Past variable remuneration and firm performance: An empirical investigation

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Abstract

There is little evidence of the lagged effect of compensation on future performance, nevertheless the wide literature on the relationship between current compensation and current performance. There is also reduced evidence for remuneration as incentive mechanism when concentrated ownership dominates, and the controller has motivations to use the negotiation of remuneration to guide management for their interests or as an instrument of expropriation of minority shareholders. This article aims to study the effect of executive compensation in the future performance of the company in a defined ownership context.

This study is based on executive compensation data from listed Brazilian companies and analyses the effect of this remuneration on change in shareholders' wealth in the following three-year period. The results show that the impact of the variable remuneration on future performance depend on the nature of the remuneration, and on the type of ownership, but not on the CEO power. The weight of the bonus in the total remuneration does not show significant effect. However, the weight of the stock-based remuneration has a positive effect on future performance. Moreover, this result applies to companies with a majority shareholder, but not to others.

1. Introduction

Executive compensation has increased significantly in recent decades (Frydman & Jenter, 2010). This increase, which currently arouses the attention of public policymakers, given the distortions it has produced in terms of income and labor relations. As a result, the dilemmas and issues surrounding executive compensation have motivated a large number of studies, aimed at understanding compensation problems for executives and companies.

It is possible to identify in the very foundation and diffusion of the theory of agency brought in the seminal work of Jensen & Meckling (1976) a circular relation of feedback to favor the growth of this remuneration. According to the authors, an agency relationship refers to a contract involving a beneficiary, contractor of a particular (principal) share, and an agent responsible for performing that benefit. Considering that both the principal and the agent are rational actors, maximizing their utility function, it is necessary that in addition to monitoring actions, incentives and incentives are present for the agent to act in the best interest of the principal.

Cuevas-Rodríguez, Gomez-Mejia and Wiseman (2012) note that, since the use of incentives to align interests in an agency relationship is a fundamental mechanism of agency theory, it is one of the main, or the main, theoretical framework in the area of remuneration management, especially in what refers to executive compensation. Also, Bebchuk and Fried

(2003) assess that most research on the subject is focused on identifying the relationship between executive compensation schemes and the minimization of agency problems in publicly traded companies.

Frydman and Jenter (2010) divide the evolution of the executive compensation in two periods: before the 1970s, when there were low levels of pay, little dispersion and little pay-performance sensitivities; and until the early 2000s, when pay levels rose sharply, dispersion increased, and equity incentives strengthened the relationship between executive wealth and company performance.

In fact, not only has executives' pay risen sharply in recent decades, but also the relationship between the ratio of CEO and average pay. As Campbell's (2018) study shows for the 350 largest US firms, this ratio ranged from just over 20 in 1970 to 31.6 in 1980, 58.2 in 1990, and 360.5 in 2000, reaching 311.7 in 2017.

However, only part of this growth in executive compensation is explained by the variation in the fixed portion of the compensation. Considering the period 1993 to 2003, Bebchuk & Grinstein (2005) observed that the growth in this remuneration was not related to other variables such as company size, performance and industry classification, relations that if maintained would make the remuneration half of that registered. But equity-based compensation increased considerably, without being accompanied by a reduction in non-equity compensation. Jensen, Murphy and Wruck (2004) show, from data from the S&P 500 companies, CEO compensation of large US corporations increased more than 16-fold between 1970 and 2000, largely as a result of the widespread diffusion of option grants. of actions. In

this case, Bebchuk and Grinstein (2005) found that stock-based compensation increased by more than 400% from 1993 to 2000.

The logic behind this movement to substitute fixed compensation for equity-based compensation is quite straightforward, in line with agency theory. Once the wealth of executives becomes associated with the stock price, they become more likely to target their interests to those of shareholders.

Chen and Ma (2011) synthesize that studies relating equity-based executive compensation and firm performance identify the prevalence of a positive relationship. A review of the main studies, including those analyzed by these authors, shows that these results use as reference the Anglo-Saxon context, where the firm with controlled ownership predominates, and the agency problem is the most significant for good governance practices. Devers et al. (2007) have identified less conclusive results between executive compensation and firm performance, reviewing a set of 99 international studies in relevant academic publications, but also in this review, with the exception of one study in Germany, Japan and the Netherlands, the others are based on US and UK data. In a meta-analysis study involving more than five decades and covering 229 studies, Daily and Dalton (2002) noted that there is no evidence of a systematic relationship between equity compensation and firm performance.

On the same line, Filatotchev, Jackson, and Nakajima (2013) analyse that while the principal-agency framework prevails in corporate governance research, there are doubts about the universality of the relationship between corporate governance mechanisms and firm performance, as well as controversy related to the influence of the CEO compensation. More

specifically, they point to the fragility or even absence of a link between equity-based incentives and performance.

As highlighted by La Porta, Lopez-de-Silanes & Shleifer (1999), outside the US, especially in those countries with fragile shareholder protection, even the largest firms tend to have controller shareholders. In addition, if the literature associated with executive compensation receives special attention from society due to the growth of the values of this remuneration and its real effect on company results, it should be noted that, while in the US, this remuneration generally exceeds 10 million of dollars, in most countries the figures are significantly lower.

This weakness is particularly important in emerging economies, where institutional gaps related to information problems, misguided regulations and inefficient judicial systems (Khanna and Palepu, 1997) add to deficiencies in the protection of minority investors, magnifying the problem of expropriation by controlling shareholders. In these contexts, executive compensation may have distinct characteristics in terms of composition, objectives and effects, balancing aspects related to economic efficiency with pressures related to social legitimacy and suitability to the institutional environment (Filatotchev, Jackson, and Nakajima 2013). That is, if the agency problem is minimized by the controllers' incentive to supervise the managers' performance, would it be necessary for the executive compensation design to be oriented to reduce the potential managerial opportunism, a typical agency problem? Moreover, given the concentration of share control, is it possible to establish a relationship between this remuneration and the company's performance?

Recent studies brought additional contributions to the topic. Olaniy (2019) identified that CEOs are compensated for good performance, but not punished for poor performance. In the comparison between economic systems, Pan and Zhou (2018) observed large differences between the Japanese and American systems which are difficult to explain by variations in conventional incentive contracts. Examining the relationship between pay and performance in US foundations, Allen and McAllister (2018) observed a positive relationship only when the board realized an effective monitoring of the managers' performance. Ntim, Lindop, Osei and Thomas (2019) point out that the relationship between executive compensation and performance in developing countries, in a context of concentrated ownership and weak board structures, may be different from that found in developed countries, since the first have different institutional structures. In the Brazilian context, dominated by companies with concentrated control, dual-class shares and low independence of directors, Silva et al. (2018) did not observe a significant correlation between executive compensation and the Profit per Share and Return on Equity indicators for a group of 48 companies included in the stock exchange index. This result differs from the findings of Gonzaga, Yoshinaga, & Junior (2013), who, analyzing the same market, observed that executive compensation was related to the economic performance of companies. This divergence in results strengthens the analysis by Filatotchev, Jackson, and Nakajima (2013) on the lack of consistent evidence relating executive pay and firm performance.

In this context, the objective of this study is to analyse the effect of the equity-based compensation on the sustained performance of the firm in an emerging country, Brazil, where predominates firms with dual-class shares and concentrated ownership structures listed in the stock market. The subject of executive compensation produced several hundreds of published articles, counted more than 10 years ago by Devers et al. (2007), but despite this large body

of literature there is still no conclusive evidence of the sustained effect of compensation on future performance, particularly in countries where concentrated ownership structures dominate and the minority shareholder expropriation problem is pervasive. The present study advances along this path by including in the analysis the nature of the control and the CEO power, and by considering the lagged effects of the vesting period of the equity-based compensation on firm performance.

2. Theoretical framework and hypotheses

The concept of principal-principal, as a substitute perspective for the principal-agent problem that is widespread in the common law markets, is still in development (Young et al., 2008). In one of the few studies analyzing the design of executive compensation specifically in ownership concentrated companies, Melis, Carta, & Gaia (2012) observed that executive compensation in blockholder-dominated Italian listed firms followed different standards than those foreseen by Optimal Contracting Theory. In contrast to the predominant orientation in the designs of the remuneration packages oriented to minimize agency problems, the authors found evidence that in principal-principal conflict structures the payment models can be subordinated to the blockholder interests in appointing himself as executive director and to negotiate his / her own remuneration contract designed to extract a rent.

In the case of the Chinese capital market, Conyon & He (2011) analyze the differences and similarities of this market to the American in terms of executive compensation. In addition to observing a positive correlation between executive compensation and firm performance, consistent with agency theory even in a concentrated

ownership structure environment, they noted that executive pay and CEO ownership are lower in State controlled firms and firms with concentrated ownership structures. In addition, they observed that CEO share ownership represents an important mechanism for aligning interests, which is significantly larger than cash compensation. Although Chinese governance practices mimic the American ones, the total compensation of executives in this country was about suggesting that other variables not studied as social norms, institutions and private benefits of control in China may be operating to differentiate both contexts.

Baixauli-Soler & Sanchez-Marin (2015) use the principal-principal perspective to study the relationship between the ownership structure and the effectiveness of executives regarding their compensation and performance in the Spanish context, evaluating the influence of internal executive directors, external nonexecutive directors, and independent directors for 119 companies in the period 2004-2011. They observed that the prevalence of concentrated ownership structures, coupled with institutional weaknesses and external mechanisms of governance, is the result of a complex social process interconnecting the various controlling shareholders that may triggers conflict between majority and minority shareholders, especially in cases when firms are controlled by executive or external directors linked to subsidiary companies.

Several reasons for the variation in the figures and design of executive compensation can be aligned around two main chains. Bebchuk and Fried (2003) summarize the executive compensation study approaches around two main perspectives. The first of these, labelled as "optimal contracting approach" and appointed by these authors as the dominant approach in the study of executive compensation, managers' pay arrangements are considered as a way to minimize agency problems. According to this perspective, the role of the compensation is to

provide managers with adequate incentives to work in the best effort in order to maximize shareholder value, and the the high compensations are a result of optimal hiring in a competitive market and the quest for rare managerial skills and talents. In a different approach, labelled as the "managerial power approach", executive compensation is not only a way to direct the agency problem itself, but an expression of a managerial rent-seeking rather than the provision of efficient incentives. So that the level of the managerial compensation is related not only to the market forces, but also stems from the power that these administrators accumulate in front of boards and shareholders to establish the conditions and terms of their own wages.

Based on this context, we developed three hypothesis to focus on the relationship between executive compensation with the future performance of the company in a concentrate ownership environment:

H1: The weight of the bonus on total compensation has no effect on the future performance of the company.

H2: The relationship between the weight of stock-based compensation and future performance depends on the type of shareholder control of the company.

H3: The relationship between the weight of stock-based compensation and future performance depends on the CEO relative power.

The first hypothesis is justified by the fact that the bonus does not create any incentive to maximize the future performance. In fact, typically, the bonus is paid in cash; consequently, its future value depends on the use each executive director makes of the

amount received, not on the future performance of the company. Hence, raising the bonus component will serve no purpose to stimulate future performance.

Notice, however, that future performance depends on future impact of present management decisions, but it also depends on past decisions. Thus, if, for example, to maximize the present bonus, the company has assumed excessive risks in the past and this will jeopardize its future performance, there will be a negative relation between the future performance and the weight of the bonus in the total remuneration. However, at least for the companies with majority control or shared control, this alternative hypothesis is not expected. Effectively, given existing shareholders control, executive directors are less likely to be able to induce a short-term strategy that maximizes the present bonuses to the detriment of future wealth creation.

Concerning H2, our expectation is that, in companies with dispersed capital, there is a positive relationship between the weight of stock-based compensation and the company's future performance. In fact, in this type of companies the remuneration mechanisms of alignment of interests between the shareholders and the executive directors is essential. Stock-based compensation has this merit, since the future value of the wealth of executive directors will be greater as greater is the wealth created for shareholders.

As far as companies with shareholder control are concerned, whether this is a majority shareholder control such mechanisms are not so necessary. In fact, in this case, shareholders control the company from inside, and as such do not have the need to align interests by stock-based compensation. Thus, in these companies, it may even be the case that the relationship between the future performance and the weight of the stock-based remuneration is negative.

In fact, imagine that the controlling shareholders of a company are convinced that their market price is high. That is, knowing the company's inability to generate cash flows that justify current market prices, and therefore considering that their current value is overvalued, the shareholders may attribute a greater component of stock compensation. In this case, they are paying executive directors using stock based mechanisms not to align the interests, but because they are taking the opportunity to pay with an asset that is expensive. Similarly, if, on the contrary, stock prices are low relative to the company capacity to generate long-term cash flows, the controlling shareholder will have an interest in reducing the stock-based compensation weight. In this case, the controlling shareholder expects a positive change in the value of the company, and in the wealth generated for the owners of capital, and tends to maximize the capture of this wealth avoiding its dilution with the allocation of stock options or shares to the executive directors.

The third hypothesis states that the relationship between the weight of stock-based compensation and future performance depends on the CEO relative power. This hypothesis follows the perspective of the "managerial power approach", which understands that executives with the most power over their boards may receive higher pay, or pay less responsive to their performance, unbalancing pay-performance sensitivity. Thus, the dominant premise of arm's-length bargaining among shareholders, board and executives in setting executive compensation parameters would be false (Bebchuk and Fried, 2009). More powerful executives with greater influence could then exert their bargaining power to reduce their risks to the equity-based portion of their compensation, either by reducing the challenge of the targets or by increasing the values of that variable portion.

Jensen and Murphy (1990), observing a reduction in CEO wealth variation relative to shareholder wealth, suggested the existence of a moderating role represented by political forces operating both in the public sector and within organizations that were limiting the rewards of executives for exceptional performance, representing a moderating role in pay-performance sensitivity, that is, in the variation of the CEO's wealth in relation to the wealth created by the shareholders. Baron and Kenny (1986: 1174) defines moderation as "a way that third variable influences the strength or direction of the relationship between an independent and dependent variable". In this study, we analyze the moderating effect of the CEO's power to influence his remuneration on future shareholder wealth.

In sum, our expectation is that the relationship between the weight of stock-based compensation and the future performance of the company depends on the type of shareholder control, eventually subject to the moderating effect of the CEO power. This relationship is expected to be positive in companies with dispersed capital, but not the same is expected in companies with a majority shareholder or with shared control.

3. Data and Methodology

In Brazil, where data is collected, most of the listed companies have a majority shareholder control, either directly or through a shareholders' agreement, and executive compensation has shown a significant growth over the last 10 years. Presently, 370 companies are listed on the B3, the Brazilian stock exchange, although a significant part with few transactions or free float. To consider only companies that actually operate consistently in the stock market, we chose to use a market index, the IBrX 100, which tracks the performance of

the 100 most tradable and representative shares of the Brazilian stock market. Our data starts in 2013 and ends in 2019 for the financial data, and from 2013 to 2018 for the executive compensation. The common sample data contains 75 firms and 280 firm-observations.

For the executive compensation, data were collected from the Reference Form, a mandatory report released by the companies that informs the total remuneration and number of members, the fixed remuneration, variable portion referring to commissions and bonuses on previous year's results, and share in shares, which aggregates stocks and stock options. The economic-financial information of the companies and the market, and data related to shareholder concentration in the companies, came from the Economatica system. Finally, the free risk interest rate was obtained in the Brazilian central bank web site.

Regarding the methodology, we performed panel least square regressions. The variable ΔShareholder Wealth is the dependent variable, and it is the change in shareholder wealth in the three years following the year of the variable remuneration (ΔSW_{t+1}+ ΔSW_{t+2}+ΔSW_{t+3}). The measure change in shareholder wealth in the year t is defined, following Jensen & Murphy (1990), as $r_t V_{t-1}$, where r_t is rate of return on common stock realized in fiscal year t (including dividends and adjustments of capital), and V_{t-1} is the firm value at the end of the previous year. Therefore, dependent variables effectively compute the company's future performance within the period of three years following the year t.

The explanatory variables are fourfold motivated. Firstly, we include two variables funded in the CAPM model. Secondly, we include the variables related with variable remuneration. Thirdly, we include variables related with the shareholder control. Finally, we include a vector of other control variables.

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Therefore, the basic regression model is the following:

$$
\begin{aligned}
\Delta Shareholder\ Wealth \\
= a + bRisk\ Free\ Effect + cMarket\ Effect + dBonus + eStockBased \\
+ fShareholder\ Control + gControl\ Variables + \in
\end{aligned}
$$

The Risk Free Effect and the Market Effect variables are computed as explained in the following paragraph.

According to the CAPM, the expected rate of return (r^*_t) is $r^*_t = r_f + \beta(r_m - r_f)$, where r_f is the risk free interest rate, r_m is the expected market rate of return and β is the systematic risk measure. Therefore, the expected change in shareholder wealth in the year t is $r^*_t V_{t-1} = (r_f + \beta(r_m - r_f))V_{t-1}$. Arranging the expression, we can wright: $r^*_t V_{t-1} = r_f (1 - \beta)V_{t-1} + r_m \beta V_{t-1}$. The first component is the Risk Free Effect variable, and the latter portion is the Market Effect variable. Notice that the Risk Free Effect is not necessarily positive, given that β can be above one. The market return proxy is the index IBrX 100 return, and interest rate proxy is the Selic rate, which is the Brazilian federal funds rate. Precisely, the Selic rate is the weighted average interest rate of the overnight interbank operations—collateralized by federal government securities—carried out at the Special System for Settlement and Custody (Selic).

The variable remuneration measures are the Bonus and the Stock-Based. The variable Bonus is the weight of the component of variable remuneration that is not contingent, neither in any form dependent of the future value of the stocks. This component is paid in cash in the year t. The variable Stock-Based is the weight of the component of variable remuneration in the year t, which is paid in stock based instruments (stock options, stocks or other stock linked

financial asset). Therefore, the weight of variable remuneration in the year t in the total remuneration is the sum of Bonus plus Stock-Based.

In the third vector of variables, to control the shareholders' structure effect, three dummies are used. They are Majority, Shared and Dispersed. Majority identifies firms that have a single shareholder, individual or collective, holding 50% or more of the voting shares. Shared identifies the firms which largest shareholder owns less than 50% and 10% or more of the voting shares. Dispersed identifies the firms which largest shareholder owns less than 10% of the shares. The sample includes 35 firms with shared control, 33 firms with majority shareholder and 7 with dispersed control. We use CEOPaySlice as a proxy for CEO's power (Bebchuk, Cremers and Peyer, 2011). CEOPaySlice is the highest remuneration on the board of officers, or the C-suite, versus the average board of officer members' remuneration.

Finally, regarding the vector of other control variables, to control size effect, we use the log of total assets (Log(TA)). Additionally, the Price-to-Book ratio (PBV) is used as a proxy of investment opportunities. The PBV also controls for the relative level of stocks' market prices. Additionally, industry dummies are used to control differences in performance for different sectors of activity.

4. Results and Discussion

Panel A of Table 1 presents the descriptive statistics of the main variables. The Panel B of the same table presents their correlation coefficients.

- Insert Table 1 -

Notice that, in average, the change of shareholders wealth in the three years following the year of the variable remuneration was positive (+R$16.4 billions). The Panel A also shows that there is a slight acceleration in wealth creation, given that the wealth variation in the third year is higher than wealth variation in the first year following the variable remuneration year by R$ 5.2 billion.

In average, the CAPM components sum +R$10.6 billions (65% of total the change of shareholders wealth), 83% justified by the Market Effect and 17% due to the Risk Free Effect. Regarding the weight of variable components in the sum of all remuneration components, the average weight of bonus is 32.6% and the average weight of stock-based remuneration is 13.3%. Therefore, the sum of the two components, in average, is 45.9% of the total. The remaining part is based on fixed remuneration. The CEOPaySlice is 2.0 which means that, in average, the highest remuneration on the board is the double of the board members remuneration per capita.

Relatively the correlation coefficients, the most noticeable results are, in one hand, as expected, the high correlation between the wealth created and the market effect; and, in another hand, the negative correlation coefficient between the stock-based remuneration's weight and the bonus weight. This leads us to anticipate a substitute (rather than complemental) nature of the bonus and stock-based remuneration.

Turning to the regressions, in Table 2, Panel A, the first regression [1] shows that CAPM based variables explain 60% of the variance of the shareholder wealth in the three years following the year t. Adding to the explanatory variables set the remuneration weight

(Bonus+Stock-Based) and the control variables (log(TA) and PBV) the explanatory capacity of the model increases to 68% or 70% measured, respectively, by the Adjusted R-squared or by the R-squared (see regression [2]). This regression also shows a positive effect of company size (logarithm of total assets). In other words, the larger the size of the company, the higher the level of wealth created (or the lower the level of wealth destroyed) for shareholders in the subsequent three years. Finally, the PBV used as a proxy for growth opportunities shows no statistical significant effect. In the regression [3] period fixed effects (dummy variables) were added, and everything remains. The coefficients do not change significantly, except the risk free, which lost significance, in conformity with the results of regression [1].

- Insert Table 2 -

In regressions [4] and [5] we distinguish the bonus effect of the stock-based remuneration effect. Everything else remains. We can see that the effect obtained in regression [2] for the variable remuneration is due to stock-based remuneration. Effectively, the variable Stock-Based is significant, and the variable Bonus is not significant. Therefore, this result supports the null hypothesis of H1. That is, the weight of the bonus on total compensation has no effect on the future performance of the company. Besides, this result also shows that stock-based remuneration globally has a positive effect on future performance. Therefore, these results not only support the hypothesis H1, but also give basis to further investigation of the hypothesis H2. The same conclusion applies to Panel B, were the firms that only pay fixed remuneration were excluded.

In Table 3, once again, we find evidence that supports the null hypothesis of H1. Effectively, the variable Bonus is no statistically significant (see regressions [2], [4], [6], [7] and [8]). Moreover, this table confirms the positive effect of the total variable remuneration weight (see regression [1]). The same applies to the positive effect of the Stock-Based component (see regression [2]). That is, the positive relationship between variable remuneration and future performance needs to be attributed to stock-based remuneration rather than to bonus remuneration.

- Insert Table 3 -

However, this table also shows several other important aspects. Firstly, the shareholder's control does not affect the amount of shareholder wealth created. Effectively, in regressions [1] and [2] we can see that dummy variables (Dispersed and Majority) do not have statistical significance. That is, the ΔShareholder Wealth is similar to firms with majority shareholder, to firms with shared control and to firms with dispersed control. It also shows clearly that the positive effect of the Stock-Based component is exclusively due to the firms with majority shareholder control. Effectively, when cross-effects are introduced, in order to better capture the effect of stock-based compensation, the results change. In fact, the Stock-Based variable coefficient is no longer significant (see regressions [4], [5], [7] and [8]). However, the variable Majority*Stock-Based coefficient is positive and statistically significant (see regressions [4], [5] and [7]). That is to say, using the estimates of regression [4], for companies with Majority shareholder control, on average, for each 100 basis points of increment in the weight of the stock-based remuneration, the wealth created for the shareholders in the subsequent three years increases by R$ 3.4 million (using regression [4] estimated coefficients). However, for other companies, the positive impact of Stock-Based no longer remains. Effectively, the cross-effects for such types of control are not positive;

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inclusively it is negative to Shared control (see regression [6]). Besides, as mentioned, when the variable Majority*Stock-Based is included, the variable Stock-Based is no longer positive, which means that the positive effect of Stock-Based remuneration is effectively due to firms with majority control. These results support the H2 hypothesis, showing that the effect of stock-based compensation on future performance depends on the nature of shareholders' control, ant it is only positive for companies with majority shareholders. For firms with Shared control such effect is negative (see regression [7]), and for firms with dispersed control the effect is null.

Finally, in Table 4 we introduce the CEO power, through the CEOPaySlice variable. Regressions [1] and [2] show that the CEOPaySlice variable does not affect the amount of shareholder wealth created. Effectively, the coefficient of such variable has no statistical significance. Notice that in these regressions cross-effect Majority*Stock-Based is still positive.

- Insert Table 4 -

Additionally, when we cross the CEOPaySlice with control variables we find or null effect, or a negative effect. The later one is obtained to variable CEOPaySlice*Majority*Stock-Based, and means that the combination, in Majority control firms, of Stock-Based remuneration and CEO power is detrimental for the wealth creation (see regressions [4] and [5]).

Therefore, regarding the hypothesis H3, we cannot accept that the relationship between the weight of stock-based compensation and future performance depends on the CEO relative power, given that the CEO relative power do not influence the relationship between these two variables, both for shared and for dispersed firms. However, for firms

with a majority shareholder, as higher is the CEOPySlice lower is the Stock-Based on the future performance.

5. Conclusions

The remuneration pays and rewards the firm directors for their time, effort and past performance. The variable component of such remuneration, in special, aims to compensate for the performance. There is a huge amount of papers about the impact of the remuneration in the firms' performance. This literature focus mainly on the relationship between the remuneration of the year t on the performance of the year t. This paper also investigates the relationship of the variable remuneration and performance. However, this paper studies the relationship of the variable remuneration of the year t and future performance (three following years). That is, we are interest to know if the current variable remuneration, which intends to compensate past performance, has any kind of influence on the future performance.

This study has two main findings. Firstly, it concludes that the weight of the bonus on total compensation has no effect on the future performance of the company. Secondly, it finds that the relationship between the weight of stock-based compensation and future performance depends on the type of shareholder control of the company. In particular, the paper provides evidence that the effect of stock-based compensation on future performance is positive for companies with a majority shareholder, negative for companies with shared control, and null to other firms. Therefore, the use of stock-based compensation, as mechanism of interests' alignment, between executive directors and shareholders seems to produce the desired effects for companies that the largest shareholder controls directly or indirectly 50% or more of the voting shares, but not for companies with dispersed control or for companies with shared control.

This result is especially noticeable given that in Brazil, where data is collected, more than 90% of the listed companies have defined or shared control, either directly or through a shareholders' agreement. Thus, the evidence provided by datasets mainly composed by companies with dispersed capital needs to be assimilated, interpreted and transposed carefully for such type of countries, and also highlight that the same solution is not necessarily suitable to all kind of firms.

The paper also contributes to the literature on governance by pointing out that the classical theoretical frameworks that recommend executive compensation as a mechanism for aligning interests and incentives may not work properly in a concentrated ownership environment. This study contributes to new theorizations around the problem of incentives in the reality of countries where concentrated ownership predominates and the main-main conflict is the fundamental governance problem. Otherwise, maintaining the current theoretical framework, the design and values of this remuneration could be contributing mainly to fostering the positions of rent seeking and expropriation of minority shareholders, under the argument and expectation of attracting and aligning executives' interests.

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Table 1 – Sample Descriptive Statistics

	$\Delta SW_{t+1}+\Delta SW_{t+2}+\Delta SW_{t+3}$	$\Delta SW_{t+3}-\Delta SW_{t+1}$	Market Effect	Risk Free Effect	Bonus	Stock-Based	Log(TA)	PBV	CEOPay Slice
	Panel A: Descriptive Statistics								
Mean	16.4	5.2	8.8	1.8	32.6	13.3	16.8	2.4	2.0
Std. Dev.	39.2	21.9	24.6	0.5	22.6	21.0	1.5	2.9	1.0
Observations	280	280	280	280	280	280	280	280	280
	Panel B: Correlation Coefficients								
$\Delta SW_{t+1}+\Delta SW_{t+2}+\Delta SW_{t+3}$	1.00	0.17	0.77	-0.14	0.05	0.06	0.63	-0.11	0.21
$\Delta SW_{t+3}-\Delta SW_{t+1}$		1.00	0.23	-0.15	0.05	-0.02	0.33	-0.11	-0.01
Market Effect			1.00	-0.27	0.02	0.05	0.58	-0.06	0.10
Risk Free Effect				1.00	0.10	0.04	0.71	-0.05	0.13
Bonus					1.00	-0.30	0.16	0.11	0.17
Stock-Based						1.00	-0.04	0.11	0.34
Log(TA)							1.00	-0.18	0.25
PBV								1.00	0.13
CEOPaySlice									1.00

$\Delta SW_{t+1}+\Delta SW_{t+2}+\Delta SW_{t+3}$ is the change in shareholder wealth in the three years following the year of the variable remuneration. $\Delta SW_{t+3}-\Delta SW_{t+1}$ is the change in shareholder wealth in the third year minus the change in shareholder wealth in the first year following the year of the variable remuneration. Market Effect computes the market return effect, according the CAPM model, during the years t+1 to t+3. Risk Free Effect computes the interest rate risk effect, according the CAPM model, during the years t+1 to t+3. Bonus is the bonus over total remuneration (%). Stock-Based is the stock-based remuneration over total remuneration (%). TA is the total assets. PBV is the price-book-value ratio. CEOPaySlice is the highest remuneration on the board over the average board members' remuneration. Monetary values in billions of Brazilian currency units (Real).

Table 2 – Past Executive Directors Variable Compensation and Future Change in Shareholder Wealth

	Coef.	t-Stat	Coef.	t-Stat	Coef.	t-Stat	Coef.	t-Stat	Coef.	t-Stat	Coef.	t-Stat	Coef.	t-Stat
	[1]		[2]		[3]		[4]		[5]		[6]		[7]	
	Panel A - All Sample										Panel B - Firms with Variable Remuneration			
Constant	4.64	3.11 ***	-106.83	-2.61 ***	-99.62	-2.46 ***	-108.62	-2.63 ***	-96.87	-2.47 ***	-97.31	-2.63 ***	-86.88	-2.46 ***
Risk Free Effect	0.35	0.97	-0.62	-1.46 *	-0.50	-1.14	-0.62	-1.45 *	-0.49	-1.12	-0.79	-1.69 **	-0.66	-1.39 *
Market Effect	1.09	3.80 ***	0.94	4.90 ***	0.92	4.57 ***	0.94	4.89 ***	0.91	4.56 ***	0.91	4.67 ***	0.88	4.31 ***
Bonus+Stock-Based			0.11	1.62 *	0.09	1.31 *								
Bonus							0.08	1.03	0.06	0.76	0.09	0.96	0.08	0.88
Stock-Based							0.14	1.43 *	0.12	1.32 *	0.15	1.44 *	0.15	1.32 *
Log(TA)			6.58	2.59 ***	6.16	2.45 ***	6.73	2.62 ***	6.13	2.48 ***	6.00	2.62 ***	5.43	2.45 ***
PBV			0.13	0.33	0.32	0.78	0.16	0.40	0.44	1.05	0.23	0.56	0.47	1.10
Period Fixed	NO		NO		YES		NO		YES		NO		YES	
Industry Dummies	NO		YES		YES		YES		YES		YES		YES	
Observations:	280		280		280		280		280		263		263	
R-squared	0.60		0.70		0.71		0.70		0.71		0.71		0.72	
Adjusted R-squared	0.60		0.68		0.68		0.68		0.68		0.69		0.69	
F-statistic	215.5		27.6		24.8		26.4		24.9		26.0		23.6	

The dependent variable is $\Delta SW_{t+1}+\Delta SW_{t+2}+\Delta SW_{t+3}$, which is the change in shareholder wealth in the three years following the year of the variable remuneration. ΔSW_{t+1} is the change in shareholder wealth in the first year following the year of the variable remuneration. $\Delta SW_{t+3}-\Delta SW_{t+1}$ is the change in shareholder wealth in the third year minus the change in shareholder wealth in the first year following the year of the variable remuneration. Market Effect computes the market return effect, according the CAPM model, during the years t+1 to t+3. Risk Free Effect computes the interest rate risk effect, according the CAPM model, during the years t+1 to t+3. TA is the total assets. PBV is the price-book-value ratio. Bonus is the bonus over total remuneration (%). Stock-Based is the stock-based remuneration over total remuneration (%). Industry Dummies are binary variables that identify each sector of activity. Panel A includes all firms. Panel B includes only firms with variable remuneration (i.e., firms with only fixed remuneration were excluded). Estimation method is Panel Least Squares with White diagonal standard errors & covariance (d.f. corrected). The symbols ***, ** and * show statistical significance at 1%, 5% and 10%, respectively. The alternative hypothesis is always one-sided.

Table 3 – Past Executive Directors Variable Compensation and the Nature of the Shareholders' Control

	Coef. [1]	t-Stat [1]	Coef. [2]	t-Stat [2]	Coef. [3]	t-Stat [3]	Coef. [4]	t-Stat [4]	Coef. [5]	t-Stat [5]	Coef. [6]	t-Stat [6]	Coef. [7]	t-Stat [7]	Coef. [8]	t-Stat [8]
Constant	-96.62	-2.42 ***	-98.57	-2.45 ***	-96.86	-2.39 ***	-91.83	-2.32 **	-91.42	-2.24 **	-101.53	-2.65 ***	-94.62	-2.42 ***	-100.18	-2.43 ***
Risk Free Effect	0.92	4.60 ***	0.91	4.59 ***	0.93	4.82 ***	0.92	4.81 ***	0.90	4.60 ***	0.92	4.71 ***	0.92	4.81 ***	0.91	4.59 ***
Market Effect	-0.52	-1.17	-0.51	-1.15	-0.56	-1.28	-0.53	-1.20	-0.47	-1.07	-0.49	-1.13	-0.53	-1.21	-0.52	-1.16
Bonus+Stock-Based	0.10	1.47 *			-0.01	-0.14										
Bonus			0.07	0.95			0.03	0.26			0.08	0.95	0.01	0.09	0.08	0.92
Stock-Based			0.12	1.32 *			-0.07	-0.82	-0.08	-1.02	0.22	1.53 *	-0.03	-0.45	0.13	1.23
Log(TA)	6.02	2.41 ***	6.18	2.46 ***	6.33	2.57 ***	6.01	2.49 ***	6.03	2.33 **	6.18	2.56 ***	6.08	2.53 ***	6.25	2.45 ***
PBV	0.30	0.73	0.34	0.79	0.28	0.66	0.31	0.71	0.44	1.05	0.36	0.84	0.33	0.76	0.33	0.76
Dispersed*Bonus							-0.09	-0.40							-0.13	-0.65
Dispersed*Stock-Based							0.12	0.90	0.15	1.36 *					-0.08	-0.55
Dispersed	-4.34	-1.17	-4.41	-1.19	-6.14	-0.72	-1.95	-0.16	-5.76	-1.78 **					2.22	0.21
Majority*Bonus							0.10	0.69					0.12	0.92		
Majority*Stock-Based							0.34	1.65 **	0.30	1.62 *			0.30	1.52 *		
Majority	0.71	0.20	0.14	0.04	-9.07	-1.23	-7.42	-0.98	-4.69	-1.03			-7.30	-1.06		
Dispersed*(Bonus+Stock-Based)					0.04	0.29										
Majority*(Bonus+Stock-Based)					0.20	1.42 *										
Shared*Bonus											-0.06	-0.46				
Shared*Stock-Based											-0.28	-1.67 **				
Shared											6.88	0.97				
Observations:	280		280		280		280		280		280		280		280	
R-squared	0.71		0.71		0.71		0.72		0.71		0.71		0.72		0.71	
Adjusted R-squared	0.68		0.68		0.68		0.68		0.68		0.68		0.68		0.68	
F-statistic	22.9		22.0		21.5		19.5		21.6		21.5		21.6		21.2	

The dependent variable is $\Delta SW_{t+1}+\Delta SW_{t+2}+\Delta SW_{t+3}$, which is the change in shareholder wealth in the three years following the year of the variable remuneration. ΔSW_{t+1} is the change in shareholder wealth in the first year following the year of the variable remuneration. $\Delta SW_{t+3}-\Delta SW_{t+1}$ is the change in shareholder wealth in the third year minus the change in shareholder wealth in the first year following the year of the variable remuneration. Market Effect computes the market return effect, according the CAPM model, during the years t+1 to t+3. Risk Free Effect computes the interest rate risk effect, according the CAPM model, during the years t+1 to t+3. PBV is the price-book-value ratio. Bonus is the bonus over total remuneration (%). Stock-Based is the stock-based remuneration over total remuneration (%). Majority identifies firms that present a single shareholder, individual or collective, holding 50% or more than 50% of the voting shares. Shared identifies the firms which largest shareholder owns less than 50% and 10% or more than 10% of the shares. Dispersed identifies the firms which largest shareholder owns less than 10% of the shares. All regressions include industry dummies. Estimation method is Panel Least Squares with White diagonal standard errors & covariance (d.f. corrected). The symbols ***, ** and * show statistical significance at 1%, 5% and 10%, respectively. The alternative hypothesis is always one-sided.

Table 4 – Past Executive Directors Variable Compensation and the CEO Power

	Coef. [1]	t-Stat [1]	Coef. [2]	t-Stat [2]	Coef. [3]	t-Stat [3]	Coef. [4]	t-Stat [4]	Coef. [5]	t-Stat [5]
Constant	-90.74	-2.15 **	-91.95	-2.18 **	-100.45	-2.35 ***	-100.14	-2.30 **	-102.82	-2.40 ***
Risk Free Effect	-0.52	-1.17	-0.52	-1.12	-0.51	-1.14	-0.51	-1.12	-0.52	-1.16
Market Effect	0.92	4.78 ***	0.92	4.74 ***	0.90	4.53 ***	0.90	4.48 ***	0.90	4.53 ***
Bonus+Stock-Based										
Bonus	0.03	0.23	0.01	0.10						
Stock-Based	-0.07	-0.82	-0.07	-0.83	0.07	0.64	-0.13	-0.78	-0.01	-0.15
Log(TA)	5.92	2.24 **	5.99	2.24 **	6.47	2.39 ***	6.49	2.36 ***	6.61	2.44 ***
PBV	0.29	0.66	0.33	0.72	0.37	0.90	0.38	0.90	0.35	0.87
Dispersed*Bonus	-0.09	-0.38	-0.06	-0.23						
Dispersed*Stock-Based	0.12	0.90	0.08	0.58	0.06	0.50	0.00	0.00	-0.04	-0.18
Dispersed	-1.94	-0.16	-8.95	-0.82						
Majority*Bonus	0.09	0.68	0.13	0.77						
Majority*Stock-Based	0.33	1.53 *	0.39	1.50 *	0.29	1.65 *	0.62	1.83 **	0.50	1.82 **
Majority	-7.12	-0.96	-4.44	-0.53						
CEOPaySlice*Dispersed			3.32	0.82			-1.86	-0.67		
CEOPaySlice*Majority			-2.21	-0.53			-0.35	-0.19		
CEOPaySlice	0.34	0.18	1.02	0.42						
CEOPaySlice*Stock-Based					-0.05	-1.21	0.05	0.79		
CEOPaySlice*Dispersed*Stock-Based							0.06	0.37	0.05	0.38
CEOPaySlice*Majority*Stock-Based							-0.13	-1.48 *	-0.08	-1.62 *
Period Fixed	YES		YES		YES		YES		YES	
Industry Dummies	YES		YES		YES		YES		YES	
Observations:	280		280		280		280		280	
R-squared	0.72		0.72		0.71		0.72		0.72	
Adjusted R-squared	0.68		0.68		0.68		0.68		0.68	
F-statistic	18.8		17.7		22.4		19.5		21.7	

The dependent variable is $\Delta SW_{t+1} + \Delta SW_{t+2} + \Delta SW_{t+3}$, which is the change in shareholder wealth in the three years following the year of the variable remuneration. ΔSW_{t+1} is the change in shareholder wealth in the first year following the year of the variable remuneration. $\Delta SW_{t+3} - \Delta SW_{t+1}$ is the change in shareholder wealth in the third year minus the change in shareholder wealth in the first year following the year of the variable remuneration. Market Effect computes the market return effect, according the CAPM model, during the years t+1 to t+3. Risk Free Effect computes the interest rate risk effect, according the CAPM model, during the years t+1 to t+3. TA is the total assets. PBV is the price-book-value ratio. Bonus is the bonus over total remuneration (%). Stock-Based is the stock-based remuneration over total remuneration (%). Majority identifies firms that present a single shareholder, individual or collective, holding 50% or more than 50% of the voting shares. Shared identifies the firms which largest shareholder owns less than 50% and 10% or more than 10% of the shares. Dispersed identifies the firms which largest shareholder owns less than 10% of the shares. CEOPaySlice is the highest remuneration on the board over the average board members' remuneration. All regressions include industry dummies. Estimation method is Panel Least Squares with White diagonal standard errors & covariance (d.f. corrected). The symbols ***, ** and * show statistical significance at 1%, 5% and 10%, respectively. The alternative hypothesis is always one-sided.