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Title	Modeling Stock Option Contracts – Evidence from Spain
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Modeling Stock Option Contracts – Evidence from Spain

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Abstract

Few issues in modern corporate governance have received as much attention lately as executive compensation. This research deals with a highly controversial yet widespread practice in executive pay: stock options plans. Are stock options the answer to efficiently align incentives, bridging the gap between cash-flow rights and control rights? A design that delivers that goal proves crucial. This study aims to contribute to the current debate on such a heated corporate governance issue by presenting a systematic analysis of stock option design in Spanish largest and most liquid companies, out of the entire population of the *Ibex 35* stock market index. The specific design variables to be examined are strike price, vesting period, maturity, repricing and trading restrictions. A blend of the optimal contracting and the managerial power approaches are applied to explore for significant deviations from the incentive-alignment paradigm. Finally, panel data analysis is conducted to identify potential relationships between the above mentioned variables and risk-adjusted returns for *Ibex 35* firms with stock option plans.

Keywords: Corporate governance; Incentive-alignment; Stock options; CAPM

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List of Acronyms

APB Accounting Principles Board

BoDs Board of Directors

CAPM Capital Asset Pricing Model

CEO Chief Executive Officer

CNMV Comisión Nacional del Mercado de Valores

EFRAG European Financial Reporting Advisory Group

EONIA Euro Overnight Index Area

EPS Earning per Share

EU European Union

FASB Financial Accounting Standards Board

IASB International Accounting Standards Board

IRPF Personal Income Tax (Spain)

LES Ley de Economía Sostenible

LSA Ley de Sociedades Anónimas-Texto Refundido

LSC Ley de Sociedades de Capital

ROE Return on Equity

SARs Stock Appreciation Rights

SEC U.S. Securities and Exchange Commission

SIBE Sistema de Interconexión Bursátil

SO Stock Options

US United States of America

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1. Introduction

Business, academia and regulators alike continue to praise corporate governance as a crucial element in promoting sound and trustworthy firms. Solid, reliable governance practices are strategic assets for firms to compete, not least as many struggle to rebuild trust following the 2007-08 financial crisis. Executive compensation remains a pillar of modern corporate governance, and as such, a highly relevant field of research, with profound theoretical and managerial implications.

Executive compensation relies heavily on equity-based systems, so as to tie managers' wealth to firm value. A stock option plan is one way to secure that linkage, grating employees a contingent share of ownership. Such a system allows designated employees to benefit financially in the appreciation of their employer's stock through the purchase of an ownership interest in the business.

Many believe employees' motivation is enhanced when they hold stock in the company they work for. When that equity holding is part of the compensation package, the contract design deserves special attention, as it reflects the firm's ability –and willingness- to align incentives, particularly in so far as linking pay to performance. Admittedly, executive stock options (hereinafter simply referred to as stock options) have earned a reputation for rent extraction by managers at the expense of shareholders, as contracts have often been shaped in a way that encourages management to show steep earnings growth, which in turn cultivates undue risk taking and even fraud. Contract design is therefore expected to play a central role in avoiding this short-termism and creating longer-term value.

Incentive contracting is set to align the economic interests of employer and employee -or principal and agent when viewed through the lens of agency theory (Jensen and Meckling, 1976). Shareholders' (principals') goal is to see the value of their stock holdings increase, and granting stock options is one way of inducing managers (agents) to focus on that goal, by sharing in the stock price appreciation gains according to their respective holdings.

Compensation systems largely serve three functions: compensating employees for completed work, reducing principal-agent costs by more closely aligning managers' interests with those of shareholders, and recruiting or retaining management. Stock options might not be the most efficient form of compensation to achieve all three goals yet their comparative advantage arguably lies in their ability to align incentives.

The ultimate purpose of granting stock options is therefore to align management's interests with shareholders', alleviating the agency problem in the sense of Jensen and Meckling (1976). And given the informational advantage from running the firm that managers are likely to enjoy over shareholders –more so in large, dispersed ownership companies-, closing that gap remains critical to prevent undue transfers of rent, usually at the expense of stockholders and debtholders.

Despite stock options accruing mounting criticism -heavily blamed for de-linking pay from performance-, they have been fairly popular among Spanish large capitalization firms, accounting for a significant share of the executive compensation package. Building on such relevant role in executive pay practices,

this research joins the debate around the efficient design of stock option contracts.

The document is organized as follows: the next section (2) states the overall purpose of the study, research questions, units of analysis and expected contribution. Section 3 presents the conceptual foundations on which the study builds, while section 4 focuses on option-based compensation, from its rationale to its current role in executive pay. Section 5 reviews the relevant literature that makes for the theoretical framework of the study, identifying the research gap that leads to the research questions, which are revisited. Section 6 discusses the methodology applied to explore potential answers to those research questions. In section 7 the data collected are presented. Section 8 offers a critical review of the stock option contract design in the sampled firms. Section 9 analizes the data, and discusses the findings resulting from applying the chosen methods to carry out the analysis on the data collected. Section 10 provides an overview of the Spanih regulatory framework, while section 11 addresses the controversial accounting treatment of stock option plans. Finally, conclusions, along with theoretical and managerial implications, limitations and further research are discussed in section 12.

2. Research Purpose and Reserch Questions

This study consists of a systematic analysis of stock option design in the companies listed in the Spanish *Ibex 35* stock market index. The unit of analysis is therefore the stock option plan –in many cases the different plans- granted by such companies.

The research purpose is twofold: first, it aims at identifying those contractual features that give raise to potential agency problems by deviating from the incentive-alignment paradigm. The incentive-alignment drivers to be examined are strike price, vesting period, option maturity, option repricing and trading restrictions following option exercise. Building on that evidence, a two-step panel data analysis is conducted to first identify and measure the impact of stock option plans on risk-adjusted returns, and then break down that impact for each of the design variables mentioned above, testing out their contribution to risk-adjusted returns. The underlying rationale is that increased incentive-alignment leads to higher risk-adjusted returns.

Executive compensation in this study refers to the pay package designed for managers and board members of large publicly traded companies in Spain, using the *Ibex 35* index as proxy for such firms.

Granting stock options is a widespread compensation practice, making for a relevant share of executive pay in competitive labor markets. Popularity came along with high doses of criticism, largely on grounds of stock price manipulation aiming at timing the option exercise to maximize utility for the beneficiaries at the expense of shareholders. A significant share of the literature review builds on evidence from the United States of America (U.S.), where stock options developed into an almost standard variable compensation component, extensively used to attract and retain talent. In Spain, this pay system was adopted by several large, listed companies towards the end of the 90s, with decreasing enthusiasm since the mid-2000s. A number of reasons, including tax

incentives, can help explain such trajectory, yet this study claims that the perceived de-linkage between pay and performance that stock options might exacerbate, has undermined this pay practice –worldwide, including Spain.

It is indeed the extensive, ongoing debate around stock option plans providing compensation arguably disconnected from performance that accounts for the relevance of this study.

The main research question addressed the gap in the literature identified in section 5, reflecting the purpose stated above:

- How effectively do *Ibex 35* stock option contracts align shareholders' and executives' incentives?

The explanatory power of the optimal contracting and the managerial power approaches are used to tackle the driver question of this research. A complementary question reconnects the empirical study on the back of the question above, to the theories that inform the design of stock option contracts:

- What mix of optimal contracting and managerial power can be identified in *Ibex 35* stock option grants?

Hence this research aims at providing empirical evidence on the interplay of optimal contracting and rent extraction –managerial power- in the pay setting process –and outcome- in the large capitalization firms that make the *Ibex 35* index.

From the proposed agency theory perspective, the correlation between risk-adjusted returns and contract design is tested to explore whether the five

contractual terms under analysis relate to improved principal-agent alignment as measured by increased risk-adjusted returns.

The causality implied in this study is that increased incentive-alignment cuts down agency costs by reducing monitoring expenditure along with the residual loss arising from conflicting management-shareholder objectives, therefore translating into higher risk-adjusted returns. The business case for stock options as an efficient corporate governance mechanism requires those higher risk-adjusted returns from aligned incentives to surpass the cost of granted options.

This research is empirical and positive in nature, aiming at making an original contribution to the executive compensation literature, with managerial implications potentially informing the design of stock option contracts. A normative stand is occasionally unavoidable, arising from the confrontation of the optimal contracting and the managerial power approaches.

3. Corporate Governance and Executive Compensation

3.1 Corporate Governance - Conceptual Framework

Monks and Minow (2011) provide a comprehensive definition of corporate governance, stating that it is the system by which businesses are directed and controlled, balancing out rights and responsibilities across different participants in the corporation. Most definitions indeed come to the conclusion that corporate governance is the distribution of rights and responsibilities among stakeholders in the firm.

Good corporate governance practices have a measurable economic value –e.g., lower premiums in corporate financing, increased leverage capacity, reduced price volatility- and should therefore be considered as a critical input in managerial decision-making, from overall corporate strategy to daily operational matters. In other words, corporate governance is likely to be a valuable intangible asset and a potential source of differentiation in today's competitive marketplace.

In their influential book, Monks and Minow (2011) further claim that 'good' corporate governance simply means that structures and processes are in place to ensure that directors have the ability to objectively and effectively assess management and corporate performance.

While poor corporate governance does not always correlate to pay practices delinked from performance, it could be argued that good governance is typically a prerequisite that unlocks optimal compensation schemes, aligning the interests of owners and managers. A key question then arises: What is it meant by 'good governance' when it comes to compensation? As Ferrarini and Moloney (2004) suggest, 'good governance' should ensure that shareholders stay in control of the pay-setting process, through actions such as the set up of compensation committees, or the appointment of independent directors, so as to enhance board oversight of management.

Corporate governance is undoubtedly a relevant tool for monitoring performance and boosting firm value. Its ultimate goal could be defined as to strike a balance between the control rights of agents and the cash-flow rights of principals,

aligning them towards value creation and avoiding rent extraction –in either direction- arising from asymmetry of information and potentially conflicting interests.

As stated by the revised version of the *OECD Principles of Corporate Governance* (2015), the link between compensation and firm performance is of particular relevance. Shareholders should be properly and timely informed of management remuneration so as to be able to assess the contribution of pay and incentives schemes –such as stock options plans- to firm long-term performance.

Similar rationale inspired the Dodd-Frank Act (*Dodd-Frank Wall Street Reform and Consumer Protection Act*) passed in 2010 in the United States, that provides shareholders with advisory votes on executive compensation -generally known as 'say-on-pay'-, both on the pay proposal as well as on the frequency of this 'say-on-pay' consultation. Such practice has since been followed by multiples countries, including Spain, where amendments to its *Ley del Mercado de Valores* introducing say on pay were triggered by the broader *Ley de Economía Sostenible (LES)*, passed in February 2011, and recently updated by the *Ley 31/2014*, which modifies the *Ley de Sociedades de Capital (LSC)*. A more detailed discussion on this matter pertains to section 10.

3.2 Executive Compensation

When companies set pay structures, they typically do so by setting the range, that is, defining the compensation for the highest- and lowest-paying jobs before filling in remuneration for the jobs that fall in between.

As stated by McPhie and Sapin (2006), the executive compensation package is usually made up of a mix of the following components:

- *Base pay*, not contingent on performance, for the core role and responsibilities of the day-to-day running of the organization. In countries like the U.S., this amount is often less than one million US dollars when not linked to performance measures, as tax restrictions are imposed on 'excessive' compensation -non-performance based pay over 1 million US dollars is not tax deductible. A claim followed, somehow paradoxically, blaming this ban for a hike in executive pay, pushing cash compensation towards the one million US dollars cap.
- *Annual bonuses* for meeting yearly performance objectives
- *Long-term incentive payments* for meeting performance objectives to be achieved typically over a two- to five-year period. These awards are likely to take the form of performance shares, performance units, or long-term cash incentives.
- *Restricted stock awards* as an incentive to fuel employee ownership culture.
- *Stock options and stock appreciation rights (SARs)* for increasing long-term firm value by inducing managers to remain aligned with the interests of shareholders. Up until recently, options enjoyed a very favorable accounting treatment, a highly controversial issue that is resumed in section 11. Option grants are always shown as a number of shares underlying the option.

Although typically excluded from pay calculations, executive benefits and perquisites are also part of compensation agreements:

- *Supplemental executive retirement plans,* designed to make up for the difference between regular income during office term and actual pay after retirement, for the executive to maintain a comparable lifestyle.
- *Executive insurance plans* that provide a source of retirement income and a richer death benefit for the executive's family. These plans are used to guarantee retirement benefits from bankruptcy.
- *Miscellaneous executive perquisites* and other compensation for various programs or negotiated deals that do not properly fit into the above categories, including perks such as country club dues and financial planning. These are often small numbers that disclose imputed income amounts for those additional special benefits, but can also include some very large amounts for items such as loan forgiveness, special insurance programs, or relocation expenses, among others.

In most jurisdictions, listed companies are required to submit public filings disclosing the above mentioned items. Contrary to this dominant case, executive compensation is disclosed in a more aggregated manner by Spanish firms. Financial statements and annual corporate governance reports of Spanish publicly traded companies offer valuable insights into overall pay practices but the breakdown –i.e., what proportion comes from salary, bonus, stock options, retirement plans, perquisites, etc.- is only given for the Board of Directors –both for executive and non-executive directors. This enforcement, driven by the *Ley 31/2014* that modified the *LSC,* was further regulated by the Spanish stock market watchdog *(Comisión Nacional del Mercado de Valores, CNMV)* and also incorporated to the Spanish Corporate Governance Code of 2015 (principle #25, together with recommendations #50 and 56-64). Such moves towards increased

transparency was fueled by the European Commission, and articulated in multiples recommendations, among which the so-called *Green Paper* on the European Union Corporate Governance Framework, issued in April 2011, was particularly influential. This improved accountability –not only to shareholders but to society at large- makes the pay to performance link easier to monitor, while second-order efficiency gains arise from the market for executives, following benchmarking of pay size and components across firms.

The wave of criticism executive compensation is rising can be readily explained by some astonishing figures. According to inflation-adjusted data extracted from Standard & Poor's Execucomp Database, from 1978 up to the cut-off date of this study (2013), CEO compensation in the U.S. increased by 937 percent, doubling the averaged growth of the U.S. stock market and feeding a wave of resentment and increased activism when that number is compared to the 10.2 percent growth of the average American wage over that time window. In absolute figures, this relationship reveals an striking –an ashaming to most- contrast: the average total CEO pay in the U.S. in 2013 was nearly 260 times that of the average worker, while the same multiple was about 20 times in the mid 1960s. Mounting media, shareholder and society at large activism, led to the passing of a pay ratio disclosure requirement, ruled by the U.S. Securities and Exchange Commission in early August 2015. The debate is unlikely to cool down, as listed companies prepare themselves to make this very controversial relationship public starting in 2018.

The above cited Monks and Minow (2011) wisely advise to look at executive compensation as an investment opportunity. Such claim is indeed twofold: on the

one hand, money paid as compensation should yield a given return on investment, when human capital is considered as just any other asset. On the other hand, the authors claim that the compensation plan is a clear indicator of the firm's value as an investment, as it reveals what the company's goals are and how confident both the CEO and the Board are about the future. An investor allocating stocks in her portfolio would therefore be highly interested in knowing whether the company has an incentive scheme that aligns the interests of management and shareholders.

Corporate success could certainly be tied to, and partially explained by, the annual and long-term incentive payouts laid down in labor contracts. If there are large gains from stock option exercises and substantial amounts in both vested and unvested options, the stock price appreciations that make those options have positive intrinsic value, are likely to signal a profitable, well-managed firm.

4. Option-based compensation

4.1 Option contracts: Some Preliminaries

An option is a contract giving the owner the right, but not the obligation, to buy or sell a given quantity of an asset at a specified price at some time into the future. Such option is a derivative -or contingent claim- security: its value is derived from its relationship with the underlying asset. An option to buy the underlying asset is a *call*, and an option to sell the underlying asset is a *put*. Buying or selling the underlying asset via the option is known as exercising the option. The stated price paid (or received) is known as the *exercise* or *strike price*. In options terminology, the buyer of an option is frequently referred to as

the *long* and the seller of an option is referred to as the writer of the option, or the *short*.

The option owner would only exercise her right to buy/sell the underlying asset if that is to her advantage, namely if she can make a profit. This right to exercise the option for a gain has a price, or *premium*, paid by the buyer to the writer (seller) of the option contract.

Stock options are call options written on the company's own stock. A stock option gives the recipient (the 'optionee') the right to buy a certain number of shares in the granting company under certain conditions agreed upon in the option contract.

4.2 Basic Option Pricing Relationships

For call options, the time T expiration value can be stated as:

$$C_T = Max\ [S_T - E;\ 0]$$

where:

C_T denotes the value of the call at expiration

S_T is the expiration date spot price of the underlying asset (the company's own stock)

E is the exercise price per unit of underlying asset, and

Max is an abbreviation for denoting the maximum of the arguments within brackets

A call option with $S_T > E$ expires 'in-the-money' and it will be exercised. If $S_T = E$ the option expires 'at-the-money', yielding no profit. If $S_T < E$ the call option

expires 'out-of-the-money' and will not be exercised. As denoted in the equation above, an option never carries negative value since if out-of-the-money, the option holder would not exercise her right but let it expire worthless, or with zero value.

Figure 1 below graphs the call option pay-off from the buyer's perspective. The call buyer can lose no more than the call premium paid but has an unlimited profit potential. Yet it should be stressed that executive stock option holders neither pay a premium nor can trade the rights they hold, hence stand to profit if the share price at vesting is above the strike price –contingent on exercise hurdles, if any- while stand to make no profit when the share price at vesting is below the strike price, in what is called the 'all or nothing' feature of traditional stock options.

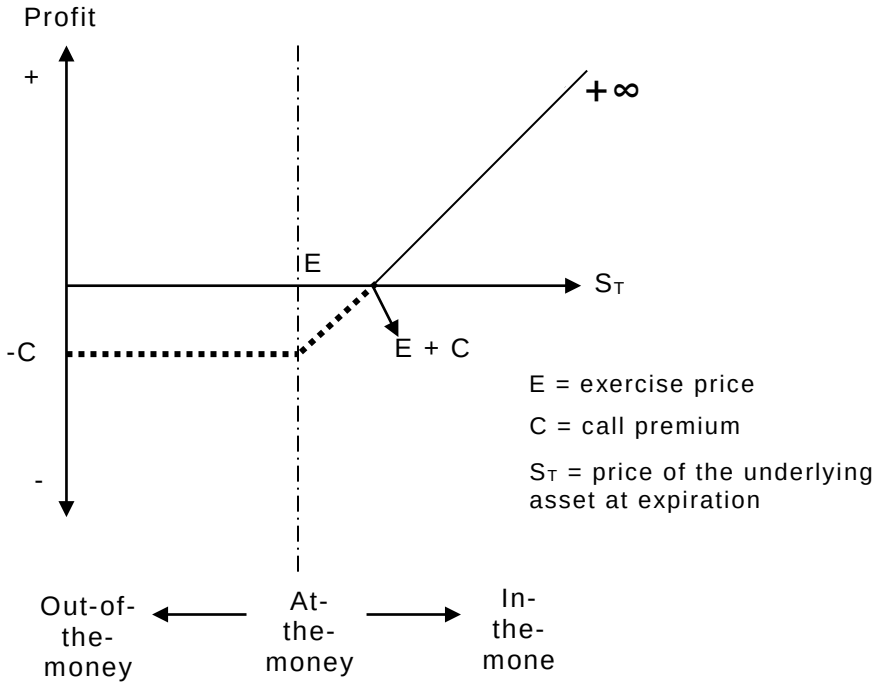

Figure 1 – Call option pay-off: buyer's perspective

Source: Own elaboration

4.3 Stock Option Dynamics

Theoretically, stock options are intended to reduce the agency costs arising from the separation of ownership and control (Bebchuk and Fried, 2003). Managers – the agents, hired to run the company- may be tempted to self-serve and pursue different interests than shareholders –the hiring principals- and thus sometimes act differently than shareholders would want them to. But if a sufficient portion of managers' pay is tied to firm value by means of stock ownership, those agency costs should be reduced. One way to induce managers to act as owners is to grant them stock options that, as a matter of fact, turn them into owners upon exercise.

Typically, stock options are issued at-the-money (strike price equals stock price on grant date), with a time to maturity of up to ten years, and a certain vesting period. The vesting period may last from several months to several years, during which options cannot be exercised. Following this exercise pattern, executive stock options are typified as Bermuda options, implying the existence of a deferral period in which they cannot be exercised. After vesting, most stock options become American options in that they can be exercised any time before maturity, while others still follow a predetermined set of exercise windows through maturity.

As previously stated, the exercise price (also called grant or strike price) is often set as the market price of the underlying stock at grant date. Gains are eventually collected as the difference between the stock price and the strike price, should the former end up above the latter (in-the-money options) by the time of exercise. Conversely, if the market price of the underlying stock falls below the exercise price, the option is said to be out-of-the-money, or *underwater*.

A recurrent criticism of stock options found in the executive compensation literature and summarized by Damodaran (2005), points at the mismatch between their value for the granting firm –when measured as the opportunity cost of writing similar options to the open market- relative to the value for the optionee –who bears the constraints proper of executive stock options, largely arising from their non-tradability and vesting conditions. However, when their opportunity cost is measured relative to their market value as if they were financial options, the comparison would not hold on grounds that stock options are simply not financial options. Even when pricing stock options adjusting for the constraints that undermine their value, it could well be the case that such price is higher than the perceived value for the optionee –the price she would be willing to pay for them. Yet the value potentially forgone by the firm when granting stock options should be balanced out against the gains in terms of employee attraction, retention and motivation. Such intangibles, although challenging to measure, speak for the distinctive features of option grants and are often the very reason why stock options are chosen as compensation mechanism.

According to option pricing theory, options are more valuable the more volatile the underlying stock is (Black and Scholes, 1973). When a company takes on risky projects, it becomes riskier, thereby increasing the volatility of its share price and the value of corresponding stock options. However, this might be in direct conflict with shareholders' interests who, other things being equal, prefer stable cash flows. Stock options that are intended to get managers and shareholders aligned towards the same goal could end up rendering the opposite effect.

Gervais, Heaton and Odean (2003) counter argue based on agency theory core assumption, namely that managers are likely to behave more conservatively than it is in the best interest of shareholders because managers' wealth is tied to the firm. They claim that stock options mitigate this problem by rewarding managers when the firm's share price goes up but not punishing them when it goes down. Even if their claim depends on the subjective risk-preferences of managers and shareholders, it holds under risk-aversion assumptions. If the company undertakes risky ventures, shareholders can hedge or diversify away that risk against other risks that they hold in their portfolios. Conversely, managers do not have a portfolio of employers but have their human and financial capital tied to the company, what may deter them from taking those risky projects that provide superior returns to shareholders. Stock option contracts are likely to encourage managers to take those risks.

These arguments, that conceptually frame this research, are further discussed in Section 5.

4.4 A Snapshot at Current Practices in Executive Pay

As noted earlier, executive compensation in this study refers to the pay package designed for managers and board members of large publicly traded companies. Following mainstream agency theory, the interests of these managers may diverge from those of shareholders, both because the former do not capture all the rewards of their efforts as well as the latter are typically unable to fully monitor the actions of the agents. An executive compensation package may therefore emerge as an effective corporate governance mechanism to more closely align those interests. When part of the executive pay is tied to firm value

through equity-based compensation, i.e. placed 'at risk', the executive is more likely to behave as a shareholder –what she indeed would eventually be as a result of her pay package-, pursuing long-term maximization of firm value.

Equity-linked compensation has been praised for boosting stock prices and therefore the value of the 'retain and reinvest' strategy that has largely shaped the corporate landscape. Among equity-based systems, stock option awards rapidly became an extended practice. With the stock market on the rise, gains from the exercise of those options and the holding of stock turned out to be increasingly important components of top managers' income. The explosion in executive pay remains largely unabated, even in the aftermath of the 2007-08 global financial crisis, as stock-based rewards are still a key component of the pay package.

The extended bull market of the 1990s further levered stock option programs widely adopted by large companies –mostly in the U.S. but also in the U.K., Continental Europe and beyond- to yield unprecedented gains for option holders. Even when the bull market receded, and was eventually replaced by the global financial crisis that broke out in 2007-2008, most stock option plans remain in place and so is the debate around their contractual design.

Despite aimed at better aligning managers' and shareholders' interests, equity-linked compensation could create opportunistic behavior where managers pursue personal interests at the expense of shareholders'.

One way to avoid such a threat would be by clearly laying down the purpose of the stock option plan: is it intended to give all employees stock in the company or rather some, namely executives? Does the company wish to promote long-term ownership or is it a one-time benefit? Is the plan meant to create employee ownership or is it simply an additional benefit? The answers to these questions would prove crucial to design truly incentive-alignment contracts, a first-order concern in corporate boardrooms over which this study expects to shed some light.

The boundaries of this research are illustrated in the figure below, in an acid-test fashion: the study begins by revisiting modern corporate governance with a focus on compensation, narrows down the analysis to discuss executive compensation as a major governance mechanism and joins the debate around the design of stock option contracts.

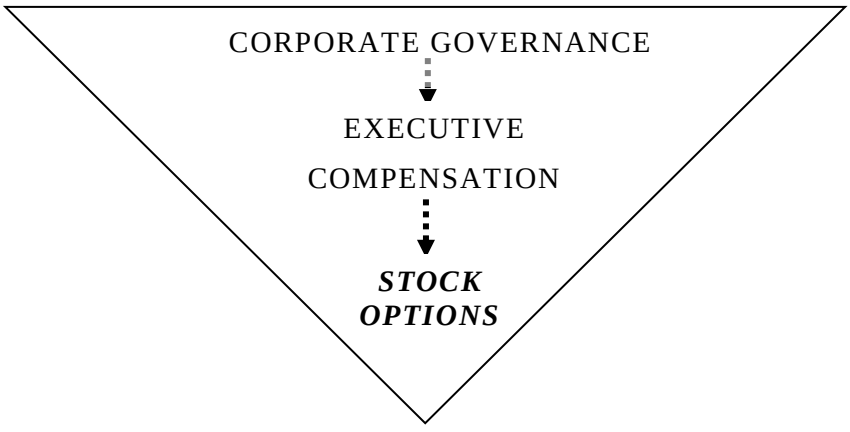

Figure 2 - Acid-test approach of the study

Source: Own elaboration

5. Literature Review, Research Gap and Research Questions Revisited

The dilemma lying at the very heart of recent corporate scandals was first identified by Adam Smith in the 18th century, and further discussed by Berle and

Means in their seminal work *'The Modern Corporation and Private Property'* (1932). They attribute the conflict of interest that leads to the so-called agency costs to the wide dispersion of shareholders that paves the way to increased managerial power.

Yet the ultimate theoretical foundation of this study is provided by the contractual theory of the firm. The modern theory of the firm as a nexus of contracts originated in Ronald Coase's (1937) insight that firms exist as less costly alternatives to market transactions. In a world of zero transaction costs, economic coordination would be achieved entirely by means of contracting among individuals in a free market. However, because of the costs of negotiating and enforcing contracts, some coordination can be achieved more cheaply through firms.

This network of contracts is likely to give raise to conflicting interests. These conflicts, that arise when people engage in cooperative endeavors, are potentially due to self interests, as agency theory postulates (Jensen and Meckling, 1976). The fiduciary duties embedded in this agency relationship link one party that owns the asset (the principal) to another (the agent) that should manage it in the principal's best interest. Because such potential conflicts of interest cause problems and therefore losses to those involved, the parties themselves have a strong motivation to minimize these so-called agency costs. As pointed out by Jensen (1994), the conservation of value principle is the basic force that motivates both principal and agent to minimize the sum of the costs of writing and enforcing implicit and explicit contracts through monitoring and bonding.

This structure of principal and agent may be readily applied to model corporate relationships, clearly those of shareholders (principals) and managers (agents). Their misalignment of interests reaches its peak in large, publicly traded companies, where dispersed ownership leaves individual shareholders with only a fractional interest in the firm's profits. In such companies, rational-apathy induces shareholders to loose monitoring of managers, on top of actually having limited opportunities to observe management's actions. Under the assumption that monitoring is costly and imperfect, the agent has an incentive to consume perquisites so long as she owns less than 100 percent of the firm (Jensen and Meckling, 1976; Fama and Jensen, 1983). This is because she gets all or most of the benefits from the perquisite but bears potentially no cost –or only a fraction through her ownership claims, if any. Under this agency-driven incentive model, agency costs are mitigated when the risk-averse manager increases her stockholding, so she internalizes the cost of the perquisites consumed. Linking compensation to performance, for instance through stock option plans, is viewed as an efficient means to prompt managers to increase their share of ownership in the firm and deter the consumption of perquisites –as their costs are now internalized-, hence act as owners, aligned behind maximizing firm value.

Executive compensation, when opting for equity-based formats, is likely to face a moral hazard problem: inducing managers to perform ('problem of effort') and align them with shareholders by taking more risk yet at the same time preventing them from taking too much risk. Indeed equity-based pay schemes have been recurrently blamed for prompting managers to excessive risk-taking. This study casts doubts on such a generic statement as it would imply that equity holders are largely risk prone by nature. Conversely, and in line with the purpose of this

research, inducing managers to take the right level of risk –as expected by shareholders, so as to create both firm and societal value- is largely a function of the design of compensation contracts. And equity-based pay –particularly stock options- could be instrumental in promoting effort so long as efficient incentive-alignment mechanisms are built in the contract. So it is eventually a matter of design.

Sepe (2011) has further criticized equity incentives arguing that they lead to problems of overinvestment. Asset substitution or overinvestment refers to the transfer of wealth from creditors to shareholders resulting from the undertaking of high-risk, high-return projects when the company has outstanding debt. The limited liability corporation leaves debtholders bearing most of the risk, while shareholders would reap the lion's share of the benefits risking only up to the value of their equity. Share-based incentives, to the extent that they fuel managers' risk appetite, would serve shareholders' interests. Sepe further claims that, particularly following the recent financial crisis, credit providers are likely to discount such behavior and raise the cost of capital for all debtors, leading to an inefficient allocation of debt capital, harmful to society at large. While acknowledging that overinvestment is indeed a potential side effect embedded in equity-based compensation, it can be argued that such risk is contingent on the firm's capital structure. Additionally, tools such as increased disclosure and/or covenants addressing the risks posed by dubious borrowers would help creditors discriminate and improve asset (debt) allocation, without penalizing all debtors – and without demonizing equity incentives. Covenants may however come at a high opportunity cost for the firm as they might limit management discretion in the allocation of assets. Yet the choice of pay package is subject to multiple

variables across firms –hence company-specific- and certainly entails trade-offs –neither a 'one size fits all' nor such thing as a perfect compensation contract exist. It should also be noted that when fixed pay replaces equity-linked compensation, risk-averse managers are likely to become excessively conservative, which is as well harmful to the firm and eventually to society at large.

Equity-linked compensation contracts are likely to materialize the pay-for-performance aspiration that emerged as the optimal response to the 'effort problem' and in turn as key mechanism for solving the manager-shareholder agency problem. When financial rewards are guaranteed –through salary and other forms of fixed compensation-, managers have no reason to bear the cost imposed by taking more effort. In contrast, when pay is anchored to successful firm performance, managers become as interested in profit maximization as shareholders –a situation that induces them to exert the optimal amount of effort (Sepe, 2011).

The recent financial crisis has triggered a shift in focus in the executive compensation literature, from the problem of effort to the problem of risk. Yet inducing both effort and the optimal level of risk remain at the core of the pay setting process. This shift in the focal point of the literature should not compromise the preeminence of the principal-agent framework in capturing the need to align managers' and shareholders' incentives for the long run, a need equity-based labor contracts may well serve. Yet as stressed throughout this study –and extensively acknowledged by scholars and practitioners-, the problem

with diverging incentives is one of form –namely design- rather than level, of executive pay.

5.1 The Finance Model of Corporate Governance

This study follows the *finance* approach to corporate governance. In a Berle-Means world where ownership is divorced from control, managers hired by owners might systematically make choices that are not in the latter's best interests.

In this model, the central problem in corporate governance is constructing rules and incentives (that is, implicit or explicit 'contracts') to effectively align the behavior of managers (agents) with the preferences of principals (owners).

The finance view of what is wrong with the governance system holds that shareholders do not have enough control or influence over management and as a result companies underperform in value creation –to shareholders and stakeholders at large-, while executives enjoy lavish perquisites.

Managers may have significant incentives to act contrary to the interests of owners in ways that are more complicated than simple greed. For example, owners can diversify their personal risk by buying stock in several firms across several different industries. Managers, whose income depends heavily on the performance of a specific firm in a specific industry, cannot so easily diversify their risk. Consequently, managers may naturally be more conservative and less risk-taking in their actions than owners might like –see Gervais, Heaton and Odean (2003) in section 4.3 above.

According to the finance view of corporate governance, solving these and other agency problems requires adopting appropriate incentive systems. The finance model is rooted in the separation of ownership and control and relies on the explanatory power of agency theory. A critical review of such a conceptual framework follows.

5.2 Reflecting on the separation of ownership and control

Diffuse ownership is admittedly the outcome of a natural economic evolution. Even though owners would prefer to manage their own ventures and reap the maximum utility for themselves, enterprises often grow beyond the means of a single owner. The separation of ownership and control is thus the dominant feature of the modern corporation.

Although separation of ownership and control is currently in the spotlight, it is arguably functional, as it allows skilled managers without capital to run the firm in lieu of owners that may lack those managerial skills.

The massive disassociation of wealth from active management peaks in the publicly held company and is turning corporate governance on its head: stockholders, the owners, appear to become powerless (Wells, 2010). The paradox in the public corporation is that stockholder activism is of diminishing impact as the number of shareholders increases. Because of atomization, an active shareholder cannot capture all of the gain from becoming involved, monitoring performance or even sitting on the board of directors. Such a shareholder would incur the costs but split the gains, causing other fragmented shareholders to rationally forgo involvement. In the language of modern

economics, there is a *collective action* problem among shareholders –despite the potential gains to shareholders as a group, it is rational for each stockholder, when acting alone, to do nothing, because each would get only a fraction of the gain, which accrues to the firm and all stockholders. As a result, corporate wealth is likely to be held as a 'passive' investment, tempting managers to divert and pursue their own interests.

In spite of fragmented ownership problems causing a shift of power to top management at the expense of shareholders, the survival of the public firm as an organizational form is not threatened. Firms with dispersed shareholders have survived because organizations have adapted, solving enough of the governance problems of the large corporation structures that technology and capital needs created. The advantages of economies of scale and professionalized management are likely to offset those organizational costs should managerial discretion be less than absolute. To achieve that goal, incentive contracting should be in place to narrow the gap between managers' and shareholders' aims. Alternatively, competition –in product markets, managerial labor costs, and capital markets- are likely to reduce the severity of occasional managerial opportunistic behavior. Hostile takeovers, proxy contests and the very threat of each further discipline managers. Yet fixing such prospective deviations internally –and *ex ante*- should be preferred –and cost-effective for all involved- to an *ex post* market-driven response. Managerial incentive compensation, materialized in the design of the labor contract, may turn out to be an effective tool to mitigate principal-agent problems.

The core hypothesis in the separation of ownership and control literature is then that profitability is a positive function of ownership concentration by obviating the divergence of interests between self-dealing managers and value-maximizing owners (Gedajlovic and Shapiro, 1998). One way to achieve managerial ownership –and therefore bypass this conflict- is granting employee stock options. Additionally, stock options have a non-trivial time effect embedded, as deferred vesting potentially stretches that bonding feature of managerial ownership into the future.

5.3 Agency theory: origins, assumptions and limits

As previously stated, the modern corporation typically has multiple owners, each aiming at maximizing her investment in the enterprise.

In the agency framework, owners become principals when they contract with managers to run their firms for them. As an agent of the principal, a manager has a fiduciary duty to maximize shareholder utility. However, executives might accept agent status on grounds of potential opportunities to maximize their own utility (Roe, 1994).

The logic underlying agency theory is that of a rational actor who seeks to maximize his or her individual utility (Jensen and Meckling, 1976). Both agents and principals seek to receive as much possible utility with the least possible expenditure.

If the utility functions of self-serving agents and principals coincide, there is no agency problem; both agents and principals enjoy increases in their individual

utility. Agency costs are incurred by the principals when the interests of principals and agents diverge, because given the opportunity, agents would rationally maximize their own utility at the expense of the principals'. The chance that agents do not share the same interests and utility choices as their principals is substantial. According to agency theory, it is difficult for principals to know *ex ante* which agent would self-serve, and so it is prudent for principals to limit potential losses to their utility (Williamson, 1985).

Because the unit of analysis is the contract governing the relationship between the principal and the agent, the focus of the theory is on determining the most efficient contract governing such relationship, given assumptions about people (e.g. self-interest, bounded rationality, risk aversion), organizations (e.g. goal conflict among members), and information (e.g. information asymmetry between principal and agent). Specifically, the question becomes: is a *behavior-oriented* contract (e.g. fixed salaries, hierarchical governance) more efficient than an *outcome-oriented* contract (e.g. commissions, *stock options*)?

From its roots in information economics, agency theory has developed along two lines: positivist and principal-agent (Jensen, 1983). The two streams share a common unit of analysis: the contract between the principal and the agent. They also share common assumptions about people, organizations and information. They basically differ in their choice of dependent variable and style.

5.3.1 Positivist Agency Theory

Positivist researchers focus on identifying situations in which principal and agent are likely to have conflicting goals and then describing the governance

mechanisms that limit the agent's self-serving behavior. Jensen (1983) described this interest as "why certain contractual relations arise". The dominant proposition developed by the positivist stream is that outcome-based contracts are effective in curbing agent opportunism. The argument is that such contracts align the preferences of agents with those of principals because the rewards for both depend on the same actions and, therefore, the conflicts of interest between principal and agent are reduced. For example, Jensen and Meckling (1976) described how increasing the firm ownership of managers decreases managerial opportunism.

4.3.2 Principal-Agent approach

Positivist theory identifies various contract alternatives, and principal-agent theory indicates which contract is the most efficient under varying levels of outcome uncertainty, risk-aversion, information and other relevant variables.

The focus of the principal-agent literature is on determining the optimal contract, behavior versus outcome. The simple model assumes goal conflict between principal and agent, an easily measured outcome, and an agent who is more risk-averse than the principal. As stated earlier, the argument behind a more risk-averse agent is that agents, who are unable to diversify their employment, are likely to be risk-averse, and principals, who are capable of diversifying their investments, are likely to be risk-neutral.

In case of complete information –the principal knows what the agent has done-, a contract that is based on behavior is most efficient. An outcome-based contract would then needlessly transfer risk to the agent, who is assumed to be more risk-averse than the principal.

If the principal does not know exactly what the agent does, two aspects of the agency problem may surface. Moral hazard refers to the lack of effort on the part of the agent. Adverse selection refers to the misrepresentation of ability by the agent, misleading the principal. In the case of unobservable behavior, with potential moral hazard or adverse selection scenarios, the principal has two options. One is to discover the agent's behavior by investing in information systems such as budgeting systems, reporting procedures, boards of directors, and additional layers of management. Such investments are set to reveal the agent's behavior to the principal, and the situation reverts towards the complete information case. The other option is to contract on the outcomes of the agent's behavior. Such an outcome-based contract motivates behavior by alignment of the agent's preferences with those of the principal, but at the price of transferring risk to the agent.

The heart of principal-agent theory is therefore the trade-off between (a) the cost of measuring behavior and (b) the cost of measuring outcomes and transferring risk to the agent. The choice of control mechanisms therefore emerges. If the internal control mechanisms –monitoring and incentive compensation- fail, more expensive, external control mechanisms –e.g. acquisitions, divestitures- might come into play to control self-serving managers. Because of the expense of the external control mechanisms to the principal's utility, internal mechanisms are generally preferred (Walsh and Seward, 1990).

Among those internal governance mechanisms, executive compensation plays a central role. If managers receive compensation that is subject to the successful completion of shareholder objectives (e.g. long-term rewards tied to firm

performance), they will be motivated to behave in a manner consistent with stockholders' interests. Those incentive schemes are desirable when the agent has a significant informational advantage and monitoring proves either too costly or next to unfeasible. Such is often the case in the large (listed) corporation that issues stock options to align conflicting interests.

All in all, agency theory provides a solid rationale to explain relationships where the parties' interests can be brought into alignment through proper monitoring and a well-planned compensation system. Additional theories would be needed to explain other types of human behavior. A relevant alternative approach is that of stewardship theory, summarized below.

5.4 Alternative Views on Corporate Governance and Executive Pay

5.4.1 Agency Theory versus Stewardship Theory

Agency theory is widely applied to understand the conflicts of interests that are likely to arise between principals and agents, the resulting potential problems of opportunism, and the mechanisms developed to contain it, such as supervision and incentives. However, organizational relationships might be more complex than those captured by agency theory. An alternative model of managerial motivation and behavior is stewardship theory, which is derived from psychological and sociological roots.

5.4.2 Stewardship Theory

Stewardship theory has its roots in psychology and sociology and was developed to examine situations in which executives, as stewards, are motivated to act in the best interests of their principals (Donaldson and Davis, 1991). In stewardship

theory, the model of man is based on a steward whose behavior is ordered such that pro-organizational, collectivistic behaviors have higher utility than individualistic, self-serving behaviors. Thus, even where the interests of the steward and the principal are not aligned, the steward places higher value on cooperation than defection, to put it in game theory terms. Because the steward perceives greater utility in cooperative outcomes and behaves accordingly, her behavior can be considered rational.

Stewardship theorists assume a strong relationship between the success of the organization and the principal's satisfaction. A steward maximizes shareholder value through firm performance, because, by so doing, the steward's utility functions are maximized.

This view does not imply that the steward lacks ambition or personal aspirations. The difference between the agent and the steward lies in how those aspirations are materialized. The steward realizes the trade-off between personal and organizational objectives and believes that by working towards organizational, collective ends, personal aspirations materialize. The steward's opportunity set is therefore constrained by the perception that the utility gained from pro-organizational behavior is higher than the utility that can be gained through individualistic, self-serving behavior.

With stewardship arguably preferable to principal-agent, why is not there always a steward relationship rather than an agency relationship? The answer likely lies in the risks that principals are willing to assume. In the governance contract between owners and managers, owners must decide how much risk they are willing to assume with their wealth. Agency prescriptions can be viewed as the

necessary costs of insuring principal's utility against the risks of managerial opportunism (Davis et al, 1997).

5.4.3 The Choice between Agency and Stewardship Relationships

Such a choice is similar to the decision posed by the prisoner's dilemma (Davis et al., 1997). First, it is a decision made by both parties to the relationship. The psychological characteristics of each party predispose each individual to make a particular choice. Second, the situational characteristics have an influence on the choice. The management philosophy and cultural background of each party may also play a significant role in their preferences. Finally, the expectation that each party has of the other will influence the choice between agency and stewardship.

Davis at al. (1997) illustrate the nature of the dilemma in the figure below. When both the principal and the manager choose an agency relationship, the result is a true principal-agent relationship (1) that is likely to meet the expectations of each. When both principal and manager choose a steward relationship, the result is a true principal-steward relationship (4) that is designed to maximize the potential performance of the group. The dilemma occurs when the parties make different choices. If the principal chooses an agency relationship and the manager chooses a steward one (3), the result is likely to be a frustrated manager who feels betrayed by the principal. When stewards are controlled as if they were agents, they cannot enjoy the type of internal rewards they desire (e.g. growth, achievement or self-actualization), and as a result, they may engage in anti-organizational behaviors. Finally, if the principal chooses a steward relationship and the manager an agency relationship (2), the manager acts opportunistically and takes advantage of the principal.

Manager's choice \ Principal's choice		
	Minimize potential costs Mutual agency relationship **(1)**	Agent acts opportunistically Principal is angry/betrayed **(2)**
	Principal acts opportunistically Manager is frustated **(3)**	Maximize potential performance Mutual stewardship relationship **(4)**

Figure 3 – Principal-Manager choice model

Source: Davis et al. (1997)

It should be noted that the choice of agency versus stewardship relationships is likely to evolve over time. Increased trust may lead to a stewardship relationship whereas if one party is betrayed, the inevitable progression of the relationship is towards an agency model.

Although the highest joint utility is in the steward-steward relationship, the least risk of betrayal (losses) is in the agent-agent relationship, in which both parties choose the agency framework. A likely conclusion of the above matrix is that when each party has an individualistic orientation –which is the dominant feature in the Spanish large caps sampled in this study-, the best choice (regardless of the choice of the other party) is an agency relationship. Both this model of choice and the alternative based on determinism (managers are predisposed to self-serve) point at agency relationships as most likely drivers of compensation contracts.

5.4.4 Agency Theory and Transaction Cost

Eisenhard (1988) draws a meaningful parallelism between agency theory and transaction cost theory, pointing at the noteworthy similarities the former has with the transaction cost organizational perspective. They both share assumptions of self-interest and bounded rationality, along with similar dependent variables, that is, hierarchies roughly correspond to behavior-based contracts, and markets correspond to outcome-based contracts. However, the two theories arise from different traditions in economics. Transaction cost is concerned with organizational boundaries, whereas in agency theory the contract between cooperating parties, regardless of boundaries, is highlighted. Yet the most important difference is that each theory includes unique independent variables. In transaction cost theory these are asset specificity and small numbers bargaining. In agency theory they are the risk attitudes of the principal and agent, outcome uncertainty, and information. Thus, the two theories share a similar economic root but each has its own focus and unique independent variables.

5.4.5 Agency Theory vs. Stakeholder Theory: No Need to Fight

This study shares the premise that corporations do not exist solely to provide returns to shareholders. They are to serve a larger purpose. Larger is indeed the proper way to illustrate the co-existence of the idea that corporations should be managed in the public interest alongside the economic purpose of the firm, in line with the 'shared value' proposition developed by Porter and Kramer (2011). The 'shared value' construct implies a re-definition of the concept of value altogether, to be understood as the combination of economic *and* social value, rather than the realization of one at the expense of the other. When the firm fails to meet the needs and expectations of its wider set of stakeholders –beyond

shareholders-, its legitimacy and acceptance in the community –often referred to as 'social license to operate'- is at risk and so the very continuity of its business. So listening to –and meeting- stakeholders' expectations becomes the ultimate means to serve shareholders and optimizing firm value in the long run. Hence both stakeholder and shareholder value are equally legitimate and desirable goals and as such, should drive corporate strategy.

Such rationale could be extended to argue for a peaceful co-existence between agency and stakeholder theories, on grounds of complementary approaches. It is undeniable that the objectives of the company should be attained by balancing out the often conflicting claims of various stakeholders in the firm -managers, workers, stockholders, suppliers, vendors (Ansoff, 1965). Those different stakeholders are linked to the firm through multiple implicit and explicit contracts. According to Charkham (1992) a distinction can be drawn between contractual and community stakeholders, as depicted below:

Contractual stakeholders	***Community stakeholders***
Shareholders	Consumers
Employees	Regulators
Customers	Government
Distributors	Pressure Groups
Suppliers	The media
Lenders	Local communities

Table 1 - Contractual and community stakeholders

Source: Charkham (1992)

Agency theory in turn, points at a much more focused scenario. Within the set of contractual stakeholders, agency theory would target the fiduciary relationship arising from granting control rights over corporate assets. So the explanatory power of agency theory presupposes the existence of someone that owns the asset (the 'principal') and someone that is granted control over such asset (the 'agent'), bound by a fiduciary obligation to the former. An accounting insight is likely to make the point clearer. The left-hand side of the balance sheet displays the firm's investments (corporate assets), that are financed by debt- and equity-holders accounted for in the right-hand side. The latter are the 'principals', that enter into different contractual agreements with managers (the 'agents') when delegating control over the firm's assets. Following the stakeholder view of the firm, 'principals' and 'agents' are stakeholders. But certainly not all stakeholders bear property or cash-flow rights over corporate assets –and are therefore in a position to grant control rights over them.

The dynamics arising from the co-existence of property and control rights over corporate assets are agency theory's arena. By zooming in on the potential conflict of interest to arise between owners and managers, agency theory claims a much narrower focus than that of stakeholder theory. Stakeholder theory has a much broader scope, involving all constituencies that have an interest in the firm. Within those, agency theory focuses on a particular sub-set of stakeholders: those that own corporate assets, relative to those to whom control rights over such assets are delegated. The potentially conflicting interests arising between these two groups of stakeholders are agency theory's concern.

5.5 Agency Theory Applied to Executive Compensation

The choice of compensation mix emerges then as a remedy for the agency costs generated by the misalignment of management's and shareholders' interests in the dispersed ownership company. Contract design and the pay-setting process aimed at fixing agency problems are explained by two at times diverging, at times complementary approaches: 'optimal contracting' and 'managerial power'.

Bebchuk et al (2002) provide a comprehensive and critical review of the executive compensation landscape, bridging theory and practice. They point at 'optimal contracting' as the dominant theory in the executive pay literature. Under this approach, executive compensation practices in large, listed companies are viewed as being designed to minimize agency costs arising in the relationship between executives (agents) and shareholders (principals). To bridge the gap between ownership and control, equity-based compensation –for instance a stock option plan- is granted to reduce the moral hazard problem coming from executives owing too little of the firm they manage.

Another perspective into the study of executive compensation presented by Bebchuk et al (2002) is the 'managerial power' approach, which focuses on the role of managers in shaping executive pay practices. Evidence suggests that executive compensation is significantly influenced by managerial power and by managers' interest in extracting rents.

5.5.1 More on Optimal Contracting and Managerial Power

The tensions between optimal contracting and managerial power in the design of executive pay are extensively discussed by Bebckuk et al (2002) and more

precisely in the context of agency theory by Bebchuk and Fried (2003). One important building block of the managerial power approach is that of the 'outrage' costs and constraints. Outrage might cause embarrassment or reputational harm to directors and managers. Executives can exert influence on their own pay, but that does not imply an unlimited ability to do so. Although the need for board approval and the presence of market forces cannot be expected all by themselves to produce compensation arrangements consistent with optimal contracting, they can and usually do provide some constraints. For example, although a takeover threat may not be enough a warning to discourage managers from seeking to extract substantial rents, the concern about losing shareholder support in the event of a control contest places some limits on what managers and directors are willing to do. The tightness of the constraints managers and directors confront depends, in part, on the outrage, if any, expected to be generated by a particular compensation arrangement.

The more outrage a compensation arrangement might generate, the more reluctant directors will be to approve the arrangement, and the more hesitant managers would be to propose it to begin with. Thus, whether a compensation arrangement that is favorable to executives but sub-optimal for shareholders is adopted would depend on how the arrangement is perceived by outsiders and, in particular, on how much outrage (if any) it can be expected to arise.

Moreover, outrage has recently become a matter of broader concern, given not only the extended public scrutiny over executive pay but particularly the passing of 'say on pay' regulation *–Ley 31/2014* modifying the *LSC* in Spain, *Dodd-*

Frank Act in the U.S., as briefly referred to on page 15 and further discussed in Section 10.

The potential significance of outrage costs explains the importance of 'camouflage' –a second building block of the managerial power approach. Because outrage arising from outsiders' recognition of significant rent extraction provides a possible check on managers' power to extract rent, managers have an incentive to obscure and legitimize – or, more generally, to camouflage- their extraction of rents. Indeed, even the extensive use of compensation consultants, which could be viewed under the optimal contracting approach as an effort to design the most efficient incentive scheme, could be seen as a means of justifying and legitimizing pay under the managerial power approach. This concept of camouflage has indeed proven itself relevant in explaining many of the patterns and puzzles found in the design and management of the pay setting process.

5.5.2 The Incentive-Alignment Paradigm

Attention has been increasingly drawn on the low correlation between pay and performance. Compensation that grows faster than performance reveals its failure as an incentive-alignment tool. The whole curve that relates compensation to performance should be revisited -it is about a steeper curve, yet as close as possible to a 45 degree slope.

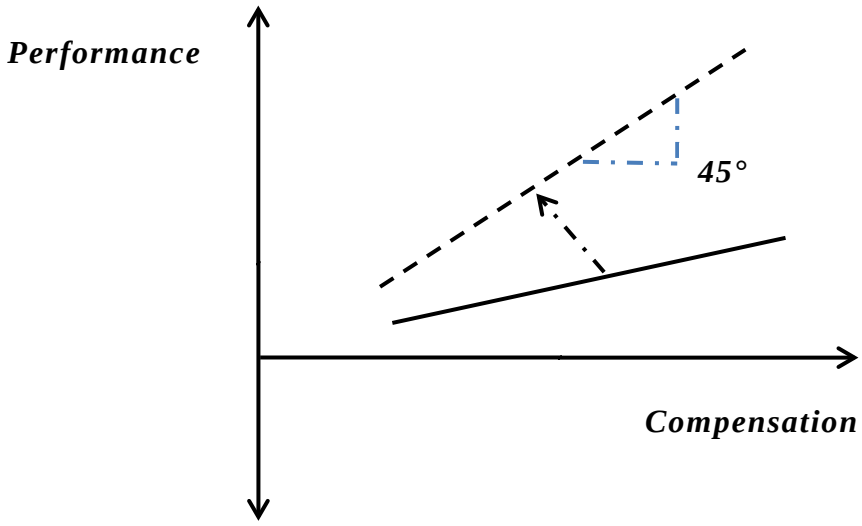

Figure 4 – Pay for performance: expected relationship
Source: Own elaboration

Pay for performance is a repeated cliché in boardrooms, still easier said than done. The reason that is likely to account for such recurrent failure is that companies seldom look at the historical relationship between executive pay and corporate performance, along with its projected future relationship adjusting for changes in compensation practices.

The incentive-alignment paradigm hereby proposed rests on a straightforward and arguably efficient premise: executive pay should correlate with stock price net of market factors. One way to do so is to benchmark stock price appreciation over the long run against a peer group of companies that represents competitors for market, capital and executive talent. Such could be the overall yardstick, with specificities at company and market level factored in for justified deviations – they are typically netted out of a construct like incentive-alignment, which is generic by nature. However, performance-based features such as making vesting and payoff contingent on achieving certain goals, or regulation of trading

following option granting and exercising or a ban on repricing, are contractual steps designed to align incentives.

The theoretical framework proposed, with particular emphasis on the 'optimal contracting' and 'managerial power' approaches, is confronted in section 10 with the empirical evidence gathered for *Ibex 35* firms, so as to identify the extent to which incentive-alignment actually drives stock option design, and measure the impact of such alignment –or deviation- on risk-adjusted returns for the sampled firms.

5.5.3 Interplay of 'Optimal Contracting' and 'Managerial Power' on the Choice of Strike Price

Despite the widespread granting of at-the-money options, such choice of strike is unlikely to be optimal in terms of incentive alignment. An optimally designed option scheme would seek to provide risk-averse managers with the strongest cost-effective incentives to exert effort and make value-maximizing decisions. The optimal exercise price under such a scheme would depend on a multitude of factors that are likely to vary from executive to executive, from company to company, from industry to industry, and from time to time. Such factors might include the degree of managerial risk aversion (which in turn would be affected by the manager's age and wealth), the investment choices available to the firm, the volatility of its stock price, the expected rate of inflation, and the length of the compensation contract, among other things. There is no reason to expect a 'one size fits all' –that is, that the same exercise price would be optimal for all executives in the firm, let alone across firms and industries.

Similarly, it is highly unlikely that out-of-the-money options -options which exercise price is above the grant-date market price- are never optimal. As Hall (1999) argued, out-of-the-money options offer much higher pay-for-performance sensitivity per currency unit of expected value than conventional –at-the-money- options. He provides empirical evidence suggesting that giving managers out-of-the-money options would boost firm value. The fact that options are almost uniformly issued at-the-money is thus difficult to explain following optimal contracting rationale –exogenous factors, such as the tax treatment of at-the-money options, play a relevant role in favor of this choice of strike, yet beyond the proposed optimal contracting-managerial power interplay.

The near-uniform use of at-the-money options is not puzzling, however, when examined under the managerial power approach. Given that executives benefit from lower exercise prices, they will wish to push those exercise prices as far down as possible without generating outrage. That dominant practice of granting at-the-money options provides itself some degree of justification for such a choice in the contract design process. Executives tend however to be cautious in pushing for in-the-money options, which might be regarded as a windfall and thereby generate outrage costs (Bebchuk et al, 2002). Because in-the-money options might thus be difficult or costly for managers to obtain, and at-the-money options are then their second-best, a uniform use of at-the-money options is consistent with the managerial power approach.

5.6 Research gap formalized and Research Questions revisited

Multiple and insightful contributions have shaped the executive compensation landscape, with significant impact on both the direction of the academic debate and the choices made by firms in the design and implementation of pay packages.

The widening gap between pay and performance, compounded by the more or less severe shrinking in corporate earnings that notably followed the 2007-2008 global financial crisis and the massive exposure of such gap in the media, have arguably only marginaly led to increased alignment between executive pay and the actual contribution of management to value creation for the firm. Convergence is somehow more noticeable in academia, as scholars from multiple disciplines –from corporate governance, to human resources, to organization behavior, to finance, to strategy- have united their voices to unveil and condem that pay-peformance mismatch. Partially challenged by the evidence put forward by academics and more so by the media, regulators followed, at times enforcing and others advocating for practices that induce convergence –such as 'say on pay' requirements- or otherwise for metrics that would disclose the divergence – such as the CEO pay ratio. Assuming academia, media and regulators have not given up on their efforts, the limited progress so far achieved, as suggested by the largely marginal drop in corporate pay scandals, points at the need to intensify the advocacy –pay is at the end of the day a discretionary choice of the firm, and there is so much that the 'comply or explain' governance principle may do in terms of outrage. While the fundamentals on the effectiveness and efficiency gains of pay-performance sensitivity as means-end and input-output have been widely elaborated on theoretical grounds, there seems to be a need to bring forward more empirical evidence to bridge theory and practice and more

persuasively induce firms to 'walk the talk' and implement pay schemes that help narrow the pay-performance divide. A complementary dimension of this gap in the compensation literature has to do more specifically with the relatively biased nature of most studies on stock options, which tend to look at outcomes, that is at how and why ill-designed option contracts are likely to bring pay and performance further appart, rather than at exploring opportunities to improve the contracts by unveiling significant correlations between the choice of design and risk-adjusted returns. Those potential benefits from increased alignment are more readily observable in listed companies, bound to file and disclose their executive compensation arrangements, and signaling outcome through stock market prices. This study addresses the above mentioned gap and leverages on the disclosure requirements and observable stock prices of all the firms included in the Spanish *Ibex 35* stock market index over a 18-year time window (1995-2013), conducting a longitudinal study on the stock option contract design of all firms in the index granting such benefit over that timeframe –the rationale for the choice of this time window is addressed in the data collection section (7). As noted, the emphasis is placed on identifying potential relationships between contract design and improved risk-adjusted returns. Additionally, by looking at the Spanish case, this research aims at providing evidence-based findings on stock option practices outside the US, attempting to further narrow the gap between the dominant US-based literature on compensation and the rest, particularly when it comes to Continental Europe pay practices.

This many-sided gap, as elaborated above, is addressed by the research questions outlined in section 2. The combined analysis of the public filings of stock option granting *Ibex 35* firms over the selected period, along with their financial

performance as measured by their stock price trajectory, will lead to potential answers to the driving question of this study, i.e. the extent to which Ibex 35 stock option contracts effectively aling shareholders' and executives' incentives. The effectiveness of those incentive-alignment mechanisms built in the compensation contracts are assessed through the lens of the potential drivers that explain the choices of design, being them optimal contracting, managerial power (towards rent extracting) or a combination of both. The underlying rationale of the complementary research question as noted in section 2, is a positive relationship between optimal contracting and incentive alignment, and a negative one if the contract is shaped by managerial power.

The research questions are hereby restated and operationalized into a set of hypotheses. The main research question:

- How effectively do *Ibex 35* stock option contracts aling shareholders' and executives' incentives?

is translated into the following hypothesis, to be tested in the analytical chapter (section 9), as input to the modelling contribution of this study:

H_1: Stock option compensation positively impacts on risk-adjusted returns in the samped firms.

The complementary research question, that ties back the empirical study to the relevant theories identified in the literature,

- What mix of optimal contracting and managerial power can be identified in *Ibex 35* stock option grants?

is in turn developed into the following hypothesis:

H_2: Optimal contracting design for the strike price, the vesting period, the maturity, the possibility of repricing and the restrictions on trade are likely to lead to increased risk-adjusting returns for the granting Ibex 35 firm.

The above hypotheses, coupled with the research questions, are set to lead the discussion of the findings in section 9. In order to explore potential answers, the choice of methodology and methods are discussed next.

6. Methodology

The potential answers to the above research questions will come out of a thorough assessment of all stock option contracts granted by *Ibex 35* firms over the specified time window. The contractual terms hereby assessed are those identified in the literature (Bebchuk et al, 2002; Hall and Murphy, 2002) and in managerial practice as shaping the value and pay-off of the option –strike price, vesting requirements, maturity, repricing and trading restrictions. The outcome of this assessment will be developed into a grading of all option contracts, past and current, that will in turn feed the independent variable of the relationship explored in this study, namely whether the design of the contract around the five terms above impacts on the firm's risk-adjusted returns. The rationale and output of the grading scheme is presented in section 9. The sensitivy of the returns to the design of the contract is further developed in that section, guiding the discussion of the findings. Panel data analysis is conducted to identify the relationship, and potential causality, between contract design and risk-adjusted returns in the sampled firms. The expected contribution of this study largely lies in providing empirical evidence on the contract design-incentive alignment interplay for *Ibex 35* firms, modeling a set of arguably optimal choices of the

five key terms enhancing the alignment of incentives between managers and shareholders.

6.1 Stock Option Design

Stock option plans are the umbrella contracts that govern stock options programs. Stock option agreements are the individual option grants, vesting schedules, and other employee-specific information. Option plans typically begin by stating their overall incentive-alignment purpose, namely to give employees a sense of ownership and to encourage them to stay with the company longer. The focal term is the strike price, which is mostly set at the fair market value of the stock – often an average of the high and low trading prices for a particular day or over a longer period. Options cannot be transferred. Death, disability and retirement are cases of special treatment and allow for accelerated vesting and longer terms to exercise options. The number of shares available to grant should be clearly set in the stock option plan, as it has an impact on dilution.

The potential gains for stock option beneficiaries are unlimited, in direct proportion, one to one with the appreciation of the underlying stock of the granting firm. The downside relates to the beneficiary's concentration of risk on the employer –both her human and financial capital increasingly tied up to the firm's stock. A proper assessment of the trade-offs for both the executive and the firm linked to the choice of the strike price, the vesting requirements, the time to expiration, the possibility of repricing and the trading restrictions following option exercise is likely to help shareholders and option holders balance out their benefits and risks.

6.2 Strike Price

The strike or exercise price is the amount that has to be paid out to acquire the underlying stock within the time frame agreed upon in the contract. The in-the-money vested option may indeed be settled by cashing-in the difference between the stock market price at the time of exercise and the strike price.

Most stock options are conventional options that are issued at-the-money (the strike price is set equal to the market price at grant date) and this exercise price remains fixed over the entire option period. Such dominant practice has implied huge rewards for executives during the bull market that preceded the 2007-2008 financial crisis, and has in turn raised a heated wave of criticism from active investors and society at large. Executives have been blamed for being shamelessly compensated even for underperforming –relative for instance to industry peers- as a result of the fixed exercise price construction of their options. The serious design weakness of at-the-money options is that any increase in the underlying stock price is potentially rewarded as positive performance.

Therefore, the traditional, fixed-price option is arguably not an efficient compensation instrument, as it fails to reward only superior performers, and consequently may not provide the best incentives.

Alternatively, by specifying a certain index or benchmark as strike price, it is indeed possible to obtain a better measure of positive performance and hence to reward truly superior performers while appropriately penalizing poor ones. The particular index could either be a broad market average, an index made out of a

peer group of competitors, or could even be narrowly defined from the stock price of a close competitor. The exercise price for an indexed option is not known at the time of grant, but rather tied to the specified moving benchmark. Indexed options would have value when the company's stock price rises in excess of the index or decline less than its competitor(s) or overall market. By downwardly adjusting the exercise price of the option during a downturn in the industry, indexed options also remove pressure to reprice stock options –see 6.5 below.

Increasing pay-performance sensitivity should be the ultimate goal of compensation contracting. Not *absolute* performance, which might be the result of (market) factors beyond the executive's control, but *relative* performance (to a market or industry benchmark), arising from firm-specific factors that make the stock outperform its peers out of the executive's superior skills.

Calls to abandon fixed-price, plain vanilla stock options are recurrent yet the adoption of relative-performance-based options remains rare. Before mandatory expensing, a less favorable accounting treatment (unlike conventional options, indexed options had to be expensed) was a heavy burden for such design. Once charging stock options to earnings became compulsory, management reluctance to forgo the 'free lunch' provided by traditional options –in a pay-setting process likely to be influenced by managerial power- still prevents relative-performance-based compensation from advancing.

The challenge is to isolate the return on equity from factors beyond the executive's control. What remains –reflecting improvements in performance for

which executives are themselves responsible- should be compared to the achievements of their peers, so as to capture the real, distinctive value created by a particular manager.

6.3 Vesting Period

One of the critical success factors to align incentives when designing a stock option plan, is the choice of vesting schedule. Outlined in the stock option agreement, it refers to the amount of time that should elapse before employees could exercise their stock options.

Vesting is either set up as 'cliff', that is, a single date on which options become fully vested all at once after a specified period (usually from as short as six months from granting to as long as five years), or 'graded', i.e. options vest gradually over time (it generally spreads over a longer period even if percentage increments occur sooner). Additionally, firms occasionally offer new employees immediate vesting as a type of sign-in bonus. Others structure their plans so that options vest over a period of years, a practice known in the literature as 'golden handcuffs', as they create an incentive for employees to remain with the company. Vesting could also be contingent on performance, as firms may choose to reward employees with performance-based stock options, which vest –often incrementally- when certain performance goals are met.

The choice of vesting schedule would largely depend on the ultimate goal of the stock option plan: to attract, motivate, reward or retain employees, with vesting times theoretically increasing as firms go from attracting to retaining employees.

Table 2 presents an example of vesting according to tenure with the firm, typical of high-tech companies:

Tenure with the firm	**Accumulated Vesting (e.g a high-tech company)**
Less than six months	0 %
Six months	25 %
Each month thereafter	2 % more
End of year 1	37 %
End of year 2	61 %
End of year 3	85 %
Eighth month of year 4	100 %

Table 2 - Illustration of a vesting schedule
Source: www.mystockoptions.com

Once vested, the option holder can typically choose when to exercise her options, up to expiration. If granted options through different plans, she can choose which vested options to exercise, regardless of the order in which they were granted.

Performance-based option plans remain conducive to align incentives, as they link vesting to performance measures. Some plans allow options to vest when earnings per share reach a given percentage annual growth. Others set incremental vesting schedules for gradual increases in the stock price. The preferred formula seems to follow a carrot-stick scheme: vesting is accelerated when there is superior performance or else set closer to option maturity.

Employees who terminate their employment are entitled to receive the vested portion of their options. Otherwise, the vested portion is received upon retirement, disability or death. Once vested options are exercised, the employee becomes shareholder, entitled to full economic and political rights, as outlined in table 3 below:

	Holder of unvested options	**Holder of vested options (not exercised)**	**Shareholder (exercised options)**
Gain if stock price increases	**NO**	**YES***	**YES**
Lose if stock price decreases	**NO**	**NO**	**YES**
Vote	**NO**	**NO**	**YES**
Earn dividends	**NO**	**NO**	**YES**

*not yet cashed

Table 3 - Shareholders vs. Option holders

Source: Own elaboration

6.4 Option Maturity

Options have an expiration date: they can be exercised starting on a certain date and ending on a certain date. If they are not exercised during that period, the option holder forgoes the right they confer. And if the employee leaves the company, she can only exercise her vested options, giving up any future vesting. There are often special rules for terminated and retired employees, as well as in the event of disability or death. Such circumstances typically accelerate both vesting and expiration.

Contract maturity is often set as early as two years from granting to as long as ten years. In Spain, stock option plans tend to lean towards shorter maturities.

Time to maturity along with the rationale for different expiration choices are further discussed in the data analysis section.

Longer terms may constrain the firm's ability to hedge the stock option grant. Although plans occasionally include some creative financial engineering to cover the call option written to employees, the longer the maturity the more difficult the hedging, as the uncertainty embedded in longer-term options makes risk transferring (hedging) less likely.

On top of their *intrinsic value* (the difference between the market price of the underlying stock and the strike price), options accrue additional value *(time value)* positively correlated to market volatility and maturity. For the holder of a financial option, the higher the volatility and the longer the time to expiration, the higher the value of the option, given its increased likelihood to end up 'in-the-money' for a profit. The specific nature of stock options -such as non-transferability and vesting terms- makes the conventional value drivers used in option pricing models less suitable -yet still largely applied to estimate their value.

The Board usually retains the right to make amendments to the plan -including termination- but such actions would never affect rights attached to options already granted.

Granting stock options with shorter maturity could help avoid repricing. Other things constant, option value increases as time to maturity increases, as there is more *time value* –time for the option to move into (or deeper into) the money, as

noted above. Such correlation between maturity and option value applies to financial options, yet a similar logic drives stock options value –even after adjusting for those special features that tell them apart. Unlike financial option holders that, once the intrinsic value of their options becomes negative, they hold on to the option's time value, executives granted stock options might exert whatever degree of managerial power they may have in order to recover that intrinsic value by way of having their options repriced. Contingent on the volatility of the underlying asset –the company stock-, longer maturities are more likely to drive stock options underwater. Hence it can be argued that shorter maturities would benefit the firm by lowering its exposure to repricing demands. And when shorter maturities are combined with subsequent grants, the value of the stock option for the executive is enhanced as well.

Thus, rather than granting options with a ten-year term, a shorter, say a five-year term, may prove better. Then, if *underwater*, earlier expiration would leave room for new grants, so as to boost the stock option motivational driver. Shorter maturity coupled with regular granting should be preferred to highly controversial repricing practices, further discussed below.

6.5 Option Repricing

Repricing -the practice of lowering the exercise price, usually to the current market value- on *underwater* options has long been under attack from accounting rule makers and a growing share of institutional investors. An underwater option is one in which the strike price exceeds the current market price of the company's stock. Should holders of underwater options be willing to buy the

stock, they would be better off buying it in the open market than by exercising their options.

A significant price drop over a sustained period of time would be a typical repricing trigger. Companies that rely heavily on stock options are likely to deal with underwater options. The answer to the diminished incentive alignment power of such options ranges from waiting out in hopes of a price recovery, repricing them, granting new options or offering cash-bonus arrangements.

6.5.1 Wait Out

Holding on to temporary underwater options is the alternative that more closely matches stock option intuition. Historically, companies have adjusted underwater options out of the concern that employees holding those options would no longer be tied to the company and likely to seek other opportunities in the market. But in today's marketplace, with companies navigating through the aftermath of the 2007-2008 crisis, when every other day the media reports yet another downsizing or the next start-up shuts down, a tighter labor market has likely relieved some of the pressure on firms to immediately restore value to underwater options.

6.5.2 Repricing

In a repricing the strike price is amended to reduce it to the current market value, or alternatively, the underwater option is canceled and a new stock option is granted with an option price equal to the current market value.

6.5.3 Granting New Options

Granting new options altogether –without calling off the original ones- might be the simplest solution. Yet a number of issues should be pondered, with

shareholder dilution and depletion of the plan's share reserve topping the list. Besides, if the stock price does recover, optionees would end up overcompensated by benefiting from both plans.

6.5.4 Cashing Out

Another alternative to eliminate underwater options is to give employees a cash settlement in exchange for the options, effectively canceling the out-of-the-money grants. If the company is concerned about the dilution created by writing new options, providing a cash settlement to employees may be an attractive substitute. Conversely, if cash flow is an issue for the company, this alternative may be less desirable.

Indeed, choices other than holding on to the underwater grant violate the very basic rationale of stock options. The concept of a stock option is very straightforward: the employee has unlimited upside gains out of the appreciation of the underlying –her company stock- and virtually no downside –no premium was paid, other than a potential opportunity cost from having this compensation scheme in the pay package. This is the simple essence of a stock option: the interests of shareholders and employees are directly linked.

Stock options repricing turns this logic upside down. The interests of employees are placed ahead of the interests of shareholders. No one would ever consider canceling and reissuing stock options when the price has risen. They only occur when the price has fallen. A stock option is a contract between shareholders and employees that allows the latter to share in future increases in company value.

An option repricing is a unilateral change in the terms of that contract that benefits employees at the expense of shareholders.

If executives have benefited from stock price increases in a bullish stock market, why should they be protected from falling stock prices when the reason for the decline might well be poor earnings performance –for which management must bear primary responsibility? In conventional options, i.e. with a fixed strike price, there is no protection against bear markets that drag the firm's share price down. The only way for the optionee to be potentially insulated against a market-driven stock price decline would come from the indexed design, in which even a price drop of the firm's stock is to be rewarded provided that drop is less than the movable index –typically set a either a single or a pool of competitors- chosen as strike.

Companies that reprice their options often justify it on the need to restore the incentive and retention power of such grants, which became worthless as the market value dropped below the strike price. However, underwater options, just as premium-priced ones, have considerable value depending among other factors on their remaining time to maturity, so just because they may be underwater at one point in time, does not mean such options are worthless. As stated earlier, underwater refers to options carrying negative *intrinsic value*, yet all options retain *time value* before expiration, priced to the probability of their ending up (deeper) in-the-money.

Besides, and along the arguments raised in 6.*1.3* on shorter maturities, a company could restore the retention and incentive potential of stock options by offering

regular (e.g. annual) grants, instead of a single plan that may end up underwater over time.

In sum, repricing violates the underlying logic of stock options and jeopardizes the alignment of interests between employees and shareholders.

6.6 Trading Restrictions

Stock option design is typically a target of widespread criticism. When value is set to provide managers with incentives, granting firms should make sure that proper limits are in place to prevent managers from unwinding them.

Although the optionee cannot exercise her call option until the vesting period is over, the compensation contract might preclude the employee from cashing out vested options –that is, from exercising the options and right away selling the acquired shares. Such a burden would extend the sought after incentive-alignment effect into the future. Ofek and Yermack (2000) show that managers exercise many of their options well before expiration, and promptly sell most of the shares acquired through the exercise of those options.

An optimal contract might also prohibit managers receiving options from weakening (if not eliminating) the incentive effects of the grant by selling an equivalent number of shares already owned by them, taking short positions on the stock or acquiring puts on the company's shares. Trading on the stock right after option granting or exercising is known as *flipping* the option. Conversely, such constraints could excessively curb the manager's private portfolio choices. Preventing the immediate sale of shares acquired from vested options would

therefore be more tolerable –and probably easier to trace. Explicit contractual burdens along with less favorable tax treatments could combine to discourage earlier disposal of option grants.

Attempts to hedge exposure to firm-specific risk clash with the stock ownership culture that options intend to boost. Permitting executives to offload their positions in the short-run can lead to significant distortions in the way companies are managed. Compared to executives that are compelled to hold the shares longer, executives not banned from *flipping* the option might tend to make investment decisions biased in favor of short-term projects, and probably exert less effort after selling out their shares. The decline in shareholder value caused by such distortions is likely to exceed the extra rents executives reap from their freedom to offload options and shares.

Two mutually exclusive views converge around trading restrictions: shareholders' that would like managers to act as owners for the long-run, and managers' that claim full command of their private portfolios –vested options and shares acquired on option exercise are undoubtedly on the private wealth side.

6.6.1 Just diversify? Probably too simple an answer

Arguments acknowledging risk concentration are openly recognized by academics and practitioners. When human capital, current income and pension plan are heavily invested in the employer's stock, unsystematic, company-specific risk over-exposure is hard to deny. For concentrated risk, the answer

might be fairly simple: just diversify. Indeed, too simple a claim to hold when it comes to stock option design.

While diversifying does meet executives' needs, it has an opposite-sign effect on shareholders' incentive-alignment purposes. Following the literature that points at the mismatch between stock option cost to employers and value to employees (Hall and Murphy, 2002), the argument can be extended to discuss the benefits for both sides arising from diversification. When the executive diversifies away by selling the stock following option exercise, she is cutting down on her perceived excessive unsystematic risk. Such trading closely fits modern portfolio theory.

However, when the executive sells off her arguably overweighed holding of company stock, she is at the same time unraveling the incentive embedded in the option that aimed at knitting her wealth to the company's for the long run. By managing her assets according to modern portfolio paradigms, the executive is trashing the incentive-alignment goal and almost destroying the value of the stock option for the shareholder.

But imposing tight trading constraints alongside option granting is likely to be a heavy burden on the optionee. Potential tax liabilities and liquidity reasons stand out as convincing arguments for such trading not to be forbidden –if taxes are due on exercise, the trading ban may eventually pose a liquidity burden on the beneficiary.

A compromise to sort out those potentially conflicting preferences of shareholders and optionees could be to require a minimum holding period for the net shares acquired on the exercise of vested options. Net shares refer to the number of shares equal in value to the spread between market and strike prices times the options exercised, after withholding for taxes and exercising costs. If cash settlement is allowed, the optionee would be required to reinvest the net gain in the company's shares, further tying her wealth to the firm's.

The choice of vesting period could yield comparable results. For shareholders, setting a longer vesting period would result in a comparable outcome in terms of carrying the alignment into the future. For this matter, and beyond tax and accounting treatments, shareholders could choose any combination of vesting and holding period. A three-year vesting coupled with a two-year minimum holding period for the shares acquired –assuming the option is exercised right after vesting- would be similar to a five-year vesting when it comes to inducing the manager to act as owner. Yet the optionee would not be quite as indifferent. As holder of unvested options the manager would not be able to profit from the political and economic rights (voting and dividends) from the shares that she would otherwise acquire –even if compelled to hold- upon exercise of vested options.

No trading constraints translate into unlimited possibilities for the manager to unwind incentives built on the option while excessive burdens on trading may harm rather than motivate management. A balanced contract design would therefore prove critical for stock options to attain their incentive-alignment goal.

7. Data Collection

This research draws on the triangulation of data collection and analysis, thereby ensuring reliability and internal and construct validity. Both qualitative and quantitative data are used. Public filings of the sampled companies, combined with a panel data analysis make for the methodological pillars of the study. Multiple sources of evidence are likely to diminish any propensity for bias. The basic proposition is to link all data collected to theory in an inductive process.

The study is conducted on large, publicly traded Spanish firms. The proxy for those large, listed companies in Spain is the *Ibex 35* stock market index. This index tracks the performance of a specific portfolio of the most liquid, large capitalization Spanish stocks.

The choice of large capitalization stocks is due to the fact that it is indeed in those large publicly traded companies where dispersed ownership is often at its highest, that stock option plans are most likely adopted as a remedy for agency problems.

Additionally, by observing the entire population of companies listed in the index, the usual burdens arising from sample selection and significance are bypassed. Inferential error caused by sampling error is eliminated since data are gathered from the whole population under study.

An extensive set of data was collected, retrieving all stock option plans filed by the sampled firms with the Spanish stock market regulator (*CNMV, Comisión Nacional del Mercado de Valores*), from 1995 through 2013 (March), along with

their daily closing share prices, used as input to compute the risk-adjusted returns of those firms included in the Index that granted stock options over the selected time frame. As noted, the rationale for the choice of the time window relates to the incremental adoption of stock options by *Ibex 35* firms in the mid-90s, collecting a large number of observations through 2013 (March), in an attempt to blend a sizable yet contemporary data set for the inferential analysis. For the gap between the extensive data collection process and the submission date of this study, no material changes in the sampled firms' stock option plans were identified.

7.1 The sample

As pointed out earlier, this study expects to shed light on the design of stock option plans in large capitalization firms, where such a compensation contract is most widely used. For that aim, average firm size in the sample is not considered binding. The observed companies share some distinctive features (boards not always independent of management and limited market for corporate control) that shape their corporate governance practices. Further discussion follows in section 7.3 applying Gedajlovic and Shapiro's (1998) model.

Finally, even if there is some agreement in the literature (Gorman, 1986; Florin et al, 2010) that salaries for executives positively correlate to firm size -traditionally measured using company revenues-, this study does not deal with the absolute monetary value of the executives' salary but rather with its relative form, namely the weight of stock option compensation and specifically the contractual design of such plans.

7.2 The Ibex 35 Index

An index is a statistical measure of the changes in a portfolio of assets representing a portion of the overall market. As it would be too difficult to track every single security trading in the market, a smaller sample representative of the whole market is taken. Most indexes –including the *Ibex 35*- weight components based on market capitalization. If a company's market capitalization is 1.000 and the value of all stocks in the index is 100.000, then the company would be worth 1 percent of the index.

The *Ibex 35* gathers the 35 most liquid stocks trading in the network of Spanish stock exchanges, called *S.I.B.E.* (Sistema de Interconexión Bursátil), over a given time frame. It is rebalanced every six months (control period) to make sure that all stocks included in the index meet liquidity and market capitalization requirements.

The design and management of the *Ibex 35* is carried out by *Sociedad de Bolsas S.A.*, the firm that in turn manages the SIBE trading platform. For a stock to be added to the *Ibex 35*, its average market capitalization has to be higher than 0.30 percent of the index' market capitalization over the six month control period. Additionally, the stock needs to be traded in at least 1/3 of the sessions in those previous six months. The value of the index is made out of the closing trading prices of its components. Its base value was 3.000, as of December 29, 1989, even if the index was launched on January 1992. Adjustments are introduced when new shares are issued, on share buy-backs but not on dividend payments (Technical Regulations for the Composition and Calculation of the Sociedad de Bolsas S.A. Indexes, 2010).

In this study, data were collected for all firms that were at any time part of the *Iber 35* index and granted stock options while listed in the index. By the cut-off date of the study (March 15th, 2013), the *Ibex 35* only included 34 stocks, as Bankia was excluded from the index –yet it still listed in the general *Mercado Continuo*. Following that last update, the components of the index are listed below:

COMPANY NAME	INDUSTRY
Abengoa	*Energy/Environment/Infrastructures*
Arcelor Mittal	*Metal (Steel)*
Abertis	*Transport/Telecommunications*
Grupo ACS	*Infrastructures/Energy*
Acerinox	*Metal (Steel)*
Acciona	*Infrastructures*
Amadeus	*Technology/Travel*
BBVA	*Banking*
BankInter	*Banking*
BME	*Financial Services/Trading*
Caixabank	*Banking*
DIA	*Consumer Products (Retail)*
Endesa	*Energy*
Enagas	*Energy*
FCC	*Infrastructures/Transport*
Ferrovial	*Infrastructures/Transport*
Gas Natural	*Energy*
Grifols	*Health Care*
IAG	*Aviation*
Iberdrola	*Energy*
Indra	*Information Technology*
Inditex	*Textiles*
Mapfre	*Full Line Insurance*
Obrascón	*Infrastructures*
Banco Popular	*Banking*
REE	*Energy*

Repsol	*Energy (Integrated Oil & Gas)*
Banco de Sabadell	*Banking*
Banco Santander	*Banking*
Sacyr Vallehermoso	*Infrastructures*
Telefonica	*Telecommunications*
Técnicas Reunidas	*Infrastructures (Energy)*
Mediaset	*Media & Publicity*
Viscofan	*Consumer (Food)*

Table 4 - Companies included in the IBEX 35 as of March 15th, 2013
Source: Bolsa de Madrid

7.3 On the sample – Common features

Applying Gedajlovic and Shapiro's (1998) analytical framework to the sample suggests *Ibex 35* firms share a number of features that reinforce the rationale for this comparative study on executive compensation practices and specifically on stock option plans. Gedajlovic and Shapiro compare corporate governance across three distinctive features: shareholder activism, independence of the Board of Directors (BoDs) and market for corporate control.

As far as shareholder activism, the Spanish model, reflected in our sampled firms, is characterized by a mix of relatively passive shareholders or what Roe (1994) calls 'distant shareholders' -a distinctive trait of large caps that comes with the dispersion of ownership-, along with sizable, active blockholders – usually institutional investors. Spanish banks –the most noticeable institutional investor in the nation's largest corporations- usually seat on the board, as they hold significant equity positions in such companies. Their arguably closer monitoring power is nonetheless curtailed by a majority of CEOs serving as

Chairman of the Board (table 5 below), which is likely to inhibit independent oversight of management.

Along the same lines and concerning board composition, even if every *Ibex 35* company has a majority of independent (non-executive) directors, such boards are not likely to be entirely independent of management. For BoDs to properly carry out their control duties, having a majority of independent directors means just about complying with current regulation that so requires. As long as the position of CEO and Chair are not split, BoDs' independence would be seriously questioned. No matter how many independent directors there are on a board, that board is less likely to protect shareholder interests by providing independent oversight of the officers if the Chairman is also the CEO, which accounts for the highly debatable issue of CEO duality, extensively discussed in the literature (Fahlenbrach, 2009; Muslu, 2010). As shown in table 5 below, the bulk of our sampled companies have the roles of Chairman and CEO combined -18 relative to 16, as computed by the cut-off date of the study (March 15, 2013).

Company	***CEO # Chairman***	***Company***	***CEO = Chairman***
Abengoa	✓	*Acciona*	✓
Abertis	✓	*ACS*	✓
Acerinox	✓	*BBVA*	✓
Amadeus	✓	*Bco Popular*	✓
ArcelorMittal	✓	*Bco Sabadell*	✓
BankInter	✓	*Bco Santander*	✓
DIA	✓	*Caixabank*	✓
Enagas	✓	*Banesto*	✓
Endesa	✓	*Ferrovial*	✓
FCC	✓	*Iberdrola*	✓
Gas Natural	✓	*Inditex*	✓
IAG	✓	*Grifols*	✓
Indra	✓	*Mapfre*	✓
Mediaset	✓	*Repsol*	✓
OHL	✓	*Sacyr*	✓
REE	✓	*Técnicas Reunidas*	✓
		Telefónica	✓
		Viscofan	✓

Table 5 – Ibex 35 - BoDs independence

Source: Own elaboration, computed with data from the *CNMV*, as of the cut-off date (March 15, 2013)

Even if BoDs appear to be increasingly aware of the reputational risk linked to outrageous pay packages, executives still yield considerable influence over their compensation. Compensation committees are often reluctant to hold a hard bargain with the CEO, particularly since CEOs play too big a role in the re-nomination of board members. Directors generally have little to lose in salary negotiations, while the CEO has a great deal to gain.

The threat of a corporate takeover can be a powerful constraint on executive behavior since top managers are likely to lose their jobs following a merger (Jensen, 1989). However, the takeover as a mechanism to shape management

behavior is contingent on both public policy regarding mergers and acquisitions and the degree to which ownership structures permit hostile takeovers. As far as the sampled firms, the most important differences in the functioning of the market for corporate control emerge not from public policy but from differences in corporate ownership, control and ultimately scope (size and diversification). In *Ibex 35* firms, the degree of inter-corporate holdings along with banks having relevant equity positions in a number of companies, make hostile takeovers more difficult. Moreover, the size and diversified portfolios of the observed large caps restrict the market for corporate control. The larger and the more industries the company is in, the less likely such conglomerates become takeover targets.

The studies of Hofstede (1980, 1991) on the level of individualism-collectivism dominant in any given culture add a relevant behavioural insight to the analysis. He claims cultural differences can be described according to an individualistic-collectivistic dimension. As far as the scope of this study, individualism is the cultural pattern that prevails (Western Europe, Spain). The generally accepted view is that the national culture predisposes members of that culture to either a collectivist or an individualistic orientation. Individualists are more short-term oriented, use a cost-benefit analysis to evaluate the business exchange and tend to reduce the risks of doing business by signing a contract. Contract design-our analytical goal- is likely to be company-specific or follow industry rather than national trends.

Corporate ownership structure and the weight of stock options in the compensation package have been identified as potentially conflicting issues for our research.

As far as ownership structure, the study deals with publicly traded companies with substantially dispersed ownership. The extent of ownership concentration in Spanish large caps presents a somehow hibryd picture. Applying the methodology developed by Trías in a study he conducted on Boards in Spanish listed companies, for our proposed market proxy (the *Ibex 35*), half of the 34 firms included in the index by the cut-off date (March 15, 2013) showed high to moderate levels of ownership dispersion (Trías, 2003) –those are firms type D and C, as computed in the table below. Out of the 17 that make up the other half listed in the Index, 8 have a dominant shareholder –with more than a 50 percent blockholding, labelled as type A- and 9 have either significant shareholdings adding up to more than 50 percent or one with an ownership stake exceeding 25 percent, identified as type B. Hence it could be argued that stock option contracts are likely to be an effective remedy against potential agency problems for at least half of those firms. When matching the data broken down by type, to the actual granting of stock options, it is interesting to note that firms with relatively higher levels of dispersion (types D and C) indeed account for slightly less than half (9 out of 19) of the option plans in place by that time. The evidence is more consistent with the theory when zooming in into the firms with the highest level of dispersion (type D), as half of those firms choose to award stock options. Table 6 below provides the full breakdown:

Company Name	***Type***	***Stock Option Plan (Yes/No)***
Abengoa	*A*	*No*
Abertis	*B*	*No*
Acciona	*B*	*No*

Acerinox	*B*	*No*
ACS	*B*	*Yes*
Amadeus	*C*	*Yes*
ArcelorMittal	*D*	*Yes*
Banco Popular	*C*	*No*
Banco Sabadell	*D*	*No*
Bankinter	*C*	*Yes*
BBVA	*D*	*Yes*
Bco Santander	*D*	*Yes*
BME	*D*	*No*
Caixabank	*A*	*No*
DIA	*D*	*No*
Enagas	*D*	*No*
Endesa	*A*	*No*
FCC	*A*	*Yes*
Ferrovial	*D*	*Yes*
Gas Natural	*A*	*Yes*
Grifols	*C*	*No*
Iberdrola	*D*	*Yes*
IAG	*C*	*Yes*
Inditex	*A*	*Yes*
Indra Sistemas	*B*	*Yes*
Mapfre	*A*	*Yes*
Mediaset	*B*	*Yes*
Obrascón	*A*	*Yes*
REE	*D*	*No*
Repsol	*B*	*Yes*
Sacyr	*B*	*Yes*
Telefónica	*D*	*Yes*
Técnicas Reunidas	*B*	*No*
Viscofan	*D*	*No*

	Type A	*Type B*	*Type C*	*Type D*
Total (34)	*8*	*9*	*5*	*12*
Percentage	*23,53%*	*26,47%*	*14,71%*	*35,29%*
Stock Option Plan (19)	*5*	*5*	*3*	*6*
Percentage (to total)	*26,32%*	*26,32%*	*15,79%*	*31,58%*
Percentage (to type)	*62,5%*	*55,56%*	*60%*	*50%*

Type A dominant shareholder (more than 50 percent of outstanding shares)

Type B significant shareholdings that accumulate to more than 50 percent or one with an ownership stake exceeding 25 percent

Type C significant shareholdings accumulate to less than 50 percent and none exceeds 25 percent

Type D significant shareholdings accumulate to less than 25 percent

Table 6 – Ownership concentration and stock option granting in the Ibex 35
Adapted from Trías (2003) using data as of the cut-off date (March 15, 2013)

When assessing the full set of data collected for this study -30 *Ibex 35* companies over the 18-year window- claims of equity-based pay as a means to counter potentially diverging utilities arising from dispersed ownership, are challenged by the evidence: 19 out the 30 firms granting options are type A and B (relatively high ownership concentration), while 11 are type C and D (relatively high dispersion). The list of Ibex 35 firms granting stock options while listed in the index, along with their ownership concentration/dispersion typology is presented below:

Ibex 35 firms granting Stock Options (1995-2013)	***Typology (ownership concentration/dispersion)***
ACS	*B*
Alba	*A*
Altadis	*D*
Amadeus	*C*
ArcelorMittal	*D*
Banesto	*A*
Bankinter	*C*
BBVA	*D*
Bco Santander	*D*
FCC	*A*
Ferrovial	*D*
Gamesa	*D*
Gas Natural	*A*
IAG	*C*
Iberdrola	*D*
Inditex	*A*
Indra Sistemas	*B*
Mapfre	*A*
Mediaset	*B*
Metrovacesa	*A*
NH Hoteles	*B*
Obrascón	*A*
Prisa	*B*
Repsol	*B*
Sacyr	*B*
Sogecable	*A*
Telefónica	*D*
Telefónica Moviles	*A*
Union Fenosa	*A*
Zeltia	*B*

Table 7 – Interplay of Ibex 35 SO granting firms and ownership concentration/dispersion typology (full list, 1995-2013)

Source: Own elaboration

A relatively weaker shareholder right protection tradition in Spain –a sensitive issue as ownership dispersion increases- does not seem to undermine the use of equity-linked compensation.

Additionally, the fairly extensive adoption in Spanish large caps of stock option systems may suggest some degree of converge towards the shareholder-centered model. Stock options are outcome-based contracts that align managers' and shareholders' incentives by encouraging the former to maximize firm value –the cornerstone of the shareholder-centered proposal. The distinction between the shareholder model (dominant in Anglo-Saxon business cultures) and the stakeholder-oriented model (prevailing in markets such as Central Europe and Japan) is nonetheless becoming somehow blurry (Betch and Mayer, 2001).

7.4 Data Collected – Summary

The study relies on publicly disclosed data –largely stock market quotes, financial statements and corporate governance reports- for the sampled firms. The rigorous disclosure requirements imposed upon listed companies in Spain made all relevant data available.

For the variables that shape the stock option contracts under analysis –strike price, vesting, maturity, repricing and trading restrictions-, the data was sourced from the company filings with the Spanish securities market regulator -Comisión Nacional del Mercado de Valores *(CNMV).*

Following the dominant practice in the compensation literature, and required for companies when disclosing executive pay, stock option and stock appreciation

right (SAR) plans are hereby equally considered in analyzing their contractual design. Sharing identical compensation, retention and motivation features, both stock options and SARs reward stock price appreciation. Yet SARs do their job without causing as much dilution. If for instance, an employee has 100 options and the share price rises from 5 to 10, she will make 500. With a SAR, the company would settle that spread by giving the employee 50 shares of stock, rather than the 100 that would be granted upon exercising the options. However, employee ownership goals and tax breaks often persuade companies to award conventional options.

The study draws on eighteen years of data, from 1995 through March 2013. The rationale for the starting date has to do with the fact that it was in the mid-90s that stock options began to gain relevance among Spanish large caps, accounting for an increasing share of the executive pay package. The regulatory framework applying to stock option grants, discussed in section 10, helps explain the wide adoption of this compensation system in *Ibex* 35 firms. The choice of March 2013 as cut-off date results from the intent to capture more recent stock options plans, on top of reflecting on the pay-performance sensitivity of this compensation practice over a significant time frame, including before and after the 2007-08 financial crisis.

In order to assess the impact of stock options on the risk-adjusted returns of *Ibex 35* firms granting the award while listed in the index, a large number of risk-adjusted returns are computed for the sampled firms (18 years of data, ca. 100.000 observations), to feed a two-step panel data analysis. First the contribution of the stock option plan to firm-specific return is estimated through

a regression analysis. The same technique is then applied to address the core of the research questions, namely how effectively the *design* of the contract aligns potentially diverging incentives. For that, the pool of *Ibex 35* stock option contracts is graded, according to the alignment power of the core stock option value drivers identified in the literature. That grading goes into the explanatory variable of the regression, in order to capture the sensitivity of firm-specific returns to differences in contract design.

The next section discusses the challenges and trade-offs firms typically face when designing the stock option plan, along the five value drivers hereby analized, i.e. choice of strike, vesting, maturity, repricing and trading restrictions.

8. Critical Review of Contract Design in the Sampled Firms

When stock options boomed in the early 1990s, many investors greeted them as the answer to a long-standing problem: how to make managers act like owners. Despite taking some of the blame for recent corporate scandals, loosing the battle to stay off the balance sheet and erratic stock markets, stock options remain fairly popular among large capitalization firms.

Indeed over the 18-year window of this study, 30 Spanish large capitalization firms issued stock option plans while listing in the *Ibex 35* index.

8.1 General Granting Practices

Dilution and expensing concerns are causing a hold back on stock option granting. Companies are paying increasing attention to shareholder fears over

dilution and the impact of stock option expensing on earnings. As a result, the amount of shares used to deliver stock option compensation has been steadily declining, while the debate on how to value stock options is still unfolding.

A too often mistake incurred by most companies is the mismatch between stock option granting and firm growth. If the annual rate of option granting goes up beyond the increase in earnings per share (EPS), shareholder ownership rights are technically and literally diluted. Simple figures may illustrate the point: if stock option issue rate rises by 10 per cent a year, the company has to increase in value by at least 10 per cent for the pre-existing shareholders to break even.

Thompson and Cook (1998) inquired into the dilutive effect of stock options for current shareholders, by looking beyond reported EPS, computing the difference between basic EPS and diluted EPS for a sample of 105 large market capitalization US firms. They showed that the diluting effect of issuing stock options is measurable, to be computed as the difference between the strike price of all outstanding options and the market price of the shares –the 'cost' is the difference between the price granted to the optionee and the price that could be obtained by issuing the shares to the market. The market looks at diluted EPS not basic EPS. If there were a greater or lesser number of diluted shares outstanding at a time, it is market value per share, not total market value, which would change. Thus the cost of stock options to shareholders is measured by the difference between actual market value per share, and the per share market value that would exist if there were no stock options outstanding.

The dilutive effect of stock options on EPS and hence on stock price is a function of two numbers: the number of options outstanding in relation to total shares outstanding (the option 'overhang') and the per share appreciation in valuable options. Two companies could have the same percentage dilution. One might get there by a moderate number of options outstanding and a high option appreciation (favourable result); the other gets there by a large number of options outstanding and a low option appreciation (less favourable result). Low dilution per se is not necessarily favourable; nor is a high one necessarily unfavourable. It depends on the reason why dilution may be low or high.

The cost of options is reflected in the difference between basic EPS and diluted EPS. This difference results in a reduction in share price from what would have been had valuable options not been outstanding. Since a company's aggregate market value is a constant at any point in time, any gain in option value results in an equal reduction in total shareholder value available to other shareholders.

Expensing is in turn the outcome of a long-standing debate around the accounting treatment of stock options. Beginning in 2005 for the sampled firms, accounting standards require that all forms of equity-based compensation be expensed, making a charge to earnings as with any other compensation type. Stock options, generally granted at-the-money, did not incur compensation cost under the intrinsic value method, which only measures the excess of the market price over the exercise price. The new rules introduced the fair value method, a single standard that requires the company to write a compensation expense measured at the grant date based on the fair value of the award. A generally accepted option

pricing model should be used to determine the fair value (Black-Scholes or a binomial model). This relevant issue is further discussed in section 11.

As the reward to absolute share price increases without incurring a charge to earnings –the free ride of at-the-money options- is over, more diversified pay packages, discouraged in the past as they did accrue compensation cost, are emerging. A new compensation landscape is unfolding, with a decrease in fixed-price options in favor of other long-term incentives, still equity-based but with a balanced mix of options and shares and a tighter link to performance. Restricted stock –shares that are forfeitable until time-based and/or performance-based restrictions lapse-, plain shares and cash are gaining ground in the executive compensation mix. Even if such a move is already under way, stock options still account for a large share of long-term compensation in the sampled *Ibex 35* firms.

8.2 The Choice of Strike Price

A typical stock option plan has the strike price set equal to the stock price on the day of the grant. Slight variations include averaging the highest and lowest values on that date, or taking a weighted average of a number of days before and/or after the grant date. As a result of this at-the-money design, any subsequent share price appreciation benefits the option holder, who is rewarded for share price increases often attributable to market factors beyond her control, such as interest rate moves. A growing number of investors argue that such option grants are too generous and fail to provide sufficient incentive to managers.

Alternatively, premium stock options differ from traditional at-the-money options by having a higher strike price when granted. As a result, these options begin to deliver returns only after shareholders have seen stock price gains. In terms of value, the higher strike reduces the value of the option. Advocates of premium options claim that the higher exercise price creates stronger incentives to further increase share price.

As claims to link pay to performance mount, some firms are making the option exercise contingent on the underlying shares hitting a minimum price, often combined with doing so by a certain date. Such price and price & time-vesting options are not exercisable unless the firm's stock price reaches that prescribed level or barrier -which is set higher than the stock price at grant date-, within a given time frame. Firms may require the stock price to remain at or above the barrier for some specified time for the option to vest. Once the option is vested, it becomes a regular option exercisable at the strike price agreed upon when granted. Ocassionally price-vesting is combined with a reload feature. Reloading implies granting new options following the exercise of underlying options where the exercise price is paid using previously owned shares. Such a design is likely to encourage stock ownership among optionees, as the exercise that triggers the reload feature is paid with shares previously held by the beneficiary.

Following the efficient markets hypothesis, a dilemma may arise in the choice of the date to set the initial parameter values. Under the assumption that stock options increase the likelihood of superior performance, capital markets efficiency implies that the resulting expected value changes will be incorporated into share prices when option plans are announced. If firms set options at-the-

money after share prices have this information built in, the increase in value following the stock option announcement operates like a premium on the strike price. The opposite effect would result from choosing the market price of a day prior to the announcement, as the upward price adjustment would leave the option already in-the-money when granted –a price increase certainly not attributable to managerial performance.

The conventional at-the-money design is the preferred choice of Ibex 35 firms granting options. Only Inditex and Metrovacesa granted options with an exercise price below market value at grant date. Metrovacesa put together a quite innovate design involving a double contingency bar. Discount factors are applied to the strike price over the option term (20 per cent the first year, 25 per cent the second and 30 per cent the third and last year of the program) provided options previously granted are exercised. In turn, for options to be exercised the optionee has to retain at least 90 per cent of the shares acquired on previous option exercises. Telefónica also challenged the standard by introducing a price & time-vesting plan in February 2000. To enter this broad-based program called *TIES*, employees had to purchase a variable number of shares –depending on their total compensation- at a discount that in turn entitled them to receive up to 26 options for each share acquired. The option exercise –also at a discount- was made contingent on the share price surpassing the barrier of 20,5 euros, something that never happened. As a result, the plan expired worthless in February 2005.

Price averages are widely used to determine the at-the-money fair market value, ranging from the last 10 to 180 days before grant date. Averages are calculated as arithmetic means and the time frames used by *Ibex 35* companies are noticeably

longer than those applied in other markets, such as the US, UK or Germany. Even if averages are likely to differ from actual prices at the date of grant, the very reason for using averages is to avoid short-term volatility around any given day and therefore better reflect market values. Strict comparisons between strike prices and current prices at grant date could lead us to wrongly label as out-of-the-money or in-the-money plans that do not intend to apply premiums or discounts over the exercise price but more accurately reflect market values.

Averages are also an extensive practice in *Ibex 35* firms when determining the underlying stock price at exercise –from as far back as 60 days prior to exercise to as far forward as 90 days following the chosen exercise date. Taking averages to determine the option payoff prevents the optionee from timing the exercise to earnings manipulation or information releases -assuming options can be cashed out (settled by receiving the spread in cash) or immediate trading of the acquired shares is permitted. Imposing trading constraints on shares received on option exercise yields similar results with the added value that it fosters a stock ownership culture. Further discussion follows in section 8.6.

It should be noted that a majority of *Ibex 35* firms granted American options, which could be exercised –upon vesting- at any time before maturity. Only eight firms (Gamesa, Gas Natural, Iberdrola, Iberia/IAG, Inditex, Metrovacesa, Sogecable and Telefónica Móviles) followed the European option design, setting a pre-specified date to exercise the awards.

8.2.1 A Past Incentive to the 'At-The-Money' Design

Firms used to account for stock options using the intrinsic value method, a practice no longer valid as expensing became mandatory. The intrinsic value of the option is the amount by which the quoted market price of the stock exceeds the exercise price of the option on the date of grant. Stock options are usually granted with a zero intrinsic value, by setting the exercise price equal to the market value of the date of grant. Then disclosure was limited to a footnote to the financial statements. Otherwise options would incur a charge to earnings, just as any other compensation. Avoiding this hit to earnings therefore became a prominent factor that accounted for the popularity of at-the-money stock options. Such a free ride was consistent with short-termed management preferences. Although it could be argued that investors should be able to see through the footnote disclosure, information that remains off the accounting statements is unlikely to be fully incorporated into market prices.

8.2.2 Alternative Choices – Relative Performance

Traditional fixed-price at-the-money stock options often fail to deliver their intended goal of aligning managers' incentives with those of shareholders. If options do not differentiate between value created by external factors and individual performance, managers may be rewarded regardless of merit –as happened during the stock market run-up of the late 1990s. Likewise, top-performing executives may be penalized if their tenure coincides with a bear market.

Gibbons and Murphy (1990) argue that compensation contracts based upon firm performance, not adjusting for industry or market performance, subject

executives to stock and product market behaviors that are clearly beyond management control. Alternatively, relative-performance-based compensation aims at tightening the link between managerial efforts and compensation by rewarding managers only for that portion of performance under their control, filtering out the effects of performance that derive from factors outside management control, such as industry or market-wide gains or losses.

8.2.3 The Case of Indexed Stock Options

Financial theory claims that investors are rewarded for managing systematic (market) risk as they can diversify away idiosyncratic (firm-specific) risk. Conversely, managers –whose job is not diversifying but maximizing firm value-, should be rewarded for properly managing firm-specific risk. Management performance directly affects the idiosyncratic component, but cannot control for the common, market component. Incentive contracts base then an agent's compensation on her performance relative to the common performance; they reward the firm-specific component of performance after netting out market effects.

When a manager is risk-averse and shareholders are risk-neutral -our proposition based on agency theory-, compensating the executive for the outcome under her control and filtering out the common uncertainty beyond her control results in more efficient contracts. In the specific case of stock options, the common component of a firm's stock return should be filtered out, with the idiosyncratic component remaining to determine the option payoff. Such is the rationale behind indexed stock options.

When designing an indexed option, stock price performance should be broken down into common (systematic) and idiosyncratic (firm-specific) components. An index, either an industry-wide index or a competitor's stock price, should be chosen to account for the common component. As argued by Meulbroek (2001b), setting up the right benchmark is a critical issue, as this index should measure precisely the part of performance that is common to other firms in the industry or the market and beyond the executive's control.

The dynamics of indexed options are discussed by Johnson and Tian (2000) in their seminal paper on absolute indexing. In summary, at grant date, the strike price of the indexed option is set equal (in relative terms) to the benchmark stock (index). Thereon, the benchmark stock tracks the expected common performance of the firm's stock over time, with the result that if the stock performs any better than the index, the option is in-the-money and the optionee can collect the gain. Simply put, indexed stock options reward relative rather than absolute performance. They have no value unless the underlying stock does better than the preset index. In a rising market, the bar is a high one. But in a declining market, an executive at a company with a falling stock price can still cash in, as long as the decline is less steep than that of its peers.

The difference in payout from traditional to indexed options can be significant. Take the case of a 1.000 share option grant at 10 euros per share that is tied to the performance of an industry index. If the company's stock rises by 20 percent to 12 euros, while the market rises 40 percent, the options would have no immediate value, since the company has underperformed. With an at-the-money, 'plain-vanilla' option, that grant would pay 2.000 euros. But if the overall market

falls 30 percent while the stock dropped just 20 percent, to 8 euros, that indexed grant would still be worth 1.000 euros -the difference between the index and the company performance. If the stock rises in a declining market, the payout would still be higher.

One drawback of indexed options is that they do not pay as much as traditional options when executives do outperform. If, for instance, the company stock rises to 23 euros while the index rose to just 15 euros, the options would be worth 8.000 euros -compared to 13.000 euros with the conventional at-the-money option. To make up for that shortfall, the number of indexed options granted should be higher -what practitioners call the 'gross-up' practice-, if they are to match the economic value of traditional options.

8.2.4 The Indexed Option Payoff

Given the benchmark stock price, the payoff of the indexed stock option at maturity is:

$$\text{Max}\left\{S_T - H_T, 0\right\}$$

S_T = stock price at expiration
H_T = index price at maturity (the strike price)

It is well known that options never carry negative value for the holder, as long as they grant a right which exercise strictly depends on making a profit.

If thinking of H_T as a synthetic benchmark stock that tracks the expected performance of the firm's stock, the indexed stock option can be viewed as an exchange option as studied by Margrabe (1978). To exercise the indexed option,

the executive 'exchanges' the benchmark stock for her firm's stock and receives the difference between the two prices.

So absolute growth is not enough, as the option does not pay off for merely having positive growth in the stock price. In other words, the option does not pay off when changes in the stock price reflect only common factors, as opposed to traditional stock options that reward absolute price increases regardless of relative market performance. This feature implies that indexed options have lower probability of expiring in-the-money, and therefore have lower value.

A key determinant of option valuation is volatility. As pointed out by Johnson and Tian (200), instead of the volatility of the firm (which has both common and idiosyncratic components), the volatility of the firm relative to the index (or idiosyncratic volatility) is what matters. As the correlation with the index increases, the idiosyncratic volatility falls and thus contributes less to the indexed option value. In other words, as the correlation increases, the proportion of performance that is firm-specific falls, so the option has lower value.

Therefore, the manager does not want her stock and the index to be perfectly correlated, since then, by definition, the indexed option would never be in-the-money. Perfect correlation implies that the stock's return is dependent only on common –systematic- factors. Because there is no idiosyncratic component in the firm's performance, the executive cannot influence performance and thus receives no reward.

Johnson and Tian (2000) go on to explain that the indexed option value is as its maximum when the correlation between the stock and the index is zero – performance is hundred percent driven by firm-specific factors. Thus, indexed options could give a manager choosing between two otherwise identical projects, an incentive to choose the one whose returns have the lowest correlation with the index returns. If the index is the market portfolio, reducing correlation while holding firm and index volatility constant reduces systematic risk, increasing firm value.

8.2.5 Systematic Risk – A Beta-related Model

Note that if the index is the market portfolio, the correlation between the stock and the index can be seen as the β (Beta) in the Capital Asset Pricing Model (CAPM). The model defines the β coefficient as the sensitivity of any given stock returns to changes in market (index) returns. As stated earlier, in indexed stock option models, such index could be the overall market or a peer group benchmark.

Table 8 below shows payoff scenarios for indexed and traditional stock options in bullish and bearish markets, according to different values of β. If β=1, i.e., stock and index prices are perfectly correlated, the exercise value of the indexed option is zero, in either bullish or bearish markets. Traditional option holders instead, can still profit when the stock moves as much as the market, as long as this movement is upwards. They collect a positive payoff in bullish markets, while the option would expire worthless in a downfall market.

The case of so-called 'aggressive' stocks -with $\beta>1$-, represents the only scenario of positive payoff for the indexed optionee in bullish markets, as the firm's price beats the index. However, in a bear market, the stock would fall deeper than the market, bringing the indexed holder payoff down to zero. In a bull market, results are of similar direction for traditional options, though certainly differ in magnitude. If the stock increases 30 per cent, while the market goes up by only 20 per cent, the indexed optionee would only pocket the net-of-market increase, in this case 10 per cent. Her peer holding traditional options would instead collect the absolute value increase of the stock, namely 30 per cent. For bear markets, traditional option payoff is always zero, as shown in the table.

When it comes to 'defensive' stocks -with $\beta<1$-, in a bullish market the indexed manager gets zero, while the traditional option holder still profits from the absolute increase in stock price, even if less than the index. It is in bearish markets when the comparative attractiveness of indexed options stands out, as already noted. A 'defensive' stock in terms of beta means that its price does not fall as much as the index in a market downfall. In relative terms, the stock outperforms the index. Such accomplishment triggers indexed option rewards, enabling the manager to collect the difference between the index and the stock price. Traditional option payoff in bearish markets is zero, even if the executive might have succeeded in holding the stock not to plunge as much as the market.

Beta	Payoff Bull Market		Payoff Bear Market	
	Indexed Option	*Traditional Option*	*Indexed Option*	*Traditional Option*
1	0	> 0	0	0
> 1	> 0	> 0	0	0
< 1	0	> 0	> 0	0

Table 8 - Payoffs in bull and bear markets for indexed and traditional options according to different beta values

Source: Own elaboration.

The model suggests that in order to reach positive payoffs, the manager wants an 'aggressive' stock -$\beta>1$- in bullish markets, and a 'defensive' one -$\beta<1$- when the market goes down. Since by definition, systematic –market- risk is beyond the executive's control, he should manage firm-specific risk so as to outperform the index. This idiosyncratic risk management should be such as to increase systematic risk exposure –as measured by beta- in bullish markets, while decreasing the impact of common –systematic- factors when the market goes down. To alter stock return sensitivity to market return (beta), the manager can only operate on factors under his control. In other words, he wants to manage firm-specific risk so as to increase beta in bullish markets –pushing up stock returns above the index- and decrease exposure to factors of systematic risk in a bear market –preventing the stock from falling as much as the index.

Such behavior would prompt managers to accept more profitable, riskier projects when markets are up, while going for less profitable but less risky projects in

bearish markets. How to timely accomplish this crucial switch goes beyond the scope of this study, and could be subject of future research.

8.3 Vesting

Getting the stock option is not the same as getting shares of stock. The option is the right, but not the obligation, to purchase a share at a specific price, at a specific time. But the option holder has to earn the right to purchase those shares; she needs to become vested in those shares. Vesting is the period of time –known as lock-up period- during which employees are restricted from exercising their options. The graph below (figure *5*) illustrates the pay-off of an at-the-money option, i.e. the strike price equals the current stock price, as the grant gains value over time, moving into the money. However, the beneficiary would not be able to immediately cash in that value, as the option right becomes exercisable only after some time, and/or once a given performance threshold is attained, set at $S_{t+1.}$ From that point onwards, the option may be exercised, in total or in part, at a single point in time or gradually, and once exercised, either the underlying shares are received, or the spread $(S_T - S_t)$ monetized. Taxes are due upon selling those shares for a gain.

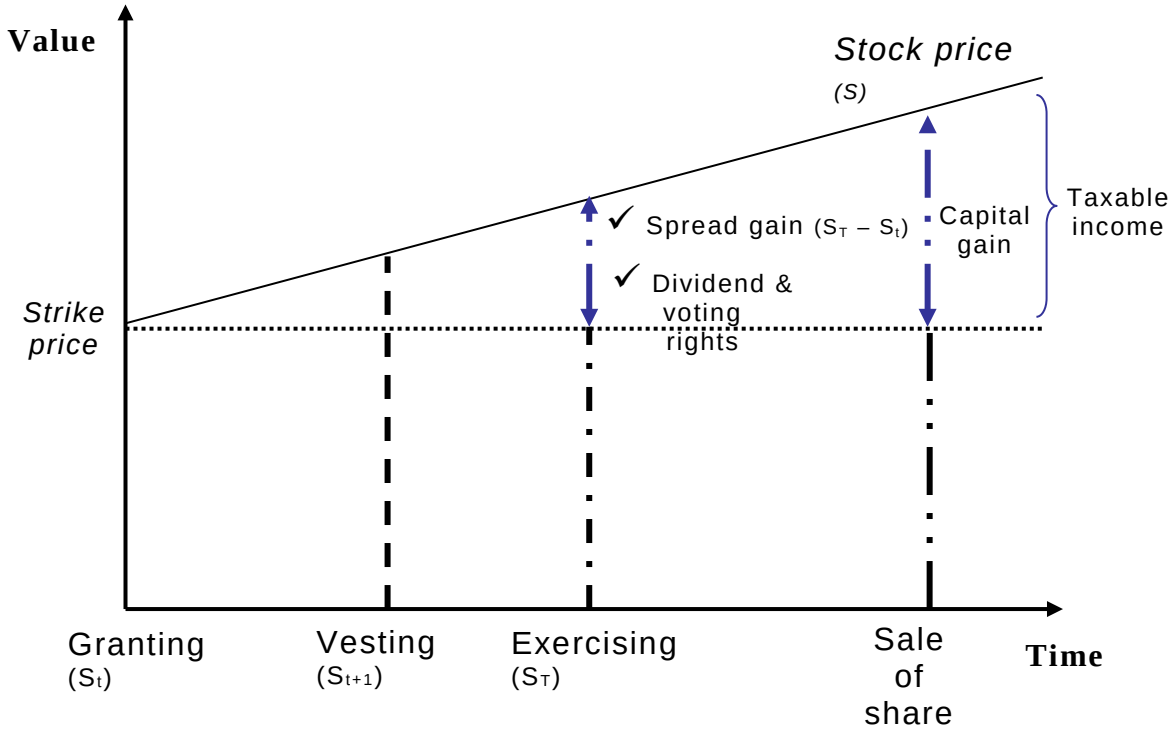

Figure 5 – The dynamics of stock options over time

Source: Own

Vesting schemes are a distinctive feature of stock options. They are largely based solely on continued employment. Yet making vesting contingent on the stock price hitting a certain price level –price-vesting- or on reaching financial or operational goals –performance-vesting- would boost the strategic role of vesting in the design of stock option contracts. Vesting should not only contribute to retention (mostly achieved through a time-vesting design) but also –and critically- to performance (resulting from performance-vesting requirements).

As noted, time-vesting is likely to ensure loyalty and retention -at least for some time-, as the employee is induced to stay in the company to realize the expected stock option gains. The ban on exercise is often the result of the so-called cliff vesting, which restricts the execution of the right to purchase the stock for a fixed period of time. Upon vesting, i.e. once the lock-up period has passed, the

whole option grant becomes exercisable. Such a design maximizes retention, yet may curb motivation in case of long vesting periods. An improved mix of retention and motivation could be achieved by allowing options to vest in steps, over time, so that the optionee gets to exercise in-the-money options earlier on – the so-called graded vesting. Such vesting scheme enables executives to periodically collect a fraction of the option gains, from the vesting point in time, up to the maturity of the contract.

Longer vesting periods are intuitively appealing from an incentive-contracting standpoint and are likely to be favored by the large, dispersely owned firms hereby studied. The high liquidity distinctive of *Ibex 35* firms is set to attract short-term investors, which may in turn bias management towards pursuing shorter term gains at the expense of long-term shareholder value. One way to redirect managers to the long run would be by means of longer vesting periods in equity-based compensation.

Setting the vesting period accounts for part of the choice, as companies may prescribe a specific schedule to settle vested options, in further efforts to stretch the the incentive-alignment power of the options over time. Such is the case in the sampled *Ibex 35* firms.

On a practical note, it would be advisable not to set a single vesting in the 'umbrella' stock option plan but rather in the individual agreements, so as to accommodate the choice of vesting to different retention and motivation needs tailored to different option holders.

Graded vesting remains fairly common among *Ibex 35* firms. When jointly considering percentage vested and start-off date, a 25 percent yearly vesting from grant date is the dominant trend.

From a time value stance, the earlier the optionee may potentially realize spread gains, the higher the option value –and the higher the compensation cost to be charged to earnings. Earlier gradual vesting plans enhance employee attraction at the expense of their retention feature, as stock options lose much of their retention power once vested.

Indra, which granted stock options to both board members and management, agreed on a different vesting system for each group over the five options plans approved between 1999 and 2008, which included the then unconventional choice of price and time vesting requirements –a 50 percent premium over the strike price by the exercise date or else only 60 percent of the option grant could be exercised.

When earlier vesting is not curbed by imposing restrictions on the sale of the acquired shares –or similar retention-enhancer terms aimed at promoting a managerial ownership culture-, claims arise that executives are potentially extracting rents from shareholders by exercising undue managerial power over their own pay setting process.

Earlier vesting accounts for higher option value, while the compensation cost to be borne by the firm is higher. Stock option valuation is nonetheless dependent on a number of factors, so vesting interplays with other key terms such as

maturity or trading restrictions imposed on acquired shares, as discussed in the following section.

Stock options are indeed a case of value-transfer rather than value-creation -the gains captured by the option holder, potentially enhanced by earlier vesting, are transferred by shareholders, in a zero-sum game fashion. Although there is a fair amount of compensation literature claiming that the value transferred by share owners is higher than the value perceived by optionees (Hall and Murphy, 2002; Jost and Wolff, 2003) the expected present value of the attraction, retention and motivation features embedded in the grant, net of expensing and dilution costs should be positive for stock options to make economic sense.

Compensation that relies solely on time-vesting requirements is likely to merely reward tenure, not performance. Stock options that vest on achieving individual or corporate goals –such as EPS growth, sales revenue or market share- do a better job in aligning incentives by linking compensation to performance beyond share price appreciation. Using the stock price as performance measure means benchmarking the manager's performance against the market's expectation of such performance. Shareholder value should instead be based on company-specific (non-systematic) risk management as the market (systematic) component of the firm's returns could be easily replicated by the risk-averse share owner. For an efficient design following mainstream optimal contracting, compensation should be stripped of market factors, and linked to (measurable) managerial performance.

Pure performance-vesting options –that vest upon reaching the preset goal, regardless of the elapsed time- are nonetheless fairly rare -the performance target usually has a time-reference built in.

Alternative compensation schemes contingent on performance are the so-called restricted stock or performance shares. They are actual stock awards (or the right to receive them) forfeitable until the restrictions –time but mostly performance-based- lapse.

Among the sampled firms, very few performance-vesting stock options/SARs were identified. Some, like Gamesa, required strategic goals to be met. Others, like Ferrovial and Iberdrola, used financial measures. For Ferrovial's options to vest, its average return on equity (ROE) over the three years following the grant had to reach the 15 per cent bar. If higher than 10 per cent but lower than 15 per cent, the option yielded a proportional pay-off and if lower than 10 per cent, no payment was made. Iberdrola in turn required a 9 percent real EPS increase over the 3-year cliff vesting period. To determine the final pay out, the spread gain (price difference times number of options) had to be no higher than three times the optionee's average salary. The product of the option gain times the employee's average variable compensation percentage over the previous three years was divided over the stock price at exercise to determine the number of shares the option holder finally received. If the average of her percentage of variable compensation over this three year period was less than 50 percent, no payment was made.

A remarkable case was that of Banco Santander, which approved in June 2005 an innovative relative-performance-based stock option plan. A peer group encompassed by the 30 largest banks by market capitalization –as of October 2004- was set up as benchmark. A twofold requirement had to be met for options to vest. On the one hand, its share price percentage increase had to be higher than that of 20 of the 30 competitors included in the peer group. To measure whether such requirement was met, the weighted average share price of the first fifteen trading sessions of 2005 (9.07 euros, the strike price) was compared to the same first fifteen trading days of 2007. Additionally, EPS over the period 2004-2006 had to grow more than those of 20 of the 30 selected peers. Only when the growth rates of both its share price and EPS surpassed those of 20 of the its 30 worldwide competitors, the optionees -2.750 members of the management team- became vested. Moreover, a three-year cliff vesting period was set. Upon exercise, option holders were given a number of shares equal in value to the difference between the strike and the prevailing market price at time of exercise, net of withholding taxes.

The plan introduced some design features resembling the often praised indexed stock options. To that extent, a peer group of competitors was set up as benchmark. However, in the pure indexed design, the strike price remains variable, equal to the value of the chosen index. Should the share price finish above such index, the optionee would be able to exercise vested options at the index price for a gain. Instead, Banco Santander set a fixed strike price with the exercise contingent on the growth of both share price and EPS relative to those of two thirds of the peer group chosen as benchmark. Performance was therefore measured in relative terms –against competitors- rather than imposing absolute

value goals. Granting firms should bear in mind that performance options may lose their motivation potential should the requirements be too rigorous.

Another feature commonly observed in *Ibex 35* stock option contracts is the provision of accelerated vesting for change in control (merger and acquisition scenarios).

Finally, a non-trivial rule seldom made explicit in the stock plans reviewed is the forfeiture of unvested options upon joining a competitor –a requirement usually enforced in stock option grants everywhere.

8.4 Maturity

The stock option contracting problem comes down to a choice across the five key variables hereby studied: strike price, vesting scheme, option maturity, repricing and trading restrictions on acquired shares. Specifically, the time-driven value factors –maturity and vesting- closely interplay in the alignment of management and shareholder incentives. The spread or gap between vesting and option term, namely the exercise window of the option, is likely to signal whether optimal contracting or managerial power prevails in the pay setting process. Either case has an impact on the firm's share price, as managerial contracts are disclosed, hence factored in the stock price.

The distribution of *Ibex 35* maturities is fairly widespread, with the mean at nearly five (4,9) years. Expiration dates range from as early as 3 years to as late as 10 years yet nearly 75 percent of the population accumulate to the 5-year term. Indeed only one company listed in the *Ibex 35* has chosen the 10-year option term

(Amadeus). The remaining 29 firms granting stock options set them to expire in a maximum of 7 years.

When revisiting the choice of maturity from an incentive contracting standpoint, the concepts of intrinsic and time value, key to option pricing models, regain central stage. Briefly stated, as represented in figure 6 below, the intrinsic value of an option is the difference between the current price of the underlying security and the option's exercise price (for a call such as a stock option). Only when in-the-money do options have intrinsic value, as they never carry negative value.

Figure 8 – Intrinsic value of a call option

Source: Own elaboration

Prior to expiration, the difference between the value of the option (its premium) and its intrinsic value is called time value, as shown in figure 7 below. Time value is the amount someone would pay for the potential gain resulting from the option ending up in-the-money (or deeper in-the-money) by the expiration date. In other words, it is the price of the probability of the option moving (deeper) into the money before maturity. As such, even an out-of-the-money option (no intrinsic value) will have time value before expiration.

Figure 7 – Time value of an option

Source: Own elaboration.

Volatility and time to expiration are positively correlated with the time value portion of an option. Higher volatility estimates reflecting greater expected fluctuations (in either direction) in the price of the underlying security, have a positive impact on option value. Similarly, the longer the amount of time for market conditions to work to the option holder's benefit, the greater the time value.

The stock option loses its time value as its expiration date nears. At expiration it is worth only its intrinsic value. Conversely, the time value of the option grows as its maturity is pushed forward. The longer the term, the higher the probability for the manager to exercise the vested option for a profit.

However, vesting periods burden the timing for stock option exercise. It follows that the shorter the vesting period, namely the sooner the manager can exercise in-the-money options, the higher the value of the grant. Shorter vesting terms coupled with longer maturities deliver increased value for the optionee as the time value of the option augments.

We then compared weighted average maturities and weighted average vesting terms in the sampled firms (*).

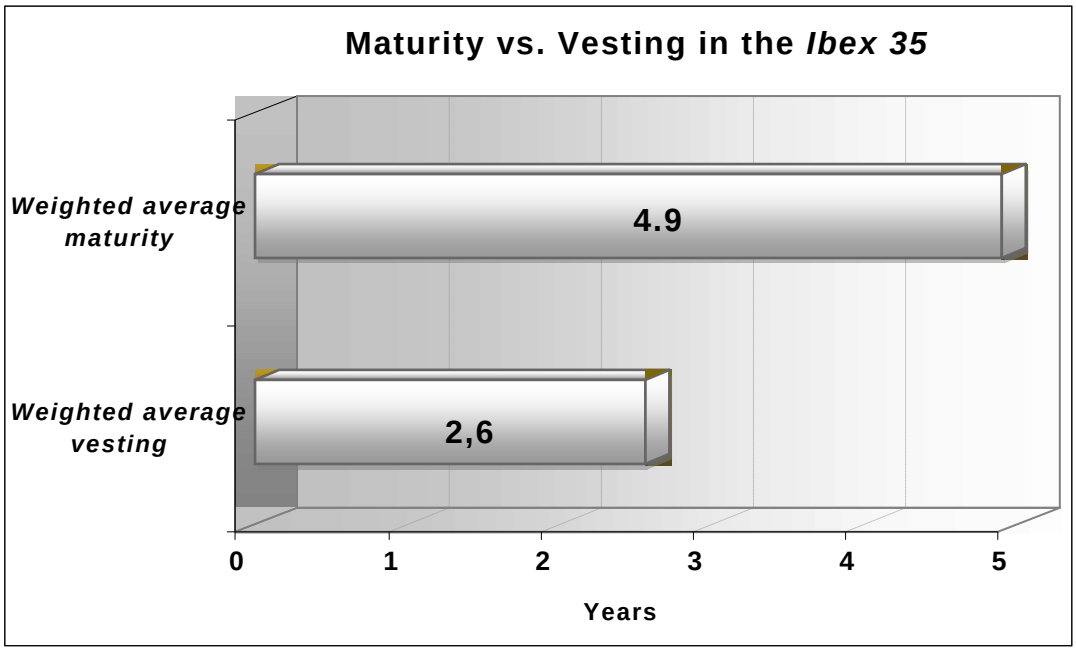

Figure 8 – Maturity vs. Vesting in the *Ibex 35*

Source: Own elaboration.

(*)Averages for both maturity and vesting schedules have been calculated adjusting for the number of plans per term and for cliff and graded vesting design. Companies with combined cliff and graded vesting have been counted either or based on the relative size of the grants.

This outcome closely matches the managerial power proposition hereby applied to assess the stock option contract design. From an optimal contracting stance and controlling for the option term, diligent boards should balance out the attraction contribution of shorter vesting with the retention and long-run value creation features embedded in longer vesting schedules. Alternatively, if faster time-vesting is preferred, the board could shorten the option maturity. As a result, the horizon of the incentive contract is decreased altogether, potentially allowing for new plans to be eventually issued –shortening the maturities and increasing the recurrency arguably better aligns managers' and shareholders' incentives as plans would be tailored to prevailing attraction, retention and motivation needs. Wide exercise periods for vested options provide managers

with the chance to extract rents from shareholders, as optionees would have ample opportunities to time the exercise of the grant as a result of the mix of earlier vesting and longer maturity –relative to vesting. Such design pootentially foregoes the retention power of the option and the incentive alignment that comes with equity-based pay, should the beneficiary offload the shares right away. Conversely, a narrower gap between vesting and maturing better aligns managerial performance to shareholder value over the same time horizon, as retention and incentive-alignment drivers hold over longer periods –relative to option maturity, hence yielding shorther exercise windows.

After vesting on average 2.6 years after grant date, *Ibex 35* option awards remain exercisable for just 2.3 years thereafter, maturing on average after 4.9 years (1.9 times average vesting). In the modeling section that follows, a grading system is proposed in order to assess this relationship between maturity and vesting period for the sampled firms. Such grading will feed the panal data analysis hereby proposed, so as to address the core question that drives this research, i.e. whether the design of the stock option contract is shaped by the managerial power of the executive team or else those contract follow the premises of incentive contracting, where board and managers reach a better balance of their respective utility functions.

There is nonetheless no such thing as an optimal incentive-alignment point. In a fashion similar to that prescribed by the classical theory of capital structure, optimal alignment should come as a result of checks and balances and arm's length bargaining between board and managers. The incentive-alignment

paradigm highlights the sought-after outcome, i.e. maximizing incentives while minimizing compensation costs. How to get there is a firm-specific recipe.

Some industries may call for a blend of longer vesting and longer maturity should management performance only be assessable over the long run. Firms with shorter business cycles may instead prefer shorter vesting for shorter maturity options if their competitive advantage lies in short-term decision making. We claim that the relative value figure –maturity relative to vesting- is what matters in incentive contracting.

Managers could be persuaded to forgo the mix of long maturity-short vesting if some remarkable side benefits from shortening those relative values are properly underlined. If the outcome of arm-length bargaining are shorter maturity-shorter vesting contracts, managers could benefit from avoiding underwater options. The same grant size approved by shareholders could be broken down, say in annual grants, decreasing the likelihood of long-term options dropping out-of-the-money, as current market prices would be used as main input to set the strike price for such periodic grants. Taking into account that repricing is more and more being explicitly banned from stock option contracts, longer maturity grants may well expire worthless. There may be however, tax implications to consider. In the Spanish case, annual option grants would prevent the employee from profiting from a significant reduction in income taxes incurred on exercise. Further details on the tax treatment of options are discussed in section 10.3.

Additionally, being time to expiration positively correlated to option value, the shorter the term the lower the compensation cost borne by the firm, regardless of

the option pricing model used. The lower the hit to earnings –and ultimately to share prices- the better for both current and future share owners.

Another major shareholder concern would be confronted by cutting down long term options: the 'overhang' problem. The measure of stock option usage is called 'overhang', which is defined as stock options granted, plus those remaining to be granted, as a percentage of the total shares outstanding at a given company. Stock option overhang has grown dramatically over the past decade because of much larger option awards and increased option eligibility. Overhang has a dilutive effect because option grants represent a potential future issue of shares. In turn, more outstanding shares have a downward pressure on stock prices. Shorter maturity would therefore account for less overhang and reduced dilution.

8.5 Repricing

To lower the price of out-of-the-money options –otherwise known as repricing- in response to declining market values has been openly criticized as a management perquisite that has little potential for adding value to the firm.

In a repricing, the option price is amended to reduce it to the current fair market value or, alternatively, the underwater stock option is canceled and a new option is granted with a strike price equal to the current, now lower, market value (indirect repricing). Either course of action is considered repricing.

The rationale for assessing the allowance of repricing in our study is that such a practice is intrinsically detrimental in terms of incentive alignment, as it

basically shields the beneficiary against drops in the share price, in a zero-sum outcome –at the expense of shareholders. Despite some advocates (Saly, 1994; Acharya et al, 2000) further discussed above, repricing is far from balancing out the utilities of optionees and shareholders, as the former benefits from the unlimited gains of potential in-the-money options, with no downside –as the grant would be repricing if out-of-the-money. That leaves shareholders eventually compensating executives regardless of their performance –and even for underperforming, if the price drop results from poor managerial decisions. Hence repricing the grant is likely to suggest strong managerial power exerted in the pay-setting process.

Such a practice is widely restricted in *Ibex 35* firms. In terms of contract design, repricing is typically explicitly banned in option grants, yet in our sampled firms, the possibility of repricing the grant is outright ignored.

Adjustments to the exercise price of outstanding options should not occur other than pursuant to a stock split, stock dividend or major corporate restructurings such as mergers.

To go around repricing, companies may elect to grant new stock options without making any adjustment to underwater options. There are, however, other issues to consider. The two most significant ones are shareholder dilution and depletion of the stock plan's share reserve. By granting additional stock options without cancelling the underwater ones, the company will increase the dilution level of the plan. This increase will be most noticeable in the company's diluted earnings per share calculation, which publicly held companies are required to report in

their income statement. In fact, because of the lower option price, the newly granted stock options will actually be more dilutive to earnings per share than the underwater options are. In addition, granting stock options that were not originally anticipated could deplete the stock plan's share reserve sooner than the company originally expected.

Multiple grants may be an efficient remedy against repricing. When employees receive only one grant during their employment, all their options are at one price and a single decline in stock value places all those optoins underwater. If employees were to receive multiple grants, then a decline in share price might place some of their stock options underwater but others might still be in-the-money. And, if subsequent options are granted on a regular basis, employees may anticipate receiving a new stock option while the stock value is low. Of course, this type of program often requires smaller new hire grants (so that shares remain available to cover ongoing grants), which could be problematic if the company relies heavily on new-hire grants for recruitment. Also, granting more frequently would significantly increase the level of administration associated with the plan.

Despite receiving fierce criticism, repricing has been modelled as an optimal compensation policy in Acharya, John, and Sundaram (2000) and previously in Saly (1994). We hereby share the view that options that are out-of-the-money may give too high risk-taking incentives. While options provide managers with incentives to increase stock price, they also add incentives to increase risk. Declining stock prices typically increase risk-taking incentives as a proportion of value-increasing incentives. Nonetheless, the claim that if risk-taking incentives

are sufficiently high relative to incentives to increase share price, options may induce to invest in risk-increasing, negative NPV projects, is at least debatable. The choice of negative NPV projects is not consistent with the risk-averse manager hypothesis assumed in this study. We argue that stock options are granted to align the incentives –among those, the risk preferences- of risk-averse managers and risk-neutral shareholders. In spite of the risk-shifting incentives provided by stock options, the opportunity cost of risk-averse managers is likely to be high enough to reject negative NPV projects. The use of repricing to alleviate such incentives would therefore be redundant.

The impact on repricing of newly issued accounting rules remains to be observed. Formerly, when option expensing was not mandatory, companies were required to account for the repriced stock options using variable-plan accounting methodologies. Under variable-plan accounting, the company recognized compensation expense equal to the excess of the fair market value over the strike price. The company recorded the estimated compensation expense each accounting period and at the time the option was exercised, expired or cancelled, the firm recorded a final adjustment to reconcile the actual compensation expense determined at this time with the previous estimates. To bypass variable-plan accounting, the company would have needed to wait six months before granting any new stock options that had a strike price lower than the cancelled options. The fact that repriced options could not avoid the hit to earnings –as opposed to near universal at-the-money grants- was likely to be a persuasive reason for publicly held firms to avoid repricing. Now that expensing is compulsory, the burden is lifted and some companies might be tempted to allow repricing on fears of weakened –or lost- incentives. Such is however unlikely to be the case for our

sample firms, highly scrutinized and subject to increasing shareholder activism that largely opposes repricing.

When tumbling stock prices are due to factors beyond managerial control, repricing does not seem an efficient incentive-alignment response either. Alternatively, indexing –as discussed in section 8.2.3- does a better job from an incentive-contracting perspective, by strictly compensating management-driven performance, rewarding better-than-the-index outcomes both in bullish and bearish markets.

In sum, repricing curbs incentives to work harder *ex-ante*, and implies a transfer of wealth from shareholders to –often poorly performing- managers *ex-post*. To that extent, *Ibex 35* systematic proscription of repricing signals that as far as this controversial mechanism, optimal contracting principles seem to prevail over self-serving managerial behavior.

8.6 Trading restrictions

Limiting the disposal of shares acquired upon exercising stock options reinforces the goal congruence between managers and shareholders. However, from a risk bearing perspective, stock options add a dead weight cost to the undiversified manager. By having her pay linked to the company's stock, the optionee ends up overexposed to firm-specific risk, as both her human capital and investment portfolio are tied to the company's wealth. As a result, the employee may hedge against the firm's risk. Conversely, the employer would like to make compensation contingent on firm value, arguably stock options' ultimate goal. Therefore, it is of interest to analyze the investment decision problem of the

agent, and the optimal restriction on her portfolio holdings that could be implemented in order to choose the most efficient contract design.

The burden on trading the acquired shares following stock option exercise offers ample room for creativity in the design of compensation contracts. Restrictions are typically time-based and in some cases limited to part –not all- of the shares acquired. Looking at comparable evidence –notably US large caps-, trading restrictions are at times sweetened, as in the case of Dupont, which granted reload options (referred to in section 8.2 above) upon the exercise of its options with the condition that shares received from the exercise were held for at least 2 years. Or IBM, which combined the choice of strike price with the vesting schedule and a stock ownership enhancing feature -the company only grants at-the-money options to those who agree to first purchase IBM stock from a portion of their annual cash incentive awards, and such options vest in three years if the optionee holds the underlying purchased stock.

If required to hold the shares acquired on stock option exercise, the employee might be induced into a (private) portfolio allocation not necessarily matching her risk preferences. Depending on opportunity costs, such a burden could severely penalize the stock option payoff. Thus, minimum holding periods are likely to apply to the option gain –the net shares after covering for the strike price and withholding taxes. If the option exercise is settled by issuing the net shares, the minimum holding requirement on the option gain would result in less shares issued and in turn, less dilution.

Among *Ibex 35* firms, five explicitly set up trading limits in connection to exercised options. Time restrictions ranged from a 1 to 3-year minimum holding periods. Unión Fenosa called for the net gain shares acquired on stock option exercise to be held for one year. Iberdrola in turn lifted the bar by imposing a 2-year trading ban on net shares, while Gamesa allowed up to 50 percent of the net profit shares to be sold after 2 years and the rest after 3 years following option exercise. Metrovacesa stood apart by linking future to past option exercises. It made the exercise of options contingent on holding shares acquired through previous grants. Under its 3-year plan, the company made annual grants of in-the-money options. To exercise the options in the second (and third) year, the optionee had to hold at least 90 percent of the shares received on the exercise of the previous year's options. Another creative design choice was that of FCC, which linked the option payout to the obligation to purchase shares and hold them for a minimum of one year.

Even if a minimum holding period may be a powerful means towards increased incentive alignment and enhanced shareholder value, a similar outcome could be reached by the interplay of the contractual terms hereby studied. Just as a burden on trading provides a post-exercise handcuff that boosts the time value of options, a longer vesting period would yield a comparable outcome. The longer the manager's wealth is linked to firm value, the less likely she is to engage in self-serving behaviour. Even if managers would not be indifferent between a portfolio of fully vested shares and one of unvested options (Table 3, page 61), both prompt them to act as owners. The choice of a shorter vesting schedule coupled with tighter trading constraints, relative to a longer lock-up period combined with loose post-exercise trading limits would be similarly efficient

from an incentive-contracting standpoint. Such inverse relationship between vesting and trading restrictions –shorter vesting coupled with trading limits or longer vesting with lighter or no trading restrictions- appears to be the formula followed by our sample firms. Option contracts in *Ibex 35* firms vest on average after 2.6 years but only 4 out of the 22 plans set minimum holding periods for shares acquired on option exercise.

The option maturity plays a somehow secondary role in the trade-off between vesting and post-exercise restrictions. According to Ofek and Yermack (2000), option holders tend to exercise their rights soon after vesting. Such an assumption reinforces the need for a burden on trading following option exercise, as otherwise the free disposal of shares allows the employee to unwind the incentives built in equity-based pay way before maturity.

An incentive-alignment design is therefore likely to choose between more trading restrictions in response to less (faster) vesting and less trading limits for longer vesting periods. Deviations for this optimal contracting equilibrium would suggest some degree of managerial power embedded in the compensation contract. Opportunistic managers would advocate for faster vesting and no post-exercise trading limits so as to maximize their expected option gain. Diligent boards would in turn favor one of choices noted above –longer vesting with lower trading restrictions or shorter vesting combined with a retention feature. Arm's length bargaining between management and board trying to optimize their respective utility functions would likely render a compensation agreement shaped by a blend of optimal contracting and managerial power. How much of each

ingredient would be a function of factors –such as board composition- beyond the scope of this empirical study.

The next section builds on this critical review of current and past *Ibex 35* stock option plans, to develop quantitative evidence of the value of incentive-aligning contracts, materialized in higher risk-adjusted returns for firms that favor optimal contracting. This rather intuitive claim is largely missing empirical evidence to back it up, and such has indeed been the gap in the literature that triggered this study.

9. Data Analysis - Modeling the Stock Option Contract

If the choice of compensation is to be managed as an investment decision, risk-averse managers and risk-neutral shareholders would like to avoid short-term, zero-sum, rent-extracting outcomes and revisit the potential upside of equity-based pay, particularly of well-designed stock option contracts. But what do we mean by a 'well-designed' contract? As firms pursue different talent attraction, retention and motivation goals, the answer is likely to be firm-specific. Yet if a positive relationship is shown between higher returns and stock options as a component of the pay package in the first place, that would be a big step forward in reaching a mutually convenient labor contract, as both employee and employer would share in the share price appreciation. But is awarding stock options enough of a sign for the market to reward the firm with a hike in the share price? Wouldn't a contract that induces the manager to make better choices to enhance firm value –and her own utility as current or future shareholder- be preferred? Basic valuation models suggest that if the future value of the firm is expected to

be higher as a result of those improved managerial choices, its present value –the share price- should reflect those future gains. So a stock option contract that prompts managers to make those better choices would be a 'well-designed' contract.

This section attempts to capture the relationship between share prices gains and the stock option award in the first place, and eventually between those gains and the design of the contract, as disclosed to the market. If the previous section has provided qualitative insights to the research questions, i.e. the design of *Ibex 35* option plans show a blend of optimal contracting and managerial power, then this section aims at providing quantitative inputs to test the hypotheses developed in section 5.6. For that panel data analysis is applied, to estimate the regresssion coefficients that stand for higher returns to the award of options in the first place, and eventually to the award of incentive-aligment options.

Panel data analysis is a statiscal method that builds on a two-dimensional data set collected over time and over the same individuals, followed by a regression run over these two dimensions, so as to explore relationships between them.

As risk and return should be factored in when pricing risky assets such as *Ibex 35* stocks, the Capital Asset Pricing Model (*CAPM*), sketched in the unpublished work of Treynor (1961) and widely disseminated by Sharpe (1964), would be applied to draw up the regression equation:

$$R_i = R_{free} + R_p * Beta_i + Error \qquad \textit{(equation 1)}$$

where:

R_i stands for the expected risk-adjusted return of the stock i

R_{free} is the proxy for the risk-free rate

R_p is the the generic risk premium, as measured by the difference between the overall market return and the risk-free rate

$Beta_i$ is the firm's systematic risk factor that adjusts the risk premium

The inputs to the CAPM equation above are computed over the 1995-2013 time window for the sampled *Ibex 35* firms granting stock options. As noted earlier, it was in the mid-90s that stock option compensation began to gain momentum among *Ibex 35* firms, while the 2013 cut-off date allows updating the debate on contract design to the latest reliable data, on top of accounting for the impact of the 2007-08 global financial crisis. Narrowing the scope to *Ibex 35* stock option plans notably implied a trade-off by ignoring plans granted by firms not listed in the index –or not in the index when granting- for the sake of drawing conclusions with some degree of generalizability –at least for large, liquid Spanish firms.

So the first step is to compute return figures for the sampled firms out of observed stock market prices. The table below summarizes those return inputs for the sampled *Ibex 35* granting firms:

Firm	First observation	Last observation	Minimum (basis points)	Maximum (bp)	Mean (bp)	St Dev (basis points)	Asymmetry	Curtosis
ARCELOR	10.12.1997	15.03.2013	-2146,87	2469,16	0,64	278,05	0,25	11,49
ABERTIS	02.01.1995	15.03.2013	-1091,48	1147,96	3,62	159,29	0,05	6,3
ACCIONA	02.01.1995	15.03.2013	-1398,57	1545,93	3,59	219,03	-0,04	8,57
ACS	02.01.1995	15.03.2013	-1494,32	1629,06	5,31	195,81	0,21	8,36
ALTADIS	02.01.1995	22.02.2008	-989,95	1547,75	7,43	175,81	0,23	7,82
AMADEUS	23.12.1999	15.12.2005	-2083,1	1335,31	-2,83	286,81	-0,16	8,14
AMPER	02.01.1995	15.03.2013	-1466,1	2293,1	-0,16	255,58	0,55	7,99
SANTANDER	02.01.1995	15.03.2013	-1602,48	2087,74	2,07	225,32	0,11	9,16
BANKINTER	02.01.1995	15.03.2013	-1238,99	1396,67	1,7	213,91	0,46	7,4
CORP FINAN ALBA	02.01.1995	15.03.2013	-1050,71	1105,1	3,89	191,03	-0,04	5,89
FERROVIAL	26.10.2004	15.03.2013	-1203,13	1328,83	2,59	219,84	0,05	6,56
GRUPO_FERROVIAL	05.05.1999	03.12.2009	-994,29	1181,53	1,11	227,73	0,03	5,27
GAMESA	31.10.2000	15.03.2013	-2522,66	1994,89	-3,21	279,75	-0,14	10,34
GAS_NATURAL	02.01.1995	15.03.2013	-1406,14	1151,98	2,59	192,68	0,01	6
IBERDROLA	02.01.1995	15.03.2013	-1344,08	1722,58	2,6	175,6	0,29	12,28
IAG_IBERIA	02.04.2001	15.03.2013	-1351,75	2345,07	3,21	247,63	0,49	9,27
INDITEX	23.05.2001	15.03.2013	-2187,86	1231,88	5,8	195,58	-0,38	12,93
INDRA	23.03.1999	15.03.2013	-1222,9	1395,18	2,2	200,76	0,24	6,92
MEDIASET	23.06.2004	15.03.2013	-1474,02	1674,38	-2,1	247,49	0,01	6,44
METROVACESA	02.01.1995	15.03.2013	-2496,55	9793,22	-0,7	338,81	8,69	213,76
NH_HOTELES	02.01.1995	15.03.2013	-2507,01	1685,46	0,71	252,99	-0,01	11,74
PRISA	28.06.2000	15.03.2013	-1713,58	2962,66	-14,19	318,31	0,83	11,82
REPSOL	02.01.1995	15.03.2013	-1714,31	1180,17	1,9	182,99	-0,06	8,75
SOGECABLE	21.07.1999	19.06.2008	-1398,2	1410,63	0,04	279,77	0,23	6,64
TELEFONICA	02.01.1995	15.03.2013	-988,64	1326,26	3,27	189,56	0,12	6,39
TELEFONICA_MOV	21.11.2000	31.07.2006	-990,14	971,64	-0,22	184,52	0,23	5,56
UNION_FENOSA	02.01.1995	04.09.2009	-4248,4	1521,92	5,47	187,58	-3,26	81,29
ZELTIA	10.01.1995	15.03.2013	-4254,34	2966,94	5,18	312,98	0,11	20,35

Table 9 – Summary of 1995-2013 returns for granting Ibex 35 firms
Source: Own elaboration

Returns for the sampled firms are computed as daily values –same for the risk-free rate input to the CAPM equation. The proxy hereby chosen for the risk-free rate is the EONIA, which stands for Euro Overnight Index Average, calculated as the one-day interbank rate.

It is worthwhile recalling that expected returns as measured by the CAPM account for the risk-premium (return of the market portfolio over the risk-free

rate), adjusted by the firm's systematic risk coefficient (the firm's Beta), and added to that risk-free basis. Yet even the risk-free rate, presumably independent from firm-specific risk, is to some extent impacted by the firm's perceived risk. Hence, it is argued that the risk-free rate for a given firm is composed of the overall market risk-free rate plus a term hereby called Alfa, that captures the premium or discount that a given firm adds to the market risk-free rate. Alfa is defined as that excess –in absolute terms, positive or negative- over the risk-free, attributable to the firm, that is to say, whether the firm is adding any additional return over that market risk-free rate –below.

$$R_{free} = R_{free\ (market)} + Alfa_i \qquad \textit{(equation 2)}$$

As the model intends to adjust for market-driven returns, so as to isolate and estimate only full firm-driven profitability, the overall market risk-free rate is substracted from both sides of equation 1 above. The risk-free rate, which is not constant over time, is therefore removed from the right-hand side of the equation, leaving for estimation the firm-driven return (the risk-premium adjusted by the firm's beta, plus the Alfa noted above). Hence the firm's return is defined as the excess return over the risk-free, fully driven by the value of the firm's Beta and the Alfa. That is equation 3 below:

$$R_i - R_{free} = Alfa_i + R_p * Beta_i + Error \qquad \textit{(equation 3)}$$

Alfa is most likely to equal 0 –no premia, as firms are typically unable to consistently generate risk-free returns over the prevailing risk-free rate.

The values for Alfa and Beta for each firm are computed by means of a linear regression, whereby the firm-specific, excess return of the stock (R_i - R_{free}, equation 3) is plotted relative to the risk premium (R_{market} minus the R_{free}). The slope of the regression curve accounts for the firm's Beta coefficient that adjusts the generic risk premium, whereas the intercept is the Alfa, for each of the sampled firms. The values are initially computed for the sampled firms *without stock option plans*.

The table below summarizes the values for Alfa and Beta for the sampled firms out of the regression above (equation 3). The values for Alfa, when netting out the standard deviation, are indeed close to 0, as expected. Only Altadis, Inditex and Prisa come out significant, although at different confidence levels. The positive sign of Altadis and Inditex suggest that the market gives a premium topping the overall risk-free rate for these stocks, standing for a positive assessment of these firms, which baseline for computing the expected return (the CAPM) is placed at a higher starting point –the intercept (Alfa) is higher than 0 and significant. Conversely, the negative sign of Prisa points at a negative market assessment, meaning that when computing the CAPM expected return for the stock, the starting point (the Alfa intercept) is below 0, as the stock contributes negatively, at a discount, to the market risk-free rate. The values for Beta are all positive, around 1 and significant –at 99 percent confidence-, as expected by the model.

empresa	#obs.	alfa		beta		desv.tip.	R2	Estad. F	
ARCELOR	3860	0.17	(3.70)_	0.99	(0.02)***	230.15	31.5	886.64	***
ABERTIS	4602	2.11	(1.80)_	0.68	(0.01)***	121.93	41.42	1625.39	***
ACCIONA	4600	1.75	(2.65)_	0.83	(0.02)***	179.84	32.6	1111.26	***
ACS	4561	3.62	(2.36)_	0.75	(0.02)***	159.35	33.78	1162.52	***
ALTADIS	3309	5.54	(2.89)*	0.43	(0.02)***	166.1	10.77	199.5	***
AMADEUS	1521	-2.11	(6.40)_	1.01	(0.05)***	249.57	24.34	243.97	***
AMPER	4602	-1.75	(3.42)_	0.72	(0.02)***	231.69	17.84	499.06	***
SANTANDER	4601	-0.87	(1.56)_	1.32	(0.01)***	105.97	77.89	8095.29	***
BANKINTER	4601	-0.4	(2.36)_	0.94	(0.02)***	160.1	44	1805.62	***
CORPORACION_FINANCIERA_ALBA	4602	2.27	(2.31)_	0.73	(0.02)***	156.69	32.74	1119.01	***
FERROVIAL	2136	2.39	(3.50)_	0.94	(0.02)***	161.91	45.78	900.21	***
GRUPO_FERROVIAL	2671	0.52	(3.58)_	0.9	(0.02)***	185.08	33.97	686	***
GAMESA	3132	-2.59	(4.03)_	1.05	(0.03)***	225.32	35.15	847.64	***
GAS_NATURAL	4602	0.84	(2.24)_	0.79	(0.01)***	151.97	37.81	1397.74	***
IBERDROLA	4602	0.8	(1.86)_	0.81	(0.01)***	126.44	48.16	2136.07	***
IAG_IBERIA	3029	3.41	(3.89)_	0.79	(0.02)***	214.21	25.2	509.43	***
INDITEX	2995	6.06	(2.95)**	0.7	(0.02)***	161.5	31.83	698.34	***
INDRA	3536	2.45	(2.79)_	0.73	(0.02)***	166.02	31.63	817.02	***
MEDIASET_COMUNICACION	2223	-2.36	(4.20)_	0.95	(0.03)***	197.93	36.07	625.91	***
METROVACESA	4601	-1.62	(4.91)_	0.41	(0.03)***	333.14	3.34	79.44	***
NH_HOTELES	4601	-1.02	(3.31)_	0.77	(0.02)***	224.46	21.3	622.14	***
PRISA	3220	-13.53	(4.82)***	1.03	(0.03)***	273.7	26.09	567.53	***
REPSOL	4602	-0.02	(1.90)_	0.86	(0.01)***	128.85	50.43	2338.69	***
SOGECABLE	2244	-1.08	(5.06)_	1.09	(0.04)***	239.63	26.67	407.36	***
TELEFONICA	4602	0.91	(1.51)_	1.06	(0.01)***	102.13	70.98	5622.64	***
TELEFONICA_MOVILES	1428	-1.6	(3.52)_	0.95	(0.03)***	133.1	48.01	657.44	***
UNION_FENOSA	3698	3.52	(2.79)_	0.56	(0.02)***	169.34	18.52	419.88	***
ZELTIA	4056	3.4	(4.60)_	0.68	(0.03)***	292.93	12.42	287.42	***

Table 10 –CAPM computation

Source: Own elaboration.

Then the stock option plan add-on to the pay package, i.e. whether the firm awards stock options- is introduced, in order to identify the impact on both Alfa and Beta of such change. So values for the differences –with and without stock option plans- are computed, where Alfa_so and Beta_so represent the change in Alfa and Beta respectively, when a stock option plan is in place.

The equation set to capture the sensitivity of risk-adjusted returns to firm-specific factors, following the introduction of the stock option plan, is presented below:

$$R_i - R_{free} = (Alfa_i + Alfa_{i\_so} * SO) + (Beta_i + Beta_{i\_so} * SO) * R_p + Error \quad \textit{(equation 4)}$$

The introduction of the stock option plan is priced by the market, generating a change in the valuation of Alfa, represented by the add-on *Alfa_so* adjusted by the dummy *SO*, which is 1 when the firm has a stock option plan and 0 when it doesn't. The same applies to the pricing of Beta, adding the term ($Beta_{i\_so}$) that measures the change resulting from the stock option plan, adjusted by the dummy *SO*. As argued in the CAPM model, Beta, now factoring in the stock option plan, adjusts the risk premium R_p (the difference between the return of the market portfolio and the risk-free rate).

So equation 4 is set to test the claim that there is a change in the firm's risk-adjusted returns as a result of the introduction of the stock option plan.

The regression is run to compute the values for the intercept, adjusted by the stock option plan, and the values for the systematic risk Beta coefficient, also adjusted by the introduction of the plan. Initially, a single regression is run, computing generic estimates for Alfa, Alfa_so y Beta_so. The underlying assumption is that the market assessment of having stock options, as measured by the complementors to the CAPM model (Alfa, Alfa_so y Beta_so) is alike for all firms. That means single values for the estimates, adding to the firm-specific beta. The regression output is presented below:

Variable	Coeficient	
Alfa	1.02	(0.80)_
Alfa_SO	-1.10	(1.22)_
Beta_SO	0.03	(0.01)***
beta_ARCELOR	0.97	(0.02)***
beta_ABERTIS	0.67	(0.02)***
beta_ACCIONA	0.82	(0.02)***
beta_ACS	0.73	(0.02)***
beta_ALTADIS	0.42	(0.03)***
beta_AMADEUS	0.99	(0.04)***
beta_AMPER	0.71	(0.02)***
beta_SANTANDER	1.29	(0.02)***
beta_BANKINTER	0.94	(0.02)***
beta_CORPORACION_FINANCIERA_ALBA	0.71	(0.02)***
beta_FERROVIAL	0.91	(0.03)***
beta_GRUPO_FERROVIAL	0.88	(0.03)***
beta_GAMESA	1.03	(0.02)***
GAS_NATURAL	0.78	(0.02)***
IBERDROLA	0.80	(0.02)***
IAG_IBERIA	0.78	(0.02)***
INDITEX	0.69	(0.02)***
INDRA	0.70	(0.02)***
MEDIASET_COMUNICACION	0.92	(0.03)***
METROVACESA	0.40	(0.02)***
NH_HOTELES	0.76	(0.02)***
PRISA	1.03	(0.02)***
REPSOL	0.86	(0.02)***
SOGECABLE	1.09	(0.03)***
TELEFONICA	1.05	(0.02)***
TELEFONICA_MOVILES	0.93	(0.04)***
UNION_FENOSA	0.54	(0.02)***
ZELTIA	0.68	(0.02)***
# obs.	102837	
R2	30.51	
Error St. Dev.	193.64	
F stat	22578.05	***

Table 11 –CAPM w/ and w/o SO for all firms

Source: Own elaboration

In this aggregate format, in which the pricing of having or not having a stock option plan is not firm-specific but generic, the estimates for Alfa and Alfa_so come out not significant and close to 0 –as expected- when netting out their

standard deviation. Instead, the estimate for Beta_so is positive and significant, suggesting that the beta goes up when stock options are awarded, hence amplifying the adjustment on the risk premium and as a result the expected return on the firm stock. So granting stock options does make a difference for the firm, adjusting its risk-adjusted returns upwards. But is the magnitude of that difference generic, or does it vary from firm to firm?

If arguing that the added value from granting or not granting stock options is priced differently by the market depending on the company, then a separate regression has to be run for each firm to compute individual values for the estimates. The table below shows the regression output, including the standard deviation of the portion not explained by the model, computed separately for the days in which the firm had a stock option plan in place (St Dev SO) and those in which there was no plan (St Dev NO). Other than the case of Mediaset, which high significancy is likely to be the result of the stock option plan being active almost all along the sampled period, generating a case of weak multicollinearity that reduces the precision of the estimation, there is not sufficient evidence that the values of Alfa, with and without the add-on resulting from awarding stock options (Alfa and Alfa_so), are significantly different from 0. Regarding the values for Beta, the regression output shows a high number of significant coefficients, suggesting that stock option plans do affect the beta of the firm and in turn its expected returns. Nevertheless, the sign and magnitude of the change vary along the sample. It is then is relevant to further explore whether the identified changes in the beta estimates –as reflected by the different signs and magnitudes- relate to the *design* features of the plan.

Company	#obs.	alfa		alfa_so		beta		beta_so		Error St Dev	R2	F Stat		St Dev No	St Dev SO	F Stat	
ARCELOR	3860	1.3	(6.04)_	-2	(7.56)_	0.65	(0.04)***	0.58	(0.05)***	225.73	34.11	998.15	***	236.94	219.42	1.17	***
ABERTIS	4602	3.2	(2.17)_	-2.2	(3.83)_	0.59	(0.02)***	0.18	(0.02)***	121.16	42.16	1675.62	***	121.56	120.55	1.02	
ACCIONA	4600	3.88	(3.00)_	-9.5	(6.39)_	0.79	(0.02)***	0.13	(0.04)***	179.6	32.78	1120.44	***	183.7	164.81	1.24	***
ACS	4561	4.31	(4.60)_	-1	(5.36)_	0.78	(0.03)***	-0.03	(0.04)_	159.34	33.79	1163.05	***	182.69	150.21	1.48	***
ALTADIS	3309	4.1	(3.84)_	1.69	(5.75)_	0.61	(0.03)***	-0.37	(0.04)***	164.3	12.69	240.27	***	173.77	151.95	1.31	***
AMADEUS	1521	10.11	(22.70)_	-13	(23.65)_	1.54	(0.15)***	-0.58	(0.16)***	248.48	24.99	252.73	***	389.76	233.5	2.79	***
SANTANDER	4601	-1.07	(3.00)_	0.56	(3.51)_	1.25	(0.02)***	0.09	(0.03)***	105.84	77.94	8121.56	***	123.91	98.32	1.59	***
BANKINTER	4601	-0.51	(2.58)_	0.28	(6.40)_	0.94	(0.02)***	0.06	(0.08)_	160.09	44	1806.14	***	170.78	88.11	3.76	***
CORPORACION_FINANCIERA_ALBA	4602	3.02	(2.62)_	-3.2	(5.56)_	0.72	(0.02)***	0.01	(0.03)_	156.68	32.75	1119.34	***	158.05	152.26	1.08	*
FERROVIAL	2671	4.15	(5.02)_	-8.3	(6.89)_	0.56	(0.03)***	0.7	(0.05)***	177.75	39.1	856.14	***	183.27	173.11	1.12	**
GAMESA	3132	-7.39	(7.26)_	7.31	(8.72)_	1.15	(0.04)***	-0.18	(0.05)***	224.83	35.43	858.11	***	259.48	208.09	1.55	***
GAS_NATURAL	4602	0.66	(2.59)_	0.32	(4.96)_	0.88	(0.02)***	-0.4	(0.04)***	149.87	39.51	1501.93	***	156.05	132.32	1.39	***
IBERDROLA	4602	0.1	(1.95)_	1.47	(4.83)_	0.92	(0.01)***	-0.62	(0.03)***	121.13	52.43	2533.57	***	124.83	100.54	1.54	***
IAG_IBERIA	3029	4.01	(6.01)_	-1.4	(7.88)_	0.73	(0.03)***	0.17	(0.05)***	213.82	25.46	516.75	***	240.79	192.5	1.56	***
INDITEX	2995	7.97	(3.87)**	-4.4	(5.97)*	0.73	(0.02)***	-0.11	(0.04)***	161.31	32	703.69	***	150.33	175.77	1.37	***
MEDIASET_COMUNICACION	2223	134.6	(41.10)***	-138	(41.32)***	2.88	(0.60)***	-1.94	(0.61)***	197.14	36.58	639.84	***	358.87	195.33	3.38	***
METROVACESA	4601	-3.78	(5.36)_	12.2	(13.30)_	0.46	(0.04)***	-0.26	(0.08)***	332.74	3.57	85.18	***	354.64	183.62	3.73	***
NH_HOTELES	4601	2.53	(4.94)_	-6.2	(6.65)_	0.71	(0.03)***	0.12	(0.04)***	224.25	21.45	627.51	***	236.58	213.98	1.22	***
PRISA	3220	-14.4	(5.81)**	3.37	(10.42)*	1.05	(0.03)***	-0.13	(0.09)*	273.62	26.13	568.94	***	316.75	137.5	5.31	***
REPSOL	4602	0.39	(2.24)_	-1.5	(4.24)_	0.87	(0.01)***	-0.03	(0.03)_	128.84	50.44	2339.71	***	129.73	126.8	1.05	
SOGECABLE	2244	-3.51	(6.20)_	7.25	(10.76)_	1.09	(0.04)***	0.01	(0.12)_	239.6	26.69	407.67	***	268.68	168.38	2.55	***
TELEFONICA	4602	2.62	(1.88)_	-4.2	(2.95)_	0.93	(0.01)***	0.4	(0.02)***	98.16	73.19	6276.85	***	93	105.38	1.28	***
TELEFONICA_MOVILES	1428	-0.88	(6.43)_	-0.9	(7.68)_	1	(0.04)***	-0.08	(0.05)_	132.98	48.1	659.77	***	170.5	113.77	2.25	***
UNION_FENOSA	3698	4.06	(3.54)_	-1.5	(5.73)_	0.57	(0.03)***	-0.03	(0.04)_	169.32	18.54	420.33	***	166.94	173.47	1.08	*
ZELTIA	4056	6.75	(5.32)_	-13	(10.58)_	0.65	(0.03)***	0.13	(0.07)_	292.74	12.54	290.43	***	313.17	222.56	1.98	***

Table 12 – CAPM w/ and w/o SO for each firm

Source: Own elaboration

In the next step, we assess the contractual drivers of option value –strike price, vesting, maturity, repricing and trading restrictions. They were identified and discussed in the critical review of the literature, and appraised for the sampled firms in the preceding section 8. In order to develop a set of quantitative metrics to account for the interplay of optimal contracting and managerial power in the contract design, and feed the regression equation as explanatory variables to the changes in expected returns, a grading scheme for each of the five terms is hereby constructed.

So how does the market assess the choice of strike price set for the option plan? And the choice of vesting? And the maturity of the grant? And what if repricing is allowed? And what about setting restrictions on trading the acquired shares? The answers to these queries are likely to be company-specific, i.e. a different impact on returns would be expected for instance for Gamesa relative to Ferrovial. On top of that, since the choices of design are likely to be highly correlated in explaining the degree of optimal contracting and/or managerial power built in the plan –the fairly common issue of multicollinearity among the explanatory variables of a multiple regression-, separate regressions are to be run to get the estimates for each of the five terms. The equations will then be as follows:

For the strike price:

$$R_i - R_{free} = (Alfa_i + Alfa_{i\_strike}) + (Beta_i + Beta_{i\_strike}) * R_p + Error \quad \textit{(equation 5a)}$$

For vesting:

$$R_i - R_{free} = (Alfa_i + Alfa_{i\_vest}) + (Beta_i + Beta_{i\_vest}) * R_p + Error \quad \textit{(equation 5b)}$$

For maturity:

$$R_i - R_{free} = (Alfa_i + Alfa_{i\_mat}) + (Beta_i + Beta_{i\_mat}) * R_p + Error \quad \textit{(equation 5c)}$$

For repricing:

$$R_i - R_{free} = (Alfa_i + Alfa_{i\_repr}) + (Beta_i + Beta_{i\_repr}) * R_p + Error \quad \textit{(equation 5d)}$$

and for trading restrictions:

$$R_i - R_{free} = (Alfa_i + Alfa_{i\_trad}) + (Beta_i + Beta_{i\_trad}) * R_p + Error \quad \textit{(equation 5e)}$$

That means that the expected firm-specific returns of ***i*** (the dependent term $R_i - R_{free}$) are potentially a function of the $Alfa_i$ estimate, plus the add-on to that $Alfa_i$ resulting from the choice of strike price, plus the $Beta_i$ and the complement

to that $Beta_i$ that combined adjust the risk premium, plus the error term. The same logic applies to the other four choices of design. And each will likely get a different assessment of the complements to Alfa and Beta to explain the sensitivity of returns to those estimates. So five different equations for each of the sampled firms, looking for the sign and significancy of the coefficients.

For that, we need graded values for each of the design features, accounting for the different shades of optimal contracting and/or managerial power. Such grading scheme is presented below:

Strike price	**Grade**
In-the-money	**1**
At-the-money	**2**
At-the-money (averaged)	**3**
Out-of-the-money	**4**
At-the-money (with performance requirement)	**5**
Indexed price	**6**

Table 13 – Strike price grading range
Source: Own elaboration

The more the strike price moves away from in-the-money or the conventional fixed price at-the-money format, towards a (relative) performance-based exercise price scheme, the more optimal contracting prevails over managerial power in the pay-setting process.

Vesting	**Grade**
Time vesting - cliff	**1**
Time vesting - graded	**2**
Price vesting	**3**
Price & time vesting	**4**
Performance & time vesting	**5**

Table 14 – Vesting grading range
Source: Own elaboration

Drawing from the same rationale as that of the strike price, a contract design that favors performance vesting is set to more effectively align incentives relative to pure time-vesting schemes.

Maturity	**Grade**
Maturity < 5 years & Vesting/Maturity < 0,5	**1**
Maturity < 5 years & Vesting/Maturity ≥ 0,5	**2**
Maturity ≥ 5 years & Vesting/Maturity < 0,5	**3**
Maturity ≥ 5 years & Vesting/Maturity ≥ 0,5	**4**

Table 15 – Maturity grading range

Source: Own elaboration

The choice of maturitiy is here coupled with that of vesting, so as to unveil the likely powerplay between optimal contracting and managerial power in setting the exercise window of the option. Longer maturities may have little impact in stretching the alignment power of the option if the vesting period is not equally pushed forward, inducing the beneficiary to behave as owner for longer. So combining longer maturities with longer vesting, minimizing the exercise window –and with that the risk of the employee offloading the (promised) ownership tie that align incentives-, points at a higher dose of optimal contracting in the stock option plan.

Repricing	**Grade**
Allowed	**1**
Banned	**2**

Table 16 – Repricing grading range

Source: Own elaboration

When it comes to repricing, the dichotomy is fairly straightforward: allowing repricing of the grant, despite some marginal support in the literature, is likely to

signal a great deal of rent extraction to the optionee at the expense of shareholders, as discussed in section 6.5.

Trading Restrictions	**Grade**
No trading restricitions	**1**
Must hold < 0,5*acquired shares for < 0,5*vesting period	**2**
Must hold ≥ 0,5*acquired shares for < 0,5*vesting period	**3**
Must hold < 0,5*acquired shares for ≥ 0,5*vesting period	**4**
Must hold ≥ 0,5*acquired shares for ≥ 0,5*vesting period	**5**

Table 17 – Trading Restrictions grading range
Source: Own elaboration

Requiring the beneficiary to hold on to the shares acquired upon exercising the option, may unleash a conflict of utilities between the employee that doesn't want to overexpose herself to the unsystematic risk of the firm –having her human and financial capital largely tied to the company-, and the employer that aims at prolonging the ownership connection for increased incentive alignment. Yet the logic of incentive contracting lies in making the benefits of share ownership higher than the cost arising from lack of diversification. A similar outcome in terms of ownership ties -or promise thereof- may be achieved by lengthing the vesting period. The interplay of these two –trading restrictions and vesting-, along with the number of shares required to hold, may allow the parties to balance out their presumed optimal contracting and managerial power goals.

Every Ibex 35 stock option plan was then graded, and those were the inputs that adjusted equation 5 above, for each of the contractual terms. The grades are summarized in the table below:

Company	Grant Date	*Vesting*	*Maturity*	*Strike*	*Repricing*	*Trading restrictions*
ACCIONA, S.A.	31.3.2009	1	1	2	2	1
ACCIONA, S.A.	31.3.2011	2	1	2	2	1
ACS	17.12.1999	2	4	2	2	1
ACS	02.07.2004	2	4	2	2	1
ACS	1.4.2004	2	4	2	2	2
ALTADIS	28.07.2000	1	4	3	2	1
ALTADIS	04.06.2002	1	4	3	2	1
AMADEUS	16.06.2000	2	3	3	2	1
ARCELORMITTAL	08.07.2003	1	3	3	2	1
ARCELORMITTAL	02.05.2008	2	3	2	2	1
BANCO SANTANDER	30.12.1999	2	2	4	2	1
BANCO SANTANDER	29.12.2000	2	2	4	2	1
BANCO SANTANDER	15.1.2006	5	3	4	2	1
BANKINTER	05.01.2004	1	1	2	2	1
BANKINTER	25.01.2005	1	1	2	2	1
BANKINTER	22.12.2005	1	1	2	2	1
BBVA	25.07.2000	4	2	4	2	1
CORP FIN ALBA	28.5.2008	1	2	2	2	1
FERROVIAL, S.A.	16.10.2000	5	4	3	2	1
FERROVIAL, S.A.	18.05.2001	5	4	3	2	1
FERROVIAL, S.A.	29.07.2003	5	4	3	2	1
FERROVIAL, S.A.	7.5.2004	5	4	3	2	1
FERROVIAL, S.A.	30.09.2005	5	4	3	2	1
FERROVIAL, S.A.	28.03.2006	5	4	3	2	1
FERROVIAL, S.A.	31.03.2006	5	4	3	2	1
FERROVIAL, S.A.	25.10.2006	5	4	3	2	1
FERROVIAL, S.A.	26.10.2007	5	4	3	2	1
FERROVIAL, S.A.	28.03.2008	5	4	3	2	1
FCC	01.08.2008	1	4	3	2	3
GAMESA	21.12.2000	5	2	3	2	5
GAMESA	13.05.2005	4	3	3	2	1
GAS NATURAL	17.01.2001	2	1	2	2	1
GAS NATURAL	14.01.2002	2	1	2	2	1
GAS NATURAL	13.01.2003	2	1	2	2	1
IBERDROLA	16.06.2001	5	2	3	2	5
IBERIA - IAG	09.04.2001	2	3	3	2	1
IBERIA - IAG	03.04.2002	2	3	5	2	1
IBERIA - IAG	04.04.2003	2	3	5	2	1
INDITEX	27.04.2001	2	4	1	2	1
INDRA	26.03.1999	4	2	2	2	1
INDRA	12.06.2000	4	2	1	2	1
INDRA	05.07.2002	2	2	3	2	1
INDRA	30.06.2005	1	2	3	2	1
INDRA	1.10.2008	1	2	3	2	1
MAPFRE	01.06.2007	2	4	3	2	1
MEDIASET	28.7.2004	1	4	2	2	1
MEDIASET	7.9.2005	1	4	2	2	1
MEDIASET	26.7.2006	1	4	2	2	1
MEDIASET	25.7.2007	1	4	2	2	1
MEDIASET	30.7.2008	1	4	2	2	1

MEDIASET	29.7.2009	1	4	2	2	1
MEDIASET	28.7.2010	1	3	2	2	1
MEDIASET	27.7.2011	1	3	2	2	1
METROVACESA	22.03.2001	2	1	1	2	5
NH HOTELES, S.A.	15.06.2001	2	4	3	2	1
NH HOTELES, S.A.	28.04.2003	1	2	2	2	1
NH HOTELES, S.A.	28.6.2007	1	2	3	2	1
OHL	13.11.2007	1	4	2	2	1
PRISA	16/7/2004	1	2	2	2	1
REPSOL YPF	05.04.2001	2	4	2	2	1
REPSOL YPF	17.05.2002	2	4	2	2	1
SACYR VALLEHERMOSO	22.09.2000	1	3	2	2	1
SOGECABLE	13.05.2003	1	2	2	2	1
TELEFONICA, S.A.	28.06.1999	1	2	1	2	1
TELEFONICA, S.A.	07.04.2000	1	2	1	2	1
TELEFONICA, S.A.	1.12.2001	1	4	2	2	1
TELEFONICA MOVILES	11.01.2002	2	2	2	2	1
UNION FENOSA	22.09.1998	2	1	2	2	5
UNION FENOSA	21.09.1999	2	1	2	2	5
UNION FENOSA	18.05.2000	2	1	2	2	5
ZELTIA	18.03.2005	1	2	2	2	1
ZELTIA	30.03.2006	1	2	2	2	1

Table 18 – Grading exercise – *Ibex 35* SO plans

Source: Own elaboration

Five different models are then estimated, where each value driver (strike price, vesting, maturity, repricing and trading restrictions) is analyzed separately –the output is presented in the table below:

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Alfa	1 (0.74)_	0.91 (0.77)_	1.2 (0.78)_	1.06 (0.81)_	0.34 (0.72)_
Alfa_Vesting	-0.73 (0.51)_				
Alfa_Maturity		-0.41 (0.41)_			
Alfa_Strike			-0.75 (0.47)_		
Alfa_Repricing				-0.79 (0.64)_	
Alfa_Trading_Restrictions					0.1 (0.52)_
Beta_Vesting	0.01 (0.00)_				
Beta_Maturity		0.02 (0.00)***			
Beta_Strike			0.02 (0.00)***		
Beta_Repricing				0.02 (0.00)***	
Beta_Trading_Restrictions					-0.02 (0.00)***
ARCELOR	0.98 (0.02)***	0.94 (0.02)***	0.95 (0.02)***	0.97 (0.02)***	1 (0.02)***
ABERTIS	0.67 (0.02)***	0.64 (0.02)***	0.65 (0.02)***	0.66 (0.02)***	0.71 (0.02)***
ACCIONA	0.83 (0.02)***	0.82 (0.02)***	0.82 (0.02)***	0.82 (0.02)***	0.83 (0.02)***
ACS	0.74 (0.02)***	0.69 (0.02)***	0.72 (0.02)***	0.72 (0.02)***	0.77 (0.02)***
ALTADIS	0.43 (0.03)***	0.4 (0.03)***	0.4 (0.03)***	0.42 (0.03)***	0.44 (0.03)***
AMADEUS	1 (0.04)***	0.96 (0.04)***	0.95 (0.04)***	0.98 (0.04)***	1.03 (0.04)***
AMPER	0.71 (0.02)***	0.71 (0.02)***	0.71 (0.02)***	0.71 (0.02)***	0.72 (0.02)***
SANTANDER	1.3 (0.02)***	1.28 (0.02)***	1.25 (0.02)***	1.29 (0.02)***	1.33 (0.02)***
BANKINTER	0.94 (0.02)***	0.94 (0.02)***	0.94 (0.02)***	0.94 (0.02)***	0.94 (0.02)***
CORPORACION_FINANCIERA_ALBA	0.72 (0.02)***	0.7 (0.02)***	0.71 (0.02)***	0.71 (0.02)***	0.73 (0.02)***
GRUPO_FERROVIAL	0.88 (0.03)***	0.88 (0.03)***	0.85 (0.03)***	0.88 (0.03)***	0.92 (0.03)***
GAMESA	1.05 (0.02)***	1.02 (0.02)***	1.02 (0.02)***	1.03 (0.02)***	1.08 (0.02)***
GAS_NATURAL	0.78 (0.02)***	0.78 (0.02)***	0.78 (0.02)***	0.78 (0.02)***	0.79 (0.02)***
IBERDROLA	0.8 (0.02)***	0.8 (0.02)***	0.8 (0.02)***	0.8 (0.02)***	0.82 (0.02)***
IAG_IBERIA	0.79 (0.02)***	0.77 (0.02)***	0.76 (0.02)***	0.78 (0.02)***	0.8 (0.02)***
INDITEX	0.7 (0.02)***	0.68 (0.02)***	0.69 (0.02)***	0.69 (0.02)***	0.71 (0.02)***
MEDIASET_COMUNICACION	0.94 (0.03)***	0.88 (0.03)***	0.91 (0.03)***	0.91 (0.03)***	0.97 (0.03)***
METROVACESA	0.41 (0.02)***	0.41 (0.02)***	0.41 (0.02)***	0.4 (0.02)***	0.43 (0.02)***
NH_HOTELES	0.77 (0.02)***	0.75 (0.02)***	0.74 (0.02)***	0.75 (0.02)***	0.78 (0.02)***
PRISA	1.03 (0.02)***	1.03 (0.02)***	1.03 (0.02)***	1.03 (0.02)***	1.04 (0.02)***
REPSOL	0.86 (0.02)***	0.86 (0.02)***	0.85 (0.02)***	0.85 (0.02)***	0.87 (0.02)***
SOGECABLE	1.09 (0.03)***	1.09 (0.03)***	1.09 (0.03)***	1.09 (0.03)***	1.1 (0.03)***
TELEFONICA	1.06 (0.02)***	1.04 (0.02)***	1.05 (0.02)***	1.05 (0.02)***	1.07 (0.02)***
TELEFONICA_MOVILES	0.94 (0.04)***	0.92 (0.04)***	0.92 (0.04)***	0.92 (0.04)***	0.96 (0.04)***
UNION_FENOSA	0.55 (0.02)***	0.55 (0.02)***	0.54 (0.02)***	0.54 (0.02)***	0.6 (0.02)***
ZELTIA	0.68 (0.02)***	0.67 (0.02)***	0.67 (0.02)***	0.67 (0.02)***	0.69 (0.02)***
# obs.	97165	97165	97165	97165	97165
R2	30.18	30.2	30.21	30.19	30.19
Desv. Tip. Error	195.22	195.19	195.18	195.21	195.2
Estadístico F	21001.85 ***	21023.92 ***	21027.77 ***	21009.59 ***	21012.6 ***

Table 19 – CAPM model for each design feature

Source: Own elaboration

The values for Alfa –both without plan ($Alfa_i$) and the complement adjusted for the specific design feature (e.g. $Alfa_i\_strike$)- are non-significant, which is consistent with the results of the previous steps. So that means that neither awarding options per se nor the design of the contracts bear any impact on the company-specific risk-free component of expected returns.

As for the Betas, it could be argued that the design, as captured by the grading, does influence on the magnitude of the change in the coefficient. Four of the five estimates come out highly significant (at 99 percent confidence), meaning that the market does react to the contract design, which impacts the Beta and in turn the expected return. The estimate for value added by vesting does not come out significant, but the magnitude and sign (positive) are as expected. The estimates for maturity, strike and repricing come out significant with a high confidence level and the expected sign (positive, meaning that improved grading is very likely to drive the coefficient up, and as a result, expected returns, also up). The magnitude for these three estimates turned out to be the same –for each unit change in the grading scheme, the Beta increases by 0,02. In turn, the sign for trading restrictions come out negative, arguably as expected, since as the grading for restrictions goes up (longer and higher holding requirements), the value for the Beta goes down. That would be consistent with the claim that as the executive is restrained from selling the exercised shares, her risk aversion increases, i.e. she would not be interested in holding a stock with a higher beta.

Summing up, the evidence that granting stock options is positively priced by the market by way of increased risk-adjusted returns answers the main research question and validates the hypothesis (H_1) developed out it. That increase in the firm's risk-adjusted returns suggests that stock options are an effective incentive-alignment mechanism in large, liquid listed Spanish firms. The panel data analysis eventually shows that this positive impact is not homogeneous across all sampled firms but rather a function of the design of the stock option contract. The more optimal contracting prevails over managerial power in the pay-setting process, the more significant the impact on the firm's risk-adjusted returns,

which addresses the issue raised in the complementary research question and the hypothesis (H_2) articulated on the back of it.

10. A Note on the Spanish Regulatory Framework

A remarkably proactive regulatory approach to corporate governance has emerged in Spain. This is likely to come as a result of a relative lack of commitment on the side of companies to bind themselves by non-enforceable bodies like Codes of Best Practices and other recommendations of similar nature. The first of those Corporate Governance Codes was introduced in 1998 by the Spanish stock market –the *Olivencia Code of Good Governance*. It was voluntary –applying the 'comply or explain' principle, i.e. in the absence of compliance, the firm has the state why-, same as the one that followed –*Informe Aldama,* from 2003. Dispersed best practices were later consolidated in the so-called Unified Code of Good Governance, also know as *Informe Conthe*, in 2006. Following the increased scrutiny that resulted from the 2007-08 global financial crisis, multiple recommendations led to another update of the Code promoted by the CNMV in 2015, while others were made enforceable, such as the *Ley 31/2014* on board composition and compensation disclosure.

Corporate governance may be viewed as a financial decision, a means to compete for funding in the market. Disclosure is therefore needed for the market to assess and price the governance practices of the firm. As per the quality and quantity of information disclosed, corporate governance does not seem to rank high in corporate strategy for Spanish firms. That, in turn, might have triggered the need for an increased regulatory approach of enforceable nature.

When looking at American companies as a benchmark, given their more proactive, market-driven corporate governance system, the essence of firm governance as a source of competitive advantage –e.g. in the access to capital markets- becomes apparent. The higher comparative dispersion of capital in U.S. relative to Spanish firms is likely to account for a fair share of this difference, which in turn induces the former to rely more heavily on capital market financing. As a result, U.S. firms show a faster adoption of corporate governance best practices, particularly in terms of information disclosure. Accordingly, regulation is likely to come 'from within', often by means of tight listing requirements issued by the Stock Exchanges. As pointed out by La Porta et al (1999, 2000) and Anand (2005), corporate governance stands apart from the command and control model of established legal regimes, by enabling companies to design and structure their own practices, within certain boundaries.

Even if corporate scandals may suggest the lack of more active, preventive ruling, increased regulation implies a trade-off between certainty –proper of its mandatory nature- and curbing the initiative and often broader scope of self-regulated agents.

10.1 Business Law Perspective

It was not until 1999 (*Ley 55/1999*) that stock options were granted long-awaited attention by the Spanish regulator. The new ruling modified the *Ley 24/1988 (Ley del Mercado de Valores)* and the so-called *Ley de Sociedades Anónimas-Texto Refundido (LSA)* passed in 1989 (*Real Decreto Legislativo 1564/1989*). It was further developed in 2000 by the *Real Decreto 1370/2000* and the *Circular 4/2000* issued by the National Securities Market Commission *(CNMV)*. Triggered

by the controversy raised by alleged abuses on the stock option plan of the *Telefónica* telecommunications company, it enhanced much needed disclosure around stock option grants.

The *Ley 55/1999* introduced significant improvements on shareholder monitoring over stock option programs. It added a second paragraph to article 130 of the *LSA*, prescribing mandatory shareholder approval to equity compensation schemes and long-term incentive plans that involve or may involve the issuance of new shares. In addition of such programs being disclosed in the company's by-laws, a positive resolution of shareholders in general meeting is required prior to their adoption. Such agreement must specify the number of shares to be delivered, the strike price, the referenced share price and the vesting period. The fact that shareholders are called to vote not only fosters much desired investor activism but is also likely to have a signaling effect on rent-extracting managers that have to negotiate individual granting contracts with the board following full disclosure of the main terms of the plan.

Additionally, stock option plans in place before January the 1st, 2000 have to be submitted to the annual meeting for shareholder approval. They should be further disclosed by filing a report to the *CNMV*.

Over time, a number of European Union Directives were incorporated into Spanish law, providing for a much desired convergence and consistency across the EU. Another relevant piece of regulation is the *Ley 26/2003*, so-called *'Transparency Law'*, passed on July 17, 2003. It modifies both the *Ley del Mercado de Valores* and the *Ley de Sociedades Anónimas* and aims at enhancing

transparency from listed companies. It requires them to fill an annual report on corporate governance for public disclosure. This path of increased regulatory oversight was topped by the *Ley de Economía Sostenible* in 2011, and more recently by the *Ley 31/2014*, which modified the *Ley de Sociedades de Capital*, focusing on improved disclosure of compensation agreements and binding approval by the general shareholders meeting.

10.1.1 Say-On-Pay

A relevant change to the pay setting process was introduced by the Dodd Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act) passed in July 2010. The new regulation requires public companies to submit executive compensation agreements to shareholders' vote, broadly known as 'say-on-pay' votes –not only pay packages involving new shares/dilution but all compensation. Such advisory consultation must be held at least once every three years. Additionally, listed companies should get shareholders' approval on the frequency of the say-on-pay vote –such 'frequency' vote is to be held at least once every six years.

The U.S. evidence following the implementation of this advisory vote shows that the vast majority of companies (close to 98 per cent according to SEC reports, 2013) have received favorable votes on the proposed executive compensation packages. It should be noted, however, that the very few negative votes indeed arose from perceived 'pay for performance' de-linkages. Getting a 'no' is not per se binding, that is, it does not force the company to withdraw or change the compensation proposal as long as, with the assistance of independent advisors,

the case can be made that the objected pay proposal is deemed necessary to attract or retain executives.

With regards to stock option plans, some companies have indeed tightened the pay-performance connection in their plans, so as to prevent a potential rejection in the annual meetings. A case that quickly made the headlines in the U.S. was that of General Electric, which pushed the vesting and added performance hurdles for the options granted to his CEO. As a general note, it can be stated that say-on-pay rules have prompted companies to improve their pay disclosure practices, a significant step forward in terms of increased transparency, and a much sought-after goal that triggered this new regulation altogether.

The above mentioned rationale can be translated to the Spanish case, as a result of a regulatory thread initiated with the *Ley del Mercado de Valores (LMV)*, modified by the *Ley de Economía Sostenible* (*LES*) in 2011, later modified by the *Ley 31/2014*, which updates the *Ley de Sociedades de Capital (LSC)*. The current legal prescription requires the firm's compensation policy –developed by the Compensation Committee and approved by the Board- to be submitted to the general shareholders meeting for final, binding approval, at least every three years. The relevant change introduced by the *Ley 31/2014 (LSC)* is that the 'say-on-pay' is extended to the annual compensation report that listed companies have to file along with their corporate governance report. That means that such annual compensation report is also submitted to the general shareholders meeting, but for a non-binding vote. Yet if shareholders reject the annual compensation report, this rejection triggers a review of the overall compensation policy, which the

Board would need to redesign in order to get a new, binding approval of the general shareholders meeting. So, on a practical note, the prior three-year approval may indeed be reviewed in the event of a rejection of the annual compensation report. These complementay prescriptions combine the general oversight of the compensation policy design, with the regular (yearly) disclosure mandate, hence aiming at aligning design and execution –and otherwise adjusting deviations.

In terms of implementation, in 2013, 54 per cent of *Ibex 35* firms got a negative vote on different features of the proposed executive compensation packages, ranging from broad issues of design transparency, composition of the Nomination and Remuneration Committee, to concerns on the dilution effects of equity-based pay. This increased awareness and activism on the part of proxy advisors and institutional investors is indeed expected to rise. As a result, the quality and quantity of compensation disclosure by Spanish listed companies is likely to improve.

10.2 Labor Law Insights

The relevance of stock options as a preferred means of variable compensation has increased over time. Employees expect to share in the firm's profits as options become a recurrent feature in the executive pay mix.

Even if labor law issues have seldom taken center stage in the design and implementation of stock options plans -as tax law remains pivotal-, there are some relevant points that deserve careful attention.

Stock options are intrinsically linked to the labor contract, as the option holder has to be in the payroll to be able to exercise vested options.

Termination, whether for cause or not, is a common issue for lawsuits. Most plans state that unvested options are forfeited when an employee terminates employment, but this is not universally the case. Employees still might argue that their termination was inappropriate and perhaps even that they were terminated so that the company would not have to deal with all their options. As far as vested options, some specified time to exercise in-the-money options is usually granted. Some plans also state that unexercised but vested options are cancelled if an employee is terminated for cause. Finally, plans usually have provisions for options to forfeit if an employee goes to work for a competitor, certainly a less debatable issue. The plan and the contract with the optionee should therefore clearly spell out the treatment of stock options upon termination of employment. The above turns largely normative when it comes to Ibex 35 firms, as stock options contracts in Spanish large caps tend to provide rather limited labor related information.

After a fairly lengthy debate, the salary nature of stock options is already widely recognized. This is consistent with its revised accounting treatment as a compensation expense, as discussed in section 11.

Recognizing stock options as salary implies computing them for severance pay, which is arguably the focal issue from a labor law perspective –the intrinsic value gain upon exercise is acknowledged as salary, not the future gain from selling the acquired shares. However, Spanish labor law has no explicit

provisions on whether stock options qualify as salary or should be included when calculating termination pay. As a result, court rulings, largely recognizing stock options as salary, tend to build up meaningful precedents.

The debate has nonetheless switched from acknowledging stock options as compensation –claimed by employees and endorsed by courts- to arguing whether options represent compensation for past services rendered or an incentive for future performance used for retention purposes. The focus on whether stock options represent compensation for past or future services, rather than whether the stock options have vested, may encourage terminated employees seeking compensation for unvested stock options.

The principle of equal treatment has to be observed if a group of employees with comparable qualifications is granted stock options. If any of the individuals of such a group is excluded from the benefit for no compelling reason, then he may assert contravention of the said principle.

10.3 Tax Treatment

Becoming vested in a stock option and exercising that option are different things, with different tax implications. On exercise of an option, the optionee acquires the underlying stock by paying the strike price –or else cashes in the intrinsic value gain. If acquiring the shares, the employee can hold them (exercise and hold) or sell them (exercise and sell). Exercising the option triggers a tax event. By and large options are not taxed on granting but on exercising –Spain adheres to this dominant practice. Taxing options on granting would trigger serious valuation problems derived from the contingent nature of the award. At present,

only Belgium taxes stock options at grant date. There are no valuation uncertainties on exercise, as the taxable income equals the intrinsic value of the option (the difference between the underlying stock price and the strike price).

Until vested, the *Ibex 35* optionee holds a non-transferable right entitling to a contingent profit (if ending up in-the-money). Taxes are eventually due at two points in time:

-when exercising the option, the intrinsic value gain is taxed as in-kind compensation,

-when selling the acquired shares, the capital gain –or loss- goes into computing the beneficiary's tax liability.

Following the personal income tax (IRPF) reform of 2014 (effective on January 1st, 2015), taxes due on exercise would be waived had the stock option plan be braod-based, i.e. granted to all employees in the firm, or at least to all in the same group or subgroup. Otherwise, a 30 percent reduction (formely 40 percent) on taxable income, up to 300.000 euros, could apply as long as options are not granted yearly, the exercise price is not paid out in installments, and the options are exercised after 2 years following the grant –all clear signals when it comes to designing the stock option plan. Additionally, the amount to which this 30 percent reduction applies is limited to the result of multiplying the annual average income of IRPF taxpayers by the exercise period (from granting to exercise, in years). Yet this reduction would not apply for income that becomes taxable after two years if in the previous five year the tax payer has benefited from this tax break –a temporary waiver of this constraint was passed for options granted before 2015.

Beyond this limit, the optionee's marginal tax bracket would apply. As usual, taxes are partially withheld by the company. Regardless of taxable income be legally labeled as 'in cash' (if the plan provides for full cashless exercise, i.e. no shares are received but the spread in cash) or 'in-kind' (shares are received on option exercise), due personal income tax is equally calculated on the spread gain and benefits from the reduction above described.

When shares are later sold, regular tax on capital gains should be recognized. The gain will be computed as the difference between the proceeds (sale price) and the acquisition cost.

For the *Ibex 35* firm granting the stock option, there would be a hit to earnings that is tax-deductible, as stock options are recognized as an expense.

The interplay of personal and corporate tax rates is likely to shape compensation practices. If the marginal personal tax rate becomes higher than the corporate tax, dividend payout would fall, putting pressure on the stock price and earnings, and then on executives to meet short-term increased expectations. That is detrimental to the long-term value creation pursued with equity-based compensation.

The impact on the bottom line –and in the tax check- would differ according to the company's hedging strategy. If the risk of having to settle in-the-money options is passed on to a financial institution –the risk is hedged away-, as done by many *Ibex 35* granting firms, then the premium paid to hedge the stock option is expensed over the vesting period -and tax-deducted. If no hedging is provided, the company can deal with option exercise either issuing equity or using treasury

stock. Assuming new equity is issued at the strike price -and beyond the dilution effect already discussed-, no further charges other than issuing costs –tax deductible- should be accrued. As far as treasury stock, the standard valuation practices for investments apply until option exercise –if ending up in-the-money-, with the usual tax treatment of gains (and losses) arising from such treasury holdings.

11. Accounting Debate

Accounting for stock options was for long a very controversial topic. Those in favor of expensing the options argue that they are a form of compensation and therefore should be expensed. They blame the lack of expensing as key factor for burst 'bubbles' in the market by failing to adjust earnings –and therefore stock prices- by the value of the options granted.

Critics of mandatory expensing argue in turn that so doing depresses earnings and thus makes it more difficult to raise capital and retain employees.

Others just claim that provided there is full disclosure -either as a footnote or as charge to earnings-, the market should be indifferent to the accounting rules for stock options. Relying on the efficient market hypothesis, they contend that market prices adjust for public (disclosed) information regardless of such disclosure being an expense or a footnote to the financial statements. In theory this view may be justified. In practice, however, information that is disclosed but remains off the accounting statements is unlikely to be fully incorporated into the stock price.

11.1 The Background

The case is whether compensation expense should be recognized for stock options and, if so, the periods over which it should be allocated.

On a comparative basis, an again looking at the U.S. as front-runner in the granting of stock options, before 1995, the provisions of the *Accounting Principles Board (APB) Opinion 25*, issued in 1972, determined accounting for stock options. APB Opinion 25 priced stock options using the intrinsic value method, whereby compensation expense was determined as the excess of the stock price at the measurement date (generally, the grant date) over the option exercise price. Because most stock options have exercise prices at least equal to current market prices (at-the-money), no compensation expense was recognized. This approach ignored any likelihood that the stock price would exceed the exercise price in the future.

In June 1993, the *Financial Accounting Standards Board (FASB)* attempted to recognize the reality of stock option value by issuing the FASB Statement 123, which required pricing the option upon the many factors that reflect its underlying value. Therefore, total compensation expense was to be based on the fair value of the options on the grant date. No adjustments would be made after the grant date in response to subsequent changes in the stock price. Fair value was to be estimated using Black-Scholes or binomial option-pricing models.

Massive opposition to this fair value method, led primarily by industries making significant use of stock options, forced FASB to compromise. In 1995, FASB decided to encourage, rather than require, recognition of compensation cost based

upon the fair value method and to require expanded disclosures. In other words, SFAS 123 required companies that continued to follow APB 25 and did not include stock-option expenses in the income statement, to disclose in the notes to financial statements what such expenses would have been.

11.2 Revised Statement of Financial Accounting Standards

The issue of expensing stock options eventually regained center stage following the widespread concern over deceptive accounting practices at companies accused of fraud (e.g., Enron, WorldCom, Parmalat). Stunned investors began to demand tougher accounting standards for increased transparency in corporate reporting. FASB responded to heightened interest in improved financial reporting with the release in December 2004 of FASB 123 (Revised), *Share-Based Payment*. FASB required public and non-public companies to recognize stock-based compensation in their income statements starting in 2006.

11.3 Converging practices

The move towards expensing was indeed global. The FASB proposal replicated that of its European counterpart, the *European Financial Reporting Advisory Group (EFRAG)* and both were sponsored by the initiative of the *International Accounting Standards Board (IASB)*. The IASB had already passed rules requiring the expensing of options. Since January 1, 2005 treasurers of stock in European Union (EU) capital markets have to treat the cost of providing stock options as an expense on their financial statements.

The International Financial Reporting Standard 2, issued by the IASB in February 2004 "requires an entity to reflect in its profit or loss and financial position the effects of share-based payment transactions, including expenses associated with transactions in which share options are granted to employees" (page 2). The EU Commission Guideline 211/2005 followed, with further details on the accounting treatment of the expense.

Full convergence of international accounting standards is however yet to be achieved, which is highly detrimental for comparability and overall pricing of assets. In the EU, conformity with IASB standards is mandatory for all listed companies. So that is the case for Spain, where the Central Bank has reinforced the practice by requiring financial institutions to accrue stock options as an expense in their income statements (Circular 4/2004).

11.4 Pricing stock options

Because stock options are not transferable and employees' ability to hedge them is restricted, the value of the option to the issuing firm is not the same as the value to the beneficiary. The relevant value to account for would be the value to the issuing firm.

The debate remains open around the pricing of stock options. Most companies apply the Black-Scholes option-pricing model, developed by Nobel laurates Fischer Black and Myron Scholes in 1973. As summarized by Apostolou and Crumbley (2005), this model calculates the present value of a stock option at the grant date, based upon specific information about the terms of the option and

assumptions about future stock price performance. The value of an option reflects the estimate of the price that someone would pay in the market today for the option. Apostolou and Crumbley (2005) go on to remind that the Black-Scholes option-pricing model has non-trivial limitations, notably that it was developed for traded options which have no vesting requirements and are fully transferable.

Accounting standards do not specify which option-pricing model firms should apply in accounting for the stock option fair value, yet they recommend using either Black-Scholes or lattice (e.g. binomial) models.

11.5 Effect on design

The change in accounting for stock options provides companies an excellent opportunity to examine their equity incentive programs, so as to determine if the have effectively linked the expense or cost of these programs to the company, to the value perceived by the employees and their performance.

Under the fair value method, compensation cost is measured at the grant date based on the fair value of the award as opposed to the intrinsic value based method, which only measures the excess of the market price over the exercise price. In general, stock options are granted at the money and therefore have no intrinsic value at the grant date –in the past, no intrinsic value meant no expense.

With expensing as the rule, the incentive to grant compensation while eluding the charge to earnings is no longer there. The opportunity emerges for companies to design option programs that have performance/market conditions. Increases in earnings per share, return on equity or customer satisfaction should become usual

vesting features in optimal contracting design. But persuading managers to give up risk-free –and performance-free- at-the-money stock options is likely to take a diligent board and a a fair amount of shareholder activism.

Expensing options could also be the reason why many firms have chosen to hold back stock option grants. While the debate around accounting for stock options as a compensation expense is seemingly over, the one on the option contract design so as to maximize incentive alignment hereby studied, remains heated.

12. Conclusions – Theoretical and Managerial Implications, Limitations and Further Research

Stock options offer large shared benefits for both management and shareholders, but unless carefully designed, their potential may evaporate.

By conducting a systematic analysis of stock option contract design in large capitalization listed companies in Spain –using the *Ibex 35* index as proxy-, this research expects to feed the current debate –both in the literature as in the market- on stock options as efficient compensation tools. Given the mounting demand for higher pay-to-performance sensitivity, and as a contribution to managerial practice, this empirical study aims at increased incentive-alignment in the design of stock option plans in Spanish firms. From an agency theory perspective, a blend of the optimal contracting and the managerial power approaches are applied to identify significant deviations from the incentive-alignment paradigm.

Managers are likely to exert control over the amount of money they get. However, generalizing that all managers selfishly engage in a rent-extracting behavior would be at least a questionable assumption. Individual motivations are more broadly based, as psychological economics claims and stewardship theory reinforces. Agency theory need not necessarily be confronted with stewardship theory. Managers can –and are expected to- be stewards of corporate goals. The threat that they may misuse their delegated control over the firm's assets is however likely to make agency theory preferable when it comes to design compensation contracts.

Self-serving managers should be counterbalanced by diligent boards in order to reach incentive-aligning contracts. Such contracts should follow optimal contracting rationale yet would be seasoned by some managerial power inevitably built in the pay-setting process. Corporate governance guidelines should contribute to reach such balanced outcome. Avoiding excessive management influence over board composition and promoting shareholder activism are among the initiatives that would eventually secure arm's length bargaining when dealing with compensation contract design.

The recurrent choice of the at-the-money exercise price, along with the near-universal absence of performance-vesting practices suggests some degree of managerial power influencing the pay-setting process in our sampled firms. Converserly, the construct of vesting to maturity ratio hereby developed, that accounts for the option exercise window, points at a fair amount of optimal contracting informing the contract design, as *Ibex 35* optionees are largely given limited time to exercise their vested options. When looking at repricing, optimal

contracting arguably prevails in our sampled firms, as none of them allows this controversial practice. Finally, post-exercise trading restrictions remain rather rare among *Ibex 35* firms –only four companies set such constraint-, yet the observed inverse relationship to vesting –longer vesting to make up for no trading restrictions, as argued in this study- suggests a blend of optimal contracting and managerial power shaping the stock option contract.

Furthering the empirical nature of this study, in an effort to draw evidence-based conclusions, a panel data analysis is conducted, so as to quantitatively test the hypotheses that stock options do positively impact the firm's risk-adjusted returns and so does the choice of contract design. Both claims are validated for the sampled firms, yet with varying degrees of significancy. Such an outcome suggests the value of replicating the study at a future date and/or with longer time series as opportunities for future research.

Despite recent declines in the use of stock options, they are still a significant component of long-term incentives in large capitalization firms. The use of a broader portfolio of compensation tools could be explained by the fact that the right mix for each individual company is a function of many different factors, including firm size, maturity, profitability and cash-flow.

This study examines compensation practices in large listed Spanish firms, where stock options could act as a remedy to agency problems arising from significant ownership dispersion. It follows that the findings hereby discussed, and their implications, apply to the sampled companies, and potentially to the large

capitalization set they represent, bound by the specificities of the Spanish marketplace, over the fairly extensive time frame considered.

In today's increasingly globalized financial and labor markets, where human capital is an undeniable source of competitive advantage, the design of compensation contracts should be appraisable and as such factorable into stock prices. By the same token, the war for talent asks for comparability in pay practices, so as to attract, retain and motivate diverse and bounderyless employees. So building on that, extending this research to the study of stock option contracts across different markets, represents another opportunity for future research.

Compensation contract design, along with dilution and expensing remain shareholders' biggest concerns when it comes to stock options. However, incentive-aligning contracts yield positive net present value when dilution and compensation costs are lower than the incremental shareholder value created by managers provided with properly designed incentives.

References

Abernethy, M., Y. Kuang and B. Quin, (2015); 'The Influence of CEO Power on Compensation Contract Design', The Accounting Review, Vol. 90, 4, pp. 1265-1306.

Abowd, John M., and David S. Kaplan, (1999); 'Executive Compensation: Six Questions That Need Answering', Journal of Economic Perspectives, vol. 13, pp. 145-169.

Acharya, V.V., K. John and R.K. Sundaram, (2000); 'Contract renegotiation and the optimality of resetting executive stock options', Journal of Financial Economics, 57, 65-101.

Alves, S. (2010); 'The controversy over Accouting for Stock Options: A Literature Review', International Journal of Finance and Economics, 53, pp. 7-25.

American Institute of CPAs (AICPA); 'Summary of the Sarbanes-Oxley Act of 2002', *http://www.aicpa.org/info/sarbanes_oxley_summary.html*

Amihud, Y. and H. Mendelsson, (1986); 'Asset pricing and the bid-ask spread', Journal of Financial Economics, 1986, vol. 17, issue 2, pages 223-249.

Anand, Anita I., (2005); 'An Analysis of Enabling vs. Mandatory Corporate Governance Structures Post Sarbanes-Oxley', Delaware Journal of Corporate Law, Vol. 31, No. 1, p. 229-252.

Anderson, E., (1985); 'The Sales Person As Outside Agent of Employee: a Transaction Cost Analysis', Marketing Science 4, pp. 234-54.

Ansoff, H. I., (1965); 'Corporate Strategy', McGraw-Hill Inc., USA (July 1965).

Argawal, A. and G. Mandelker, (1987); 'Managerial incentives and corporate investment and financing decisions', Journal of Finance, 42, pp. 823-37.

Akerlof, G., (1970); 'The Market for Lemons: Qualitative Uncertainty and the Market Mechanism', Quarterly Journal of Economics, 84(3), pp. 488-500.

Apostolou, N. and D.L. Crumbley (2005); 'Accounting for Stock Options: Update on the Continuing Clonflict', The CPA Journal Online, http://archives.cpajournal.com/2005/805/essentials/p30.htm

Baker, G., Jensen, M. and Murphy, K., (1988); 'Compensation and Incentives: Practice vs. Theory', Journal of Finance 43, pp. 593-616.

Baker G., (2002); 'Distortion and risk in optimal incentive contracts', Journal of Human Resources, Autumn 2002, Volume 37, Issue 4, pp.728-751.

Barkema, H.G. and L.R. Gomez-Mejia, (1998); 'Managerial compensation and firm performance: A general research framework'. Academy of Management Journal, 41, 2, 135-145.

Bebchuk, Lucian, and Jesse M. Fried, (2003); 'Executive Compensation as an Agency Problem', Journal of Economic Perspectives, vol. 17, pp. 71-92.

Bebchuk, Lucian; Jesse M. Fried, and David I. Walker, (2002); 'Managerial Power and Rent Extraction in the Design of Executive Compensation', University of Chicago Law Review, vol. 69, pp. 751-846.

Becht, M. and Colin Mayer, (2001); 'Introduction', in Fabrizio Barca and Marco Becht (eds.), 'The Control of Corporate Europe', Oxford University Press.

Benz, Matthias, Marcel Kucher and Alois Stutzer, (2001); 'Are Stock Options the Managers' Blessing? Stock Option Compensation and Institutional Controls', IEW - Working Papers 061, Institute for Empirical Research in Economics.

Berle, Adolf and Gardiner C. Means, (1932); 'The Modern Corporation and Private Property', New York, Revised Edition, 1967.

Black, B.S. (1992); 'Agents Watching Agents: the Promise of Institutional Investors Voice'; UCLA Law Review, 39, 811-893.

Brenner, M., R. K. Sundaram and D. Yermack, (2000); 'Altering the Terms of Executive Stock Options', Journal of Financial Economics, 57, 103-28.

Bühner, R., A. Rasheed, J. Rosenstein and T. Yoshikawa (1998); 'Research on Corporate Governance: a Comparison of Germany, Japan and the United States', in J.L.C. Cheng and R.B. Peterson (Eds), Advances in International comparative management, 12, pp. 121-155. Stamford, CT, JAI Press.

Burkart, Mike, Denis Gromb and Fausto Panunzi, (1997); 'Large Shareholders, Monitoring, and the Value of the Firm', The Quarterly Journal of Economics, August 1997.

Calcagno, R. and F. Heider, (2003); 'Market-based Compensation, Trading and Liquidity', EFA 2003 Annual Conference Paper No. 881.

Carpenter, Jennifer N., (2000); 'Does Option Compensation Increase Managerial Risk Apetite?', Journal of Finance, vol. 55, pp. 2311-2331.

Charkham, J., (1992); 'Corporate Governance: Lessons from Abroad', European Business Journal 4(2), pp. 8-16.

Child, J. and Rodrigues, S. (2003), 'Corporate Governance and New Organizational Forms: Issues of Double and Multiple Agency', Journal of Management and Governance, Volume 7, Issue 4, pp 337-360.

Coase, Ronald (1937), 'The Nature of the Firm', Economica (Blackwell Publishing) 4 (16), pp. 386–405.

Comisión Nacional del Mercado de Valores, 'Código de Buen Gobierno de las Socieadades Cotizadas', 2015.

Córdoba Bueno, Miguel, (2001); 'Guía de las stock options, Planificación, objetivos, financiación, fiscalidad y contabilidad', Edición dirigida por José Luis Urquijo, Ediciones Deusto, 2001.

Core, John E.; Wayne R. Guay, and David F. Larcker, (2002); 'Executive Equity Compensation and Incentives: A Survey', Economic Policy Review, vol. 9, pp. 27-50.

Cyert, Richard M., Sok-Hyon Kang and Praveen Kumar, (2002); 'Corporate Governance, Takeovers, and Top-Management Compensation: Theory and Evidence', Management Science, Volume 48, Issue 4.

Dalton, D.R., C.M. Daily, S.T. Certo and R. Roengpitya, (2003); 'Meta-analyses of Financial Performance and Equity: Fusion or Confusion?' Academy of Management Journal, 46, 13-26.

Damodaran, A., (2005); 'Employee Stock Options (ESOPs) and Restricted Stock: Valuation Effects and Consequences', New York University, Stern School of Business Working Paper, September 30, 2005.

Dávila, Antonio and Fernando Peñalva, (2004); 'Corporate Governance and the Weighting of Performance Measures in CEO Compensation', Working Paper 556, CIIF, IESE,Universidad de Navarra (May 2004).

Davis, James H. F., David Schoorman, and Lex Donaldson, (1997); 'Toward a stewardship theory of management.' Academy of Management Review 22/1: 20-47.

Deci, E.L., R. Koestner and R.M. Ryan, (1999); 'Meta-Analytic Review of Experiments: Examining the Effects of Extrinsic Rewards on Intrinsic Motivation'. Psychological Bulletin, 125, 627-668.

Demsky, J., (1980), 'A Simple Case of Indeterminate Financial Reporting', Working Paper, Stanford University, 1980.

Dittmann, Ingolf and Ernst G. Maug, (2003); 'Lower Salaries and No Options: The Optimal Structure of Executive Pay', Working Paper Nº 32/2003, November 2003, ECGI Working Paper Series in Finance.

Donaldson, L. and J.H. Davies, (1991), 'Stewardship Theory or Agency Theory: CEO Governance and Shareholder Returns', Australian Journal of Management, 16, pp. 49-64.

Donaldson T. and L.E. Preston, (1995); 'The stakeholder theory of the corporation: concept, evidence and implications', Academy of Management Review, 20 (1), pp. 65-91.

Eisenhardt, K. (1988), 'Agency and Institutional Explanations of Compensation in Retail Sales', Academy of Management Journal, 31, pp. 488-511.

Elson C, Helms P. and J. Moncus, (2002); 'Corporate Governance Reform and Re-emergence from Bankruptcy: Putting the Structure back in Restructuring', 55 Vanderbilt Law Review, 1917, November 2002.

European Community Internal Market Directorate General, March 2002; 'Comparative Study of Corporate Governance Codes Relevant to the EU and its Member States'.

Fahlenbrach, R., (2009); 'Shareholder Rights, Boards and CEO Compensation', Review of Finance, 13, 1, pp. 81-113.

Fama, E.F., (1990); 'Contract Costs and Financing Decisions', Journal of Business, 63, 71-90.

Fama, E.F. and M.J. Jensen (1983); 'Separation of Ownership and Control', Journal of Law and Economics, 26, pp. 301-325.

Ferrarini, G. and N. Moloney (2004); 'Executive Remuneration and Corporate Governance in the EU: Convergence, Divergence, and Reform Perspectives', European Company and Financial Law Review, 1, 3, pp. 251-339.

Florin, B., K. Hallok and D. Webber, (2010); 'Executive Pay and Firm Performance: Methodological Considerations and Future Directions', CRI 2010-012, Cornell University, ILR School, Compensation Research Initiative (2010).

Frey, Bruno and Margit Osterloh, (2005); 'Yes, Managers Should Be Paid Like Bureaucrats', CESifo Working Paper 1379.

Fuller, J. and M. Jensen, (2002); 'Just Say No to Wall Street. Putting a stop to the Earnings Game'; Journal of Applied Corporate Finance, Winter 2002, 41-46.

Garen, John E., (1994); 'Executive Compensation and Principal-Agent Theory', Journal of Political Economy, vol. 102, pp. 1175-1199.

Gedajlovic Eric R. and Daniel M. Shapiro, (1998); 'Management and Ownership Effects: Evidence from Five Countries', Strategic Management Journal, 19, 533-553.

Gervais, Simon, J.B. Heaton and Terrance Odean, (2003); 'Overconfidence, Investment Policy and Executive Stock Options', Rodney L. White Center for Financial Research Working Paper No. 15-02.

Gibbons, G. T., and K. J. Murphy, (1990); 'Relative Performance Evaluation for Chief Executive Officers', Industrial and Labor Relations Review, 43.

Gorman, R. F., (1986); 'Executive Compensation and Firm Size: an Agency Perspective', Studies in Economics and Finance, Vol. 10, Iss 1, pp. 60–71.

Grossman, Sanford J., and Oliver D. Hart, (1983); 'An analysis of the principal-agent problem', Econometrica, vol. 51, pp. 7-45.

Hall, Brian J., and Jeffrey B. Liebman, (1998); 'Are CEO Really Paid Like Bureaucrats?', Quarterly Journal of Economics, vol. 112, pp. 653-691.

Hall, Brian J., and Kevin J. Murphy, (2002); 'Stock Options for Undiversified Executives', Journal of Accounting and Economics, vol. 33, pp. 3-42.

Harris, M. and A. Raviv, (1979); 'Optimal Incentive Contracts with Imperfect Information', Journal of Economic Theory, 20, pp. 231-59.

Hartzell, Jay and Laura Starks, (2003); 'Institutional Investors and Executive Compensation', Journal of Finance, Vol. LVIII, 6, 2351-2374.

Hofstede, G., (1980); 'Culture's Consequences: International Differences in Work-related Values', Beverly Hills, CA, Sage.

Hofstede, G. (1991), 'Cultures and Organizations: Software of the Mind'; London, McGraw-Hill.

Ingersoll, Jonathan E., (2002); 'The Subjective and Objective Evaluation of Incentive Stock Options', Yale ICF Working Paper.

Jensen, Michael C., and W. H. Meckling, (1976); 'Theory of the Firm: Managerial Behavior, Agency Costs, and Capital Structure', Journal of Financial Economics, 3, pp. 305-360.

Jensen, M. and R. Roeback, (1983); 'The Market for Corporate Control: Empirical evidence', Journal of Financial Economics, 11, pp. 5-50.

Jensen, M.C., (1989); 'Eclipse of the Public Corporation', Harvard Business Review 67(5), pp. 67-74.

Jensen, Michael C., and Kevin Murphy, (1990); 'Performance Pay and Top-Management Incentives', Journal of Political Economy, vol. 98, pp. 225-264.

Jensen, Michael C., (1994); 'Self-Interest, Altruism, Incentives and Agency Theory', Journal of Applied Corporate Finance, 7, 2, pp. 40-45.

Jensen, Michael C. and Murphy, Kevin J., (2010); 'CEO Incentives - It's Not How Much You Pay, But How', Journal of Applied Corporate Finance, Vol. 22, No. 1, pp. 64-76.

John, Teresa A., and Kose John, (1993); 'Top Management Compensation and Capital Structure', Journal of Finance 48, 949-974.

Johnson, Shane A. and Yisong Tian (a), (2000); 'Indexed Executive Stock Options', Journal of Financial Economics, vol. 57, pp. 35-64.

Johnson, Shane A. and Yisong Tian (b), (2000); 'The Value and Incentive Effects of Nontraditional Executive Stock Option Plans', Journal of Financial Economics, vol. 57, pp. 3-34.

Jost, Peter J., and Florian C. Wolff, (2003); 'Subjective Expected Utility Theory and the Value and Incentive Effects of Stock Options for Executives', Discussion Paper No. 03-05, German Economic Association of Business Administration.

La Porta, Rafael and Lopez de Silanes, Florencio and Shleifer, Andrei, (1999); 'Corporate Ownership Around the World', Journal of Finance 54, pp. 471-517.

La Porta, Rafael and Lopez de Silanes, Florencio and Shleifer, Andrei and Vishny, Robert W. (2000); 'Investor Protection and Corporate Governance', Journal of Financial Economics, 58, pp. 3-27.

Lambert, Richard A., (1986); 'Executive Effort and Selection of Risky Projects', Rand Journal of Economics, vol. 17, pp. 77-88.

Lazonick, William, and Mary O'Sullivan, (2000); 'Maximizing Shareholder Value: A New Ideology for Corporate Governance', Economy and Society 29/1: 13–35.

Lazzari, Walter, (2001); 'Myths of Shareholder Value and Efficiency', European Business Forum, Issue 5, Spring 2001.

Macey, J.R. and G.P. Miller, (1995); 'Corporate Governance and Commercial Banking: a Comparative Examination of Germany, Japan and the United States'. Stanford Law Review, 48, 72-112.

Margrabe, W., (1978); 'The Value of an Option to Exchange One Asset for Another', Journal of Finance, 33, 177-186.

McColgan, Patrick, (2001); 'Agency Theory and Corporate Governance: A Review of the Literature from a UK Perspective', University of Strathclyde in Glasgow, Department of Accounting and Finance, Working Paper Series.

McPhie, N. and B. Sapin (2006); 'Designing an Effective Pay for Performance Compensation System', A Report to the President and the Congress of the United States by the U.S. Merit Systems Protection Board, 2006.

Meulbroek, Lisa, (2001a); 'The Efficiency of Equity-Linked Compensation: Understanding the Full Cost of Awarding Executive Stock Options', Financial Management, vol. 30, pp. 5-30.

Meulbroek, Lisa K., (2001b); 'Executive Compensation Using Relative-Performance-Based Options: Evaluating the Structure and Costs of Indexed Options', Harvard Business School Working Paper 01-021.

Mohan, B., M. Norton and R. Deshpandé, (2015), 'Paying Up for Fair Pay: Consumers Prefer Firms with Lower CEO-to-Worker Pay Ratios', Harvard Business School Working Paper, No. 15-091, May 2015.

Monks, R. A. G. and N. Minow; 'Corporate Governance', 5th Edition, Wiley-Blackwell, 2011.

Muslu, Volkan, (2010); 'Executive Directors, Pay Disclosures, and Incentive Compensation in Large European Companies', Journal of Accounting, Auditing & Finance (October 2010), 25, pp. 569-605.

OECD; 'OECD Principles of Corporate Governance', Revised Version, 2015.

Ofek, E. and D. Yermack, (2000); 'Taking Stock: Equity-Based Compensation and the Evolution of Managerial Ownership', The Journal of Finance, Vol. LV, 3, June 2000, pp. 1367-1384.

Perrow, C., (1986); 'Complex organizations', New York, Random House.

Porter, M. E., (1990); 'The Competitive Advantage of Nations', Free Press, 1998.

Porter, M. and M. Kramer, (2011); ,Creating Shared Value', Harvard Business Review, January-February 2011, pp. 1-17.

Poutsma, E., Moerel, H. and Paul EM Lighart, (2015); 'Multinational Enterprises: Comparing Performance-related Pay between Companies in Eastern and Western Europe', Journal of Industrial Relations, Vol. 57(2), 291-316.

Rappaport, A., (1999); 'New Thinking on How to Link Executive Pay with Performance', Harvard Business Review, (March-April), pp. 91-101.

Roe, M.J., (1993); 'Some differences in corporate structure in Germany, Japan, and the United States', Yale Law Journal, 102, pp. 1927-2003.

Roe, Mark J., (1994); 'Strong Managers, Weak Owners: the Political Roots of American Corporate Finance', Princeton University Press, 1994.

Ross, Stephen A., (2003); 'Compensation, Incentives, and the Duality of Risk Aversion and Riskiness', Mimeo, MIT.

Saez, Emmanuel, (2008); "Striking It Richer: The Evolution of Top Incomes in the United States", Pathways Magazine, Stanford Center for the Study of Poverty and Inequality, Winter 2008, 6-7

Saly, P.J., (1994); 'Repricing executive stock options in a down market', Journal of Accounting and Economics 18, 325-356.

Sánchez Calero, Fernando; 'Instituciones de Derecho Mercantil', Volumen I, 24º Edición, McGraw Hill, p. 395 y ss.

Sepe, Simone M., (2011); 'Making Sense of Executive Compensation', 36 Delaware Journal of Corporate Law 189; Arizona Legal Studies Discussion Paper No. 10-42.

Sharpe, William F., (1964); 'Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk', Journal of Finance, 19 (3), pp. 425–442.

Smith, C. and Rene Stulz, (1985); 'The Determinants of Firm's Hedging Policies', Journal of Financial and Quantitative Analysis, vol. 20, pp. 391-405.

Sociedad de Bolsas S.A., (2010); 'Technical Regulations for the Composition and Calculation of the Sociedad de Bolsas S.A. Indexes', March 2010.

Tian, Yisong S., (2001); 'Optimal Contracting, Incentive Effects and the Valuation of Executive Stock Options', Mimeo, York University (Canada).

Tirole, Jean, (2006); 'The Theory of Corporate Finance'; Princeton University Press.

Thompson, Michael A. and Frederic Cook, (1998); 'The True Cost of Stock Options', retrieved from www.fredericwcook.com on April 19, 2006.

Trías Sagnier, Miguel, (1998); 'El Informe Olivencia sobre el gobierno de las grandes empresas', Revista del Poder Judicial, 51.

Trías Sagnier, Miguel, (2003); 'El Consejo de Administración como Órgano Garante del Buen Gobierno en la Sociedad Cotizada', Revista de Derecho de Sociedades, n° 21, pp. 165-190.

Tusquets Trías de Bes, F., (1998); 'La Remuneración de los Administradores de las Sociedades Mercantiles de Capital', Civitas, Madrid.

Ubelhart, M., (1981); 'A New Look at Executive Compensation Plans', Cash Flow, nº 2, pp. 20-24.

Vázquez Lepinette, T., (2000); 'Los Planes de Opciones sobre Acciones (Stock Options): Perfiles Jurídicos-Privados', Revista de Derecho de los Negocios 120, p. 1 y ss.

Vives, X., (1995), 'Short-term Investment and the Informational Efficiency of the Market', Review of Financial Studies, Volume 8, Number 1, 1995, pp. 125-160(36).

Walsh, J.P. and J.K. Seward, (1990), 'On the Efficiency of Internal an External Corporate Control Mechanisms', Journal of Management Review, 15, pp. 421-458.

Wells, Harwell, (2010), 'The Birth of Corporate Governance', Seattle University Law Review, Vol. 33, No. 4, p. 1247-1292.

Williamson, O.E., (1985), 'The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting', New York: Free Press.

Wiseman, R., Cuevas-Rodríguez, G. and L. Gómez-Mejía, (2012); 'Towards a Social Theory of Agency', Journal of Management Studies 49:1, pp. 202-222.

Yermack, David, (1995); 'Do Corporations Award CEO Stock Options Effectively?', Journal of Financial Economics, vol. 39, pp. 237-269.