Does the State design the right incentives for CEOs? Executive compensation in EU "hybrid" companies*

Carlo Cambini†
Politecnico di Torino and IEFE-Bocconi University

Sara De Masi‡
Kent State University and University of Florence

Andrea Paci§
University of Florence

*Laura Rondi***
Politecnico di Torino and CERIS-CNR

Abstract

We study the impact of state ownership on the structure of CEO pay, testing whether it is consistent with optimal contracting or with managerial power and entrenchment within "hybrid" organizations, i.e. companies with elements of both state and private ownership. We use a panel of publicly traded European companies in fixed telecommunications, a highly innovative and competitive industry, where hybrid organizations have survived the privatization process. Our results show that the level of CEO compensation is lower and pay-performance sensitivity is higher in state controlled firms than in private firms. This result suggests the state provides an incentive as well as a monitoring effect. However, when the state holds 50% or more of the shares, the level of CEO pay is significantly related to managerial power, suggesting CEOs may become entrenched with boards where the majority of directors are politically appointed bureaucrats. The entrenchment effect is even stronger in the years of the financial crisis.

JEL Classification: G30, M52, L32, L96

Keywords: CEO Compensation, State Ownership, Telecoms, Large Shareholder, Hybrid organization, Incentive Theory, Entrenchment Theory

* We thank Roberto Di Pietra, Dries Faems, Kose John, Agnieskza Slonka-Golebiowska, R. Williams, Mike Wright and seminar participants to the 4th JMG International Conference (Free University of Bozen, July 2015) and Kent State University Research Seminars (Ohio, US, September 2016) for comments and suggestions on earlier versions of the paper.

† Politecnico di Torino, Department of Management, Corso Duca degli Abruzzi, 24, 10129 Torino, Italy; IEFE-Bocconi University, Milan Tel. +39-0110907292, email: carlo.cambini@polito.it

‡ University of Florence, Department of Economics and Management, via delle Pandette, 32, 50127, Florence, Italy; Kent State University, Florence. Tel. +39-0552658365, email: sara.demasi@unifi.it

§ University of Florence, Department of Economics and Management via delle Pandette, 32, 50127, Florence, Italy; Tel. +39-0552759684, email: andrea.paci@unifi.it

** Politecnico di Torino, Department of Management, Corso Duca degli Abruzzi, 24, 10129 Torino, Italy; Tel. +39-0110907232, email: laura.rondi@polito.it

INTRODUCTION

Executive pay has sparked an intense debate around the world. Compensation plans have been considered a powerful governance mechanism to motivate and discipline managers. The dominant theoretical perspective, called *incentive theory*, or *optimal contracting theory*, (Finkelstein and Hambrick, 1988; Eisenhardt, 1989; Jensen and Murphy, 1990; Core and Lacker 2002) suggests that CEO compensations are designed to align the interests of CEOs and shareholders. According to this view, compensation packages that are sensitive to changes in firm performance reduce the agency problem between managers and shareholders and motivate managers to boost shareholders' value (Jensen and Meckling, 1976; Finkelstein and Hambrick, 1988).

In the recent years, however, excessive CEO pay and corporate scandals have shown an alternative perspective: the board may be "captured" by the CEO, who then obtains favorable compensation packages regardless of firm performance (Bebchuk and Fried, 2004; Gompers et al., 2003; Weisbach 2007; O'Reilly and Main, 2010; Croci et al., 2012). This view is called *managerial power theory* or *entrenchment view.*

The debate about these two views has raised some concerns about the effectiveness of the CEO compensation as a disciplining mechanism. A number of alternative control mechanisms, designed to align the interests of CEO and shareholders, has been thoroughly explored in the scholarly literature (Walsh and Seward, 1990; Rediker and Seth, 1995). Among the others, monitoring by the controlling shareholder is viewed as an important corporate governance mechanism to reduce managerial opportunism (Shleifer and Vishny, 1997; Dalton et al., 2003; Connelly et al., 2010). The controlling shareholder (called also the dominant or large shareholder) has access to preferred information and has enough voting rights to put pressure on the management (Wright and Lockett 2003; Schnatterly et al. 2008, Filatotechev and Wright, 2011). Therefore, the presence of a dominant shareholder may affect managerial incentives by interacting with, or even substituting for, the incentive effect provided by the compensation plans. However, the literature also suggests that

large shareholders are not an unequivocally positive force (Claessens et al., 2002; Ding et al., 2007). For example, they may use their influence to extract private benefits of control (Dick and Zingales, 2004) and induce managers to make decisions to their only advantage (Denis and McConell, 2003). More to the point, large shareholders' decisions may be detrimental to the minority shareholders' interest, giving rise to "principal-principal" conflicts, as defined by a recent branch of the literature (Young et al., 2008).

In this paper, we deem that different types of shareholders exert distinct pressures on the CEO and have significantly different compensation policies (Lehmann and Weigand, 2000; Aguilera et al., 2006; Connelly et al., 2010; Muller-Kahle, 2015). The government as the "large shareholder" represents an interesting case to study. State-owned firms are technically "controlled by the citizens", but they are run by political bureaucrats who have goals that are often dictated by political interests that may be in conflict with social welfare improvements and shareholders' value maximization (Shleifer and Vishny, 1997; Morck et al., 2008, Cornett et al., 2010; Poczter, 2016). This suggests that the state may have different objectives and governance strategies compared to a private shareholder (Ding et al., 2007; Arthurs et al., 2008; Grosman, Okhmatovskiy and Wright, 2016). Hence, the monitoring role and the effect of the state as the controlling shareholder on CEO incentives remains a puzzle (Alchian, 1977; Shleifer, 1998; Young et al., 2008) that calls for investigation.

Our analysis seeks to understand how the state influences CEO incentives, i.e. whether it exacerbates the powers of managers or optimally exploits the incentive effect provided by the compensation package. Indeed, the empirical evidence on the corporate governance of organizations with mixed (i.e. public and private) ownership is scant. As recently stated by Bruton, Peng, Ahlstrom, Stan and Xu (2015), "the rich contextualization of important aspects of management, including aspects of firm strategy and corporate governance, need to be better understood under such varying conditions of state ownership and control" (Ahlstrom, Stan and Xu,

2015: 93). This paper estimates the sensitivity of CEO pay to firm performance controlling for non-linearities in the relationships with firm ownership and CEO-specific variables that the corporate governance literature uses to capture the probability of entrenchment. Most of the studies on the impact of state control focus on privatizations (Meggison and Netter, 2001; Musacchio et al., 2015), on firms in transition economies (Filatotchev et al., 1999; Puffer and McCarthy, 2011; Grosman et al., 2016) or in China (Firth, Fung and Rui, 2006, Chen and Firth, 2009, Conyon and He, 2012). Differently from these papers, we look at the market economies of industrialized countries where, in spite of privatization waves in the 80s and 90s, (partial) state ownership of large companies is still widespread (The Economist, 2012, 2014). The functioning of corporate governance in these companies is therefore of great interest not only for the citizens who are their ultimate owners, but also for many institutional investors that hold the minority stakes. In this paper, we focus on EU fixed telecommunication industry, a competitive, innovative and dynamic market with a relevant presence of "hybrid" organizations, i.e. companies with elements of both state and private ownership and control (Bruton et al., 2015).

In the latest years, CEO remunerations in telecommunication companies have attracted a lot of attention by the media and the public opinion both in the U.S. and in the EU[1]. However, there are at least two other fundamental reasons that make the telecommunication industry a most interesting setting to explore the relationship between CEO incentive and state control. Firstly, since the '80s, governments have liberalized this sector and privatized the state-owned monopolist of fixed telecommunications by taken it public. Today the telecoms industry is the most competitive and liberalized market as compared to other utilities such as electricity, gas and water supply (Bortolotti, Cambini, Rondi and Spiegel, 2011; OECD 2013; Torres and Baciller, 2013). Secondly, although governments are still the controlling shareholders of many telecom companies, they are de facto publicly traded in the stock exchange market and are therefore expected to care for dispersed shareholders' value as well. Privatization and market liberalization, as well as the extraordinary

technological change characterizing the industry in the last decades, lead European fixed telecom companies to make decisions aimed at increasing their efficiency and market value as any other privately-controlled listed company. In terms of corporate governance, however, the most interesting issue about these "hybrid organizations" is about how the interests of private as well as public shareholders are catered by mangers. Indeed, EU companies, such as Orange/France Telecom and Deutsche Telekom or the Swedish Telia Sonera, are partially controlled by national governments but they actually feature as market leaders in the EU telecom industry. Our choice to focus on incentive compensation among other mechanisms of corporate governance also responds to the need to document whether, in European countries, the state as a controlling shareholder link pay to firm performance.[2] While most of the recent studies examines state-controlled firms in emerging countries, particularly China and Russia (see for example, Firth et al 2006; Chen, Firth and Xu, 2009; and the thorough survey by Grosman et al. 2016), we contribute to the literature by providing evidence for the market economies in the European Union.

Specifically, we use a panel of European publicly listed fixed telecom operators, i.e. very large companies which typically used to be state-owned incumbents before the privatization and the liberalization of the industry, tracked from 1999 to 2013.[3] The sample is small, because there is typically one fixed line operator in each country,[4] but consistent, because it includes firms with similar characteristics and historical evolution, not only from state monopoly to partially or fully privatized status, but also from homogeneous (fixed-line) to multi-product business (mobile as well as fixed telephony). This set of firms allows us to study the potential impact of private vs. state ownership on CEO incentives in the light of the empirical predictions of either the incentive or the entrenchment theories, while the intra-industry analysis helps to isolate the influences of other industry-specific factors that may affect CEO compensation packages. Moreover, no other industry presents such an interesting mix of state and privately controlled firms in a substantially competitive industry or plays such a leading role in technological diffusion and public interest.

Because the adoption of more technology-advanced networks, such as fast broadband connection and Next Generation (NG) telecommunication services, positively affects social welfare and country's growth[5], it is crucial that these firms implement performance-enhancing mechanisms of corporate governance that not only align managers' interests and (all) shareholders' goals, but also incentivize the manager to invest in new and riskier technologies. By investigating the functioning of CEO compensation packages, our paper contributes to the industrial policy perspective that is concerned with the effectiveness of governmental interventions (Grosman et al., 2016).

Our findings reveal that the effectiveness of corporate governance mechanisms differs depending on the identity of the controlling shareholder and varies with the size of the stake. In particular, results show that, at lower levels of the controlling stake, the level of CEO compensation is lower and the sensitivity of pay to performance is higher for CEOs in state-controlled firms than in private firms. This suggests an "incentive effect" provided by the state as controlling shareholder. However, when we account for differences in the impact at different cutoffs of the state control (i.e., from 25% to 49% and 50% or more), we find that in firms where the state has the legal majority, the level of CEO pay increases with managerial power as proxied by entrenchment-related variables suggested by the corporate governance literature. This suggests that CEOs are more successful in setting their own pay when they can deal with a board where the majority of directors are politically appointed (Menozzi, et al. 2012; Sun, Mellahi and Wright, 2012), in line with the presence of an "entrenchment effect". Our results complement those by Claessens et al. (2002) who find a negative entrenchment effect on firm value as the stake of the large shareholder (i.e. either the family or the state) becomes larger, and by Inoue, Lazzarini and Musacchio (2013), who find that minority (i.e. less than 50%) government's stakes display a positive effect on firms' return on assets and on the capital expenditures of financially constrained firms with investment opportunities.

Finally, we control for an alternative explanation of the role of state ownership based on firm

size and we extend the analysis by investigating the response of managerial compensations to the recent financial and economic crisis. Our results show that the level of CEO pay actually increased, on average, in the years after 2007 in telecom companies, particularly so the pay of CEOs of firms 50 percent owned by the state, confirming to what extent "managerial power" can effectively insulate compensation packages.

Summarizing, our results imply that in state-controlled telecommunication companies, compensations are designed to motivate the CEO *(incentive effect)* even more than in private firms and that the *entrenchment effect* only surfaces when the state holds the majority stake. This suggests that, in order to have an incentive-consistent compensation policy, the state controlling stake has to remain below the 50%, so that managers can still feel the pressure of minority shareholders and institutional investors and of the market for corporate control. This evidence should be of interest for the policy-makers, who may rethink the role of the state as a controlling shareholder with a long-term growth-oriented agenda.

THEORETICAL FRAMEWORK AND HYPOTHESES

An extensive body of research shows CEO compensations as an effective mechanism to reduce the agency costs between shareholders and managers. Other research points out the limits of this mechanism due to excess managerial power (entrenchment) that leads CEOs to obtain generous compensations regardless of firm performance. The large, or controlling, shareholder is another corporate governance mechanism that is expected to strengthen the monitoring on manager's activities and decides on CEO compensation plans (Shleifer and Vishny, 1997).

This study is underpinned by two main theories: incentive theory (also called optimal contracting theory) and entrenchment (or managerial power) view.[6] Notably, both theories were conceived to understand and spell out the agency problems of firms owned by private investors and only recently there is an effort to adapt and extend this approach to alternative forms of ownership (see the

recent survey on "hybrid organizations" by Bruton et al., 2015).[7] To present our conceptual framework, we start with a brief overview of the two views of the literature on managerial compensation and then we design the special case of the state as the dominant shareholder to derive our testable hypotheses.

Incentive theory

Agency theory was developed by the seminal works of Berle and Means (1932), Jensen and Meckling (1976) and Fama and Jensen (1983), who pointed out that when ownership and control are separated, conflicts of interests between shareholders and managers may arise. Managers can make decisions aimed at the maximization of their own utility instead of shareholders' wealth. Specifically, managers may misuse corporate assets for their own personal benefits at the expense of shareholders. In this view, compensation policies that link CEO pay with shareholders' wealth can be a powerful tool to discourage managerial opportunistic behaviors and decrease conflicts between managers and shareholders (Jensen and Murphy, 1990; Shleifer and Vishny, 1997). There is a vast literature that documents the relationship between CEO compensation and firm performance around the world (see for example, Murphy, 1999 and Fernandez et al. 2013). Much empirical evidence highlights the relevance of executive compensation in providing effective incentives for CEOs. Among the others, Hall and Liebman (1998), Guay (1999); Frydman and Saks (2010) document this relationship for U.S. companies. Abowd and Bognanno (1995); Muslu (2010); Conyon et al., (2011); Fernandez, et al., (2013); Krafft et al. (2014) study CEO compensation packages in an international setting. The main idea is that the higher is the pay for performance sensitivity (i.e., the change in CEO compensation that is associated to a change in the shareholders' value), more closely aligned are the interests of shareholders and managers. In this scheme, shareholders play a crucial role in deciding CEO incentives: shareholders design CEO compensation to maximize their own utility and reduce the conflict of interests between CEO and shareholders. In particular, large shareholders are often viewed as an effective corporate governance

mechanism in reducing the agency costs because their large stake in the corporation justifies the time and expense necessary to monitor management actively. Shleifer and Vishny (1997) argue that in firms with concentrated ownership, the large shareholder can prevent managers from deviating too far from the interests of shareholders. They have a strong incentive to acquire information about managers and, compared with the poorly informed small shareholders, they can be more effective at negotiating managerial incentive contracts that align shareholders with managers' interests. For a sample of U.S. companies, Hartzell and Starks (2003) show that increased institutional ownership concentration is associated to with higher CEO pay for performance sensitivity and it is negatively related to CEO pay. In an interesting study, Croci et al. (2012) show that, in European continental companies, the differences in both the level and the incentive of CEO compensations depend on the ownership structure.

Thus, two central propositions arising from incentive theory concern the design of optimal CEO compensation contracts and the influence of the large shareholder on CEO incentives.

Entrenchment view

An alternative view is the entrenchment theory. Bebchuk and Fried (2004) argue that executive pay practices cannot be explained by a model in which shareholders contract optimally with the CEO. Rather, they point out that the board of directors is influenced by its CEO, who indeed often succeeds in effectively setting his own pay. The idea is that the CEO has a good deal of control over the board, and this control includes the power to set a large part of his own compensation (Weisbach, 2007). There is a number of reasons why the board is likely to consider the CEO's interests rather than the interests of the shareholders. For example, CEOs who also retain the position of chairman (so called CEO Duality) will tend to have a greater influence over the selection of board members. A powerful CEO may try to appoint non-executive directors who are unlikely to question proposals and business decisions, or he/she could reduce the disclosure of information to other board members (Rutherford *et al.*, 2007; Hardwick *et al.*, 2011). In the

existing literature, CEO duality and CEO tenure are often used as relevant variables to capture CEO entrenchment. When the board is entrenched with the CEO, also the CEO compensation becomes very generous. Bebchuk and Fried (2004), Bebchuk and Grinstein (2005), Boyd *et al*. (2011) prove such relationship. The straightforward prediction from the entrenchment view is that CEO pay will be higher and CEO pay for performance sensitivity lower in firm where the CEO has more power.

Contrary to the incentive view, the large shareholder might exacerbate the entrenchment effect. Shleifer and Vishny (1997) point out "large investors may represent their own interests, which need not coincide with the interest of other investors in the firm" (p. 758). Controlling shareholders can expropriate wealth from minority shareholders in several ways (Morck and Yeung, 2003; Bertrand and Schoar, 2006; Croci et al., 2012) including executive compensation. In particular, in some companies controlled by a large shareholder, those controlling the firm will not hire professional managers but rather install themselves, or affiliated members, in those positions (Bebchuck and Fried, 2006). CEOs of these companies might well have a lot of power and use this power to extract rents through their executive compensation. Thus, while the large shareholder might be an effective corporate governance mechanism to monitor management, reduce agency conflict and give strong incentives for the CEO (i.e. incentive effect), it might also be a source of rent-extraction from firm's resources (i.e. entrenchment effect).

Combining incentive theory and entrenchment view: The state as controlling shareholder

As discussed above, when ownership is concentrated in the hand of one owner that has the effective control of the firm (as in most countries, see La Porta, 1999; Faccio and Lang, 2002), whether the incentive or the entrenchment effect prevails becomes an issue of great interest for shareholder wealth. On the one hand, several studies identify large shareholders as a key mechanism to curb agency costs and increase monitoring on management (Muller-Kahle, 2015). Other research shows instead that entrenchment of large shareholders through pyramidal groups and

crossholdings makes difficult for minority shareholders to detect actions that benefit the controlling shareholders or select board members that are more likely to monitor and are less likely to support the dominant owner (Bebchuck et al., 2000; Chen et al., 2010). Overall the empirical evidence on the impact of dominant owners is mixed (Glassman and Rhoades, 1980; Demsetz and Lehn, 1985; Claessen et al, 2002; Dalton et. al, 2003). This suggests a need for a deeper understanding of the interaction between the largest shareholder and the CEO incentives as well as of the institutional characteristics that may lead the large shareholder to behave in line or against with minority shareholders' interest. More to the point, we need a deeper understanding and more evidence for the case when the government is the large shareholder (see Grosman et al. 2016, for the case of state-controlled firms in transition economies, but also Inoue et al. 2013, for the case of minority stakes held by the state).

In the recent years there has been a growing pressure on politicians to limit the excess in the management pay (see Smith, Thompson and Wright, 2014, on the adoption of say-on-pay schemes to curb pay excesses). Within state-controlled utilities, however, Joskow, Rose and Wolfram (1996) show that political constraints impose a cap on the level of CEO compensation (see Cambini, Rondi and De Masi, 2015, for empirical evidence in the energy industry). State-owned firms have been forced to restrict the CEO compensation especially in companies considered as "strategic" for national interests, where a more efficient scrutiny of managerial decisions is expected (Barontini and Bozzi, 2011). Finally, since directors are often politicians or appointed by politicians, they are highly visible and under direct public opinion pressure, and they may be reluctant to allow high levels of compensation. In this line of reasoning, we expect that CEO compensation is lower in companies with state controlling owner. Our first hypothesis follows from the preceding argument:

Hypothesis 1: In state-controlled firms, CEO compensation is lower than in privately controlled firms.

However, as discussed in the Introduction, the telecom industry is a very complex and dynamic environment, where managerial talent is crucial in order to keep up with the pace of technological change and with aggressive business strategies of the entrants as well as of the incumbents. If, for political reasons, state firms cannot pay their managers at least as much as private firms (Joskow et al. 1996), how can they survive the competition in the increasingly integrated European telecommunication market? We argue that one possible solution may be to hire talented managers who, according to Fama (1980), are more attracted by high pay-performance sensitivity than by high (but capped) levels of compensations. Another possibility may be to rely on young managers who are more inclined to accept incentive contracts with lower base compensation and high-powered incentives that imply a tighter link between pay and performance (Serfling, 2014). And indeed, one interesting characteristic of telecom companies is that their CEOs are usually comparatively younger than in other industries (Anderson, Banker and Ravindran, 2000), which is perhaps not surprising, given the technological competences that are expected from the CEO. Altogether, these features – the political constraints imposed by public opinion, the need for aggressive and talented CEOs and the young age and flexibility required to executives to cope with the technological challenge – may contribute to design the compensation policy for state controlled firms in the telecom industry and make them offer incentive contracts that imply higher pay-performance sensitivity as a mechanism to attract young, talented managers. From the preceding arguments, we derive our second testable Hypothesis:

Hypothesis 2: CEO pay for performance sensitivity in state-controlled companies is higher than in privately controlled ones (incentive effect).

The corporate governance literature suggests that there are two competing views on the role of large shareholders: they can either mitigate agency problem through optimal contracting or exacerbate it through executive entrenchment. In this section, we discuss that the incentive effect and the entrenchment effect may be different according to the type of the controlling shareholder.

In firms where the state is the large shareholder, several problems arise from the multiple goals and the multiple principal nature of government (Tirole, 1994; Martimort, 1996) and the agency costs might be exacerbated (Dixit, 1997; Ding et al., 2007; and Menozzi et al., 2012 for recent empirical evidence that politically connected directors have positive effect on employment, but a negative impact on firm performance). State-owned firms are in principle widely held by the citizens, but they are generally overseen by politicians who ultimately appoint the CEOs who in turn are more likely to be loyal to politicians. Not surprisingly, therefore, politically connected CEOs often have goals that are in conflict with shareholder wealth and social welfare maximization, but are instead dictated by political interests. State-owned firm may be thus used to achieve political goals at the cost of both efficiency and longer-term objectives (Shleifer and Vishny, 1994). This suggests that, when the state is the controlling shareholder, the agency costs are relevant and multifaceted and the provision of incentives to managers/bureaucrats might be a very complicated issue. Moreover, in the case of mixed-ownership, i.e. publicly listed firms, such as telecoms, there is the co-habitation of multiple public principals with private investors.[8] In the ideal setting, the state effectively controls the decisions of firms having (all) shareholders' interest in mind and the board of directors sets the CEO compensation package in line with optimal contracting theory. In this ideal case, state ownership and corporate political ties would appear to bring contingent value to the firm (Sun et al., 2012; Bortolotti, Cambini and Rondi, 2013). Alternatively, when the state holds such a large share that it may provide a shield from the market for corporate control, its representatives might become entrenched with the CEO and design a remuneration contract with a hefty base compensation and a weak relationship with firm performance. Our third hypothesis is thus the following:

Hypothesis 3: As the shareholding of the state increases, the incentive effect is likely to give way to the entrenchment effect; when this happens, CEOs obtain higher and less sensitive compensations.

SETTING THE RIGHT INCENTIVE: CEO PAY IN "HYBRID" TELECOM COMPANIES

Designing effective incentives for the CEO is a common problem in every company. What makes telecommunication companies different from the other companies? Why do CEO incentives in these firms differ from the other firms? Telecommunication industry has some peculiarities that make this sector a perfect setting to test the incentive and the entrenchment effect of the controlling shareholder.

The first feature relates to the ownership structure. After the liberalization and the privatization, many European telecommunication companies went public, opening their capital to new investors that naturally aim to maximize firm value. Although some firms have been fully privatized, state-ownership still survives in many telecoms where private investors sit in the board of directors along with government representatives. Private and state owners have different objectives that may design different incentives for the CEOs. Shleifer (1998) argues that managers in state-owned firms have lower incentives to reduce costs and stronger tendency to transfer resources from the state-owned firm to political supporters. On the other hand, some contributions support an opposite thesis. Vickers and Yarrow (1991) document that the agency problem applies whatever the nature (private or public) of the principal. Empirical evidence on this particular issue is scant. The heterogeneity in the ownership structure of telecommunication companies is a strong motivation to test the effect of the state on CEO incentives.

The second feature is about the industry. In all other sectors where state ownership still exists (mainly public utilities such as energy, water supply, or toll-road sector), the market is usually not competitive and not very innovative. In such industries, the managers of state-owned firms are not under the pressure of a competitive, highly dynamic market and their incentives may be weaker than in more competitive markets. In the case of telecommunication industry, instead, the market has become highly competitive and a number of technological innovations have been introduced after the liberalization, such as the digitalization and, more recently, the adoption of ultra-fast

broadband networks. Following Hart (1983), the recent literature has emphasized the impact of product market competition in shaping managerial compensation though typically in privately-controlled firms (Raith, 2003; Cunat and Guadalupe, 2005). To stay competitive, telecommunication companies have to invest in innovative projects that are: (1) risky, (2) unpredictable, (3) long-term and (4) multistage, (5) labor intensive and (6) idiosyncratic (Holmstrom, 1979). They are risky because the probability of failure is high. They are unpredictable because the future contingencies are impossible to predict. They are long-term and multi-stage, because a project takes time to be developed and it needs multiple stages. They are labor intensive because all stages require substantial human effort. Lastly, they are idiosyncratic because it is difficult to compare an innovative project with others. All these features raise the problem to give the right incentives to the CEO to push him to undertake projects which are innovative and profitable for the firm. Thus, CEO pay for performance sensitivity might be higher in telecommunication companies than in other companies to meet the higher risks and the higher volatility as well as technological challenges of the industry (see footnote 1 for an example from France Telecom).

The third feature relates to the firm size. Fixed telecommunication operators are typically very large. They are ex-incumbents or they have expanded recently thanks to merger and acquisition with other firms. Rosen (1992), Murphy (1999) and Gabaix and Landier (2008) show that talented managers prefer large firms. This suggests that compensation packages may be used as a mechanism to attract and retain talents. Thus, the level of CEO compensation may be higher than in other companies.

The last feature relates to the dynamism of the managerial labor market. As we have already pointed out, the telecom industry is keen on hiring young CEOs who are deemed as more open to technological innovation and more flexible to change. This industry is therefore also characterized by a very dynamic managerial labor market (Anderson, Banker and Ravindran, 2000) where change

as well as CEO turnover more likely. CEO turnover should be controlled for, since in the year of dismissal or quit, the exiting CEO's pay increases.

All these peculiarities make hybrid telecommunication companies an ideal setting to test the impact of state ownership on CEO compensation and to understand the monitoring role of the controlling shareholder interacts with the governance mechanism of executive pay. We use these insights to enrich the principal-agent theory, managerial power theory of CEO compensation and the efficiency of the state ownership.

SAMPLE AND DATA

Empirical studies on CEO compensations in Europe suffer from availability of data on management pay. For a long time, such information has been not subject to mandatory disclosure (Barontini et. al., 2013; Ferarrini 2015). Only recently, many European countries introduced regulations on transparency and disclosure. Our study benefits from a unique database on CEO compensation for an unbalanced panel over the period 1999-2013, jointly with detailed data about performance, corporate governance and ownership structure of the telecommunication companies.

Data on compensations and other governance variables have been hand-collected from annual reports published by the companies. Financial and accounting data are drawn from Worldscope Database. We require companies with compensation data from annual report to have available financial data from Worldscope. To control for country-economic differences in the business cycle, hence in the propensity to offer high compensations, we include data on GDP growth rates which has been downloaded from OECD database. Our final sample accounts for 15 publicly traded companies in the telecommunication industry from 13 European countries (Austria, Belgium, Denmark, Finland, France, Germany, Italy, Holland, Poland, Portugal, Spain, Sweden and The United Kingdom). The sample is small, because there is typically one fixed network operator in

each country, but consistent as these firms share a similar historical and technological evolution and sectoral characteristics (Cambini and Rondi, 2012).

CEO compensation is a key variable for this study. Following Jensen and Murphy (1990), we calculate CEO compensation as the sum of salary and bonus awarded by the CEO at the end of the year. This data are adjusted by inflation. A comprehensive measure of CEO pay should consider the values of the CEO's stock option. Unfortunately, this data was not available for all firms on a consistent basis. Specifically, when we tried to collect the data and we found that for most of the telecommunication companies in our sample, information about stock options (i.e., the number of options, the exercise price, the exercise date etc.) are not fully disclosed. Because we could only rely on a partial, approximate picture of the real effect of stock options, we decided to exclude them (this partial information would only lead to misleading results). Data on "other compensation" includes data of a very different nature such as indemnity paid when the CEO leaves the firm, compensation received from consulting services, executive committee participation fee etc. This data was not uniformly reported by each company and, because of this lack of uniformity, this data are not included in the CEO compensation variable.

As measures of firm performance, we use two indicators: a market-based measure, as more commonly in this literature (Jensen and Murphy, 1990) and an accounting-based performance measure, although accounting variables are more easily manipulated by entrenched managers (Healy and Wahlen, 1999).

The market-based measure is market capitalization, which is the product between the share price at the end of the year and the number of outstanding shares in the market. The accounting-based measure is Return on Assets (ROA), calculated as the ratio of EBIT to total assets.

In order to detect the identity of the ultimate shareholder, we follow Pedersen and Thomsen (2003) and Croci et al., (2012). We collect data about firm ownership. We use two thresholds as a cut-off point to identify the dominant owner. The first definition of the state as dominant

shareholder is the following: if the state holds 25% of the ownership rights, the firm has the state as controlling shareholder (notably, according to the recent EU legislation member state may set the threshold for the Mandatory Tender Offer between 25% and 30%). The second definition considers a threshold of 50% whereby the state is obviously the dominant shareholder and the firm is practically no longer subject to the discipline of the market for corporate control.

Since the purpose of the study is to explore the difference between state and private controlling shareholders, we create a dummy variable (1 if the controlling shareholder is the state, 0 otherwise) to capture the type of the ownership. Ownership data was hand-collected, downloading the annual reports of each firm. We then create two dichotomous variables, one that equals 1 when the state (government at federal, state or local level) holds 25% or more of the shares of a company, the other that is equal to 1 when the government has the majority control (50% or more).

In testing our hypothesis, we include control variables related to firm and CEO characteristics and governance variables that previous studies found to have a significant impact on CEO compensation. Firm size has been considered as one of the most important variables in explaining the level of CEO compensation (Murphy 1999; Gabaix and Landier, 2008; Barontini and Bozzi, 2011). As proxy of firm size, we use the logarithmic transformation of the Total Revenues.

Concerning the CEO characteristics, we control for variables that are proxies for managerial entrenchment: CEO tenure, CEO age, and CEO duality (Hu and Kumar, 2004). CEO tenure is the number of years served as CEO in the company. According to the managerial power theory, a CEO with long tenures is more likely to influence the board and set his own compensation. CEO duality is another proxy of the managerial entrenchment. Age is often used to proxy CEO experience, and on this ground, the CEO may be more persuasive and influence the board on many issues, including the remuneration policy. CEO-Chair duality is a dummy that is equal to 1 if the CEO is also Chairman of the Board of Directors. As well-known, the board, and the chair of the board, should appoint, remove, monitor and supervise the CEOs, therefore if the CEO is also the Chair, he/she

may use the authority of this role to entrench themselves against accountability and monitoring (Finkelstein and D'Aveni, 1994).

Table I provides the variable definitions and Table II reports the descriptive statistics for the full sample. In Table III, we report information about the ownership status of the telecommunication companies in our sample at the beginning and at the end of the period. 60% of the companies were state-controlled when they entered the dataset, 40% in the final year. In Table IV, we present tests of mean differences for the main variables across privately- and state-controlled telecom firms. We note that CEOs at state-controlled firms are paid significantly less than their counterparts at private firms. They have similar tenure (about four years on average), but different age on average, as with CEOs at state-controlled companies are significantly younger than their counterparts in privately-controlled firms. In spite of their younger age, however, state companies' CEOs are more likely appointed as Chair of the Board than private telecoms' CEOs. The Table also shows that state and private firms are on average of similar size and achieve similar accounting profitability (ROA). Finally, state-controlled firms report significantly higher market capitalization (Bortolotti, Cambini and Rondi, 2013).

Insert Table I, II, III, and IV about here

Finally, we provide graphical support to the idea that CEO pay in privately- and state-controlled telecom firms may differ in their response to firm performance, although perhaps not in the direction one might have anticipated. Figure 1A, where we report average CEO pay and market capitalization for the state-controlled sub-sample, clearly shows a positive co-relation between CEO compensation and firm performance (if any, CEO pay drops in 2003 and 2004 as market capitalization was increasing). In Figure 1B, instead, we notice that CEO compensations keep rising over time even when, especially after 2006, firm value began to decrease steadily.

Insert Figure 1A and Figure 1B about here

EMPIRICAL MODELS

Pay for performance sensitivity is the relationship that measures the incentive effects of CEO compensation. It is usually defined as a change in CEO pay associated with a change in firm performance (Frydman and Saks, 2010; Goergen and Renneboog, 2011). Empirical studies of pay-to-performance have used a wide range of specifications to measure this relationship. Two common alternatives are the euro change in executive wealth per euro change in firm value (the Jensen-Murphy statistic), and the percentage change in CEO compensation for 1% change in the firm value (the elasticity). The Jensen-Murphy statistic is considered the correct measure of incentives specifically for activities whose euro impact is the same regardless of the size of the firm. Elasticity is widely used because is not highly sensitive to firm size. In addition, it is particularly effective in studies that do not consider revaluation of equity and option holdings (Frydman and Saks, 2010). For all these reasons, we use the logarithmic transformation of CEO compensation as dependent variable in order to estimate the *elasticity*, or the sensitivity, of CEO pay to firm market capitalization (also in logarithmic transformation), i.e. the percentage increase in CEO pay following a one percentage increase in market value. Moreover, as an alternative, we also use an accounting-based measure of performance, the return on assets, or ROA (EBIT to total assets) in percent. We thus estimate the *pay-performance semi-elasticity*, i.e. the percent increase of pay due to a one percent point increase in the return to Asset (see Joskow et al., 1996).

Our baseline model to investigate the CEO pay-for-performance sensitivity in telecommunication companies and the relationship between compensation and the type of controlling shareholder, is the following:

$$Log(CEOcomp)_{it} = \beta_0 + \beta_1(Performance)_{it} + \beta_2(State)_{it} + \beta_3(Governance)_{it} + \beta_4 FirmSize_{it} + \beta_5 GDP_{it} + \mu_t + \epsilon_{it} \quad \textbf{(1)}$$

Where, the coefficient β_1 indicates the incentive effect of CEO compensation, regardless of the

variable we use to measure performance. Therefore, the higher is the coefficient, the closer is the alignment of interests between the CEO and his shareholders, and as consequence, stronger is the incentive for the CEO, in line with the incentive (or optimal contracting) theory. To account for the alternative view of CEO compensations is the entrenchment view or managerial power hypothesis, we introduce a vector of governance variables (*Governance*) that are usually used in the literature (Finkelstein and D'Aveni, 1994; Claessens et al., 2002; Hu and Kumar, 2004). These variables are *CEO duality*, a dummy equal to 1 if CEO is also Chairman, and *CEO tenure*, the number of years served as CEO in the company, and *CEO age* as a proxy of CEO experience and influential role. We also include *CEO turnover*, a dummy variable for the year in which the manager leaves in order to account for breaks in the time series of the remunerations, which might affect both the pay level and its sensitivity to performance.

As mentioned above, CEO compensation may be influenced by firm size (Murphy 1999; Gabaix and Landier, 2008; Barontini and Bozzi, 2011). We include in the model the logarithmic transformation of total revenues as a measure of *FirmSize*. In addition, to control for differences in the business cycle of the various European countries, we include the country-specific annual GDP growth rate (*GDP*).

Finally, the main purpose of this paper is to investigate whether firm ownership structure, and more precisely the presence of the government as the large shareholder, affects the level of CEO compensation and CEO pay for performance sensitivity. In the first estimated model, we thus include the dummy *State*, which is equal to 1 when the government has, the firm's controlling share, to test whether the level of the CEO pay significantly differs across state and private ownership, controlling for firm and governance characteristics. *State* will vary according whether we consider the 25% or the 50% threshold to measure state ownership (*State25* or *State50*). The second threshold is 50%: such majority of the shares helps to identify the effect of controlling shareholder as the ownership stake increases beyond the point where control is transferable.

In our second model, we focus on the differences in CEO incentives between state-controlled and private-controlled firms, hence on the pay-performance sensitivity. We interact firm performance with the dummy *State* that indicates whether the government is the controlling shareholder to estimate differences in sensitivity. Finally, in order to control for the entrenchment effect of controlling shareholder (either state or private), we interact the governance variables considered proxies of the entrenchment and the dummy *State* both at 25% and at 50%. The model is the following:

$$Log(CEOcomp)_{it} = \beta_0 + \beta_1(Performance)_{it} + \beta_2(State)_{it} + \beta_3(Governance)_{it} + \beta_4 FirmSize_{it} + \beta_5 GDP_{it} + \beta_6(Performance * State)_{it} + \beta_7(Governance * State)_{it} + \mu_t + \epsilon_{it} \quad \textbf{(2)}$$

As estimation method, we use fixed effects. This method allows to calculate the effect of the change in the compensation level within a firm and to control for omitted variables and unobservable firm characteristics that are not included in the usual cross-sectional regressions. Standard errors are robust and clustered by firm. The results of the regressions are presented in the next session.

RESULTS

In this section, we test the three Hypotheses derived in the previous section and present the results of the analysis of CEO pay for performance sensitivity in the EU telecommunication companies that accounts for the effect of the state as controlling shareholder. Table V reports the estimated results for Equation (1).

Insert Table V about here

In Column (1) and (4) of Table V we estimate the CEO pay for performance sensitivity using market capitalization and Return On Asset (ROA) as measures of firm performance. The results

show that an increase of 10% in market capitalization leads to an increase of 2.2% in CEO compensation. Similarly, turning to ROA, we find that an increase of one point percent in ROA leads to an increase of 3% in CEO compensation. Control variables that describe CEO characteristics are all statistically significant. Specifically, *CEO tenure* controls for changes in compensation due to the number of years served as CEO. The coefficient shows that an increase in one year in the CEO tenure leads to an increase of 7.5% in CEO compensation. The variable *CEO age* has a negative and statistically significant coefficient. Since CEO age can be considered a proxy of CEO experience, our result suggests that, once we control for tenure, the dynamic and technologically intensive environment in telecom companies is likely to reward younger CEOs who are probably more skillful and competent in those areas. Interestingly, *CEO duality* is positive and statistically significant. As discussed above, this variable is a proxy of the entrenchment effect and, according to the corporate governance literature, is a good indicator of the extent of CEO power. The coefficient shows that when the CEO is also Chairman of the board, his compensation increases substantially. However, alternatively, the higher pay level might derive from the double commitment of the CEO-Chairman. Finally, we find that firm size, as expected, has a positive coefficient, significant in Columns (4)-(6) and not far from significance in Columns (1)-(3). In the next columns, we test if there are differences in the remuneration practices of private and state companies.

We first investigate the effect of state ownership on the level CEO compensation. In Columns (2) and (5), where the threshold for controlling stake is 25%, we find that the level of compensation of CEOs in state-controlled firms is significantly lower than in privately controlled firms, which confirms our Hypothesis 1. We obtain similar results when we use the 50% threshold, i.e. the majority stake, in Columns (3) and (6). This is in line with evidence on energy companies by Joskow et al., (1996) and, more recently, Cambini, Rondi and De Masi (2015) who interpret lower CEO compensations in state-owned public utilities as the consequence of political constraints and

concern for public opinion, as imposed, directly or indirectly, by the government. . Indeed, as discussed by Hart et al. (1997), this may result from politically motivated "moral suasion" to prevent public criticism or outrage (as in more recent times).

To test cross-ownership differences in the incentive and the entrenchment effects, we estimate Equation (2), which also includes interactions of performance as well as of corporate governance related variables with the dummies denoting *State* Control. Table VI reports the main results.

Insert Table VI about here

In Column (1), we start by interacting the logarithmic transformation of market capitalization with the dummy *State25%*. This variable helps to identify differences in CEO pay for performance sensitivity between state and privately-controlled telecom firms. The results show that the estimated coefficient on the interacted term denoting the *sensitivity* of pay to performance is positive and statistically significant, suggesting that sensitivity of pay to performance is significantly higher than in privately controlled telecoms. Moreover, the dummy *State25%* denoting the *level* of pay remains negative and significant: CEO compensation is indeed lower in telecom companies controlled by the state than in private controlled firms (as per Hypothesis 1), but it is also more sensible to changes in firm performance. This result suggests the state, as the largest shareholder with a stake of 25%, designs for the CEO a remuneration contract that more closely aligns the CEO's interests with those of the shareholders. With a lower level of CEO compensation and a higher CEO pay for performance sensitivity, the state aims to incentivize the CEO to make decisions that increase shareholder's wealth more than private controlling investors, thus supporting our Hypothesis 2.

Regression in Column (2) tests the effect on pay levels of governance-related variables aimed at capturing differences in CEO. We find that not only the variables interacted with the state ownership dummy are statistically insignificant, but also the previous differences in levels and sensitivity have turned insignificant, suggesting that, once we control for ownership-specific

entrenchment-related variables, compensation packages appear similar.

We then turn to the results when the state as legal majority of the shares. In Column (3), CEO compensations in firms 50% controlled by the state appear still lower than in privately controlled firms, but insignificantly so. Moreover, the interaction of the log of market capitalization with *State50%*, that indicates the differences in CEO pay for performance sensitivity in state controlled firms with respect to privately controlled firms, is positive but also not statistically significant. However, the results become more informative in Column (4), when we control for the different impact of the entrenchment-related variables on pay levels . Here, the negative coefficient on the dummy *State50%* is significant, confirming the lower pay of state managers, while the interaction with market value remains insignificant, suggesting that pay of CEOs in 50% state controlled firms is insensitive to performance. However, also the variables *Tenure*State 50%* and *CEO duality*State 50%*, are positive and statistically significant, indicating that the pay increases due to an additional year of tenure and to the double commitment of the CEO in the directors' board is significantly higher than within privately-controlled firms. This evidence suggests that managers in firms majority-controlled by the state succeed in circumventing the apparent severity of the "public opinion constraint", possibly through entrenchment with politically connected members of the board.

In Columns (5)-(6), we report the results using ROA as a measure of firm performance. Consistent with the previous results, we document that, as the state control increases (threshold at 50%), the level of CEO compensation is lower than in private firms while the entrenchment-related variables are positive and statically significant. These results suggest that the entrenchment effect overcomes the incentives effect when the controlling ownership stake by the state reaches the legal majority. This evidence is in line with our Hypothesis 3.

INCENTIVES VS. ENTRENCHMENT AT DIFFERENT OWNERSHIP THRESHOLDS AND IN THE FINANCIAL CRISIS

The results so far presented account for the effect of state ownership as defined by two thresholds, 25% and 50% separately, but do not allow us to highlight the differences in compensation policy at different levels of state ownership. In fact, when we use the 25% control threshold, we include all firm-year observations where the shareholding is *at least* 25%, so we also include telecom companies where state ownership is as high as 50% or more. Similarly, when we use the alternative definition of control (50% threshold) we compare the compensation policy of 50% state-controlled firms with that of private *and* 25% state-controlled firms *altogether*. What is of interest here, instead, is to understand whether, as the government's stake increases, the compensation policy changes and the entrenchment becomes more (or less) likely. This is what we investigate in Columns (1) and (2) of Table VII, where we include both a dummy *State 25-49%* and a dummy *State50%*, the former accounting for the firm-year observations with a government shareholding from 25 to 49% and the latter for a share of at least 50%. To test for changes in the pay-performance sensitivity, in Table VII we add the interactions of both dummies with firm performance.

Insert Table VII about here

The results in Column (1) and (2) show that, regardless of the size of the government stake, 25% or 50% state-controlled telecom firms seem to adopt CEO compensation policies in line with optimal contracting theory more than privately controlled firms. In state-controlled telecom companies, compensations are lower, consistently with our Hypothesis 1, and more sensitive to firm performance than in privately-controlled firms, as predicted in Hypothesis 2. This pattern of results survives when we interact the ownership dummies with the entrenchment-related variables (Column (2)). However, similarly to what we found in Table VI, the evidence of managerial power becomes

more clear-cut, as the interactions of the ownership dummy *State50%* with both *CEO tenure* and *CEO-Chair duality* are statistically significant. In other words, when the state holds at least 50% of the shares, the level of pay increases with both CEO tenure and CEO-Chair duality significantly more than in private firms, thus reducing the moderating effect of *State50%* on the pay level.[9] This result supports our Hypothesis 3 whereby, as the state shareholding increases beyond the legal majority and the take-over threat, the entrenchment effect dampens the incentive effect and CEO succeed in obtaining higher and less sensitive compensations. This result is consistent with Conyon and He (2012), who find that the pay-for-performance relation is weaker in Chinese firms controlled by the government with at least two thirds of the total shares outstanding.

The evidence that CEO compensations in state-controlled firms are more sensitive to firm performance than in private firms contributes to the debate about the complementarity or substitutability of corporate governance mechanisms (John and Senblet, 1998), supporting the view that, at least in the presence of a special large shareholder like the government, monitoring is complemented, not substituted, by incentive compensations. This may be because the government trusts more the optimal incentive contracts than the monitoring skills and willingness of its representatives in the board. Another explanation of this result rests on Fama (1980), who suggested that talented managers are more attracted by high pay-performance sensitivity than by high but fixed compensations. Since the level of CEO compensation is lower in state-controlled companies than in private firms (due to the pressure of public opinion) and that telecom companies tend to employ younger CEOs, contracts with powerful incentives may be used to attract talented managers.

Finally, in a different perspective, this result may be consistent with Yermack (1995), who claims that pay-performance sensitivity is positively related to firm size and complex activities. Because most state-controlled telecom companies are indeed very large and international (i.e. complex), the tighter sensitivity of state CEOs may indeed be the effect of their larger size, or

deeper multinationality, not of the nature of their ownership. In Column (3), therefore, we test this hypothesis by including the interaction of firm performance with the firm's total revenues.[10] We find that the interacted term is significant, to indicate that pay-performance sensitivity does indeed increase with size. Comfortingly, the previous results hold: even controlling for the size effect, the relationship between executive compensation and performance in state-controlled firms remains positive and significantly tighter than in privately controlled firms, and the evidence confirms the non-linear effect of state ownership whereby beyond the 50% threshold managers sort of escape the disciplining mechanism. Notably, in Column (3) all entrenchment-related variables are statistically significant, including the interaction of *CEO age* and *State50%*.

Our last piece of evidence focuses on the response of telecoms' executive compensations to the financial crisis of 2007-2008 and the subsequent economic downturn. After the crisis, firms' earnings and value plunged (see Figures 1A and 1B) and the high compensations paid by firms with negative results determined a public outcry. In Column (4) and (5) of Table VII, we investigate if the financial crisis has brought to a change in the compensation policy of telecommunication companies. In Column (4) we include *"Crisis"*, a dummy that is equal to 1 in the years after 2007, and in Column (5) we interact the dummy "*Crisis"* with state ownership at 25-50% and 50% to test if the level of compensation still differs between state and private firms in the recession years.

In Column (4), we find that the coefficient on the "*Crisis"* dummy is positive and significant, thus suggesting that, everything else equal, in the years after 2007, CEO compensations have increased. When we turn to differences across state ownership thresholds, we find that the stand-alone "*Crisis"* dummy is no longer significant, and that the positive, significant impact has been absorbed by its interaction with "*State50%*". This implies that the pay of CEOs in majority state controlled firms has significantly increased (more than both private and 25% state controlled firms) in the years of the crisis, suggesting once again, that telecom companies have serious monitoring problems when the government is their majority shareholder.

DISCUSSION, POLICY IMPLICATIONS AND CONCLUSIONS

Since the turn of the XXI century, the divestiture of state assets has slowed down in both developed and developing economies. Paradoxically, the most common outcome of the worldwide privatization process that started three decades ago is the persisting government control of many privatized firms, a qualifying feature of the so-called "rise of state capitalism" (The Economist, 2012, 2014). The performance of state controlled firms has attracted a lot of attention by the recent literature, but the impact of state ownership on their corporate governance is still largely unexplored. This paper aims at filling this gap. In particular, our paper studies the effect of the state as controlling shareholder on the level and sensitivity to firm performance of CEO compensations in European publicly traded fixed telecommunication companies. Though operating in a highly innovative and competitive industry, these firms, at least in Europe, are "hybrid" organizations with features of state as well as private governance that make them an ideal setting to test the impact of ownership on CEO compensation policy.

We find that in telecommunication companies CEO pay is sensitive to variations in firm performance, as measured by both market value and accounting profitability. When we focus on differences between state- and privately-controlled firms, we find that in state-controlled firms CEO pay is lower and more sensitive to changes in performance than in privately controlled firms. This suggests, perhaps surprisingly, that the state apparently designs compensation contracts that align the interests of the CEO with those of the shareholders more closely than in private firms. Our results hold when we test an alternative explanation whereby the "incentive" effect of state ownership might indeed result from spurious correlation between firm size and state ownership.

However, when the state's controlling share climbs the majority threshold (50% and more), the statistical significance of entrenchment-related variables, like CEO-Chair duality and tenure, indicates that CEOs succeed in raising the level of their pay more than their counterparts in private

firms. Furthermore, CEOs in 50% state-controlled telecommunication companies manage to increase their pay also in the recession years that followed the financial crisis of 2007. Altogether these results suggest that when the state's controlling shareholding is beyond the takeover threat, the entrenchment effect tends to prevail, as CEO may collude with politically connected directors in the board.

This study contributes new evidence and potentially useful practical suggestions for the corporate governance of "hybrid" organizations that, according to Bruton et al. (2015), generate approximately 10% of global GDP in the world. It also has several implications for policy-makers. First, our findings show that also the state can design CEO compensation policies that are consistent with optimal contracting theory. We argue that this result has a rationale from which we derive the main conceptual contribution of this paper as well as substantial practical implications for those who design executive compensations. On the one hand, the lower level of CEO compensations in state-controlled firms is reasonable and consistent with explanations based on political constraints and concern for the public opinion. On the other hand, our results imply that in a high-tech and complex industry such as telecommunications, high-powered incentives can be matched with low base compensations in order to attract talented managers, younger and less risk-adverse and, at the same time, be more tolerated by the public opinion. Second, when the state holds the majority stake, the incentive effect weakens, as bureaucrats or politicians in the board may entrench with the CEO, and compensation policy is no longer used as a mechanism to align managers and shareholders' interests. This suggests an upper bound to government ownership for the sake of state as well as of private shareholders.

Third, as a further policy implication, our results imply that policy-makers may reconsider the role of the state as a controlling shareholder as long as they keep the controlling stake below the 50%, so that CEOs can still feel the pressure of private blockholders and institutional investors. In this case, state ownership and corporate political ties would appear to bring contingent value to the

firm. This is something to take into account since our evidence pertains to companies that operate a network infrastructure which is an essential facility for economic efficiency and social welfare, controlled by the state in many industrialized countries (e.g. in Continental Europe as well as in Japan, South Korea, Australia, New Zealand, etc.). The trade-off between shareholder wealth and social welfare, as measured, for example, by the provision of universal service and or the reduction of the digital divide through investment in broadband technology, is a topic that we cannot address in this paper and deserves a new research.

[1] "Telecoms operators are cash rich and seem not to worry about the amounts they pay top executives. There are no formulas and companies have to ensure they don't annoy their customers" (GTB-Global Telecoms Business, 16 February 2014). See also in the *Wall Street Journal* (3 October 2002): "As the stock prices of European phone companies sink ever lower, chief executives' compensation is *increasing*. That is because troubled telecommunications operators are finding that they need to pay more to attract fresh talent willing to parachute into some of the biggest messes in the corporate world. The latest example is France Telecom SA. The French operator, with debts […] that are seven times the company's stock-market value, Wednesday named Thierry Breton chief executive officer. His pay will be several times that of his predecessor, Michel Bon, ousted last month for failing to move aggressively enough to reduce that debt load after a series of acquisitions. The richer pay package partly reflects a realization of how hard it will be to turn around the likes of France Telecom and how risky it is to jump into such a situation."

[2] For example, Firth et al (2006) show that, in China, state agencies acting as majority shareholders, do not apply performance-pay, thus failing to maximize shareholder value.

[3] For a review on the rise and fall of state-owned companies in industrialized countries from the managerial and economic points of view, see Vernon and Aharoni (1981) and Toninelli (2000).

[4] A similar sample has been used in Cambini and Rondi (2012) to study the relationship between capital structure, investment and regulated prices in the EU telecom industry.

[5] Röller and Waverman (2001) show that an increase of 10% in the adoption of faster broadband connection leads to an increase of 2.8% GDP growth, on average. More recently, Czernich et al. (2011) find that investing in new broadband infrastructures leads to an increase in GDP per capita ranging from 2.7 to 3.9 percent.

[6] See Edmans and Gabaix (2016) for a thorough review of traditional and modern theories.

[7] The corporate governance of partially and formerly state-owned enterprises (SOEs) became a relevant issue in the aftermath of the privatization wave in transition economies, when of course the object of the analyses were privatized SOEs in Russia, Ukraine, Hungary and other post-communist countries (see for example Estrin and Wright, 1999, and the other articles in the Symposium in the *Journal of Comparative Economics*). Even today, the research on "hybrid organizations" particularly focuses on mixed-owned firms in China (see for example, Conyon and He, 2012).

[8] For a discussion of the agency problems related to the dividend policy within large mixed-owned energy utilities see Bremberger, Cambini, Gugler and Rondi (2016).

[9] The results are qualitatively similar if we include both groups of interactions (with 25-50% and 50% ownership dummies) but estimates become more imprecise due to the correlation among too many interacted variables.

[10] We collected information on the multinational activity of the telecom companies in our sample. Practically all of them have international operations, hence a dichotomous variable would be useless for the analysis in a firm fixed-effect context. Moreover, we also noticed that the size of the multinational activity of these firms is highly heterogeneous, i.e. of various size and importance. Therefore we tried to collect data on the share of revenues in foreign markets or (even better) on the size of fixed capital assets abroad. Unfortunately, we could not find reliable and time consistent data on either variable. We decided nonetheless to control for the size (total revenues) effect as measured by total revenues of the consolidated balance sheet, which in most cases we can safely presume is positively correlated with multinational operations.

REFERENCES

Abowd J., M., Bognanno M. L., 1995. *International differences in Executive and Managerial Compensation*. In R. B. Freeman and L. F. Katz, eds.: "Differences and Changes in Wage Structures", University of Chicago Press, pp. 67-104.

Aguilera R. V., Williams C. A., Conley J. M., Rupp D. E., 2006. "Corporate governance and social responsibility: a comparative analysis of the UK and the US", ***Corporate Governance: an international review**, Vol. 14, No. 3, pp. 147-158.*

Alchian A., 1977. "Some economics of property rights". In A. Alchian (ed.) *Economics Forces at Work.* Indianapolis, IN: Liberty Press.

Anderson, M. C., Banker, R. D., Ravindran, S. (2000), "Executive Compensation in the Information Technology Industry", ***Management Science** Vol. 46, No.4, 530-547.*

Arthurs J. D., Hoskisson R. E., Busenitz L. W., Johnson R. A., 2008. "Managerial agents watching other agents: Multiple agency conflicts regarding underpricing IPO firms", ***Academy of Management**, Vol. 51, No. 2., pp. 277-294.*

Barontini R., Bozzi S., 2011. "Board compensation and ownership structure: empirical evidence for Italian listed companies". ***Journal of Management and Governance**, Vol. 15, pp. 59–89.*

Barontini R., Bozzi S., Ferrarini G., Ungureanu M. C., 2013, *Directors' Remuneration Before and After the Crisis: Measuring the Impact of Reforms in Europe* in Massimo Belcredi and Guido Ferrarini (eds.), "Boards and Shareholders in European Listed Companies. Facts, Context and Post-Crisis Reforms", Cambridge University Press.

Bebchuk L. A., Kraakman R. H., Triantis G. G., 2000. *Stock Pyramids, Cross-ownership, and dual class equity: The creation and agency costs of separating control from cash flow rights*, in Concentrated Corporate Ownership, Randall K. Morck, (ed.), National Bureau of Economic Research.

Bebchuck L. A., Fried J. 2004. *Pay without performance: The unfulfilled promise of executive compensation*, Harvard University Press: Cambridge.

Bebchuk L. A., Grinstein Y., 2005. "The growth of executive pay", ***Oxford Review of Economic Policy**, Vol. 21, No. 2, pp. 283-303.*

Berle, A. and Means, G. 1932. *The Modern Corporation and Private Property*, New York, Macmillan Company.

Bertrand M., Schoar A., 2006. "The role of family in family firms", ***Journal of Economic Perspective**, Vol. 20, pp. 73-96.*

Bortolotti B., Cambini C., Rondi L., Spiegel Y., 2011. "Capital Structure and Regulation: Do Ownership and Regulatory Independent Matter?", ***Journal of Economics & Management Strategy**, Vol. 20, No. 2, pp. 517-564.*

Bortolotti B., Cambini C., Rondi L., 2013. "Reluctant Regulation", ***Journal of Comparative Economics**, Vol. 41, No. 3, pp. 804-828.*

Boyd B. K., Haynes K.T., Zona F., 2011. "Dimension of CEO-board relations", ***Journal of Management Studies**, Vol. 48, No. 8, pp. 1892-1923.*

Bremberger F., Cambini C., Gugler K. and L. Rondi, 2016. "Dividend Policy in Regulated Network Industries: Evidence from the EU", ***Economic Inquiry**, Vol. 54, No. 1, pp. 408-432.*

Bruton, G., Peng, M., Ahlstrom, D., Stan, C., & Xu, K. 2015. "State-owned enterprises as hybrid organizations", ***The Academy of Management Perspectives***, 29(1): 92-114.

Calabrò A., Torchia M., Ranalli F., 2013. "Ownership and control in local public utilities: the Italian case", ***Journal of Management and Governance**, Vol. 17, pp. 835–862.*

Cambini C. and L. Rondi (2012) "Capital Structure and Investment in Regulated Network Utilities: Evidence from EU Telecoms," ***Industrial and Corporate Change**, Vol. 21 (1), pp. 31-71.*

Cambini C., Rondi L., De Masi S., 2015. "Incentive compensation in energy firms: does regulation matter?", ***Corporate Governance: an International Review**, Vol.* 23, No 4, pp. 378-395.

Chen G., Firth M., Xu L., 2009. "Does the type of ownership control matter? Evidence from

China's listed companies", ***Journal of Banking & Finance*** *Vol, 33, pp. 171–181.*
Claessens S., Djankov S., Fan J. P. H., Lang L. H., 2002. "Disentangling the Incentive and Entrenchment Effects of Large Shareholdings", ***Journal of Finance****, Vol. 57, No. 6, pp. 2741-2771.*
Connelly B. L., Hoskisson R. E., Tihanyi L., Certo T. S., 2010. "Ownership as a form of corporate governance", ***Journal of Management Studies****, Vol. 47, No. 8, pp. 1561-1589.*
Conyon M. J., Core J. E., and Guay W. R., 2011. "Are US CEOs Paid More Than UK CEOs? Inferences From Risk-Adjusted Pay". ***Review of Financial Studies*** *Vol. 24, pp. 402-438.*
Conyon M. J. and L. He, 2012, "Executive Compensation and Pay-for-Performance in China", In Thomas R.S. and Hill J.G. (Eds.) *The Research Handbook on Executive Pay*, Cheltenham : Edward Elgar Publishing
Core J. E., Lacker D., 2002. "Performance consequences of mandatory increases in executive stock ownership" ***Journal of Financial Economics****, Vol. 64, pp. 317-340.*
Cornett M. M, Guo L., Khaksari S., Tehranian H., 2010. "The impact of state ownership on performance differences in privately-owned versus state-owned banks: An international comparison", ***Journal Financial Intermediation****, Vol. 19, pp. 74–94.*
Croci E., Gonenc H., Ozkan N., 2012. "CEO compensation, family control, and institutional investors in Continental Europe". ***Journal of Banking & Finance****, No. 36, pp. 3318–3335.*
Cunat, V. and M. Guadalupe (2005) "How Does Product Market Competition Shape Incentive Contracts?" ***Journal of the European Economic Association***, vol. 3 n.5, 1058-1082.
Czernich, N., Falck, O., Kretschmer, T. and Woessmann, L., 2011. Broadband Infrastructure and Economic Growth. ***The Economic Journal***, 121, 505-532.
Dalton D., Daily C., Certo S. T., Roengpitya R., 2003. "Meta-analysis of financial performance and equity: Fusion or confusion?", ***Academy of Management Journal****, Vol. 46, pp. 13–26.*
Dalton D., Hitt M. A., Certo S. T., Dalton C. M. 2007. "The fundamental agency problem and its mitigation: independence, equity, and the market for corporate control". ***Academy of Management Annual Reviews****, Vol. 1, pp. 1–64.*
Denis D. K., McConnell J. J., 2003. "International Corporate Governance", ***The Journal of Financial and Quantitative Analysis****, Vol. 38, No. 1, pp. 1-36.*
Demsetz, H. and Lehn, K., 1985. "The Structure of Corporate Ownership: Causes and Consequences", ***Journal of Political Economy****, vol. 93 (December), pp. 1155-1177*
Dick A. and L. Zingales, 2004, "Private Benefits of Control: An International Comparison", *The* ***Journal of Finance****, Vol. 59, No. 2, pp. 479–962.*
Ding Y., Zhang H., Zhang J., 2007. "Private vs State Ownership and Earnings Management: evidence from Chinese listed companies". ***Corporate Governance: An International Review****, Vol. 15, No. 2, pp. 223-238.*
Dixit, A., 1997, "The Power of Incentives in Private Versus Public Organizations", *American* ***Economic Review*** *87 (2), pp. 378-82.*
Edmans A. and X. Gabaix, 2016, "Executive Compensation: A Modern Primer", ***Journal of Economic Literature***, forthcoming.
Estrin, S. and M. Wright, 1999, "Corporate Governance in the Former Soviet Union: An Overview", ***Journal of Comparative Economics***, Vol. 27, 398-421
Eisenhardt K. M., 1989, "Agency theory: assessment and review", ***Academy of Management Review****, Vol.14, No. 1, pp. 57–74.*
Faccio M., Lang L. H. P., 2002, "The ultimate ownership of western European corporations", ***Journal of Financial Economics****, Vol. 65, pp. 365-395.*
Fama, E., 1980, "Agency Problems and the Theory of the Firms". ***Journal of Political Economy****, vol. 88, no 2, pp. 288-307.*
Fama E F., Jensen M. C., 1983. "Separation of ownership and control", ***Journal of Law and Economics,*** *vol. 26, pp. 301-325.*
Fernandes N., Ferreira M. A., Matos P., Murphy K. J., 2013. "Are U.S. CEOs Paid More? New

International Evidence", ***Review of Financial Studies**, vol. 26, pp. 323-267.*
Ferrarini G., (2015). "CRD IV and the mandatory structure of bankers' pay". ***ECGI Working Paper Series in Law** no. 289/2015.*
Filatotchev I., Wright M., Bleaney M., 1999. "Privatization, insider control and managerial entrenchment in Russia", ***Economics of Transition***, Vol. 7, pp. 481–504.
Filatotechev I., Wright M., 2011. "Agency Perspectives on Corporate Governance of Multinational Enterprises", ***Journal of Management Studies**, Vol. 48, No.2, pp. 471-486.*
Finkelstein S., Hambrick D. C., 1988. "Chief executive compensation: a synthesis and reconciliation", ***Strategic Management Journal**, Vol. 9, pp. 543–558.*
Finkelstein, S., D'Aveni, R. A. 1994. "CEO duality as a double-edged sword: How boards of directors balance entrenchment avoidance and unity of command". ***Academy of Management Journal**, Vol. 37, pp. 1079-1108.*
Firth, M. , Fung, P. M. Y. , and Rui, O. M., 2006. "Corporate Performance and CEO Compensation in China," ***Journal of Corporate Finance***, 12(4): 693–714
Frydman C, Saks R. E., 2010. "Executive compensation: a new view from a long-term perspective, 1936-2005", ***Review of Financial Studies**, Vol. 23, pp. 2099-2138.*
Gabaix X., Landier A., 2008. "Why has CEO pay increased so much?", ***Quarterly Journal of Economics**, Vol. 123, No. 1, pp. 49-100.*
Glassman C., A., Rhoades S. A., 1980. "Owner vs manager control effects on bank performance", ***Review of Economics and Statistics**, Vol. 62, No. 5, pp. 263-270.*
Goergen M., Renneboog L., 2011. "Managerial compensation", ***Journal of Corporate Finance** Vol. 17, pp. 1068–1077.*
Gompers P. A., Ishii J. L., Metrick A. 2003 "Corporate Governance and Equity Prices." ***Quarterly Journal of Economics**, Vol. 118, No. 1, pp. 107-156.*
Grosman A., Okhmatovskiy I., Wright M., 2016. "State Control and Corporate Governance in Transition Economies: 25 Years on from 1989", ***Corporate governance: An International Review**, Vol. 24, No., 3, pp. 200–221.*
Guay W.R., 1999. "The sensitivity of CEO wealth to equity risk: an analysis of the magnitude and determinants", ***Journal of Financial Economics**, Vol. 53, No.1, pp.43-71.*
Hall B., Liebman J., 1998. "Are CEOs Really Paid like Bureaucrats?", ***Quarterly Journal of Economics**, Vol. 113, pp. 653–691.*
Hardwick P., Adams M., Zou H., 2011. "Board characteristics and profit efficiency in the United Kingdom life insurance industry". ***Journal of Business Finance & Accounting**, Vol. 38, No.7, pp. 987–1015.*
Hart, O. (1983) "The Market Mechanism as an Incentive Scheme", ***Bell Journal of Economics*** 14, 366-382.
Hart O., Shleifer A., Vishny R.W., 1997. "The Proper Scope of Government: Theory and an Application to Prisons." ***Quarterly Journal of Economics** Vol. 112, No. 4, pp. 1126-1161.*
Hartzell J. C., Starks L. T., (2003). "Institutional investors and executive compensation", ***Journal of Finance**, Vol. 58, No. 6, pp. 2351-2374.*
Healy P.M., Wahlen J.M., 1999. "A review of the earnings management literature and its implications for standard setting", ***Accounting Horizons**, Vol. 13, pp. 365–383.*
Holmstrom, B. 1979. "Moral Hazard and Observability", ***Rand Journal of Economics**, Vol. 10, No. 1, pp. 74-91.*
Hu, A., Kumar, P. 2004. Managerial entrenchment and payout policy. ***Journal of Financial and Quantitative Analysis**, Vol. 39, pp. 759-790.*
Inoue, C.F.K.V., Lazzarini S.G., Musacchio A., 2013. "Leviathan as a minority shareholder: Firm-level implications of state equity purchases. ***Academy of Management Journal,** Vol. 56, No. 6, pp 1775-1801.*
Jensen M. C., Meckling W.H., 1976. "Theory of the firm: managerial behavior, agency costs and ownership structure", ***Journal of Financial Economics** Vol. 3, pp. 305-360.*

Jensen M. C., Murphy K. J. 1990. “Performance pay and top-management incentives”. ***Journal of Political Economy**, Vol. 98, No. 2, pp. 225-264.*

John K. and Senbet, L.W., 1998. “Corporate governance and board effectiveness”, ***Journal of Banking and Finance,** Vol. 22*, pp. 371–403

Joskow P., Rose N., Wolfram C., 1996. “Political Constraints on Executive Compensation: Evidence From the Electric Utility Industry”, ***Rand Journal of Economics**, Vol. 27, No. 1.*

Krafft J., Qu Y., Quatraro F., Ravix J.L., 2014. “Corporate governance, value and performance of firms: new empirical results on convergence from a large international database”, ***Industrial and Corporate Change**, Vol. 23, No. 2., pp. 361-397.*

La Porta R., Lopez-de-Silanes F., Shleifer A., 1999. “Corporate ownership around the world”, ***Journal of Finance**, Vol. 54, pp. 471-517.*

Lehnmann E., Weigand J. 2000. “Does the governed corporation perform better? Governance structures and corporate performance in Germany”. ***European Financial Review**, Vol. 4, No. 2, pp. 157-195.*

Martimort, D. (1996) "The Multiprincipal Nature of Government", ***European Economic Review,*** 40, pp. 673-85

Megginson W. L., Netter J. M., 2001. “From state to market: A survey of empirical studies on privatization”, ***Journal of Economic Literature**, Vol. 39, pp. 321–389 .*

Menozzi A., Urtiaga M., Vannoni D., 2012. “Board composition, political connections, and performance in state-owned enterprises”, ***Industrial and Corporate Change**, Vol. 21, No. 3, pp. 671-698.*

Morck R., Yeung B., 2003. “Agency problems in large family business groups”, ***Entrepreneurship Theory and Practice**, Vol. 27, pp. 367-382.*

Muller-Kahle M., I., 2015. “The impact of dominant ownership: the case of Anglo- American firms”, ***Journal of Management and Governance**, Vol. 19, pp. 71–89.*

Murphy K. J., 1999. Executive compensation. In O. Ashenfelter & D. Card (eds.) *Handbook of labor economics, Vol. 3.* Amsterdam: North-Holland.

Musacchio A., Lazzarini S., Aguilera R., 2015. “New varieties of state capitalism: Strategic and governance implications”, ***The Academy of Management Perspectives**, Vol. 29, pp. 115–131.*

Muslu V., 2010. “Executive directors, pay disclosures, and incentive compensation in large European companies”. ***Journal of Accounting, Auditing, and Finance**, Vol. 25, pp. 569-605.*

OECD, 2013. “OECD Communications Outlook”, Paris.

Pedersen T., Thomsen S., 2003. “Ownership Structure and Value of the Largest European Firms: The Importance of Owner Identity”, ***Journal of Management and Governance**, Vol. 7, pp. 27–55.*

Poczter S., (2016). “Can monitoring improve the performance of state-owned firms? Evidence from privatization in a large emerging market”, ***Industrial and Corporate Change**,* Forthcoming.

Puffer S. M., McCarthy D. J., 2007. “Can Russia’s state-managed, network capitalism be competitive? Institutional pull versus institutional push”, ***Journal of World Business**, Vol. 42, pp. 1–13.*

Raith, Michael. 2003. "Competition, Risk, and Managerial Incentives." ***American Economic Review***, 93(4): 1425-1436.

Roller L. H., Waverman L., 2001. “Telecommunications Infrastructure and Economic Development: A Simultaneous Approach”, ***American Economic Review,** Vol. 91, No.4, pp. 909-923.*

Rediker K. J., Seth A., 1995. “Board of directors and substitution effects of alternative corporate mechanisms”, ***Strategic Management Journal**, Vol. 16, No. 2, pp. 85-99.*

Rosen S., 1992. *Contracts and the market for executives*, In “Contract Economics”, Wein L., Wijkander H., (Eds.), Blackwell Publishers.

Rutherford M. A., Buchholtz A. K., Brown J. A., 2007. “Examining the relationships between

monitoring and incentives in corporate governance", ***Journal of Management Studies**, Vol. 44, No.3, pp. 414-430.*

Schnatterly K., Shaw K. W., Jennings W. W., 2008. "Information advantages of large institutional owners". ***Strategic Management Journal**, Vol. 29, pp. 219-227.*

Serfling, M. A. 2014. "CEO age and the riskiness of corporate policies", ***Journal of Corporate Finance***, 25, 251–273

Shleifer A., 1998. "State versus Private Ownership", ***The Journal of Economic Perspectives**, Vol. 12, No. 4, pp. 133-150.*

Shleifer A., Vishny R. W., 1997. "A Survey of Corporate Governance", ***Journal of Finance**, Vol. 52, No. 2, pp. 737–783.*

Shleifer A., Vishny R. W. 1994. "Politicians and firms", ***Quarterly Journal of Economics**, Vol. 9, pp. 995–1025.*

Smith I.G., Thompson S., Wright, P.W., 2014, "CEO pay and voting dissent before and after the Crisis", ***The Economic Journal**, Vol. 124, No. 574, pp. F22–F39.*

Tirole, J. (1994), "The Internal Organization of Government", ***Oxford Economic Papers***, 46 (1), pp. 1-29

Stathopoulos K., Voulgaris G., 2016. "The Importance of shareholder activism: The case of Say-on-Pay", ***Corporate Governance: An International Review**, Vol. 24, No.3, pp. 359–370.*

Sun, P., Mellahi, K., & Wright, M. 2012. "The contingent value of corporate political ties", ***Academy of Management Perspectives***, 26(3): 68-82.

The Economist, 2012. *The rise of state capitalism,* January 21st.

The Economist, 2014, *Leviathan as Capitalist*, June 21st.

Tirole, J., 1994. "The Internal Organization of Government", ***Oxford Economic Papers**, Vol. 46, No. 1, pp. 1-29.*

Toninelli P.A. (Ed.), 200, The rise and fall of state-owned Enterprises in the Western World, Cambridge University Press, Cambridge, UK.

Torres L., Bachiller P., 2013. "Efficiency of telecommunications companies in European countries", ***Journal of Management and Governance**, Vol. 17, pp. 863–886.*

Vernon, R. and Y. Aharoni, 1981, State-owned enterprise in the Western Economies, Croom Helm Ltd, London, UK.

Vickers J., Yarrow G.,, 1991. "Economic perspectives on privatization", ***Journal of Economic Perspective**, Vol. 5, No. 2, pp. 111-132.*

Walsh J. P., Seward J. K., 1990. "On the efficiency of internal and external corporate control mechanism", ***Academy of Management Review**, Vol. 15, pp. 421-458.*

Weisbach M. S., 2007. "Optimal executive compensation versus managerial power: a review of Lucian Bebchuk and Jesse Fried's Pay without Performance. The unfilled promise of executive compensation", ***Journal of Economic Literature**, Vol. 45, pp. 419-428.*

Wright M., Lockett A., 2003. "The structure and management of alliance: syndication in the venture capital industry", ***Journal of Management Studies**, Vol. 40, pp. 2073-2102.*

Young, M.N., Peng, M.W., Ahlstrom, D., Bruton, G.D. and J.Yi,, 2008, "Corporate Governance in Emerging Economies: A Review of the Principal–Principal Perspective", ***Journal of Management Studies,*** 45(1), pp. 196-220

Yermack D., 1995. "Do corporations award CEO stock options effectively? ***Journal of Financial Economics**, 1995, Vol. 39, pp. 237–269.*

TABLE I - Variables description

Variable name	Label	Description	Source
CEO comp	CEO compensation	It is computed as the sum between salary and bonus awarded by CEOs at the end of the year. (Thousands of Euros)	Hand collected
Market Cap	Market capitalization	It is Market Price-Fiscal Period End * Common Shares Outstanding	Worldscope
ROA %	Return on Assets	It is calculated as: (Net Income before Preferred Dividends + ((Interest Expense on Debt-Interest Capitalized) * (1-Tax Rate))) / Average of Last Year's and Current Year's Total Assets * 100	Worldscope
Revenue	Total Revenue	It represents gross sales and other operating revenue less discounts, returns and allowances.	Worldscope
Log (Total Asset)	Logarithm of Total Assets	It is the logarithmic transformation (base 10) of Total Assets	Worldscope
State	State as controlling shareholder	It is a dummy that assumes 1 if the state (government at federal, state or local level) holds 25% or more of the shares of a company.	Company websites
State 25%	Government control rights	It is a dummy that assumes 1 if the government holds at least 25% of the ultimate control rights	Company websites
State 50%	Government control rights	It is a dummy that assumes 1 if the government holds 50% of the ultimate control rights	Company websites
CEO duality	CEO duality	CEO duality is a dummy that is equal to 1 if the CEO is also Chairman	Company websites
CEO tenure	CEO tenure	It indicates the number of years served as CEO.	Company websites
CEO age	CEO age	It is the age of the CEO	Company websites
CEO turnover	CEO turnover	It is a dummy equal to 1 if the CEO changes	Company websites
GDP	GDP	GDP of a country in a given year	OECD
Crisis	Crisis	It is a dummy equal to 1 in years from 2008 to 2013	-

TABLE II - Descriptive statistics (Full Sample)

Variable	Obs	Mean	Std. Dev.	Min	Max
CEO compensation	*128*	*3445.98*	*2452.27*	*508.59*	*13871.01*
Market Cap	*128*	$2.75*10^7$	$2.54*10^7$	*135308.3*	$1.05*10^8$
Revenue	*128*	$2.55*10^7$	$2.60*10^7$	*526638.2*	$9.19*10^7$
ROA %	*128*	*7.75*	*5.60*	*-14.85*	*27.04*
CEO Tenure	*128*	*3.81*	*2.59*	*1*	*14*
CEO Age	*128*	*53.54*	*7.85*	*38*	*68*
CEO Duality	*128*	*0.38*	*0.48*	*0*	*1*
CEO Turnover	*128*	*0.19*	*0.40*	*0*	*1*
GDP growth %	*128*	*1.18*	*2.38*	*-5.6*	*7.2*

CEO compensation, market cap and revenue are in thousands of 2010 constant Euros.

TABLE III – Firms by state-control

	State-controlled (first year; ≥ 25%)	State-controlled (first year; ≥ 50%)	State-controlled (last year; ≥ 25%)	State-controlled (last year; ≥ 50%)
Telekom Austria AG	1	0	1	1
Belgacom SA	1	0	1	1
TDC AS	0	0	0	0
Sonera OYJ	1	1	1	1
Telécom France SA	1	0	1	0
Deutsche Telekom AG	1	1	1	0
Telecom Italia SpA	0	0	0	0
Koninklijke KPN NV	0	0	0	0
Telekom Polska SA	1	0	0	0
Portugal Telecom SGPS SA	0	0	0	0
Telefonica SA	0	0	0	0
TeliaSonera AB	1	1	1	0
BT Group	0	0	0	0
Cable and Wireless	0	0	0	0
Kcom Group	1	0	0	0

Table IV – Descriptive statistics by type of large shareholder

	State as the largest shareholder			Private firms			Diff.
Variable	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.	*t*
CEO compensation	61	2665.76	1737.56	67	4156.33	2784.27	***
ROA (%)	61	8.28	6.80	67	7.27	4.23	-
Market capitalization	61	$3.17*10^7$	$2.93*10^7$	67	$2.37*10^7$	$2.07*10^7$	*
Log (Revenue)	61	$2.80*10^7$	$3.18*10^7$	67	$2.33*10^7$	$1.93*10^7$	-
Total Asset	61	$5.49*10^7$	$6.25*10^7$	67	$4.92*10^7$	$4.47*10^7$	-
CEO Tenure	61	3.56	2.30	67	4.04	2.83	-
CEO age	61	51.75	7.65	67	55.16	7.74	***
CEO duality	61	0.48	0.50	67	0.30	0.46	**

TABLE V - CEO pay for performance sensitivity and pay levels by controlling shareholder

	Log(CEO compensation)					
	(1)	(2)	(3)	(4)	(5)	(6)
	L(Market Cap)			ROA %		
Performance	*0.22****	*0.21***	*0.21****	*0.03***	*0.03**	*0.03***
	(3.15)	*(2.54)*	*(3.36)*	*(2.70)*	*(1.81)*	*(2.66)*
State 25%		*-0.57****			*-0.33*	
		(-2.28)			*(-0.87)*	
State 50%			*-0.30****			*-0.28****
			(-2.72)			*(-3.35)*
L(Revenue)	*0.33*	*0.47*	*0.34*	*0.46**	*0.52**	*0.43**
	(1.48)	*(1.64)*	*(1.46)*	*(1.91)*	*(1.86)*	*(1.92)*
CEO Tenure	*0.075****	*0.06****	*0.07****	*0.07****	*0.07****	*0.08****
	(3.11)	*(2.17)*	*(3.62)*	*(3.24)*	*(2.51)*	*(3.48)*
CEO Age	*-0.03****	*-0.03****	*-0.03****	*-0.03****	*-0.03****	*-0.03****
	(-4.63)	*(-4.76)*	*(-4.76)*	*(-3.91)*	*(-3.92)*	*(-3.91)*
CEO Duality	*0.43****	*0.38****	*0.43****	*0.28***	*0.27**	*0.29***
	(5.06)	*(3.63)*	*(4.97)*	*(2.49)*	*(1.90)*	*(2.66)*
CEO Turnover	*0.19****	*0.21****	*0.18****	*0.19****	*0.21****	*0.18****
	(3.85)	*(3.51)*	*(4.15)*	*(3.95)*	*(3.71)*	*(4.14)*
GDP growth %	*-0.02*	*-0.02*	*-0.02*	*-0.02*	*-0.02*	*-0.01*
	(-1.49)	*(-1.51)*	*(-1.46)*	*(-1.09)*	*(-0.87)*	*(-0.99)*
R-squared	*0.25*	*0.29*	*0.28*	*0.31*	*0.32*	*0.33*
N. Obs	*128*	*128*	*128*	*128*	*128*	*128*
N. Firms	*15*	*15*	*15*	*15*	*15*	*15*

Definitions of variables are in Table 1. Panel regression with firm-specific fixed effect. Robust standard errors are clustered by firm. T-statistics are reported in brackets. *, **, *** denote significance at 10%, 5% and 1% respectively.

TABLE VI –

Pay-performance sensitivity by type of shareholder and size of the controlling stake

	Log(CEO compensation)					
	(1)	(2)	(3)	(4)	(5)	(6)
	Log(Market cap)				ROA %	
Performance	*0.13*	*0.14*	*0.19****	*0.17****	*0.05****	*0.03***
	(1.51)	*(1.26)*	*(2.97)*	*(2.66)*	*(4.61)*	*(2.30)*
State 25%	*-3.68***	*-4.03*			*-0.96**	
	(-2.44)	*(-1.31)*			*(-1.93)*	
Performance*State25%	*0.21**	*0.19*			*-0.03*	
	(2.06)	*(1.17)*			*(-1.59)*	
State*50%			*-2.87*	*-3.98**		*-2.30****
			(-1.25)	*(-1.72)*		*(-4.79)*
Performance*State50%			*0.15*	*0.12*		*0.03*
			(1.16)	*(1.22)*		*(1.18)*
Log(Revenue)	*0.50*	*0.51*	*0.40*	*0.39*	*0.61***	*0.46***
	(1.62)	*(1.64)*	*(1.65)*	*(1.63)*	*(2.11)*	*(2.06)*
CEO Tenure	*0.09****	*0.06***	*0.10****	*0.09****	*0.08***	*0.09****
	(3.94)	*(2.13)*	*(4.78)*	*(4.44)*	*(2.17)*	*(3.95)*
CEO Age	*-0.03****	*-0.04***	*-0.03****	*-0.03****	*-0.04****	*-0.03****
	(-4.84)	*(-2.39)*	*(-4.51)*	*(-3.81)*	*(-3.49)*	*(-3.74)*
CEO Duality	*0.31****	*0.42****	*0.42****	*0.44****	*0.54****	*0.34****
	(3.91)	*(4.66)*	*(5.82)*	*(4.89)*	*(7.36)*	*(3.94)*
CEO Turnover	*0.20****	*0.18***	*0.15****	*0.14****	*0.16***	*0.15****
	(2.67)	*(2.22)*	*(3.16)*	*(2.78)*	*(2.28)*	*(2.73)*
GDP growth %	*-0.02*	*-0.02*	*-0.02*	*-0.02*	*-0.02*	*-0.01*
	(-1.49)	*(-1.45)*	*(-1.40)*	*(-1.39)*	*(-1.24)*	*(-0.88)*
Age*State25%		*0.01*			*0.02*	
		(0.75)			*(1.61)*	
Tenure*State25%		*0.03*			*-0.00*	
		(0.59)			*(-0.04)*	
CEOduality*State25%		*-0.29*			*-0.83****	
		(-1.37)			*(-3.73)*	
Age*State50%				*0.02*		*0.03***
				(1.08)		*(2.41)*
Tenure*State50%				*0.06**		*0.02*
				(2.02)		*(0.73)*
CEOduality*State50%				*0.79****		*0.87****
				(4.36)		*(6.61)*
R-squared	*0.34*	*0.34*	*0.32*	*0.35*	*0.41*	*0.40*
N. Obs	*128*	*128*	*128*	*128*	*128*	*128*
N. Firms	*15*	*15*	*15*	*15*	*15*	*15*

Definitions of variables are in Table 1. Panel regression with firm-specific fixed effect. Robust standard errors are clustered by firm. T-statistics are reported in brackets. *, **, *** denote significance at 10%, 5% and 1% respectively.

TABLE VII - The effect of the state ownership at different thresholds and the financial crisis on CEO compensations by ownership structure

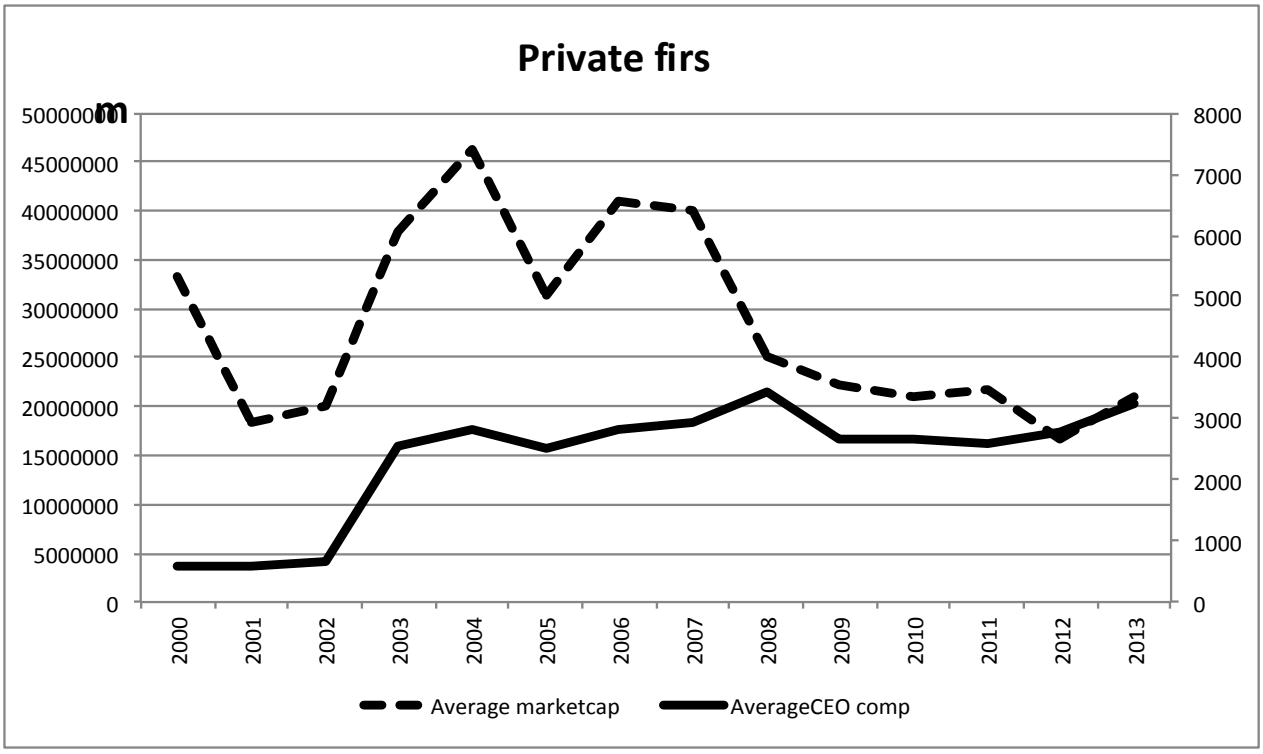
	Log (CEO compensation)				
	The Effect of State Ownership at different Thresholds		The Effect of Firm Size	The Effect of the Financial Crisis	
	(1)	(2)	(3)	(4)	(5)
Performance	*0.12*	*0.11*	*-1.87**	*0.20***	*0.18**
	(1.38)	*(1.21)*	*(-2.03)*	*(2.25)*	*(1.85)*
State 25-49%	*-3.37***	*-2.94***	*-4.14****	*-3.12***	*-2.85***
	(-2.36)	*(-2.35)*	*(-2.97)*	*(-2.28)*	*(-2.42)*
State 50%	*-5.01***	*-5.90***	*-7.99***	*-4.85***	*-6.29****
	(-2.20)	*(-2.36)*	*(-2.78)*	*(-2.13)*	*(-2.76)*
Performance *State25-49%	*0.19**	*0.16**	*0.25***	*0.18**	*0.16**
	(1.95)	*(1.84)*	*(2.66)***	*(1.86)*	*(2.01)*
Performance *State50%	*0.27**	*0.22**	*0.30***	*0.30**	*0.33***
	(2.02)	*(1.88)*	*(2.32)*	*(1.97)*	*(2.37)*
L(Revenue)	*0.47*	*0.47*	*-1.56*	*0.48**	*0.40*
	(1.62)	*(1.59)*	*(-1.70)*	*(1.74)*	*(1.69)*
Performance*L(Revenue)			*0.12***		
			(2.21)		
CEO Tenure	*0.09****	*0.08****	*0.09****	*0.07****	*0.06****
	(5.13)	*(4.33)*	*(4.52)*	*(4.12)*	*(3.64)*
CEO Age	*-0.04****	*-0.04****	*-0.05****	*-0.04****	*-0.03****
	(-5.07)	*(-4.39)*	*(-4.39)*	*(-5.98)*	*(-4.67)*
CEO Duality	*0.32****	*0.35****	*0.43****	*0.21**	*0.22**
	(4.33)	*(3.78)*	*(5.26)*	*(1.73)*	*(1.71)*
CEO Turnover	*0.17****	*0.16***	*0.11***	*0.21****	*0.22****
	(2.75)	*(2.47)*	*(2.21)*	*(3.01)*	*(2.91)*
GDP growth%	*-0.02*	*-0.02*	*-0.02*	*0.00*	*0.01*
	(-1.44)	*(-1.41)*	*(-1.28)*	*(0.32)*	*(0.39)*
Age*State50%		*0.02*	*0.04***		*-0.01*
		(1.26)	*(2.21)*		*(-0.84)*
Tenure*State50%		*0.06**	*0.05**		*0.05*
		(1.92)	*(1.78)*		*(1.56)*
CEOduality*State50%		*0.81****	*0.94***		*0.59****
		(5.28)	*(6.41)*		*(3.10)*
Crisis				*0.31****	*0.25*
				(2.66)	*(1.53)*
Crisis*State25-49%					*0.01*
					(0.03)
Crisis*State50%					*0.39***
					(2.37)
R-squared	*0.37*	*0.40*	*0.42*	*0.42*	*0.46*
N. Firms (Obs.)	*15 (128)*	*15 (128)*	*15 (128)*	*15 (128)*	*15 (128)*

Performance is the log of Market Capitalization. Definitions of variables are in Table 1. Panel regression with firm-specific fixed effect. Robust standard errors are clustered by firm. T-statistics are reported in brackets. *, **, *** denote significance at 10%, 5% and 1% respectively.

FIGURE 1 - Average CEO Pay and Market Capitalization:

Private firms versus State-owned firms

1A- Private Firms



1B – State-controlled firms