mix in executive compensation. *Financial Management*, spring 2010, 393-418.

Bryan, S., Nash, R., & Patel, A., (2011). Law and executive compensation: a cross-country analysis. *Applied Corporate Finance*, 23 (1), 84-91.

Cadman, B., Carter, E., M., & Hillegeist, S., (2010). The incentives of compensation consultants and CEO pay. *Journal of Accounting and Economics*, 49, 263-280.

Chalevas, G., C., (2011). The effect of the mandatory adoption of corporate governance mechanisms on executive compensation. *The International Journal of Accounting*, 46, 138-174.

Chen, J., Ezzamel, M., & Cai, Z., (2011). Managerial power, tournament theory and executive pay in China. Working paper. Cardiff University.

Cheung, Y., Stouraitis, A., & Yong, A.W.S., (2005). Ownership concentration and executive compensation in closely held firms: evidence from Hong Kong. *Journal of Empirical Finance*, 12, 511-532.

Chiu, H., S., Oxelheim, L., & Wihlborg, C., (2011). Exchange rate and macroeconomic fluctuations as sources of luck in CEO compensation. SSRN working paper, abstract=1928959.

Chourou, L., Abaoub, E., & Saadi, S., (2008). The economic determinants of CEO stock options compensation. *Journal of Multinational Financial Management*, 18, 61-77.

Conyon, M., & He, L., (2011). Executive compensation and corporate governance in China. *Journal of Corporate Finance*, 17, 1158-1175.

Conyon, M., J., Peck, S., I., & Sadler, G., V., (2009). Compensation consultants and executive pay: Evidence from the United States and the United Kingdom. *Academy of Management Perspectives*, 23 (1), 43-55.

Conyon, M., & Sadler, G., (2010). Shareholder voting and directors' remuneration report legislation: say on pay in the UK. *Corporate Governance: An International Review*, (18) 4, 296-312.

Core, J., Holthausen, R., & Larcker, D., (1999). Corporate governance, chief executive officer compensation, and firm performance. *Journal of Financial Economics*, 51 (3), 371-406.

Craighead, J., Magnan, M., & Thorne, L., (2004). The impact of mandated disclosure on performance-based CEO compensation. *Contemporary Accounting Research*, 21 (2), 369–398.

Cremers, M., & Grinstein, Y., (2011). The Market for CEO Talent: Implications for CEO Compensation. SSRN Working paper, available at: http://ssrn.com/abstract=1108761.

Denis, D., & McConnell, J., (2003). International corporate governance. *Journal of Financial and Quantitative Analysis*, 1 (1), 1-36.

Dew-Becker, I., (2009). How Much Sunlight Does it Take to Disinfect a Boardroom? A Short History of Executive Compensation Regulation in America. *CESifo Economic Studies*, 55 (3-4), 434–457.

Djankov, S., La Porta, R., Lopez-de-Silanes, F., & Shleifer, A., (2008). The law and economics of self-dealing. *Journal of Financial Economics*, 88, 430-465.

Elston, J. A., & Goldberg, L. G., (2003). Executive compensation and agency costs in Germany. *Journal of Banking and Finance*, 27, 1391-1410.

Eriksson, T., (2000). What determines managers pay? Evidences from Denmark. *Long Range Planning*, 33 (4), 544-559.

Evans, R., & Evans, J., (2001). The influence of non-executive director control and rewards on CEO remuneration: Australian evidence, working paper (Curtin University of Technology, Perth, WA).

Faleye, O., (2011). CEO directors, executive incentives, and corporate strategic initiatives. *The Journal of Financial Research*, 34 (2), 241-277.

Farmer, M., A., Alexandrou, G., & Archbold, S., (2010). New evidence of relative performance evaluation (RPE) in UK chief executive realized incentive compensation. Working paper, Kingston Business School.

Feriozzi, F., (2011). Paying for observable luck. *RAND Journal of Economics*, 42 (2), 387–415.

Fernandes, N., G., (2008). Board compensation and firm performance: the role of 'independent' board members. *Journal of Multinational Financial Management*, 18, 30-44.

Ferri, F., & Maber, D., A., (2009). Say on pay vote CEO compensation: Evidence from the UK. Harvard Business School and SSRN.

Gabaix, X., & Landier, A., (2008). Why has CEO pay increased so much? *Quarterly Journal of Economics*, 123, 49–100.

Gallagher, D., R., Smith, G., & Swan, P., (2006). Do institutional investors really monitor executive compensation? Mimeo.

Garvey, T., G., & Milbourn T., T., (2003). Incentive Compensation When Executives Can Hedge the Market: Evidence of Relative Performance Evaluation in the Cross Section. *Journal of Finance*, 58, 1557-1581.

Garvey, T., G., & Milbourn, T., T., (2006). Asymmetric benchmarking in compensation: executives are rewarded for good luck but not penalized for bad. *Journal of Financial Economics*, 82, 179-225.

Geremia, K., Carnaghan, C., & Nelson, T., (2010). Exploring changes in management compensation structure in Canada; evidence on consequences of requiring options expensing. Working paper, University of Lethbridge.

Giannetti, M., (2003). Do better institutions mitigate agency problems? Evidence from corporate finance choices. *Journal of Financial and Quantitative Analysis*, 38, 185-212.

Gopalan, R., Milbourn, T., & Song, F., (2010). Strategic Flexibility and the Optimality of Pay for Sector Performance. *Review of Financial Studies*, 23 (5), 2060–2098.

Gregoric, A., Polanec, S., & Slapnicar, S., (2010). Pay me right: reference values and executive compensation. *European Financial Management*, 16 (5), 778-804.

Gregory-Smith, I., (2011). Chief executive pay and remuneration committee independence. *Oxford Bulletin of Economics and Statistics*, 1-22.

Guest, M., P., (2009a). Board structure and executive pay: evidence from the UK. *Cambridge Journal of Economics*, 1-22.

Hall, B., & Liebman, J., (1998). Are CEOs really paid like bureaucrats? *Quarterly Journal of Economics*, 133, 653-691.

Harford, J., Li, K., (2007). Decoupling CEO wealth and firm performance: The case of acquiring CEOs. *Journal of Finance*, 62 (2), 917-949.

Hartzell, J. C., & Starks, L. T., (2003). Institutional investors and executive compensation. *The Journal of Finance*, 58, 2351-2374.

Heaney, R.,Tawani, V., & Goodwin, J., (2010). Australian CEO Remuneration. *Economic Papers*, 29 (2), 109–127.

Hoffmann, F., & Pfeil, S., (2010). Reward for luck in a dynamic agency model. *The Revue of Financial Studies*, 23 (9), 3329-3345.

Holmstrom, B., (1979). Moral hazard and observability. *Bell Journal of Economics*, 10 (1), 74-91.

Jansen, P., E., Merchant, A., K., & Van der Stede, A., W., (2009). National differences in incentive compensation practices: the differing roles of financial performance measurement in the United States and the Netherlands. *Accounting, Organization and Society*, 34 (1), 58-84.

Jensen, M., & Murphy, K., (1990). Performance pay and top management incentives. *Journal of Political Economy*, 22 (2), 225-264.

Jensen, M.C., & Meckling, W., (1976). Theory of the firm: Managerial behavior, agency costs, and ownership structure. *Journal of Financial Economics*, 3 (4), 305-360.

Jiménez-Angueira, C., & Stuart, V., N., (2010). CEO Bonuses, Relative Performance Evaluation, and Pay-for-Luck. SSRN working paper, abstract= 1691154.

Kalyta, P., & Magnan, M., (2008).Stealth compensation: The case of supplemental executive retirement plans. *Journal of Accounting and Public Policy*, 27 (2), 101-194.

Kato, K., & Kubo, K., (2006). CEO Compensation and firm performance in Japan: Evidence from new panel data on individual CEO Pay. *Journal of the Japanese and International Economies*, 20, 1-19.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (2006). What works in securities laws? *Journal of Finance*, 61 (1), 1-32.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R., (1997). Legal determinants of external finance. *Journal of Finance*, 52 (3), 1131-1150.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R., (1998). Law and finance. *The Journal of Political Economy*, 106, 1113-1155.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R., (2000). Investor protection and corporate governance. *Journal of Financial Economics*, 58, 3-27.

Llense, F., (2010). French CEO's compensation: what is the cost of a mandatory upper limit? *CESifo Economic Studies*, Jun 56 (2), 165-191.

Merhebi, R., Pattenden, K., Swan, P., L., & Zhou, X., (2006). Australian Chief Executive Officer Remuneration: Pay and Performance. *Accounting and Finance*, 46, 481–97.

Minnick, K., Unal, H., & Yang, L., (2011). Pay for performance? CEO compensation and acquirer returns in BHCs. *The Review of Financial Studies*, 24 (2), 339-472.

Murphy, K., & Sandino, T., (2010). Executive pay and "independent" compensation consultants. *Journal of Accounting and Economics*, 49, 247-262.

Nourayi, M. M., & Mintz, M. S., (2008). Tenure, firm's performance, and CEO compensation. *Managerial Finance*, 34 (8), 524-536.

Oxelheim, L., & Randoy, T., (2005). The Anglo-American financial influence on CEO compensation in non-Anglo-American firms. *Journal of International Business Studies*, 36 (4), 470-483.

Oxelheim, L., & Wihlborg, C., (2003). Recognizing macroeconomic fluctuations in value based management. *Journal of Applied Corporate Finance*, 15 (4), 104-110.

Oxelheim, L., Wihlborg, C., & Zhang, J., (2010). How to Avoid Compensating CEO for Luck: The Case of Macroeconomic Fluctuations. IFN Working Paper No. 842.

Oyer, P., (2004). Why do firms use incentives that have no incentive effects? *Journal of Finance*, 59, 1619–1649.

Ozkan, N., (2007). Do corporate governance mechanisms influence CEO compensation? An empirical investigation of UK companies. *Journal of Multinational Financial Management*, 17 (5), 349-364.

Ozkan, N., (2009). CEO compensation and firm performance: an empirical investigation of UK panel data. *European Financial Management*, (12), 1-26.

Park, Y., Nelson, T., & Huson, M., (2001). Executive pay and the disclosure environment: Canadian evidence. *Journal of Financial Research*, 24 (3), 347-365.

Renneboog, L., & Zhao, Y., (2011). Us knows us in the UK: on directors networks and CEO compensation. *Journal of Corporate Finance*. Article in press.

Sapp, G., M., (2008). The impact of corporate governance on executive compensation. *European Financial Management*, 14 (4), 710-746.

Spamann, H., (2006). On the insignificance and/or endogeneity of La Porta et al.'s "anti director rights index" under consistent coding. Working paper n°7, Harvard Law School, Cambridge.

Sun, J., & Cahan, S., (2009). The effect of compensation committee quality on the association between CEO cash compensation and accounting performance. *Corporate Governance: An International Review*, 17 (2), 193-207.

Swan, P., & Zhou, X., (2006). Does executive compensation disclosure alter pay at the expense of incentives? Unpublished working paper, Australian School of Business UNSW and University of Hong Kong.

Tosi, H., Werner, S., Katz, J., & Gomez-Mejia, L., R., (2000). A meta-analysis of executive compensation studies. *Journal of Management*, (26), 301-339.

Voulgaris, G., Stathopoulos, K., & Walker, M., (2010). Compensation consultants and CEO pay: UK evidence. *Corporate Governance: An International Review*. Article in press.

Zheng, L., & Zhou, Z., (2009). The Effect of Executive Stock Options on Firm Performance: Evidence from retiring CEOs, SSRN working paper, abstract= 1426540.

Zhou, X., (2000). CEO pay, firm size, and corporate performance: evidence from Canada. *The Canadian Journal of Economics*, 33 (1), 213–251.