



## MECHANISMS OF COMPENSATION AND PERFORMANCE OF COMPANIES. AN EMPIRICAL ANALYSIS OF COMPANIES LISTED IN B3.

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**Abstract** – The theory of conflict between company agents, in which owners hire and delegate decision making to executives, causes a shock of interest due to a divergence of interests. The purpose of this paper was to understand the influence of management compensation on the performance of publicly traded companies listed on B3. For this, multiple regressions with panel data were used. The survey sample has active Brazilian companies that traded shares in B3 between 2010 and 2017. The compensation mechanisms were represented by the Average Salary; the proportion of

variable salary and share-based compensation. To measure company performance financial indicators (ROA, ROE and LPA) were used. Results show that there is a relationship between the mechanisms used to remunerate managers and performance indicators. Also, both types of incentives positively affect performance, confirming the theory of interest alignment between agent and principal.

**Keywords:** Agency Theory; Performance; Compensation Mechanism

## 1. INTRODUCTION

The approach of a theory about the conflict between the companies agents initially treated by Coase (1932) and improved by Jensen & Meckling (1976), in which the principal (owner of the company) hires and delegates the decision function to an agent (executives), causes a clash of interest, since the maximization of their personal uses, in most cases, tends to be different.

This misalignment occurs because the risk aversion falls differently in the agent and the main. While the owner can diversify it seeking other projects managers are unable to mitigate the risks. In this sense, participation trigger of directors relates to the value of the company (Morck; Shleifer & Vishny, 1988).

However, so the company can have a good performance is imperative converging interests between managers and shareholders. Corporate governance identifies various aspects related to these differences. In this segment, several studies (Murphy, 1999; Gshoal, 2005; Barros & Krauter, 2013; Carvalhal da Silva, 2015) have been conducted to investigate whether there is a link between executive compensation and firm performance. Thus, seek compensatory mechanisms that can mitigate agency conflicts (Aguiar et al, 2012; De Souza, Cardozo & Cunha Vieira, 2017).

La porta et al. (1998/1999), researched the impact of statutory and ownership structure in corporate finance in countries around the world. He concludes that weak legal protection or environments that centralize the assets within ownership are factors that favor the expropriation of shareholders.

According to De Arruda, Madruga & Freitas Junior (2008), Brazilian companies are in a low-protection scenario and they are also characterized by a high

concentration of ownership and largely arising from family corporate structures. Also, still can issue shares without voting rights, which increases the concentration of the company's control. As much as this scenario may be beneficial to monitor the managers, what has been seen in the country is a greater possibility of expropriation of minority shareholders (Caixe & Krauter, 2013).

The findings of Peixoto & Buccini (2013), demonstrate that despite the concentration of control and the separation of this and ownership of the country's companies to be decreasing, the scenario shows high concentration. It was also seen that the concentration of control is negatively related to the performance and value of the firm.

Nevertheless, Braga, Lima & Diaz (2007) adds that one of the biggest hurdles companies in today's competitive environment is the management of people. Along with the need separation of functions between owners and executives, the challenge becomes even greater. In this sense, proposing a way to reward managers who can encourage them to seek the best company performance is critical to company owners (Fama & Jensen, 1996; Bebchuk & Fried, 2003; Gonzaga; Yoshinaga & Eid Junior, 2013).

Faced with these conflicts about the ways they behave shareholders and managers before diffuse interests, along with the peculiarities inherent in the Brazilian market, this study investigates the way to remunerate executives financially has a relationship with the performance of Brazilian companies listed on the B3.

The main purpose of this article is to determine whether the compensation mechanisms used by companies can affect its performance. More specifically investigate whether (1) a higher remuneration; (2) the use of remuneration linked to goals and results, and (3) use the company's shares as payment, can corroborate for the alignment of interests between owner and shareholders influence the company's performance.

This research is justified by characteristics that guide the Brazilian capital market and also by differences over corporate governance and remuneration of managers. As differential over other theme studies, which generally use an index representing some companies and a short period, a sample of all active companies trading shares on B3 along with eight years was used.

## 2. REVIEWS OF LITERATURE AND CONSTRUCTION OF ASSUMPTIONS

When it comes to the performance of companies, usually refers to the overall economic performance of the firm (Guerreiro, 1992; North & Hart, 2006). However, one can evaluate the performance through various accounting ratios and analytical results of the various activities of the company (Guerreiro, 1992; Murphy, 1999; De Camargo & Barbosa, 2005; Krauter, 2013).

In finance, several studies that seek to clarify how performance can be affected by some strategies of organizations. To Decourt & Procianoy (2012) an increase in the dividend distribution has a positive effect on performance. According to Silveira, Barros & Fama (2003), the quality of corporate governance is directly related to performance. Floriane & Fleri (2012) believe that a greater degree of internationalization provides superior performance. Nakamura et al. (2007) studied the structure of capital and found a negative relationship between performance and leverage.

However, the strategic decisions adopted by companies are out of their boards. Thus, shareholders seeking the best mechanism to achieve converging the personal interests of its directors, to the firm achieve a good performance. Thus, to encourage managers to maximize the company's value has been a recurring theme in the literature since the formalization of the agency theory in the mid-twentieth century (Jensen & Murphy, 1990b; Gshoal, 2005; Krauter, 2013; Konrath; Lunkes, Gaspareto & Shonesberg, 2017).

The Agency Theory, Jensen & Meckling (1976) explain that ownership and control are assigned to different people with different interests. Thus, the relationship between agents is based on a set of contracts, implicit and explicit involving all company participants, to define the roles and responsibilities of each of these agents.

The above authors already make clear that there is a misalignment of the claims between the contract and the principal since the individual utility maximization of each is distinct. As Eisenhardt (1989) as the agent shown averse to risk not being able to diversify them (is attached to contracts), this factor is not seen in the main, they can spray your investments.

Although managers are submissive to shareholders legally, they have more information on the business of the companies, as they are responsible for the management decisions. This asymmetry of information is even greater when it comes to minority shareholders (Albanez & Valle, 2009).

In this regard, Konrath et al. (2018) explain that there is overall supremacy that hangs to one side in this relationship, which means that the higher the conflicts enter the agents more costs will be generated for the company.

Also, the owners have to seek a mechanism to align the interests of directors and shareholders of the company (Jensen & Murphy, 1990a). Krauter (2009) argues that there are two types of incentive for managers, financial compensation and non-financial rewards.

For Carlon, Downs, and Wert-Gray (2006), the non-financial aspects of remuneration, such as personal and professional development and increased security, become attractive to workers. However, even if regularly used by companies, are factors that have been ignored by studies on incentives.

On the other hand, incentives through financial compensation is a very common theme in the literature. The studies seek to identify how the composition of the direct compensation, the ratio of fixed salary and variable salary, can affect the stimulation of the board for better organizational results (Jensen & Murphy, 1990b; Wowak & Hambrick, 2010; Fernandes & Mazzone, 2015).

According to Oskan (2007), this strategy is to use systems that propose goals to be achieved, and financially rewarding managers to achieve fulfill them. The explanation of Birth, Franco & Cherobim (2012) is that the employee must be motivated, and the greater the variable portion of their salary, more committed to the organizational result it will be.

Bebchuk & Fried (2005), report that the United States financial incentives are far from aligning the interests of executives and shareholders. These findings are associated with other research findings worldwide as Firth et al. (1996) in Europe, Conyon & He (2011) in China and Carvalhal da Silva and Yi Chien (2013) in Brazil.

Incentives to managers as a way to mitigate the conflicts in an agency relationship, and try to synchronize the interests of directors and shareholders still

generates differences. Thus the article is based on this study Gonzaga et al. (2013) and makes the following assumptions:

**H1: There is a relationship between the company's financial performance and average wages of managers**

**H2: There is a relationship between the company's financial performance and the variable proportion of the salaries of managers**

Nevertheless, within the financial compensation, there is also indirect compensation. This is made up of benefits, usually bonuses that are earned by some extra/specific objective of the firm. These mechanisms aim to provide long-term benefits of the workers, seeking to reduce the time frame with the company (Dalmacio; Rao & Slomski, 2009; Tinoco; Rossi & Portugal, 2015).

As Schaffer et al. (2015), an example of long-term compensation is the process of compensation based on stock option. Where in addition to encourage managers to seek better results, yet it provides a stay in search of future growth, approaching the company.

Another factor that also appears in the Brazilian balance sheets is post-employment compensation. Are payments which link the executives the company over time as provided in clauses non-compete agreement and pension plan (Miranda, Thomas & Gallon, 2011).

Bird (2018), we know that in Canada, due to its tributary characteristics, the use of stock as executive compensation options, is more linked to an alternative high-income tax leakage of staff, than to approach the firm's objectives.

Hasegawa, Kim & Yusada (2017) investigated the relationship between share-based payments and financial performance. Overall, the results support the view, at least in the Japanese context, that the stock options can serve as an incentive to improve the company's performance.

On the other hand, Tang (2012) proposed a model to estimate the incentive effects of executive stock options. The findings show that a continuous payment

encourages managers to seek a better performance of the company and achieve future appreciation.

Thus, this article also investigates whether companies using this long-term remuneration strategy can achieve better performance. Based on these perspectives, and following the steps of the study Rissati, De Souza & Borba (2018), this study presents a third hypothesis:

**H3: There is a relationship between the company's financial performance and stock-based compensation**

### **3. METHODOLOGICAL PROCEDURES**

This article is characterized as a descriptive, given that it aims to get a deeper knowledge of the subject and try to further elucidate the concepts that have been discussed in the literature. It is also classified as quantitative, it aims to measure the effects of the relationship enters financial variables (Beuren, 2003).

It was first made an informal analysis of the variables that make up the sample. Through box plot graphics were detected small outliers. To try to reduce any effect that may influence the work, we used the winsorização of 2.5% on all explanatory variables and the control variables.

The technique used to test the hypotheses of the article was multiple regression with panel data. For Gujarati & Porter (2011), this statistical technique proves to be effective in several studies that measure sample units at different periods. This option allows you to make inferences on the relationship between the independent variables and the dependent variable.

To draw up models of this article, they were first made several statistical tests. Breusch- Pagan, Chow Test and Hausman test (to choose the most appropriate data model); Shapiro-Wilk (normal waste); Wald (heteroscedasticity) Woodridge (autocorrelation).

Our sample consists of all active Brazilian publicly traded companies that have their securities traded in B3. For reasons of peculiarities in the financial statements

were taken from the sample financial companies. Some subsidiaries did not issue information about the remuneration of the executive board since this data is in charge of controlling such companies have also been withdrawn from the study.

This choice is due to the scope of work being the Brazilian market, and the obligation of financial statements are only companies with open capital. As for the time, the study includes the financial years 2010 to 2017. This period is justified by the use of related compensation data, which have only been a mandatory statement in reference form delivered to CVM from 2010.

The data used are all sources with a secondary character. To get the data on the financial performance of firms and the control variables, we used to Economatica base. To remuneration strategies and values, the collection was through the reference form (compulsory publication by CVM) of each company and available on the site B3.

To measure the amount of compensation used the average annual wages of the board. The proxy to represent the financial incentive will be the ratio of the variable remuneration and the total remuneration and also the ratio of the value of stock-based compensation and total remuneration. (Krauter, 2013; Gonzaga et al, 2013.).

The following table describes the explanatory variables for models, these variables are used in most studies to represent the performance (Krauter, 2013; Gonzaga et al, 2013; Souza et al, 2017; Konrath et al., 2018). Also summarizes the control variables and the dependent used to determine the relationship.

**Table 1: Description of Variables**

<b>Name</b>	<b>description</b>	<b>Formula</b>	<b>Expected sign</b>	<b>Author</b>
<b>RM</b>	average remuneration	Log of the ratio of total compensation and number of board members.	-	3,4
<b>INF</b>	Financial incentives	Ratio between variable compensation and total remuneration	-	1,4
<b>RBA</b>	Incentive per Share	Ratio of compensation based on action and total compensation	-	2,5,6
<b>ROE</b>	Return on	Return on Shareholders'	+	1,2,3,5



	Equity	Equity		
<b>ROA</b>	Return on Assets	Return on total assets.	+	1,2,3
<b>LPA</b>	Earnings per share	Earnings per share, a proxy for the company's performance i, in period t.	+	1.3
<b>TAM</b>	Size	natural logarithm of total assets	+	1.3
<b>ALV</b>	leverage	(Short-term debt / Total assets) + (long-term debt / Total assets)	+	2.4
<b>LIQ</b>	Liquidity	Liquidity company's current i in the period t	+	2
<b>SET</b>	Sector	Categorical variable transformed into control Dummy		

(A) (1) Gonzaga et al. (2013), (2) Souza et al (2017); (3). Krauter (2013); (4) Konrath et al. (2018), (5) Dalmacio et al. (2009); (6) Politelo et al., (2014).

In this way, they have estimated three multiple regression models with panel data to investigate the relationship between the mechanisms of compensation and the financial performance of firms. That are:

$$RM_{i,t} = \beta_{0i,t} + \beta_1 ROE_{i,t} + \beta_2 ROA_{i,t} + \beta_3 LPA * CC1_{i,t} + \beta_4 CONTROL_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$INF_{i,t} = \beta_{0i,t} + \beta_1 ROE_{i,t} + \beta_2 ROA_{i,t} + \beta_3 LPA * CC1_{i,t} + \beta_4 CONTROL_{i,t} + \varepsilon_{i,t} \quad (2)$$

$$RBA_{i,t} = \beta_{0i,t} + \beta_1 ROE_{i,t} + \beta_2 ROA_{i,t} + \beta_3 LPA * CC1_{i,t} + \beta_4 CONTROL_{i,t} + \varepsilon_{i,t} \quad (3)$$

#### 4. ANALYSIS OF RESULTS

Table 2 shows the descriptive analysis regarding the Composition data of the models proposed. Where the numbers discriminate the number of observations, mean, standard deviation, maximum and minimum.

The variables that represent the performance, even if they show a few years with positive results, overall averages are negative. This could represent a prosperous period for the Brazilian market. However, the minimum negative values

show that this average is pulled by a few firms.

Regarding the proxies of compensation, it is clear the company stocks that do not use any financial incentive device. Providing its workers' pay only for fixed values. However, nearly a quarter of the amount of remuneration of our sample is variable remuneration.

**Table 2: descriptive statistics**

Variable	Comments	Average	Standard deviation	Minimum	Maximum
ROE	2135	2,977	25.28	-80.06	36.92
ROA	2500	-2.872	21.33	-82.72	17.66
LPA	2496	-2.795	18.17	-89.08	30.20
RM	2111	13.84	1.35	4.43	17.78
INF	2107	0.234	0.211	0	0.709
RBA	2096	0.085	0.248	0	1
PRBA	2096	0.347	0.476	0	1
RPE	2113	0.229	0.420	0	1
TAM	2,496	13,977	2,652	4,823	17.816
AVL	2,481	3,484	8,037	0.799	46.69
LIQ	2,491	1,268	5,994	-20.12	22.26

ROE = Return on equity; ROA = Return on Assets; LPA = Profit Per Share;; RM = average remuneration; = INF financial incentive; RBA = Compensation Based Action; TAM = log of total assets; ALV = Financial Leverage; LLQ = Liquidity

Still addressing the descriptive aspects of variables, Table 3 shows the correlation matrix. The data demonstrate that the independent variables have low correlations with each other, which represents a good indicator of low collinearity. To confirm was made the multicollinearity test (VIF average = 3.5), and according to the Golden Rule individual or average VIF above 10, there is no problem in this model (O'brian, 2007).

**Table 3: Correlation of Variables**

	RM	INF	RBA	ROE	TAM	LPA	ROA	ALV	LIQ
RM	1.00								

<b>INF</b>	0.453 ***	1.00							
<b>RBA</b>	0.205 ***	-0.028	1.00						
<b>ROE</b>	0.105 ***	0.171 *	0.049	1.00					
<b>TAM</b>	0.43 ***	0.326 ***	0.227 ***	0.42 ***	1.00				
<b>LPA</b>	-0.01	0.038	-0.001	0.111 ***	0.001	1.00			
<b>ROA</b>	0.024	0.02	0.026	0.067 ***	0.194 ***	0.135 ***	1.00		
<b>ALV</b>	0.13	0.20	0.005	-0.008	-0.007	0.005	-0.01	1.00	
<b>LIQ</b>	-0.10 ***	-0.05	-0.01	-0.26 *	-0.23 ***	0.006	-0.01	-0.01	1.00

ROE = Return on Equity; RA = Return on Assets; LA = Earnings per share ;; RM = average remuneration; = INF financial incentive; RBA = Compensation Based Action; PRBA = Dummy for Compensation-based action; RBE = Dummy for Post Employment Compensation; TAM = log of total assets; ALV = Financial Leverage; Liquidity LLQ = - Nota.2 The asterisks \*\*\*, \*\* and \* respectively represent statistically significant at 1%, 5% and 10%.

Regarding the inferences, it was first rejected the waste normality hypothesis. With all, as the sample is large enough and approaches the study population can be classified as asymptotic normality. In this regard, according to the central limit theorem, the sample has a non-normal distribution, it is the same behavior of the population, which does not compromise via multiple regression analysis with panel data (Woldgride, 2010)

In a second step, it was examined the most appropriate regression model for each of the models. Our data reveal that in two (1 and 3) of them were used the random effects and other (2) fixed effects. Thus, it was possible to make inferences according to the correlation error terms of the explanatory variables and more appropriately.

It was also detected the presence of autocorrelation and heterocedasticade. For this, we used a filter Stata software, applying correction White/Hubert. This method reduces the maximum variances, making the robust standard errors and thus does not interfere with the inference data (Maas & Hox, 2004)

The first regression, itemized in Table 4, sought to analyze whether the number of payments to directors can influence the financial performance of companies. The results obtained for the performance variables did not reach statistical significance, which leads us to reject H1. So we can not strengthen the

findings of Damardi (2011) and Krauter (2013).

**Table 4: Regression estimates of results.**

Variables	RM	INF	RBA
	Random effects	Fixed effects	Random effects
ROE	0.0019552	-0.000124	0.003968 *
ROA	-0.000344	0.002195 *	0.000383
LPA	0.00044	0.0003604	-0.0009179
TAM	0.27866 ***	0.26716 *	0.24058 ***
ALV	-0.00313	-0.001556	0.001682 **
LIQ	0.00353	0.0095756	0.000381
YEAR	YEA	YEA	YEA
SECTOR	YEA	YEA	YEA
<b>Shapiro Wilk</b>	0.7933 ***	0.9815 ***	0.7601 ***
<b>VIF</b>	3.50	3.5	3.50
<b>Breusch- Pagan</b>	2150.70 ***	933.55 ***	1050.80 ***
<b>Chow</b>	21.04 ***	6.52 ***	8.69 ***
<b>Hausman</b>	15.08	34.00 ***	19.68
<b>Woodridge</b>	12.708 ***	2,407	11.319 ***
<b>Wald</b>	4.7E + 30 ***	2.8e + 31 ***	1.7e + 07
<b>R<sup>2</sup> adjusted</b>	.5863	.1329	.1111

The asterisks \*\*\*, \*\* and \* represent, respectively, statistically significant at 1%, 5% and 10% .- Variables: RM = Average earnings of firm i at time t; = INF financial incentive company i at time t; RBA = Compensation Based Company Action i at time t; ROE = Return on Equity the company i at time t; RA = Return on Assets the company i at time t; LA = Earnings per Share the company i at time t; TAM = log of total assets the company i at time t; ALV = Financial Leverage the company i at time t; LLQ = Liquidity the company i at time t .

Regarding the variable that represents the size, used as a control in the model, the figures show a positive relationship with the average salary. A possible interpretation of this is that the higher the more complex undertaking the duty of directors.

The second model of Table 4 shows the results of the model that seeks to investigate the relationship between incentives for managers (variable remuneration

divided by the total compensation of board statutory) with performance variables (ROE, ROA and LPA).

From the analysis of the data, it appears that the Return on Total Assets (ROA) has a small positive relationship with the financial incentive, which may suggest that the greater the variable part of the salary of most managers the company's performance. In this sense, incentives serve to align the interests between the agents.

These figures confirm empirically the assumptions of some empirical studies contained in Brazilian literature, which indicate that the use of variable compensation tends to stimulate managers to invest in projects that maximize the performance of the organization. Thus, our results do not reject H2 and corroborate the study Krauter (2013); Gonçalves et al. (2013) and De Souza et al. (2013).

The third model, outlined in table 4, sought to determine whether financial incentives based on action and (RBA/RT) can affect the company's performance. The results show a direct relationship with the return on equity. What allows us to not reject the H3, a statistically significant relationship between this type of compensation to performance.

Our findings vain against the assumption in the literature review, such as Tang (2012) and Rizzati, De Souza & Borba (2018). Following the idea in which the higher the proportion of shares paid to managers as part of their salary, the greater will be the stimulus, and the greater will be the company's performance.

## **5. FINAL CONSIDERATIONS**

This paper aims to investigate whether a compensation mechanism can mitigate conflicts of agencies within companies and if it would be possible to achieve better performance. For this research analyzed the average wage; the effects of the proportion of variable compensation and the effects of using the compensation based on action and strategy.

The first investigation was based on the amount of remuneration for the board

member. However, nothing can be confirmed for this relationship, since there was no statistical significance or 1%, 5% or 10%.

Subsequently, a second analysis showed a relationship in which the larger the variable part of the salaries of most managers would be the return on total assets. With this, we can consider that linking the remuneration to targets and the result is efficient for the company to achieve better performance.

Concerning stock-based compensation for the statutory board of the company. The results indicated that this strategy proves effective, compared with operating income was positive. One possible explanation is the fact that making holders managers of company stock, can align the interests of principal-agent.

The differences between the performance indicators (ROE and ROA) that were influenced by the compensation devices, is the amount of debt used by the firm. Which leads us to believe that the company's payment policies should be in line with its strategic planning.

It is noteworthy that all the models are presented in this article, the size of the company used to control the regression, was strongly related to the dependent variables. This leads us to believe that as the company grows it enhances their compensation mechanisms.

Our findings allow us to state that there is a relationship between the mechanisms used to remunerate managers and performance indicators. So we can corroborate the study Gonzaga et al. (2013); Souza et al (2017).; Krauter (2013) and Konrath et al. (2018).

This work is the main limitation, the lack of quality of the reference forms sent to CVM, that does not always pass the information. Thus, it becomes a target for an upcoming study, increasing the indexes to measure the performance, but also show the influence of other corporate governance to factor in this relationship.

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