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**EARNINGS MANAGEMENT AND CEO COMPENTION.
AN EMPIRICAL ANALISYS.**

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INTRODUCTION

Over the years, the literature has given more and more attention to studying the existence of a relationship between earnings management and CEO compensation in the United State companies. That is due to the level of executive pay that is incessantly increased from 1993 to 2000, even if that was not necessarily justified by an increment of performance.

It is therefore clear that the seeking to match the pay with performance is still one of the biggest problems that afflict the CEO labour market. That originates from the conflict of interest, which is the basis of the intercourse between managers and shareholders. Indeed such a rapport can be described as an agency relationship in which, the shareholders take on the role of the principals and the CEOs those of the agents. Like in every agency relationship, also in this case the agents tend to follow their own interests rather than the principals' ones. All that is accentuated by the procedure of decision of CEO payment, whereby Boards of Directors should contract with CEOs on the compensation of the latter. There would be no particular problems if Boards succeeded to bargain at arm's length with CEOs, but there exist factors that will be depth described in my study, thanks to which CEOs succeed to manipulate the balance sheet data in order to obtain an higher compensation.

It is therefore clear that the relation that is the basis of my thesis breaks down in a *moral hazard* issue. The latter is due to a problem of *hidden action*: the managers succeed to follow their own interest, inasmuch they are confident that their actions cannot be controlled by shareholders.

Those are the reasons why I have chosen such a relation as subject of my thesis.

I divided my work in four chapters.

The Chapter I, “The Agency Theory”, inspects about the relationship between CEOs and shareholders. It is divided in three sections. The first one, “The Problematic Relationship Between Principals and Agents” goes through the most sources of agency. The second section, “The Effects Of Agency Conflicts. The Agency Costs”, examines the costs bound by the firm and by the shareholders because of the CEOs’ behaviour.

The third one, “A Way To Minimize The Agency Costs” dwells on the possible solutions to solve the agency conflicts, bearing in mind that the latters are without solution.

The Chapter II, “The Executive Compensation” will be about the level of CEO Pay and the main elements of it.

It is divided in two sections, each of them analyse one the two aspects just mentioned.

The Chapter III, is titled “The Earnings Management” In such a chapter, it is described the CEOs behaviour in order to manipulate the balance sheet to obtain an higher compensation. It is divided in four sections. The latters are about the definitions, the reason, the techniques and the way of prevention of the phenomenon.

Finally, the Chapter 4, “The Relationship Between Earnings Management And CEO Compensation” is body of the thesis. Like the Chapter I, it is divided in three sections

The first one describes the earnings management measures used by Academics that made a similar study before me, focusing on the different types and uses made in the literature in the field of such measures.

The second one focuses on my analysis and in it the sample, the data and the measures used are presented, while the third one explains the results of the analysis at issue.

CHAPETER I

THE AGENCY THEORY

SUMMARY: §1 - The Problematic Relationship Between Principals And Agents. §1.1. – Introduction. §1.2. - The Cause Agency Problem. The Information Asymmetry. §1.3 - Other Sources Of Agency Conflicts. §2 – The Effects Of Agency Conflicts. The Agency Costs. §3 - A Way To Minimize The Agency Costs.

1. The Problematic Relationship Between Principals and Agents

1.1 Introduction

Over the last two decades, the agency theory has become the most important paradigm to explain the problematic relationship between managers and shareholders in the financial and economics literature.¹ However, to analyse the aforesaid theory at best, a foreword about agency relationship is needed.

The agency relationship can be described as one in which one or more people (*the principals*) engaged one or more other people (*the agents*) to perform some operations in their behalf which involve delegating decision-making

¹ In literature, the problematic moves from the seminal work of Jensen and Meckling (1976), that proposes the principal-agent paradigm to describe the relationship between shareholders and managers, moving away from neoclassical “Theory of the Firm”. See JENSEN MICHAEL C. – MECKLING WILLIAM H. – “*Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*” “*Journal of Financial Economics*”, Vol. 3, No. 4. 1976

authority to the agent.² In brief, the agents act for or as representative for the principals, in a particular domain of decision problems.

The most problematic aspect, on which is necessary to focus on, is the assumption that the interests of principals and agents diverge. Indeed, both categories of actors are induced to follow their own interest, or rather, to maximize their own profit to the detriment of that of the other.³

The principal's interest is represented by the realization of the service that is delegated to the agent. Instead, the agent's one is constituted by suffering less cost as possible, to realize the operation requested by the principal, so that the profit turn out to be maximized.

At this point, it is clear that it is not possible to optimize both interests in the same time, and it is important to identify the relationship between principle and agent with that between shareholders and managers in order to analyse the causes and effects of the agency problem just described.⁴

1.2 The Cause Agency Problem. The Information Asymmetry

Moving from the theoretical level to the concrete one, the rapport between shareholders and managers can be seen as a agency relationship. Indeed, the

² See HILL CHARLES W.L. – JONES THOMAS M.- “*The Shareholder-Agency Theory*”,

³ See ROSS STEPHEN A. – “*The Economic Theory Of Agency: The Principal's Problem*”, “*Decision Making Under Uncertainty – American Economic Association*”, vol. 63 n. 2. 1973

⁴ JENSEN MICHAEL C. – MECKLING WILLIAM H. – “*Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*” “*Journal of Financial Economics*”, Vol. 3, No. 4. 1976

biggest are the firm, the clearest is the separation between ownership and management.

In fact, while in small firms, that generally has the character of family firms, the role of managers is naturally carried out by the majority shareholder, in big ones the latter is forced by the complexity of the business activity to delegate some tasks to external managers.

Said that, it is possible to understand that in case of separation of ownership and control, the managers assume the role of agents who act on behalf of the company's shareholders identifiable as principals.⁵

The latter's interest is represented by an increase of firm value with a consequent growth of shares value and rise of their dividends, whereas the managers-agents' one can be identify with the maximizing their compensation, in detriment of the shareholders' earnings.⁶

Moving on the cause of agency problem, this is to find in the impossibility to bargain a contract that avoids every form of autonomy of managers in making strategic decision, so as to perfectly align the interests of the shareholders with those of managers. That is due to the fact that it would be too onerous to conceive a contract that describes every circumstance, that in theory could

⁵ JENSEN MICHAEL C. – MECKLING WILLIAM H. – “*Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*” “*Journal of Financial Economics*”, Vol. 3, No. 4. 1976

⁶ See, e.g., MURPHY KEVIN J. – JENSEN MICHAEL C., “*CEO Incentives – It's not How Much You Pay, But How*”, “*Harvard Business Review*, May-June, No 3, pp 138-153”.1990

occur, and, in the same time, to associate to every of these circumstances the behaviour that the manager has to take, in case in which one of those happened.⁷

Therefore, the reason of the analysed problematic is to find in the information asymmetry⁸. Speaking of which, in literature the economic science has distinguished between two different situations:

- a. *Moral Hazard*
- b. *Adverse Selection*

The first type of asymmetry is that in which the parties of the contract have the same piece of information *ex ante*, so when they enter in the contract. however, when the contract is concluded the party (*the agent*), who has to behave in according to it, is able to carry some actions out that are not perfectly observable by the other party (*the principal*). This situation is called “*hidden action*”. To make some examples, just think to the account manager who prepares the financial statement with earning management techniques, to

⁷ See DENIS DIANE K. – “*Twenty-Five Years Of Corporate Governance Research ... And Account*”, “*Review Of Financial Economics, Vol. 10, n. 3, pg. 191-212*”. 2001

⁸ A situation in which one party in a transaction has more or superior information compared to another. This often happens in transactions where the seller knows more than the buyer, although the reverse can happen as well. Potentially, this could be a harmful situation because one party can take advantage of the other party's lack of knowledge.

obtain an higher compensation showing to the market a patrimonial and income situation of the firm different from the real one.⁹

A second case of moral hazard, known as “*hidden information*” is that in which the agent, who must act according to the contract, gets, after the conclusion of the latter, a piece of information that the principal does not know. An example of that is represented by the relationship between the shareholders and the CFO, who takes decisions on the base of evaluation about the patrimonial and income situation of the firm, which is not known by the stockholders.

The second kind of information asymmetry occurs when a party has information that other party does not have before of the conclusion of the contract. Look at a firm that has to engage a new CEO, it cannot completely be informed about the skills of the candidate.

1.3 Other Sources Of Agency Conflicts

In literature, some academics, argued that the moral hazard-based theory oversimplifies the agency problem.¹⁰ Therefore, they tried to find other sources of agency conflicts different from moral hazard. These can be classified in 4 categories:

⁹ Such techniques, called *earnings management*, will be object of the Chapter III

¹⁰ See BRENNAN MICHAEL J. – “*Corporate Finance Over The Past 25 Years*”, “*Financial Management, Vol. 24, n. 2, pg. 9 to 22*”. 1995

- a. earnings retention agency conflicts
- b. time horizon agency conflicts
- c. managerial risk aversion agency conflicts

the first type of agency conflicts mentioned arises inasmuch the interest of shareholders is represented by the profit sharing, whereas the managers have more than one reason to practice *earnings retention*.

Firstly, it is needed to understand that if the profit is not shared the liquidity of the firm will grow up, and so the firm's assets result increased. That grants managers, especially CEOs and top managers, a larger power base, greater prestige and an ability to dominate the board of directors and award themselves higher levels of remuneration.¹¹

Secondly, by definition the highest is the value of the assets, the biggest is the size of the firm. Empirical analyses have demonstrated that executive compensation is an increasing function of company size. So, the highest is the size growth, the largest is value of incentive awarded to managers.¹²

¹¹ See JENSEN MICHAEL C. – “*The Agency Costs Of Free Cash Flow: Corporate Finance and Takeovers*”, “*American Economic Review*, Vol. 76, n. 2, pg. 323 to 329”. 1986 e 1993

¹² See CANYON MARTIN J. – MURPHY KEVIN J. – “*The Prince and the Pauper? CEO Pay in the United States and United Kingdom*”, “*The Economic Journal*, Vol. 110, pg. 640 to 671”. 2000

Thirdly, the managers prefer to practice earning retention to avoid the hostile takeovers, that surely involved a replacement of the Board of Directors, and so of the managers. That is due to the fact that earnings retention leads to a growth of company size, which makes takeover more difficult and permits managers not only to have an higher compensation but also to maintain their job role.¹³

Moving on the category sub b, it is easy to comprehend that conflict of interest between shareholders and managers could also arise regarding the timing of cash flows. Indeed, shareholders have interest in all future cash flows of the company into the indefinite future, as these are reflected in the current share price. Instead, management tends to create value in the short-term to detriment of long-term positive-NPV investments. Therefore, managers will be unwilling to bear expenditures that are costs in the short-term, but they boost the NPV in the long-term. To make an example, it is possible name research and development (R&D) costs, which represent an accounting expense that reduces performance-related executive compensatin in the short-term.

That could involve that managers use subjective accounting practices (*earning management*) to manipulate earnings before laving office in attempt

¹³ MORCK R. - SHLEIFER A. - VISHNY ROBERT W. – “Do Managerial Objectives Drive Bad Decisions?”, “The Journal Of Finance, Vol 46, n. 1”. 1990

to increase the short-term value in attempt to maximize performance-based bonuses.¹⁴

Regarding the managerial risk aversion agency conflicts, they arise because of portfolio diversification constraints. Indeed, it has been demonstrated that manager concerned with systematic risk¹⁵ and with unsystematic risk¹⁶ as well, instead, shareholders are concerned only with the systemic one.¹⁷

To hedge the risk, some diversified investments are needed. However, since part of the managers' compensation is tied to performance, they are induced to make risky-increasing investments in order to make the performance higher and so to obtain a larger compensation.

The problem is clearly heightened, when the executive remuneration is near-wholly composed by fixed salary, since the managers tend to increase the equity-based compensation, being secure to get a significant part of pay. Nevertheless, this behaviour is against the interest of the shareholders-

¹⁴ See CLACHER I. – HILLIER D. - MCCOLGAN P. – “*Agency Theory: Incomplete Contracting and Ownership Structure*”, “*Corporate Governance: A Synthesis of Theory, Research, and Practice*”. 2010

¹⁵ In finance, systemic risk is the risk of collapse of an entire financial system or entire market, as opposed to risk associated with any one individual entity, group or component of a system, which can be contained therein without harming the entire system.

¹⁶ In finance, unsystemic risk is the risk of collapse of one individual entity, group or component of a system, which can be contained therein without harming the entire system.

¹⁷ See CLACHER I. – HILLIER D. - MCCOLGAN P. – “*Agency Theory: Incomplete Contracting and Ownership Structure*”, “*Corporate Governance: A Synthesis of Theory, Research, and Practice*”. 2010

principals inasmuch risk-increasing investments may also boost the likelihood of bankruptcy.¹⁸

2. The Effects Of Agency Conflicts. The Agency Costs

At this point is necessary dwelling on the principles effects of the agency problem on the firms.

Given that it is no possible to create a perfect contract that is able to align the shareholders' interest with that of managers, the firms, and so the shareholders, will suffer costs in terms of performance and missed creation of value for stockholders. In fact, it is generally impossible for the principal or the agent at zero cost to ensure that the agent will make optimal decisions from the principal's viewpoint. In most agency relationships the principal and the agent will incur positive monitoring and bonding costs (non-pecuniary as well as pecuniary), and in addition there will be some divergence between the agent's decisions and those decisions which would maximize the welfare of the principal. The dollar equivalent of the reduction in welfare experienced by the principal as a result of this divergence is also a cost of the agency relationship, and it is known as the "residual loss."¹⁹

¹⁸ Id

¹⁹ See JENSEN MICHAEL C. – MECKLING WILLIAM H. – *“Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure”* *“Journal of Financial Economics”*, Vol. 3, No. 4. 1976

So it is possible define these costs as *agency costs* and to divide them in three categories:

- a. Monitoring costs
- b. Bonding costs
- c. Residual loss

Regarding the first ones, they are the costs suffered by the principal to control the agents, and so, by the firm to monitor the managers. the term “monitoring” includes more than just measuring or observing the behavior of the agent. It includes efforts on the part of the principal to ‘control’ the behaviour of the agent through budget restrictions, compensation policies, operating rules, and so on.

Although they involved costs for the firm, such controls are necessary, since the labour agreement, signed between managers and firm, is one the classic example of contract characterized by *moral hazard* caused by *hidden action*.²⁰ However, there is some academics who argued that the monitoring cost will ultimately be borne by agent, given that the latter’s compensation will be adjusted to cover these costs²¹.

²⁰ id

²¹ See JENSEN MICHAEL C., - FAMA EUGENE F. - “*Separation of Ownership and Control*”, “*Foundations Of Organizational Strategy, Harvard University Press*”. 1998, and “*Journal of Law and Economics*”, Vol. 26, June. 1983

About the bonding costs , they are the ones that the firms will pay in order to guarantee that the managers will not take certain actions which would harm the principal or to ensure that the principal will be compensated if he does take such actions. So, the best solution to an agency problem is to provide managers with a contract to bond them exactly as shareholders want in any given state of nature. Nevertheless, as she notes, this is unrealizable given the impossibility to create a perfect contract. Moreover even if such an agreement was practicable, the excessive costs of attempting to do so would prevent such actions from being taken. This kind of contract would also assume that shareholders are able to take the optimum decision in any given state. If it were true, shareholders would avoid employing managers, because it would be an unnecessary cost, since managers are hired inasmuch they are able to take decision with more expertise than shareholders have.²²

Regarding the last kind of agency cost, it is necessary to clarify that despite the effects of monitoring and bonding, the interests of managers and shareholders are still unlikely to be fully aligned. So, the shareholders have to bear the further cost represented by the difference between the

²² See DENIS DIANE K. – “*Twenty-Five Years Of Corporate Governance Research ... And Account*” , “*Review Of Financial Economics, Vol. 10, n. 3, pg. 191-212*”. 2001

maximal earnings obtainable in case of perfect contract and that achieved practicing the contract with the best monitoring and bonding possible.²³

3. A Way To Minimize The Agency Costs.

In literature, over the years it has arisen a school of thought that has tried to find a way the agency costs, which is born from the conflict of interest existing between managers and shareholders. Indeed, both want to maximize their own profits, but the highest is the pay of managers, the lowest is the amount of dividends, source of shareholders' earning.

In spite of the critiques moved to the theories at issue²⁴, it is however useful to illustrate it. This is known as "Optimal Contracting Theory" and recognizes the existence of the problem of agency just mentioned, seeing the solution of this in the supervision of the Board of directors that should monitor the activity of the managers and should bargain at arm's length over the compensation with the CEO.²⁵

An efficient bargaining at arm's length over the compensation that solves the agency costs would be concerned with:

²³ See JENSEN MICHAEL C. – MECKLING WILLIAM H. – "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure" "Journal of Financial Economics", Vol. 3, No. 4. 1976

²⁴ See the "Managerial Power Theory" developed by Bebchuk and Fried in 2004. See BEBCHUK L. – FRIED J., "Pay Without Performance: the Unfulfilled Promise of Executive Compensation"

²⁵ See BEBCHUK L. – FRIED J., "Pay Without Performance: the Unfulfilled Promise of Executive Compensation, pp 17-20". 2004

- a. Attracting and retaining high quality executives.
- b. Providing the executives with incentives, so that they act in the shareholders' interests either with their efforts or making decisions that will serve those interests.
- c. Minimizing overall costs.

Regarding the inducing the executive to take and retain the position, it is needed to comprehend that a manager of a successful public company has to possess a rare combination of skills and instincts to manage the firm, choosing the best strategic direction for the latter. It is clear that individuals who have these requirements are scarce and so, difficult to find. Therefore, the companies must leverage on some factors to attract and retain talent: the most important of these is certainly the compensation. To induce a manager to take the position in a given company, this has to offer a pay that exceeds or at least equals the opportunity cost.

So, under the theory at issue, just a lower bound for manager compensation is fixed: a company may not pay less of reservation wage (the lowest wage rate at which a worker would be willing to accept a particular type of job), but it might offer an higher compensation in order to create more incentives for executives. There should be no particular problems if the firm exceed the reservation through "equity-based"

compensation due to the link with firm performance created by this kind of compensation²⁶, but that is not always true.

In addition, to induce managers to take and retain the position, it could be useful to avoid introducing inefficient terms in the contract. These terms reduce the parties' combined wealth, just look, for example, at clauses that create an avoidable tax burden on the shoulders of the parties.

Regarding the second point, the provisions of incentives, introducing in the compensation contract incentives for executives could be a working method to avoid the agency costs and solve the problem of moral hazard. The incentives should both induce the managers to expend more effort on shareholders' behalf, and limit the propensity of executives to maximize their own utility at the expense of shareholder value. Thus, to obtain the incentives, which are obviously represented by an amount of compensation given if and when a performance threshold is reached, the CEOs would be motivated to take shareholder-regarding decisions.²⁷

Finally, about the costs, as said above under the optimal contracting theory just a lower bound is fixed. That means that the company may pay managers much more than the reservation wage. Under the theory

²⁶ See BEBCHUK LUCIAN A. – FRIED JESSE M. – WALKER DAVID I. “*Executive Compensation in America: Optimal Contracting or Extraction of Rents*”, “*University of Chicago Law Review*, Vol. 69, pp. 751-846”.2002

²⁷ id

analysed, that is right when the part of compensation exceeding the reservation value is given to managers as incentive. Moreover the firms should reward their managers until the incremental costs, to which the companies are subjected to pay compensations, do not outweigh the value of incremental productivity reached. The reason of that is clear: the costs are counterbalanced by a more than proportional increase in value for the company²⁸.

²⁸ id

CHAPTER II

THE EXECUTIVE COMPENSATION

SUMMARY: §1 – The Level Of CEOs Pay. §1.1. – Introduction. §2 – The Main Components of CEOs Compensation. §2.1 – Base Salary. §2.2. – Annual Bonus Plans. §2.3 – Stock Options. §2.4 – Long-term Performance Plan. § 2.5 – Other Forms of Compensation.

1. The Level of CEOs Pay

1.1 Introduction

Before dwelling on the relationship between Earnings Management an examination about the CEOs compensation is needed. Indeed, an empirical analysis about the earnings management will make more sense if you consider the trend of compensation level during the last decade.

1.2. The Trend of Compensation Level

To better comprehend the level of CEOs compensation, it is needed to know that two ways to measure the latter exist. These two measures are largely different and they do not have to be confused each other.

The first is the estimated or, alias, ex-ante CEOs pay value. This measure takes in account the CEOs' salary, bonus, and the estimated value of stock

option calculated using the “Black-Scholes Formula”¹. Therefore, it is just a good estimation of what the board of directors expects to give the CEO that year and so it does not indicate the remuneration that CEO effectively receives. Since that, the analysed measure is not the appropriate way to calculate the CEOs’ compensation for considering whether they are paid according to performance.

The second measure is the realized or, alias, actual CEOs pay. This measure differs from the previous one because the options are not calculated with the Black-Scholes Formula, but the measure takes in account the value of options exercised in the year. So, the just analysed measure does not use the theoretical value of options, but the actual one. For these reasons, it is certainly more correct for considering if CEOs are paid for performance.²

Figure 1 shows the “Median” and “Average” expected compensation for the S&P 500 from 1993 to 2010. It is easy to note that the average compensation increased almost constantly from 1993 to 2000, year in which it peaks. Then, between 2004 and 2010 the average remuneration oscillates between \$ 10,000,000 and \$ 12,000,000.

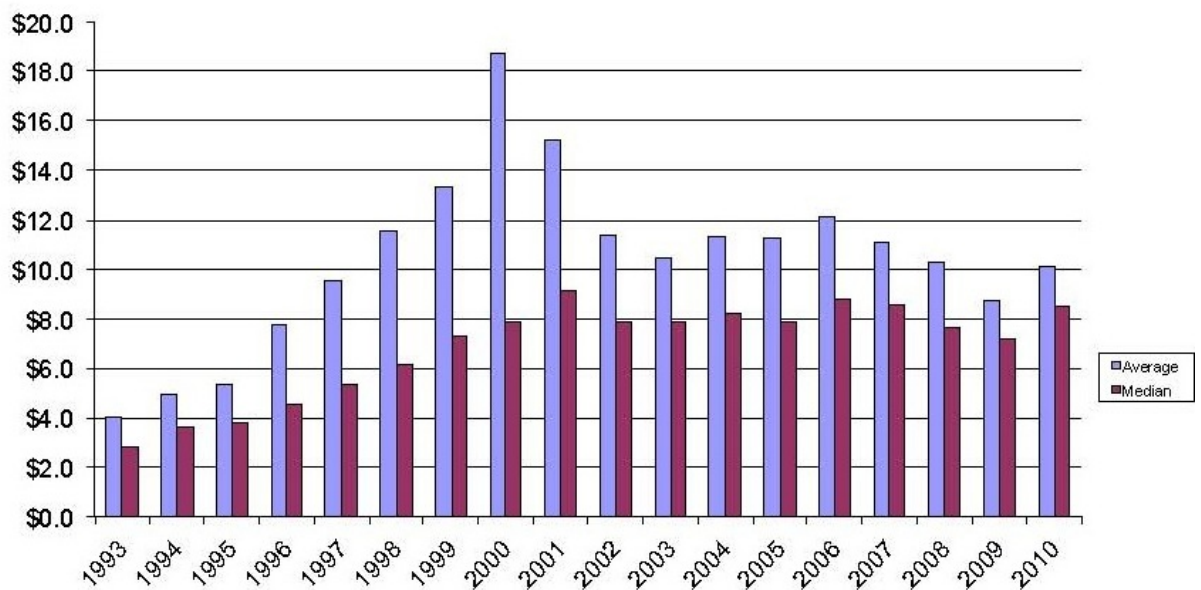
The same considerations can be made for the median compensation. The

¹ See *infra* § 2.3

² See KAPLAN STEVEN N., “*Are U.S. CEOs Overpaid?*”.

substantial gap between median and average remuneration, which can be observed from 1993 and 2000, suggests that CEOs gets excessive pay because boards are likely to provide large and unusual pay packages to their CEOs. Since 2000 the situation is deeply changed. Indeed, year after year the average value is becoming similar to the median one³. The reason of this change could be found in the provisions introduced to counteract the excess in the CEO compensation, just look at the “Sarbanes Oxley Act”

Figure 1. Average & Median Total Pay (Estimated or Ex Ante) of S&P 500 CEOs from 1993 to 2010 (Millions of 2010 \$)



Source: ExecuComp

As said above, to analyse the level of compensation it is also needed to take in account the realized or actual CEO value of pay.

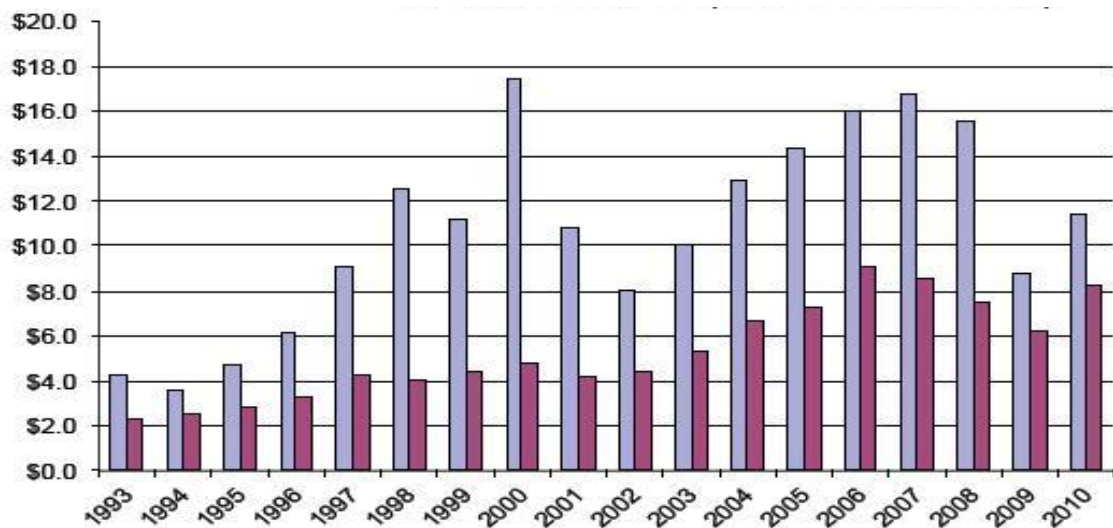
³ id

Figure 2 shows the “Median” and “Average” realized compensation for the S&P 500 from 1993 to 2010

It would be useful for the treatment to make a comparison between the two graphs to verify whether the change in the customs of board of directors in paying CEOs with unusual pay packages - hypothesized analysing the expected compensation - is really occurred.

The average values of expected compensation are lower then those ones of total compensation, but the gap, between average value and median one, is larger, even after 2000. The last observation proves that although they have introduced provisions to counteract the excess in the compensation, these have not fully achieved their purpose.

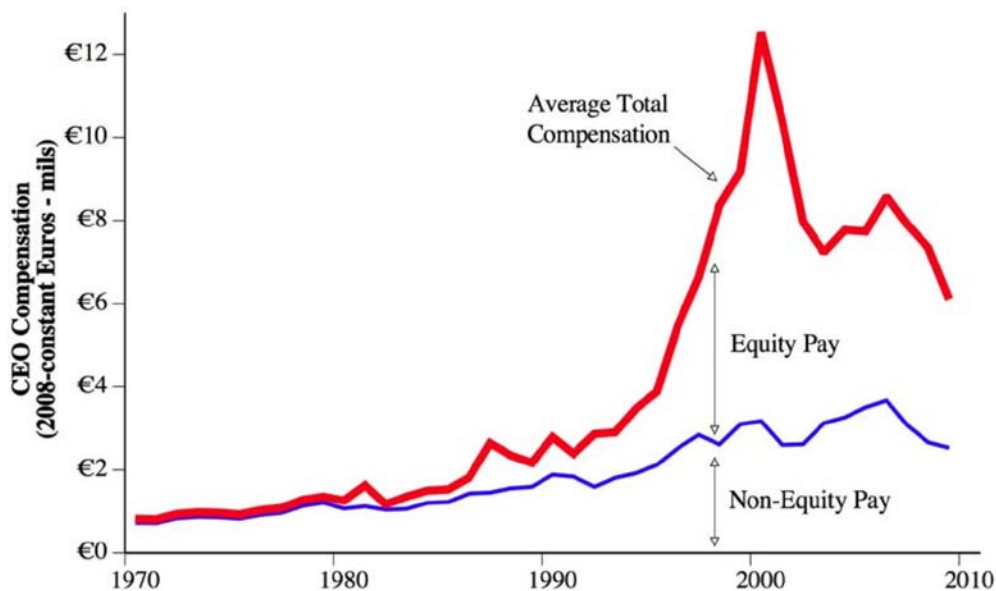
Figure 2 Average & Median Total Pay (Realized or Actual) of S&P 500 CEOs from 1993 to 2010 (Millions of 2010 \$)



Source: ExecuComp

However, focusing on how the equity-based rewards and the non equity-based ones have been evolved during the analysed period is necessary to complete the analysis on the effects of provisions regarding excessive compensation. This evolution is shown in figure 3.

Figure 3. Average Equity and Non Equity compensation for S&P 500 CEOs from 1993 to 2010 (Millions of 2008 \$)



source: ExecuComp

It is true that the gap between average compensation and median one has been not rescinded and rather it has increased, but, at least, the provisions mentioned above have ensured that the increase of level of compensation is due to a growth of the equity-based compensation. Nevertheless, since 2000, although it is observed a drop in the level of compensation, the

“Non-Equity pay” has increased at expense of “Equity-Pay”. The large growth of equity-pay, which is observed in the graph from 1990s until 2000, can be explained by the cap introduced by Section 162 (m) of Internal Revenue Code that does not apply to performance-based compensation. Instead, the lowering observable from 2000 onwards could be explained by the accounting scandals occurred in 2000s⁴. Indeed, the companies had incurred in reputational costs if they would not have reduced the rewards to give to their executives⁵: in this case the reputational costs would have been suffered by companies because accompanied by scandals known in whole world, one for all, Enron.

Regarding the non-equity pay, its raise can be explained in part by the “deferred-compensation”, used by some firms to elude the section 162 (m), at least until 2004, years in which the “deferred-compensation” has become quite unfavourable because of the introduction of SOX Act, and in part by the lack of bargaining at the market condition, which there should be between board of directors and CEOs to choose the exact level of compensation. The latter concept will be discussed in the Chapter II of this thesis.

⁴ See above § 1.4

⁵ See above § 1.1

2. The Main Components of CEOs Compensation

In spite of a substantial heterogeneity in pay practice across the firms, most CEOs' remuneration plan consists of four basic components: Basic Salary, Annual Bonus Plans, Stock Option, and, the last but not the least, Long-Time Incentive Plans (LTIPs).⁶ In addition, executives are rewarded with other forms of compensation such as receiving special benefits like life insurance and supplemental executive retirement plans (SERPs).

2.1 Base Salary

Base Salary is the “fixed component” in executive contract: CEOs receive this part of remuneration, regardless of the creation or destruction of shareholder value.

That makes the base salaries the most “non-equity based” among the forms of pay.

Base salaries for CEOs are generally determinate with operation of benchmarking, based on the surveys about the general industry salaries. Some explanations are necessary because using the surveys to determinate the salary has several and relevant implications in defining the level and trend of executive compensation.

Firstly, The use of surveys, which report several pay percentiles (e.g. 25th, 50th, 75th) generally adjusted for company sized, both formalises and reinforces the

⁶ See JENTER D. – FRYDMAN C., “*CEO Compensation*”, “*Rock Center for Corporate Governance at Stanford University Working Paper No. 77*”.2010

relationship between company size and CEOs' salary observed by Baker Jensen and Murphy in 1988⁷ and by Rosen in 1992⁸. The relationship at issue is not so difficult to understand. In fact, larger firms can employ better qualified and paid CEOs. Moreover, Murphy showed that the size-pay relationship is casual: an increment of 10 per cent of sales of firm corresponds a growth between 2 and 3 per cent of the salary⁹. So, it is possible that it happens an increase of the salary even if the firm's market value is reduced.

Secondly, as written above, the surveys adjust for company size and this is a criterion that many labour economists consider not relevant to predicting earnings levels. It would be better if they used elements such as age, experience, education and performance. Furthermore, company size does not take into account Managerial skill requirement, job complexity and span of control. Thus, to extent that base salaries reflect any of these important variables, they are reflected in discretionary adjustments in the target percentiles rather than incorporated as formal criteria.

Executives pay much attention to the process of determination of base salary,

⁷ See BAKER GEORGE P. – JENSEN MICHAEL C. – MURPHY KEVIN J, "*Compensation and Incentives: Practice vs Theory*", "*Journal of Finance*, vol. XLIII, No. 3, July 1988, pp. 593 – 616". 1988

⁸ See ROSEN S., "*Contracts and the Market for Executives*". "*NBER Working Paper No. w3542*". 1992

⁹ See MURPHY KEVIN J., "*Corporate Performance and Managerial Remuneration: An Empirical Analysis*." "*Journal of Accounting and Economics No April*,". 1985

even if over the years there has been a lowering of percentage of base salary respect on the whole compensation. That can be explained not only because base salary represent the fixed part of the pay, but also because most of components of managerial remuneration are based to salary levels. Let us just look at the target bonuses that are generally expressed as a percentage of base salary, or at option grants that are expressed as a multiple of base salary. Consequently, each dollar increase in base salary means a raise of many other compensation components.¹⁰

2.2 Annual Bonus Plans

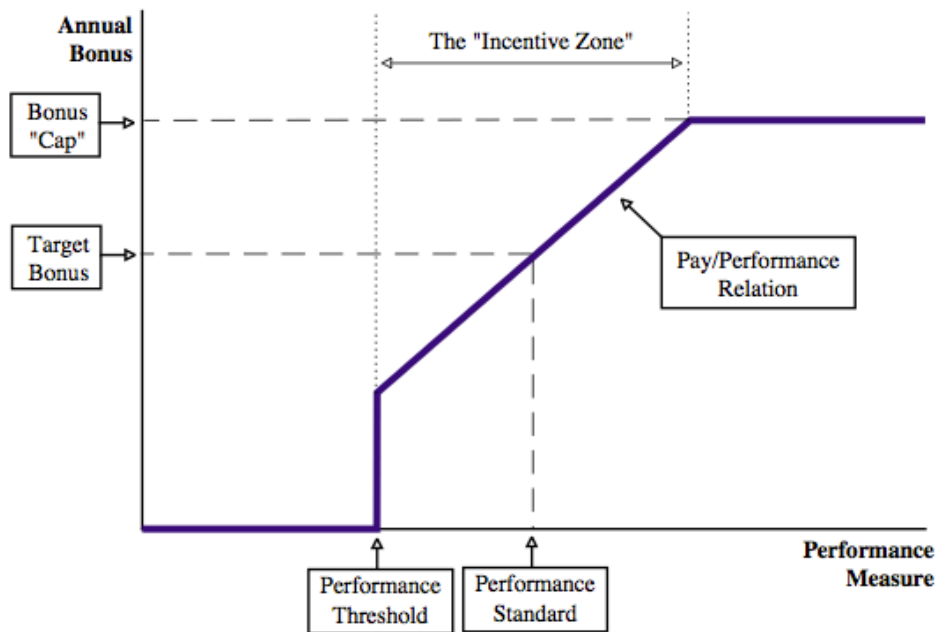
Typically every for-profit company offer an annual bonus plan, based on the performance of a single year, to executives.

Executive bonus plans are generally composed by three basic components: performance measure, performance standards, and the structure of the pay-performance relation.

Figure 4 shows these basic elements for a typical bonus plan.

¹⁰ See MURPHY KEVIN J., “*Executive Pay*”. 1998

Figure 4. Components of “Typical” Annual Incentive Plan¹¹



Under the typical plan, the bonuses are paid just when a performance threshold is reached and they are paid properly for the achieving of this threshold. The latter is usually expressed as a percentage of the performance standard. At the reaching of the threshold, the CEO receives a “minimum bonus”, which is instead expressed as a percentage of the target bonus. When the bonuses paid achieve a certain level the firm does not pay out them longer. It represents the bonus “cap” and it is again expressed as percentage of multiple of target bonus. The range between the performance threshold and the cap is indicated as “incentive zone” and it represents the relationship between the performance and the bonus, to the extent that an increase to the

¹¹the picture is an extract of MURPHY KEVIN J., “*Executive Pay*”. 1998

performance corresponds a raise of the bonuses paid.¹²

Now I am going to analyse the single basic components, which are common in almost all the plans:

Regarding the “Performance Measure”, the firms choose between single performance measure and multiple ones to use in their annual incentive plans. Moreover, the multiple measures can be deemed as “additive” or “multiplicative”. In the first case, they can be treated like separate plans, instead, in the second case the bonuses are substantially based on one measure and then corrected downward or upward respect on the other measures.

Again, the plan can be based on financial measures or non-financial ones. When the firms opt for financial measures generally avail of accounting data such as pre-tax income, EBIT, economic value added. On the other hand, the most common non-financial performance measure is “Individual Performance”, which is measured relatively to pre-established assessments of individual performance intended both objectively and subjectively. Other firms instead use measure including customer satisfaction or strategic aims.¹³

Respecting the “Performance Standards”, they indicate how the firms use the “measures” to get the “performance value”. Some firms use plans in which the performance is measured against the company’s annual budget goals (“Budget

¹² id

¹³ e.g. increasing plant capacity, reducing time –to-market, etc.

Standards”).

Others use plans where the targets of performance are set by the boards of directors on the basis of a review of the business plan, performance of the past year, budgeted performance, and a subjective evaluation of the difficulty encountered by CEOs in reaching budgeted performance. (“Discretionary Standards”)

There exist also plans in which performance is intended as year-to-year growth in sales or EPS (“Prior-Year standard”). Again, there are to mention the “Peer Group Standards” including plans based on performance measured relatively to other company in the same industry or market. Furthermore, the “Timeless Standards” comprise plans considering performance respect on fixed standard such as 10% of ROA. Finally we have the plans based on the “Cost of Capital” standards: just think about a plan based on EVA.¹⁴

Respecting “Structure Of The Pay-Performance Relation”, the payment of the bonuses to the participants at the plan can be made in several different ways by firms.

The most common is called “80/120” plan, and it is that illustrated in the Figure 4. Under this type of plan the performance threshold is fixed at 80% of the performance standard and the cap is fixed at 120% of target bonus.

¹⁴ See MURPHY KEVIN J “*Performance Standards in Incentive Contracts*”. 1999

Therefore no bonuses are paid until the 80% of performance standard is reached and the maximum value of bonuses payable cannot exceed the 120% of target bonus.

Many firms use plans of the same kind but with different values like “90/110”, “95/100”, “50/150”, “80/140”.

Another common type of plan is called “Modified Sum-of-Target”. Under the latter, the target bonus is defined as the sum of the single target bonuses, which are assigned to each participant at the plan. At the end of the year, the bonus effectively paid is calculated modifying upwards or downwards the target bonus dependently on whether the performance exceeds or not the performance standard. Then the bonus amount is shared among the participants according to the individual target bonuses.

Although the firms use them less, it remains to mention the “formula-based” plans and the “discretionary” plans. Under the first one, the bonus pool is divided among the participant according to a combination of individual target bonuses and performance. As the name of the plan suggests, the combination at issue is based on a mathematic formula.

Under the second one, the way of the payment is decided by the board of directors on the basis of financial and non-financial criteria.¹⁵

¹⁵ To deepen see MURPHY KEVIN J., AND JENSEN MICHAEL C. “*CEO Bonuses Plans and How To Fix Them*”. “*Harvard Business School NOM Unit Working Paper No. 12-022*”. 2011

The type of payment just analysed is certainly to be counted among those ones “equity-based”: CEOs certainly have incentives to get an high performance creating value for companies, since they receive no bonuses if the threshold of minim performance is not achieved and, in addition, the highest is the performance the largest is the bonus received.

2.3 Stock Options

Stock options are contracts, which give the holder the right to buy a certain amount of company shares at a fixed price indicated in the contract. Executive options become usually vested over time: for example 20% every year for five years.

Unlike the contracts of Annual Bonus, where the discretion of board of directors has a limited role, in the Stock Options, the board of directors can decide the parameters of the contract, having conceptually available a myriad of possibilities: it will suffice to consider that the options could be indexed to the industry or market, or that the board could decide the date in which the options can be exercised, or, again, the options could be forfeited if the executives leaves the firm before vesting.

Since every increase of stock price means an increase of payout resulting from exercising of stock options, it is clear that it exists a relationship between the share-price appreciation and the managerial remuneration in option grants. However, there is not a perfect correlation between the incentives relating to

the stock options and those ones resulting from stock ownership, for several reasons. First, the options do not reward total shareholder returns, given that the latter include dividends, as well. Therefore, the executives should be stimulated either to keep a good performance to also participate in company profits, in addition to receive incentive from stock options, or to resell the shares got exercising the option, avoiding the risk linked to the stock ownership. If the executives opt for the latter way, as almost always happens unfortunately for the shareholders, it will create a lowering in expected dividends, as has been observed by Lambert, Lanen and Larcker in 1989.¹⁶

Regarding the first way mentioned, it should be actually more advantageous for the shareholders. Nevertheless, since value of stock options is closely matched with price of latter, the stock options value increases or decreases according to the volatility of stock-price and therefore, the executives holding the shares have incentives to engage riskier incentives to increase the value of the own options, but this policy is not always in favour of shareholders.

In the bargain, the companies suffer a cost to grant the stock options. The most widely used method to calculate the latter cost is the “Black-Scholes Formula”.

$$\text{Option value} = S \cdot N(d_1) - Xe^{rT}N(d_2)$$

¹⁶ See LAMBERT RICHARD A. – LANEN WILLIAM N. – LARKER DAVID F, “*Executive Stock Options Plan and Dividends Policy*”, “*Journal of Financial and Quantitative Analysis*, Vol 24 No 4”. 1989

Where: S= the Grant-date stock price; X= Exercise price; T= Expiration term expressed in years; r= risk free interest rate; N(·)= area under the normal curve;

$$d_1 = \frac{\ln\left(\frac{S}{X}\right) + \left(r + \frac{\sigma^2}{2}\right)T}{\sigma\sqrt{T}} ; d_2 = d_1 - \sigma\sqrt{T} ; \sigma = \text{annual stock-price volatility.}$$

annual stock-price volatility.

This model finds its basis in some assumptions. Firstly, the options can be exercised only at the expiration date. Secondly, both the volatility and the risk-free rate remain constant over the period analysed. Thirdly, since the investors can hedge the risk, the options can be valued as if investors were risk neutral and so the assets appreciated at risk-free rate. Finally, it is assumed that the company does not pay dividends during said period at issue, but some adjustments¹⁷ can be made to take in account such a distribution.¹⁸

Although the Formula at issue has a large popularity, it has several drawbacks. Indeed, in addition to the assumptions mentioned above, executive options are often subject to forfeiture if the holder leaves the company before the expiration term (for example, when it happens a change in control of the

¹⁷ to deepen the possible adjustments see HAUG ESPEN G. *“The Complete Guide to Option Pricing Formulas, MacGraw-Hill second edition”*, “chapter 6, Black-Scholes-Merton Adjustments and Alternatives”

¹⁸ See website <http://www.quickmba.com/finance/black-scholes/>

company). The possibility of forfeiture lowers the cost supported to grant the stock options by the firm.

To sum up briefly the CEOs are able to make their own interests both when they choose to hold the options and they opt to resell them, voiding the relationship between their compensation and firm performance that the stock options should create.¹⁹

2.4 Long-Term Performance Plans

Finally, I am going to focus on the “Long-Term Incentive Plans” (LTIPs), a kind of compensation introduced to link the most possible the remuneration of executives to the performance.

In the recent years, the number of 500 “Standard and Poor’s” firms using this kind of compensation increased of around 143%, from 86 to 209, and the average target payout exceeded the \$2,400,000 in 2005²⁰

They are schemes that reward executives in case in which some specially set long-term performance targets are reached and they have the same structure of the Annual Bonus Plans. So, the biggest difference between the plans at issue and the latter consists in the longer time that the CEOs are allowed to use to achieve the bonus target. Moving from theory to practice, while the Annual

¹⁹ MURPHY KEVIN J., “*Executive Pay*”. 1998

²⁰ See CHEN T.Y – HUY K. W. – MATSUNAGA S – Zhang Y, “*Empirical Evidence on the Use of Long-Term Performance Plans*”. 2009

Bonus Plans obviously fixes the objectives at one year, the Long-Term Incentive Plans typically fixes the aims at three years or at five years.

The bonuses are represented by cash or restricted shares and, furthermore, the most used performance measures are based on earnings and stock price. Moreover, the performance standard that is generally used is the budgeted earning.²¹

Having said that, it is possible to add other differences with the Annual Bonus Plans: while the latter mentioned used several kinds of performance measures²², the Plans at issue mainly use stock price-based measures. In addition, under the Annual Bonus Plans, the weights on performance measures are not disclosed, unlike the LTIPs.

The analysed Plans differ from equity grants, as well, for two main differences.

First, under the LTIPs the payments are based on earning based measures, while the stock options reward the CEOs, regardless the achievement of a performance target. Finally, the ex-post value relative to stock grants can be virtually unlimited, instead, the payouts cannot exceed a pre-fixed value, since a cap is prefixed.²³

2.5 Other Forms Of Compensation

²¹ See above § 2.2.

²² See above §2.2.

²³ see above § 2.2

In addition to the types of compensation I have mentioned, CEOs are also rewarded with other forms of remuneration, just think of the “restricted stock options”.²⁴ Besides the latter, the so-called “Supplemental Executive Retirement Plans” (SERPs) are worthy of note. These must be not confused with Regular Pension Plans: companies usually provide pension plans to many employees after their retirement. These plans are defined as “qualified” and they led to receive some tax benefits: the same deduction that the company would have received if it had paid the workers in the form of base salary. Moreover, neither the company nor the employees must pay tax during the period in which the plans’ investments grow in value. Nevertheless, it is necessary to consider that the pension plans have a cap fixed at around \$200,000 of annual compensation per employee.²⁵ Therefore, to increase the compensation of CEOs, companies often use SERPs, that instead are labelled as “non-qualified”. SERPs differ from the Regular Pension Plans for crucial reasons. First, the previous ones do not receive the tax benefits that have been just mentioned, and, no investment is tax-free: the company has to pay taxes on every investment done. For these reasons, unlike regular qualified plans, SERPs are not able to reduce the total tax burden. In fact, simplistically, in case in which both CEO and company are subject at the same tax rate applied on return on their investments, if the CEO’s tax burden is reduced of one

²⁴ See above § 1.2

²⁵ For example, if a plan promises to pay all participants 50% of the compensation earned in the last year of service the company will not able to pay more than \$100,000, even if the executive earned more the %1,000,000 of remuneration.

dollar, the company's one is grown of the same amounts.²⁶

Regarding the last difference, it affects the risk at which the participants at the plan are subject. Under the Regular Pension Plans, the company agrees to pay a defined contribution, regardless the number of participants. So, there is a strict correlation between the payouts received by retirees and the performance of investments plan. It is easy to understand that the risk is completely borne by employees. Instead, under a SERP, the company grants to pay a certain amount of money, regardless the performance of investment plan. Therefore, the “Supplemental Executive Retirement Plans” are “defined-benefit plans” that shift the risk on the company.²⁷

In brief, it is true that CEOs are rewarded thanks to “equity-based” forms of compensation such as bonus incentive plans rather than stock options or LTIPs, but it is also true that there are still too many forms of “Non-equity based” remuneration that make the compensation excessively high, without a valid reason that justifies it.

In addition forms of payouts introduced to link the compensation to the performance, such as the stock options, are seen by CEOs as a mean to earn extra incomes rather than an incentive to raise the firm performance.

²⁶ See BEBCHUK L. – FRIED J., “ *Pay Without Performance: the Unfulfilled Promise of Executive Compensation*, pp 97-98”. 2004

²⁷ id

CHAPTER III

THE EARNINGS MANAGEMENT

SUMMARY: §1 – The Phenomenon of Earnings Management. §1.1. – Introduction. §1.2 – Some Definitions of Earnings Management. §2 – Earnings Management Reasons. § 3 – Techniques To Implement Earnings Management. §3.1 – Examples of Earnings Management. §4 – Prevention From Earnings Management.

1. The Phenomenon of Earnings Management

1.1 Introduction

The terms “Earnings Management”, generally refers to the use of accounting techniques to produce financial reports, which may paint an overly positive picture of a company's business activities and financial position. That takes advantage of how accounting rules can be applied and are legitimately flexible when companies can incur expenses and recognize revenue.

This technic is made possible because of the fact that the accountability is based on principles, what give a wide discretionality to managers who edit the budget. The latter document, indeed, is characterized by a series of subjective valuations that can change with the interests of the different subject involved.

Therefore, the managers have often the power to artificially manipulate the financial-economic data and the gains, without break the accounting standards, making difficult to distinguish between the technique in question and a

accounting fraud.¹

At this point, it is clear as the earnings management refers to a series of actions, which are in the middle between the conservative accounting and the fraud, committed with the aggressive accounting.

The principal incentives to adulterate the firm performance is due to the conflict of interests between the shareholders-insiders and the managers-outsiders, that has been the object of the first chapter.² This alteration typically takes place in two ways:

- a. Modifying the accounting schedule of transactions and events
- b. Making the so-called *adjustments*

Regarding the technique sub a, just think about the choices of postponing an advertising campaign or anticipating a sale of an assets.

Instead, as for *adjustments*, they consists in changing some parameters to obtain the desiderated value of accounting items, based on appraisal.³

1.2. Some Definitions Of Earnings Management

Given the wideness of the phenomenon the subject of earnings

¹ See FRANCESCA DI DONATO – “*Gli Amministratori Indipendenti: Corporate Governance, Earnings Management*” “*Luiss University Press*”. 2012

² See Chapter I

³ See LEV B. – LI S. – SOUNGIANNIS T. – “*Accounting Estimates: Pervasive, yet of Questionable Usefulness*”, “*NYU Working Paper 2007*”. 2005. Available at SSRN: <http://ssrn.com/abstract=1280690>

management has been studied by English academics, who has given some possible definitions.

The latter are several since the earnings management is a quite widespread behaviour.

Firstly, there is who defines the problems at issue as the interference of managers in the reporting process, which has the purpose of informing the outsider investors, to obtain a personal benefit.

That is due to the information asymmetry implying that managers know information that is not into possession of external stakeholders.⁴

Secondly, other academics describe the earnings management as the process with which managers trying to make a certain level of gains appeared to the market.⁵

Finally, the earnings management has been seen as the result of the subjective evaluation made by management in range of financial reporting in order to adulterate the balance sheet and mislead the stockholders about the firm performance and obtain personal profit matched with the latter,

⁴ See SHIPPER K. – “*Commentary on Earnings Management*”, “*Accounting Horizon*”, vol. 3, n. 4, pg. 91-102”. 1989

⁵ See DAVIDSON S. – STICKNEY C. – WEIL R.L. – “*Accounting: The Language Of Business*”. 1987

just look to the equity-based compensation.⁶

Although the definitions given in literature are multiple, they all move from the discretion of managers in using the economic-financial data and, in theory, the latter could be manipulated for the following reasons:

- a. To obtain or confirm determined level of gains
- b. To satisfy the analysts' expectation
- c. To get personal economic benefits

2. Earnings Management Reasons

The international literature tried to investigate to the reasons that are at the base of earnings management, and most of academics suggested that they are to research in the problem of information asymmetry that exists between managers and shareholders and managers and external stakeholders.

⁶ See HEALY P.M. – WAHLEN J.M. – “A review of Earnings Management Literature and its Implication for Standard Setting”, “Accounting Horizon, vol. 13, n. 4, 1999 pg. 365-383”.1999

Firstly, Healy e Whalen (1999)⁷ highlights four normative motivations for Earnings Management.

The first one is to find in the regulation of the industry in which firms act, in base of which the latters have to respect fixed standards, e.g. Bank and Insurance Company: this provisions incentive managers to manipulate data of balance sheet that are object of control.

The second one is that which pushes the firm to show themselves in the market less profitable then they are, in case of excessive gains, to avoid a control of Antitrust.

The third is a fiscal one, indeed the firm have interest to manipulate the gains in order to organize the taxes plan.

Regarding the fourth one, it is matched with the expectation and evaluation of capital market: investors and financial analysts use accounting information to estimate the value of stocks and that can clearly incentive the manager to manipulate the gains in order to influence the trend of the stocks price. Seeing as the in the public company part of the CEOs' compensation is bound to the stock price, adulterating the latter means increase their own remuneration.

Moreover, the bonuses are not tied just the stock price, but it can depend on the achievement of certain accounting or economic thresholds fixed by

⁷ See HEALY P.M. – WAHLEN J.M. – “A review of Earnings Management Literature and its Implication for Standard Setting”, “Accounting Horizon, vol. 13, n. 4, 1999 pg. 365-383”.1999

the Board of Directors and, anyway, the managers are certainly persuaded to manipulate the data to reach the thresholds.⁸

On the point, Myers, Myers and Skynner (2005)⁹ demonstrated that pay sets with gains, whose increase registered every three months is higher than that whose raise is calculated every year. In fact, growing incomes have a positive psychological effect on the investors; and the managers are aware of that, when have to public the financial results.

Furthermore, Dechow and Sloan (1991)¹⁰, showed as CEOs make expense in R&D in the last years of their mandate, in order to increase the short-term performance.¹¹

Secondly, it is necessary to understand that the incentives to earnings management are not only economic ones, but there are some of those that are matched with reputation, as well. Indeed, show a positive performance of the firm to the market lead to benefits for the managers in terms of not only economic ones but also reputational ones. It is clear as such benefits are very useful for managers, whose mandate is concluded, and so, needs to be elected again.¹²

⁸ See Chapter II

⁹ See MYERS J. N. – MYERS L. A. – SKINNER D. J. – “*Earnings momentum and Earnings Management*”, “*SSRN working paper*”. 2005

¹⁰ See DECHOW P. – SLOAN R. – “*Executive incentives and the Horizon Problem*”, “*Journal of Accounting and Economics, Vol. 14, pg. 51-89*”. 1991

¹¹ See Chapter I

¹² See FRANCESCA DI DONATO – “*Gli Amministratori Indipendenti: Corporate Governance, Earnings Management*” “*Luiss University Press*”. 2012

Finally it has been proved that the activity of earnings management is put to use with more likelihood when the CEO expects that also the competitors behave in the same way, since the firm performance is often compared to that of other firms in the same industry. So, it is created a chain reaction in which if a CEO manipulates the data of balance sheet to obtain personal profits, other CEOs will imitate him to get the same profit.¹³

3. Techniques To Implement Earnings Management

Just as the definitions of the phenomenon at issue are several, so the techniques that can be brought about are various. However, they can be classified in three categories, in reason of how they are implemented:

- a. Through operation on assets
- b. Through accounting operations, which are lawful under IFRS and US GAAP principles
- c. Through accounting operation, which are not lawful under IFRS and US GAAP principles.

In the first category all typical decisions are present. To make an example, it is possible to mention reduction of costs, earnings retention, and goods

¹³ See BAGNOLI M. – WATTS S. G. – “*The Effect of Relative Performance Evaluation on Earnings Management: a Game-Theoretic Approach*”, “*Journal of Accounting and Public Policy*, vol. 19, n. 4-5, pg. 377-397”. 2000

sales. The latter can present a certain ambiguousness, when they are actuated by the manager just to reach a short-term aim, and so to get a personal profit at the expense of shareholders' interests.¹⁴

As regard of second category, in it is possible to collocate all the potentially manipulative operations on accounting items, in line with the accounting standards.

Just think about the well-known "*special purpose entities*"¹⁵, or the derivative instruments, they allow to the managers to use discretion in evaluating the relative accounting items. Moreover, regarding the previous, problem, which is due to accounting loopholes, is these vehicles became a way for CFOs to hide debt. Essentially, it looks like the company doesn't have a liability when they really do and the results can be devastating.

Finally In the third category all the action that are not allowed under the law are inserted. They are simply identifiable in as much, they are represented by an accounting fraud.¹⁶

3.1 Examples of Earnings Management

¹⁴ See Chapter I, §...

¹⁵ They can be defined as corporations used such a vehicle to finance a large project without putting the entire firm at risk.

¹⁶ See BREU R. – "*Earnings Management: Myths and Realities*", "University of Zurich Press". 2005

It is now possible to make some examples of earnings management to comprehend at best the problems at issue.

Firstly, a very widespread technique is that of improperly overestimating the *special charges*. For example, once nominated a new CEO it is possible that the latter overrates the one-time expense, including future costs that, if they had not considered, would have been registered in further periods. Because of the special nature of this charges, they would be seen as necessary by analysts, which furthermore are not able to evaluate the effective amount. Therefore, in the new CEO's first year of operation would be occurred huge losses, which however would be ascribed to the outgoing CEO. Nevertheless in the following year the short-term gains would increase, so as to highlight the apparently positive economic-financial results of new CEO, and, in this way obtain an higher compensation.¹⁷

Secondly, another possible technic can be actuated in case of acquisition, registering an high write-off of debt, so as anticipate future operative costs. Doing so, a reserve, known as "*cookie jar*", to use to increase future gains.¹⁸

¹⁷ See FRANCESCA DI DONATO – "*Gli Amministratori Indipendenti: Corporate Governance, Earnings Management*" "*Luiss University Press*". 2012

¹⁸ See SHILIT H. – "*Financial Shenanigans: How to Detect Accounting Gimmicks and Fraud in Financial Reports*", "*McGrawHill, New York*". 2002

Finally, the most problematic technique of earnings management regards the evaluation of *accruals*. In fact, the firm gain is composed by two components:

- a. A cash part
- b. A no-cash one

The component sub a, is what is effectively paid and cashed with transactions and operations in the considered period.

The other part, also known as *accruals*, includes all costs and profits that occurred in the considered period, but that do not generate a cash outflow or a cash inflow of liquidity in the same period.

Calculating the accruals and considering them in the evaluation of results to communicate to shareholders, has the objective of giving a more accurate index of firm performance to the latter, respect on the simple cash flow. Indeed, the just looking to cash flow is not a good way to verify the firm performance: if it is true that in the long-term cash flows tend to coincide to gains, it is likewise true that the latter do not correspond to cash flows in the short-term, because of the accrual basis.

Nevertheless, the valuation of such accruals is complex process given that it is based on subjective appraisal, prevision and evaluation. The managers, that have a discretionary power in controlling the costs and

profit items and a deep knowledge of the firm, use it to act some adjustments, to obtain personal earnings.

4. Consequences For The Investors

Since one of the principal motivations of earnings management is tied to the reaction of the market to the disclosure of the information about the data of balance sheet, it is useful to investigate to consequences for shareholders of earnings management.

It has been demonstrated that earnings management generates costs both in terms of wrong investments and of losses for investors in future.

Such costs derivate from real operation, such as reduction of expense for the employee training, or the postponing the costs of maintenance or replacement of assets. Such choices create gains in the short-term and satisfy the expectation of investors in a trimestral perspective, but can jeopardize the firm in the long-term.¹⁹ As said above, these techniques are put to use by CEOs to increase their own pay and obtain personal benefits. Therefore, the most of compensation plans do not allow to CEO to exercise their stock options before that a certain period of time is passed, in order to induce the executives to look to the long-term. So, the design of compensation contract has an influence on the earnings management.²⁰

¹⁹ See GRAHAM J. R. – HARVEY C. R., – RAJGOPAL S. – *“The Economic Implications of Corporate financial Reporting”*, “SSRN working Paper”. 2004

²⁰ See GAO P. – SHRIEVENS R. E – *“Earnings Management and Executive Compensation: A Case of Overdose of Option and Under-dose of Salary”*, “SSRN Working Paper”. 2002

Beyond the problem of compensation, the earnings management generate a problem of information. That is surely a problem for the shareholders and for the new investors in as much the latter use accounting information included in financial reporting to take their decisions in terms of sale and purchase of stocks. Therefore, given that earnings management alters the firm performance, reduce the possibility of investors of taking choices based on correct information and so can be threatened as an agency cost.

To understand the costs of this practice, it is necessary to take into account that literature has shown that after the announce of Sec discovering the earnings management events, the stock price fall down suggesting that shareholders do not realize the practices at issue neither in the drastic cases.²¹ Moreover, it has been empirically proved that the fall of value in stock price is around 9%.²²

Another effect that must not be underestimated is the *earnings opacity*. It is possible to identify three levels for the latter:

²¹ See HEALY P.M. – WAHLEN J.M. – “A review of Earnings Management Literature and its Implication for Standard Setting”, “Accounting Horizon, vol. 13, n. 4, 1999 pg. 365-383”.1999

²² See DECHOW P. – SLOAN R. – “Executive incentives and the Horizon Problem”, “Journal of Accounting and Economics, Vol. 14, pg. 51-89”. 1991

- a. Earnings aggressiveness
- b. Loss avoidance
- c. Earnings smoothing

The first one indicates how much the gains are the results of hazardous accounting choices by manager or of too optimistic appraisal.

The second one reveals how much the incentive to disclose positive results influences the relation between gains and economic trend and, so, to what extent it adulterates the information disclosed.

Finally, the third one concerns with how much the disclosure of gains is subject to manipulation in order to disclose the results, which market expects that the firm have.²³

5. Prevention From Earnings Management.

As seen, there exists a trade off between the informative function of the balance sheet and the pursuing a personal interest by CEO, through the manipulation of disclosed gains. So, the firm has to give itself of means o prevent earnings management. According to international literature they can be of three types:

²³ See BHATTACHARYA U. – DAOUK H. – WELCKER M. “*The World Price of Earnings Opacity*”, “*SSRN Working Papers*”.2002

- a. Concerning the Board of Directors
- b. Concerning the number of independent directors
- c. Concerning the Audit Committee

Therefore, the Board of Directors is typically considered one of the principal corporate governance mechanism to monitor the executives and to verify that the firm resources and assets are used in the interest of shareholder before, and of all stakeholders, then. So, the Board would be the first instrument in hand of shareholders to control CEO.

However, an observation, concerning the idea of Board of directors as “Guardian of Shareholder Interests”, is needed²⁴. Indeed, that is correct only if the Board is the authority that effectively run the company as provided by law of corporate that, as it is known, does not give such a power to the CEO.

Nevertheless, since the directors of publicly traded companies do not perform their board roles full-time due to other primary careers they usually delegate this power to the officers and especially to the CEO. That clearly shows that the idea of Board intended as a Guardian is vitiated in the assumptions.

²⁴ See BEBCHUK L. – FRIED J., “ *Pay Without Performance: the Unfulfilled Promise of Executive Compensation*, p 17”. 2004

A second way to limit earnings management, which could be used by shareholders, concerns with the presence of independent directors in the Board. It has been, indeed, empirically demonstrated that there is a positive correlation between the number of independent directors in the Board and the quality of voluntary information: the higher is the number of independents the higher is the quality of information.²⁵

Nonetheless, in spite of the quality of information is higher given the number of independents, it is also empirically proved that earnings management is anyway realized if there in presence of a weak Internal Control System²⁶

Thirdly, another mechanism of prevention affects with the Audit Committee. In fact empirical evidence shows as there exists a negative relation between the presence of no-executive independent directors in the Audit Committee and earnings management: the higher is the number of no-executive independents the lower is the presence of earnings management.²⁷

²⁵ See BRICKLEY J. A. – COLES J. L. – TERRY R. L. – “*Outside Directors and the Adoption of Poison Pill*”, *Journal of Financial Economics*, n. 35”. 1995.

²⁶ See LOEBEKKE J. – EIJNING M. – WILLINGHAM J. – “*Auditor’s Experience with material Irregularities: Frequency, Nature and detectability*” , “*Journal of Practice & Theory*, pg. 1-28”. 1989

²⁷ See KLEIN A. – “*Audit Committee, Board of Director Characteristic, and Earnings Management*”, “*Journal of accounting and Economics*, Vol. 23, n. 3, pg.309-337”. 2002

CHAPTER IV

THE RELATIONSHIP BETWEEN EARNINGS MANAGEMENT AND CEO COMPENSATION

SUMMARY: §1 – Earnings Management Measures. §1.1. – Models to Calculate Earnings Management. §1.2 - The Working Capital Accruals §2 – The Relation Between Pay And Firm Performance: An empirical Analysis. §2.1 - The Sample. §2.2 - The Compensation Measure and the Data. §2.3 – The Earnings Management Measurement.. §2.4 - The Econometric Methodology. §2.5 - The Data. §3. – Regression Results

1. Earnings Management Measures

In the last decades empirical literature began to investigate about the relationship between Earnings Management and CEO and, in particular, about the sensitivity of top executive pay to variations of earnings management. It is clear that one of most delicate issues is the choice of the earnings management measure: different choices could lead to different results of the empirical analysis.

Therefore, the purpose of this paragraph is making an overview of performance measures used in literature so far.

1.1. Models To Calculate Earnings Management

As seen above, it is appropriate to use the level of accruals to measure the earnings management.

The several models used in the literature estimate the amount of *no-discretionary* accruals and it involves that the part of accruals moving away from the amount of no-discretionary accruals is consequently to deem as *discretionary*. So the *discretionary* or *abnormal* accruals are defined as difference respect on the *no-discretionary* ones.¹

Alternatively, they have utilized *cross-sectional* models in which the normal level of accruals of a firm is calculated on the basis of a comparable firm operating in same industry in the same period.²

The problem of both models is that the level of accruals considerably varies with the change of the market.

The first and simplest model has been developed by Healy, who hypothesized the following relation to measure the earnings management:

$$gains = cash\ flows + accruals$$

¹ See FRANCESCA DI DONATO – “*Gli Amministratori Indipendenti: Corporate Governance, Earnings Management*” “Luiss University Press”. 2012

² DEFOND M. L. – JIAMBALAVO J. – “*Debt Covenant Violation and Manipulation of Accruals*”, “*Journal of Accounting and Economics*, vol. 17, pp. 145-176”. 1994

Consequently, the total accruals are calculated as difference between gains and the cash flows effectively generated by the firm. Thus, high accruals mean gains barely based on the cash component and so an higher risk.

The academic calculates the earnings management comparing the average of total accruals and the logarithm of Total Asset. Healy's study is different respect on many others in the same field because in it is estimated that the earnings management occurs every time. Furthermore he has divided the sample of firms in three groups, hypothesising that one of them manipulates the gains upwards, whereas the others two downwards. The correctness of his work is tested by the comparing the average of total accruals in the group of firms manipulating the gains upwards, with that of the groups manipulating the gains downwards.³

Thus, the model of earnings management is:

$$DAC_{i,t} = \frac{TA_{i,t}}{A_{i,t-1}}$$

where:

- $DAC_{i,t}$ is the component of *discretionary accruals* for the firm i in the time t ;

³ HEALY P.M. – “The Effect of Bonus Schemes on Accounting Decisions.”, “Journal of Accounting and Economics vol. 7, pp. 85-107”.1985

- $TA_{i,t}$ are the *total accruals* for the firm i in the time t ;
- $A_{i,t-1}$ are the total assets for the firm i in the time $t-1$;

Similarly, DeAngelo focused on the variations of accruals between two following years, assuming that the accruals normally remain constant. According with the academic, it is possible to speak about earnings management when the changes do not follow a “*random walk*”.

A notable variation between a year and the following one could mean that some valuations have been modified and, potentially with purpose of manipulation of the results. DeAngelo uses the total accruals of previous year as measure of no-discretionary accruals. So, it is possible too see de DeAngelo’s model as a particular case of Healy’s one.⁴

Thus, the model is:

$$DAC_{t,i} = \frac{(TA_{t,i} - TA_{t,i-1})}{A_{i,t-1}}$$

where:

⁴ DEANGELO L. - “Auditor Size and Auditor Quality.”, “*Journal of Accounting and Economics* , vol. 1, pp.113-127”.1981

- $DAC_{i,t}$ is the component of *discretionary accruals* for the firm i in the time t ;
- $TA_{i,t}$ are the *total accruals* for the firm i in the time t ;
- $TA_{i,t-1}$ are the *total accruals* for the firm i in the time $t-1$;
- $A_{i,t-1}$ are the total assets for the firm i in the time $t-1$;

It is necessary to clarify that both models are based on the assumption that the no-discretionary accruals are constant in time and, moreover, the average of discretionary accrual is equal to zero in the esteem period.

Unlike, Jones provide a model in which the no-discretionary accrual are not deemed as constant in time. Jones, indeed, tried to verify the effect of changes in the firm economic situation on the no-discretionary accruals. The latters are measured as a OLS regression in which the independent variables are the variation of sales and gross plant property and equipment.

Thus, the model is:

$$NDA_i = \alpha_1 \left(\frac{1}{A_{i,t-1}} \right) + \alpha_2 \left(\frac{\Delta REV_t}{A_{i,t-1}} \right) + \alpha_3 \left(\frac{PPE_{i,t}}{A_{i,t-1}} \right) + v_t$$

where:

- NDA_i is the component of *no-discretionary accruals* for the firm i in the time t ;
- ΔREV_t are the difference of the *sales* in the time t and those in the time $t-1$
- PPE are the *gross plant property and equipment* for the firm i in the time t ;
- $A_{i,t-1}$ are the *total assets* for the firm i in the time $t-1$;
- $\alpha_1, \alpha_2, \alpha_3$ are the *specific parameters* of the firm

The latters are estimated utilizing the following model:

$$TA_t = a_1 \left(\frac{1}{A_{i,t-1}} \right) + a_2 \Delta REV_t + a_3 PPE_{i,t} + v_t$$

where;

- a_1, a_2, a_3 are the *OLS valuations* of $\alpha_1, \alpha_2, \alpha_3$
- TA_t are the *total accruals on the logarithm of total assets* in the time t

So, the formula to calculate the part of discretionary accruals is the following:

$$DAC_{i,t} = \frac{TA_{i,t}}{A_{i,t-1}} - \left[\beta_0 \frac{1}{A_{i,t-1}} + \beta_1 \frac{\Delta REV_t}{A_{i,t-1}} + \beta_2 \frac{PPE_{i,t}}{A_{i,t-1}} \right]$$

The model just analysed, that has as implicit assumption that the sales are a no-discretionary variables, has had much success in the literature since its result could explain about one-fourth of variations in total accruals.⁵

At a later stage, Dechow *et al.* elaborated a variation of the Jones' model defined as *modified-Jones*. The authors maintained that the management could manipulate the gains, generating earnings management, with the artificial increasing of credit value. So, the value of sales had to correct with the variation of account receivable between an year and following one.

Thus the formula of *modified-Jones* is:

$$NDA_t = \alpha_1 \left(\frac{1}{A_{i,t-1}} \right) + \alpha_2 (\Delta REV_t - \Delta REC_t) + \alpha_3 PPE_{i,t} + v_t$$

⁵ JONES J. – “Earnings Management During Import Relief Investigations.” *Journal of Accounting Research* vol. 29, pp. 193-228”. 1981

Implicit assumption of the model is that all account receivable, which are not cashed in at the end of the year, are the result of earning management techniques. That derived by the fact that the gains are more easily modifiable with a manipulation of receivables. In fact, the items of working capital represent one of the elements more used in the manipulation because of hard individuation the fact that they do not have impact in the long-term cash flow.⁶

1.2 The Working Capital Accruals

As seen before the working capital represent one of the element more used in order to manipulate the gains because of its several discretionary components.

Therefore, many authors maintain that *working capital accruals* are more subject of manipulation then other items of the balance sheet.

To give an example Beneish and Young have sustained that for the managers it is more attractive to manipulate the profits with the working capital than with the amortisation because of the predictability and visibility.

DeFond and Park provided a model of esteem based on the *abnormal working capital accruals*, in which the latters are defined as the difference

⁶ DECHOW, P.M. - SLOAN R.G – WEENEY P. - . “Detecting Earnings Management.” *The Accounting Review* 70, 193-225.

between the working capital inserted in balance sheet and that considered as “standard” in a firm with a determined level of sales.

The model is the following:

$$AWCA_t = WC_t - \left[\left(\frac{WC_{t-1}}{S_{t-1}} \right) - S_t \right]$$

where:

- $AWCA_t$ is the abnormal working capital accrual in the time t ;
- WC_t is the working capital at the time t , calculated as difference between net current assets and net current liabilities;
- S_t is the turnover volume.

Furthermore they are deemed as absolute values in as much, it is not important if the management uses it to manipulate the gains upwards or downwards.⁷

In spite of there is no a perfect model to estimate the discretionary accruals, many authors affirm that the taking into account of working capital accruals is the better approach to calculate them.

⁷ DEFOND M.L. - PARK C.W. - "The Reversal of Abnormal Accruals and the Market Valuation of Earnings Surprises", *The Accounting Review*, Vol. 76 No. 3, pp. 375 – 404." 2001

2. The Relation Between Pay And Firm Performance: An empirical Analysis

To complete as best I can my study on executive compensation and earnings management, I have accomplished an empirical analysis about the relation between CEO pay and EM.

In brief, I have used as sample of firms the 100 companies listed in S&P 100 stock market index. The period of time, to which my analysis refers, is that from 2007 to 2012

Regarding the compensation measures I have used the Bonuses, Equity Pay⁸, and the last but maybe more importantly, Total Pay.

Regarding the earnings management measures I opted for the discretionary accruals calculated with Healy's model and the abnormal working capital, calculated with the DeFond and Park's model.

2.1 The Sample

As mentioned above, the sample consists in the first 100 firms listed in S&P 100 stock market index, which are in such an Index from at least 6 years.

In it there are firms belonging to different industries. In particular it is

⁸ I refer to the sum of stock grants and stock options granted to CEO.

possible to find 12 leading companies chemical and pharmaceutical product; 17 firms deal with computers, Internet and computing; 10 Banks and Financial firms; 6 firms specialized in the “Aerospace & Defence” industry and as many ones in the “Communications and Telecommunications” industry; 7 firms deal with “Food and Beverage” industry; 4 firms expert in the “Electric Components” industry; 3 Hypermarkets, as many Insurance companies and as many firms deal with “Movies & Entertainment” industry; 2 firms for each of following industries: “Household Products”, “Home Improvement”, “Railroads”, and “Industrial Conglomerates”, finally regarding the industries of “Automobile manufactures” “Construction & Farm Machinery & Heavy Trucks” and “Sportswear”, 1 firm.

I have opted for this sample of firms because I think that it is relevant for my research for two reasons.

Firstly, Standard & Poor's 100, is a stock market index based on the market capitalizations of 100 leading companies publicly traded in the U.S. stock market, as determined by Standard & Poor's. So, it includes the 100 companies, which have more market capitalization, among those listed on either the NYSE (NYSE Arca or NYSE MKT) or NASDAQ (NASDAQ Global Select Market, NASDAQ Select Market or the NASDAQ Capital Market).

Secondly, I have made such a choice because the sample encompasses several industries and therefore it can be deemed as representative of the totality of US firms.

Moreover, such a decision is due to the ease with which is possible to find the data about the compensation provided to the CEOs of the firms included in the sample at issue. Indeed, being listed companies, they have the duty to disclose their compensation policies and amounts⁹.

2.2 The Compensation Measure and the Data

Moving on measures of compensation that are used in my empirical analysis, I have opted for multiple measure in order to verify the existence of a positive relation between CEO compensation and earnings management.

Indeed, I have used the values Salary, Salary plus Bonuses, Equity Pay¹⁰, and the last but maybe more importantly, Total Pay.

Regarding the data, it has already been clarified, that they have been easily found, since the firm analysed are listed and, so, have the duty of disclosure the compensation policies and amounts for top-five executives. Indeed I could find them in the Definitive Proxy Statements (SEC Form

⁹ See Chapter I

¹⁰ I refer to the sum of stock option and stock grant with that the CEO are provided.

DEF 14A) published on SEC Website¹¹ and founded through EDGAR¹². SEC Form DEF 14A is a form that should provide security holders with sufficient information to allow them to make an informed vote at an upcoming security holders' meeting or to authorize a proxy to vote on their behalf. It includes information about the date, time and place of the meeting of security holders, revocability of proxy, dissenter's right of appraisal, direct or indirect interest of certain persons in matters to be acted upon; modification or exchange of securities, financial statements, voting procedures and other details. For what concerns us here, the SEC Form DEF 14A includes also a Summary Compensation Table, in which compensation data, divided for types of pay, of top 5 executives are inserted.

2.3 The Earnings Management Measurement

An exhaustive analysis of the earnings management measure used in the past literature has been made in the first paragraph of this Chapter¹³. Therefore, in this point it is needful to explain the performance measure that I used in my empirical study.

It is too difficult, I would even say impossible, to find the perfect earnings management measure to conduct a study as that at issue, but taking into

¹¹ <http://www.sec.gov>

¹² EDGAR is the new-generation search engine available at the web-site <http://www.sec.gov/edgar.shtml>.

¹³ See § 1 of Chapter IV

account one of it it is necessary for such a analysis.

I opted for two different measures in order to best verify the CEOs' efforts, in spite of that is quite impossible.

As first measure, I have chosen the discretionary accruals so as calculated in Healy's study, since they seem to be the most appropriate measure to use, according to the fact that earnings management could occur every time.

Thus,

$$DAC_{i,t} = \frac{TA_{i,t}}{A_{i,t-1}}$$

Regarding the second earnings management measure I opted for the abnormal working capital accruals, calculated with the DeFond and Park formula. I have made this choice since many authors reputed that is the best way to estimate the earnings management although it is quite impossible to find the perfect measure of earnings management.

Thus,

$$AWCA_t = WC_t - \left[\left(\frac{WC_{t-1}}{S_{t-1}} \right) - S_t \right]$$

2.4 The Econometric Methodology

To conduct, as best I can, a study to verify a relationship, it is needful to create an econometric specification that explains the relation at issue.

Consider an individual CEO denoted by the subscript i . I assume that the the i 's compensation ($Comp_i$) is a function of performance over the time t ($Perform_{it}$), Earnings Management ($EM_{i,t}$) and the size of the firm (FS) like in a multiple linear regression.

Thus:

$$Y = \beta + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon \quad (1)$$

So, in our case the equation (1) will become:

$$Comp_i = \beta + \beta_1 Perf_{i,t} + \beta_2 EM_{i,t} + \beta_3 FS_i + \varepsilon \quad (2)$$

Regarding the measure of performance, I have chosen both an accounting measures and a market ones.

Firstly, I have opted for the ROE as accounting measures since the return realized by firm's shareholder seems the most appropriate measure to use, according to the consolidated agency theory. In my opinion return on

equity gives suitable information about the efforts of the agents (CEOs) made towards principals (shareholders). Unlike Lambert and Larcker 1987, that understood the ROE as the firm's earning before extraordinary items and discontinued operations divided by the average common shareholders' equity, in my study ROE is seen as the firm's net asset divided by the equity.

Thus,

$$ROE = \frac{Net\ Asset}{Equity}$$

Secondly, I've chosen the share return calculated as:

$$R_{i,t} = \frac{P_{i,t} + D_{i,t}}{P_{i,t-1}} - 1$$

Where:

- $R_{i,t}$ is the share return for the firm i at the time $t-1$
- P_t is the share price of the firm i at the time t
- $P_{i,t-1}$ is the share price of the firm i at the time $t-1$
- $D_{i,t}$ are the dividend yields of the firm i at the time t

Regarding the measure of firm size, instead, I have chosen the logarithm of Total Assets

Moving back on the econometric methodology, to analyse the relationship between CEO compensation and earnings management I have considered two models: in the first one I used the discretionary accruals of Healy's model as earnings manager measure, whereas in the second I used the abnormal working capital accruals of the DeFond and Park's model. In this way I have tried to analyse the effort of CEO in order to manipulate gains first using the entire capital and then with the working capital.

So, the MODEL 1 is:

$$Comp_{i,t} = \beta + \beta_1(DA_{i,t}) + \beta_2(ROE_{i,t}) + \beta_3(R_{i,t}) + \beta_4(LogA_{i,t}) + \varepsilon$$

Instead, the MODEL 2 is:

$$Comp_{i,t} = \beta + \beta_1(AWCA_{i,t}) + \beta_2(ROE_{i,t}) + \beta_3(R_{i,t}) + \beta_4(LogA_{i,t}) + \varepsilon$$

2.5 The Data

As seen above the compensation data have been extracted from EDGAR, the database inserted in the SEC website.

In relation to the other data re-elaborated in my analysis, they are referred to the sample firms' budgets of 2007 to 2012 that is period, to which my study refers, and they have been found with the well-known database Datastream¹⁴.

To be thorough, provide descriptive statics of the data, reporting the Mean and the Standard Deviation of the observed data of the analysis: Salary, Salary plus Bonuses, Equity, Total Pay, Discretionary Accruals, Abnormal Working Capital Accruals, Roe, Share Return and Logarith of Net Assets. The results are indicated in the table 1.

¹⁴ Datastream

TABLE 1
Descriptive Statistics for Variables Used in the Analysis.

The table 1 reports the Mean and the Standard Deviation of the observed data of the analysis: Salary, Salary plus Bonuses, Equity, Total Pay, Discretionary Accruals, Abnormal Working Capital Accruals, Roe, Share Return and Logarith of Net Assets

Variable	Obs	Mean	Std. Dev.	Min	Max
Salary	582	1243180	602989.7	1	5600000
SeB	582	1861254	1978746	1	2.76e+07
Equity	582	1.00e+07	1.79e+07	2	3.76e+08
Total	582	1.67e+07	1.90e+07	1	3.78e+08
DA	582	.5033651	.1525197	.0150118	.8721471
AWCA	498	590582.3	6228086	-2.07e+07	7.99e+07
ROE	582	23.25835	39.26542	-251.78	457.4
Return	582	.1427338	.3735004	-.7614213	3.366812
Ln	582	17.90398	1.28357	14.41783	21.58156

3. Regression Results

Now, using the regression analysis, I first examine the relationship indicated in the MODEL 1 and then that described in the MODEL 2

As mentioned above, to conduct the regression analyses I used the value of compensation, earnings management performance and firm size relating to the period 2007 to 2012.

Regarding the first analysis, the following tables represent the results of regression. The first table refers to Salary, the second one to Salary + Bonus, the third one to Equity and the last one to Total Compensation.

Thanks to such tables, it is possible to understand easily whether exist the hypothesized relationship between earnings management firm and CEO compensation. Looking carefully, it is possible to understand that it is true that exist a *positive* correlation between the two variables, but it also true that it is very *weak*.

The first observation is justified by the positive slope coefficient of DA, β , of the trend lines in every of the table below. Indeed, in the table regarding the Salary the b equals to 498399,10; in the second one it equals to 1605080; in that one about the Equity it is 2386055; an in the last one it takes the value of 5139251.

TABLE 2
Static Results for Regression

The table 2 reports the results of regression between the dependent variable Salary and the independent ones: Discretionary Accruals, ROE, Share Return and Firm Size.

Source	SS	df	MS			
Model	8.8194e+12	4	2.2048e+12	Number of obs =	582	
Residual	2.0243e+14	577	3.5083e+11	F(4, 577) =	6.28	
Total	2.1125e+14	581	3.6360e+11	Prob > F =	0.0001	
				R-squared =	0.0417	
				Adj R-squared =	0.0351	
				Root MSE =	5.9e+05	

Salary	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
DA	498399.1	170157.7	2.93	0.004	164195.1	832603.1
ROE	2044.861	666.3634	3.07	0.002	736.068	3353.655
Return	-30473.92	66555.45	-0.46	0.647	-161194.4	100246.6
Ln	83924.89	20071.39	4.18	0.000	44503	123346.8
_cons	-553496.8	392928	-1.41	0.159	-1325240	218246.7

TABLE 3
Static Results for Regression

The table 3 reports the results of regression between the dependent variable Salary plus Bonuses and the independent ones: Discretionary Accruals, ROE, Share Return and Firm Size.

Source	SS	df	MS			
Model	1.4183e+14	4	3.5458e+13	Number of obs =	582	
Residual	2.1330e+15	577	3.6968e+12	F(4, 577) =	9.59	
Total	2.2749e+15	581	3.9154e+12	Prob > F =	0.0000	
				R-squared =	0.0623	
				Adj R-squared =	0.0558	
				Root MSE =	1.9e+06	

SeB	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
DA	1605080	552348.2	2.91	0.004	520221.6	2689938
ROE	3852.285	2163.079	1.78	0.075	-396.1843	8100.754
Return	-63967.61	216045.4	-0.30	0.767	-488298.9	360363.6
Ln	384767	65153.66	5.91	0.000	256799.7	512734.2
_cons	-5916014	1275482	-4.64	0.000	-8421167	-3410860

TABLE 4
Static Results for Regression

The table 4 reports the results of regression between the dependent variable Equity and the independent ones: Discretionary Accruals, ROE, Share Return and Firm Size.

Source	SS	df	MS			
Model	1.2342e+15	4	3.0855e+14	Number of obs =	582	
Residual	1.8558e+17	577	3.2162e+14	F(4, 577) =	0.96	
Total	1.8681e+17	581	3.2153e+14	Prob > F =	0.4293	
				R-squared =	0.0066	
				Adj R-squared =	-0.0003	
				Root MSE =	1.8e+07	

Equity	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
DA	2386055	5151998	0.46	0.643	-7732901	1.25e+07
ROE	28535.81	20176	1.41	0.158	-11091.55	68163.17
Return	-247841	2015151	-0.12	0.902	-4205767	3710085
Ln	986304.8	607717.1	1.62	0.105	-207302.6	2179912
_cons	-9438918	1.19e+07	-0.79	0.428	-3.28e+07	1.39e+07

TABLE 5
Static Results for Regression

The table 5 reports the results of regression between the dependent variable Total Pay and the independent ones: Discretionary Accruals, ROE, Share Return and Firm Size.

Source	SS	df	MS	Number of obs = 582		
Model	2.9363e+15	4	7.3407e+14	F(4, 577) = 2.05		
Residual	2.0691e+17	577	3.5860e+14	Prob > F = 0.0864		
Total	2.0985e+17	581	3.6119e+14	R-squared = 0.0140		
				Adj R-squared = 0.0072		
				Root MSE = 1.9e+07		
Total	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
DA	5139251	5440137	0.94	0.345	-5545634	1.58e+07
ROE	43459.95	21304.4	2.04	0.042	1616.322	85303.58
Return	161792.7	2127854	0.08	0.939	-4017491	4341077
Ln	1550970	641705.3	2.42	0.016	290606.5	2811333
_cons	-1.46e+07	1.26e+07	-1.17	0.244	-3.93e+07	1.00e+07

Regarding the second observation, a foreword is necessary. The regression linear is a method to study how a dependent variable changes with the change of an independent variable. Being the regression a valuation of parameters, it necessary to understand how such an evaluation of futures values is trustworthy.

Therefore, it is needful to calculate the coefficient of determination, R^2 . It provides a measure of how well observed outcomes are replicated by the model, as the proportion of total variation of outcomes explained by the latter.

It is calculated by squaring the value of Pearson correlation coefficient, ρ .

Thus,

$$R^2 = \left(\frac{\sigma_{XY}}{\sigma_X \sigma_Y} \right)^2 \quad (6)$$

R^2 can assume values between 0 and 1: when it equals to 1 then all values of variables are points of the same straight line, in the contrary if it equals to 0 the model does not explain the data at all.

Moving from theoretical to practical, in each of plotter diagrams above the coefficient of determination is tending to zero. Indeed, it assumes value included between 0,0066 of Table 4 and 0,0623 of the Table 3.

That being said, and given such small numbers for coefficient R^2 , I would

say with some confidence that there is a correlation between earnings management and CEO Compensation, but we cannot speak about a *linear* correlation between the two variables.

Moving on the relationship between CEO compensation and earnings management as measured by abnormal working capital accruals, I created tables that are similar to previous ones.

After having seen the latters, regarding the relationship between main components of compensation and the earnings management, it is clear that about the table 8 it is possible to make considerations similar to those just made. Instead, regarding the other results, we can see that there is a *negative* correlation between CEO compensation and AWCA, but it is possible to deem it as null, being that the negative slope coefficients of AWCA, β , are tending to zero. Indeed it assumes values included between -0,0021478 of the Table 6 and -0,0009026 of the Table 8.

Regarding the R squared, is possible to make the same consideration of before.

TABLE 6
Static Results for Regression

The table 6 reports the results of regression between the dependent variable Salary and the independent ones: Abnormal Working Capital Accruals, ROE, Share Return and Firm Size.

Source	SS	df	MS			
Model	4.3190e+12	4	1.0797e+12	Number of obs =	498	
Residual	1.7521e+14	493	3.5539e+11	F(4, 493) =	3.04	
Total	1.7952e+14	497	3.6122e+11	Prob > F =	0.0171	
				R-squared =	0.0241	
				Adj R-squared =	0.0161	
				Root MSE =	6.0e+05	

Salary	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
AWCA	-.0010994	.0043021	-0.26	0.798	-.009552	.0073533
ROE	1320.271	740.7332	1.78	0.075	-135.1128	2775.654
Return	-35539.51	69437.78	-0.51	0.609	-171970	100891
Ln	67290.45	21505.6	3.13	0.002	25036.52	109544.4
_cons	4203.676	390043.5	0.01	0.991	-762149	770556.3

TABLE 7
Static Results for Regression

The table 7 reports the results of regression between the dependent variable Salary plus Bonuses and the independent ones: Abnormal Working Capital Accruals, ROE, Share Return and Firm Size.

Source	SS	df	MS	Number of obs = 498		
Model	1.0148e+14	4	2.5370e+13	F(4, 493) = 6.36		
Residual	1.9681e+15	493	3.9921e+12	Prob > F = 0.0001		
Total	2.0696e+15	497	4.1642e+12	R-squared = 0.0490		
				Adj R-squared = 0.0413		
				Root MSE = 2.0e+06		
SeB	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
AWCA	-.0021479	.0144188	-0.15	0.882	-.0304777	.0261819
ROE	2232.581	2482.636	0.90	0.369	-2645.271	7110.433
Return	-22230.57	232727.2	-0.10	0.924	-479490	435028.9
Ln	357772	72078	4.96	0.000	216154.1	499390
_cons	-4572699	1307267	-3.50	0.001	-7141201	-2004197

TABLE 8
Static Results for Regression

The table 8 reports the results of regression between the dependent variable Equity and the independent ones: Abnormal Working Capital Accruals, ROE, Share Return and Firm Size.

Source	SS	df	MS			
Model	1.2202e+15	4	3.0506e+14	Number of obs = 498		
Residual	1.7619e+17	493	3.5738e+14	F(4, 493) = 0.85		
Total	1.7741e+17	497	3.5696e+14	Prob > F = 0.4918		
				R-squared = 0.0069		
				Adj R-squared = -0.0012		
				Root MSE = 1.9e+07		
Equity	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
AWCA	.0019305	.1364246	0.01	0.989	-.2661149	.2699758
ROE	25892.28	23489.73	1.10	0.271	-20260.04	72044.6
Return	-207501	2201973	-0.09	0.925	-4533910	4118908
Ln	1117556	681973.7	1.64	0.102	-222377.7	2457489
_cons	-1.06e+07	1.24e+07	-0.86	0.390	-3.49e+07	1.37e+07

TABLE 9
Static Results for Regression

The table 9 reports the results of regression between the dependent variable Total Pay and the independent ones: Abnormal Working Capital Accruals, ROE, Share Return and Firm Size.

Source	SS	df	MS			
Model	2.5543e+15	4	6.3858e+14	Number of obs =	498	
Residual	1.9512e+17	493	3.9578e+14	F(4, 493) =	1.61	
Total	1.9768e+17	497	3.9774e+14	Prob > F =	0.1696	
				R-squared =	0.0129	
				Adj R-squared =	0.0049	
				Root MSE =	2.0e+07	

Total	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
AWCA	-.0009026	.1435674	-0.01	0.995	-.282982	.2811768
ROE	39041.72	24719.58	1.58	0.115	-9526.995	87610.44
Return	160467.6	2317262	0.07	0.945	-4392459	4713394
Ln	1606902	717679.9	2.24	0.026	196814	3016991
_cons	-1.32e+07	1.30e+07	-1.01	0.312	-3.87e+07	1.24e+07

3.1 Correlation Results

To be thorough, in addition to regression, I also verified the correlation between the compensation components and the independent variables of the two models. Given the regression results, the correlation at issue is expected to be absent or, if it existed, weak in any case.

To facilitate the reading of the data I created the Table 10 in which I inserted the correlation results.

The latter correspond perfectly to our expectations: they suggest a *very weak* correlation between compensation and earnings management. Indeed the Pearson correlation coefficient, ρ can take value between -1 and 1 and:

- a. When $\rho > 0$, the variables are positively correlated
- b. When $\rho = 0$, there is no a correlation between the variables
- c. When $\rho < 0$, the variables are negatively correlated

Therefore, regarding the first model, it has found a positive correlation between compensation and earnings management measured as discretionary accruals that demonstrate that in the conflict of interest between CEOs and Shareholders, which is the basis of agency theory, and the Board of Directors' decisions about the compensation tip the balance in favour to the chief executive officers rather than to the stock holders, main source of firm's financing.

TABLE 10
Static Results for Regression

The table 10 reports the Pearson correlation coefficient between the dependent variables Salary, Salary plus Bonuses, Equity and Total Pay and the independent ones: Discretionary accruals, Abnormal Working Capital Accruals, ROE, Share Return and Firm Size.

	Salary	SeB	Equity	Total	DA	AWCA	ROE	Return	Ln
Salary	1.0000								
SeB	0.3571	1.0000							
Equity	0.0545	0.0872	1.0000						
Total	0.1909	0.1990	0.9666	1.0000					
DA	0.0658	0.0557	-0.0118	-0.0048	1.0000				
AWCA	-0.0163	-0.0114	-0.0016	-0.0028	0.0400	1.0000			
ROE	0.0501	-0.0046	0.0351	0.0523	-0.2547	-0.0107	1.0000		
Return	-0.0382	-0.0377	-0.0109	-0.0054	0.0293	0.0589	0.1233	1.0000	
Ln	0.1317	0.2178	0.0666	0.0885	-0.1378	-0.0186	-0.1982	-0.1692	1.0000

Regarding the second model, I found *negative*, although it is weak, correlation between Salary, Salary + Bonus and earnings management calculated as AWCA. For the rest, the observations to be made are similar

It is clear that both the regression results and correlation ones refer to my sample and so, extending the same conclusions to all U.S. companies would be wrong and over hurried. Nevertheless, it being understood that the value of R^2 is tiny, it is possible to make some considerations: hypothesizing that the situation was equal to that it would have been obtained if I had taken into account all U.S. firms that could be seriously alarming, inasmuch it would seem that the managers' effort are direct to manipulate the balance sheet data rather than to arise the performance and so the shareholders' return.

To sum up briefly, if you consider the MODEL 1 and if it was possible to burden the observations made about the sample to all the US companies, than, the managers would manipulate the balance sheet data, e.g. the amortisation, to show your own firm better than it is to the market, in order to obtain an higher compensation. Instead, if you consider the MODEL 2 and if it was possible to burden the observations made about the sample to all the US companies, the manipulation activity actuated by

mangers would be ineffective and however directed to get a lower compensation.

CONCLUSION

As I touched on in the previous Chapter, the main conclusions of my thesis are that earnings management, as measured by discretionary is positive related to managerial compensation regarding my sample, whereas it, measured as abnormal working capital accruals, is not related with compensation and however in a negative way.

Nonetheless, regarding the MODEL 1, given that my sample contains the listed companies with more capitalization belonging to different industries it is perhaps possible to make a broader consideration. Hypothesizing that the results of empirical analysis are equal to those obtained if I had taken into account all US firms and such a conclusion comes as no surprise to authors of the literature in the field, who with empirical analysis have demonstrated the correlation between CEO Pay and earnings management.

Instead, if we consider MODEL 2, the situation is the opposite one. In fact, if it was possible to burden the observations made about the sample to all the US companies, the manipulation activity actuated by managers would be ineffective and however directed to get a lower compensation.

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