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Filho, Edson Lopes Cedraz; Helal, Diogo Henrique; Araújo, Marcus Augusto Vasconcelos; Tunico, Flávio Rodrigo Leal

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The Influence of Incentive Programs on Executives' Risk Perception

A Influência dos Programas de Incentivos na Percepção de Risco dos Executivos

Edson Lopes Cedraz Filho ecedraz@deloitte.com
Deloitte Touche Tohmatsu, Brasil
Diogo Henrique Helal diogo.helal@fundaj.gov.br
Fundação Joaquim Nabuco - FUNDAJ, Brasil
Marcus Augusto Vasconcelos Araújo marcus.araujo@upe.br
Universidade de Pernambuco - UPE, Brasil
Flávio Rodrigo Leal Tunico flaviotunico.contador@gmail.com
Faculdade Nova Roma, Brasil

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Abstract: The balance between executive compensation and value added is a constant challenge for organizations, as well as an important key to minimize agency problems. This study aims to evaluate the relationship between term of payment and compensation variability and the executives' risk perception, as well as their motivation to add value, using the agency theory and the executive compensation literature as references for the study. Quantitative methods were applied, by collecting primary data from 121 Brazilian executives who answered a survey regarding their company's compensation program models and their risk perception. Study results showed that executives' risk perception, as well as their motivation to add value, have statistically significant relationship with the level of compensation variability. Statistically significant relationship was also found between individual characteristics, such as age and time working for the organization, and the executive's risk perception.

Keywords: Executive compensation, Agency theory, Risk perception, Corporate governance.

Resumo: O equilíbrio entre remuneração dos executivos e valor agregado é um desafio constante para as organizações, além de ser uma chave importante para minimizar os problemas de agência. Este estudo tem como objetivo avaliar a relação entre a variabilidade do prazo de pagamento e remuneração e a percepção de risco dos executivos, bem como sua motivação para agregar valor, usando a Teoria da Agência e a literatura sobre remuneração de executivos como referências para o estudo. Foram aplicados métodos quantitativos, coletando dados primários de 121 executivos brasileiros que responderam a uma pesquisa sobre os modelos de programas de remuneração de sua empresa e sua percepção de risco. Os resultados do estudo mostraram que a percepção de risco dos executivos, bem como sua motivação para agregar valor, têm relação estatisticamente significativa com o nível de variabilidade da remuneração. Também foi encontrada relação estatisticamente significante entre características individuais, como idade e tempo de trabalho na organização e percepção de risco do executivo.

Palavras-chave: Remuneração de executivos, Teoria da Agência, Percepção de risco, Governança corporativa.

Introduction

The way a company compensates its executives can really make a difference for its success. Keeping executives motivated and adding value

to shareholders necessarily depends on the incentive model adopted by the organization. The problem is that the same incentive created to encourage the executives' effort to maximize results can also lead them to commit fraudulent acts.

Since the start of the 20th century, aligning the interests of the various stakeholders of an organization has been a challenge faced by companies that adopt models where the control and the management are performed by agents different from those who hold their ownership.This challenge is reflected in the Agency Theory, which represents the analysis of potential conflicts between capital owners (principal) and capital managers (agents), the interpretation of which, according to Eisenhardt (1989, p. 60), can provide a comprehensive view of how conflicts of interest take place in organizations and what mechanisms can be used to minimize them.

According to Jensen, Murphy and Wruck (2004), well-designed compensation packages can mitigate the agency problem between managers and shareholders. In this sense, according to the authors, remuneration policies cannot be thought without the interrelationships between financial markets, the company and corporate governance.

For Gonzaga, Yoshinaga and Eid Junior (2013), in addition to motivating executives to achieve the best results for the organization, the incentive programs play an essential role in aligning the interests of principal and agent.

The use of mechanisms such as short and long-term compensation and the application of Variable Compensation (VC) instruments, aligned with the creation of value, rather than fixed compensations, are examples of incentive models that can be applied to achieve such goals. In this context, variables such as term of payment and compensation variability play a key role in balancing the interests of executives and shareholders.

Executives' risk perception is at the core of the incentive program. According to Slovic and Peters (2006), individuals perceive risks in two manners: a) through intuitive or instinctive feelings; or b) through logical analysis, based on facts and historical data. In this context, understanding the way executives of an organization perceive risks is essential to establish an effective incentive model since such understanding makes it possible to set compensations that minimize the agent's uncertainties regarding benefits he will earn and, consequently, maximize his efforts to add value to shareholders.

This study aims to evaluate the relationship between term of payment and compensation variability and the executives' risk perception, as well as their motivation to add value, using the agency theory and the executive compensation literature as references for the study.

In said context, this research generates practical results in order to assist organizations in designing their incentive programs and minimizing potential conflicts arising from this program. Additionally, a relevant contribution of this study focuses on the incorporation of individual variables such as executive's risk perception nd motivation to add value to de Companies. Finally, it should be noted that, unlike most studies on

executive compensation in Brazil, which are based on secondary data, this article presents a relevant contribution in researching the phenomenon based on primary data, by contacting Brazilian executives directly.

Theoretical Framework

The theoretical foundation of this research is supported by diverse currents of the literature related to incentive programs, agency problems and executives' risk perception, taking into account:

2.1 Performance mesures and compensation models;

2.2 The influence of the Agency Theory on incentive programs and motivation of agents;

2.3 Executives' risk perception.

Performance mesures and compensation models

Two elements are the basis of an incentive program: the performance measures and the compensations.

The establishment of performance measures to assess the creation of value and, consequently, compensate the agent, is the starting point of a good incentive program.

According to Lambert and Larcker (1987), the measures commonly used are based on: a) accounting indicators, for example, return on equity (ROE); or b) market performance indicators, for example, variation in the company's share value. For these authors, indicators based on market performance are more often used when:

a) The company's financial statements present high variations in the lines of revenues, expenses or investments during the years;

b) The company is going through a period of accelerated growth in sales or is expanding its assets;

c) Executives own little or no value in the company's shares.

Regarding remuneration policies, Jensen, Murphy and Wruck (2004) clarify that they must comprise three dimensions:

a) The expected total benefits associated with the job or position: are the total expected benefits that determine the attraction and retention of executivos, including non-pecuniary benefits;

b) The composition of the remuneration package: relating to the determination of the individual elements of a remuneration package, so that no resources are wasted;

c) The relation between pay and performance: definition of which actions and results will be rewarded and which will be penalized.

With respect to compensations, it is important to emphasize the main aspects related to:

a) Financial compensation or remuneration: defined by Milkovich and Boudreau (2000, p. 381) as the "financial return and tangible services and benefits employees receive as part of an employment relationship";

b) Non-financial compensation: defined by Krauter (2013) as the set of factors associated to the possibility of career advancement, personal and professional development, career planning and counseling, outplacement in case of dismissal, internal recruitment and preparation for retirement.

According to Kratuer (2013), executive compensation can be divided as presented in the Figure 1.

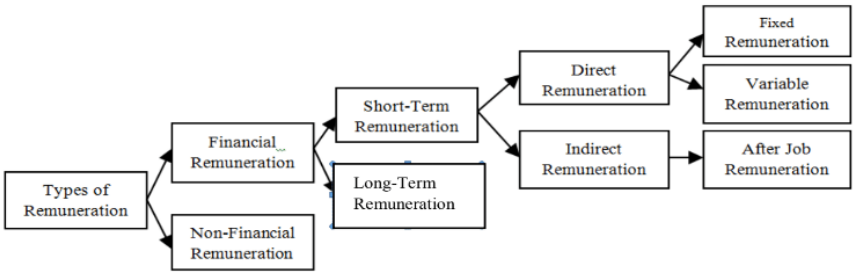

Figure 1.
Categories of Executive Compensation
Source: Adapted from Krauter (2013)

The composition of the compensation package can affect the types of executives the company can attract. Jensen, Murphy and Wruck (2004) exemplify that a package with high retirement benefits will attract potential executives who plan to stay with the company for a long time; A high-opportunity bonus package will attract executives who are less risk-averse, more optimistic, and more confident about their ability to create value.

According to Souza, Duque and Silva Jr. (2016), "a compensation plan including many short-term compensations may influence the accounting choices of executives, as they start to act with a short-term mindset, adversely affecting the interests of shareholders in the long term."

Long-term compensation (LTC) is usually linked to performance and generation of results in the long term, which makes its design more challenging since the measurement of results is not always an easy task

Bebchuk and Fried (2005) emphasize the importance of long-term compensations as they indicate that stock option programs provide incentives to executives that are aligned with the principal's interests in the long term. The authors also recommend adopting restriction practices or even returning compensations in case of future losses. As an example, a situation of republication of the results of prior years can be mentioned in which the creation of value was lower than the basis used to compensate the executive.

The influence of the Agency Theory on incentive programs and the motivation of agents

According to Jensen and Meckling (1976, p. 308), the agency problem starts when one or more persons who hold ownership of an organization (principal) hire executives (agents) and assign the responsibility for

managing the business to them, in such a way that the agent will be compensated according to a set of results agreed upon with the principal. The authors use the metaphor of a contract to define such an agreement on the alignment, which includes the principal's expectations regarding the creation of value, the agent's commitments and the forms of compensation the agent will have if the goals are achieved. In this relationship, the agent doesn't always takes initiatives that will generate a sustainable value for the principal and, if such set of agreed results is not properly designed or if a proper supervision of measures is not taken by the agent, he will be compensated without having added value to the principal or, even worse, he will take excessive risks on behalf of the organization as a way of maximizing his compensations.

Pepper and Gore (2012) suggest that an incentive program capable of motivating the agent in an effective (aligning interests of the principal and principal) and efficient (achieving results with the lowest possible cost) way should align mechanisms of intrinsic, natural motivation of the individual, and extrinsic motivation, due, for example, to financial incentives. In addition to intrinsic and extrinsic motivation, the following factors influence the outcome of the incentive program:

a) Executive risk profile: the extent to which the agent is willing to risk his remuneration.

b) Time orientation: the discount rate or additional reward used for long-term payments may vary according to the executive's profile and should be studied on a case-by-case basis.

c) Balance between effort and reward: the executive tends to seek to apply effort to measures that bring its expected utility.

Hart and Holmstrom (1986) point that contract theories started to consider issues related to incentive and market at a later time. Specifically, regarding employment contracts, the authors retrieved some studies that sought to advance theoretically on the issues, but concluded that progress was limited and that they encounter little knowledge about what has been called 'implicit employment contracts'. For the authors (1986, p.127), however, "rather than abandoning the contracting framework, therefore, it seems desirable to try to modify it so as to make it more realistic, for example by incorporating further moral hazards or asymmetries of information ", as performed here in this study.

The use of contractual conditions that penalize the agent's adverse behavior can be an important mechanism for equalizing incentive programs. The use of contingency mechanisms was provided for in Resolution No. 3921/2010 of the Central Bank of Brazil - BACEN (2010), applicable to financial institutions in Brazil. This resolution, in its Article 2, establishes that part of the variable remuneration of executives will be retained for a period of time, as a way to encourage executives to adopt measures that preserve the company's value in the medium and long terms. This retention occurs in the form of deferred payment.

For Bebchuk and Fried (2005), incentive programs fail in their function of regulating and minimizing the agency problems. The difficulties in supervision by the agent, the adoption of non-transparent

measures, the manipulation of results, or even the lack of independence of the Board of Directors at the time of establishing the executive compensation program may place the incentive program at the core of the conflict of interest and increase the agency problem.

Executives' risk perception and risk-taking.

The risk perception of an individual derives from many factors. For Sjöberg (2000), ideological values, sensitivity and fear are the three variables that can explain risk perception, namely:

a) Ideological values influence the way an individual conceives the risk. The author mentions, as an example, that people who defend the production of energy through nuclear power plants as an alternative to foster the economy and preserve the quality of life perceive low risk of leakage of radioactive elements and vice-versa. Therefore, the interpretation of the context of a risk event and the individual's position on the acceptance of the consequences of an event seen essentially as benefits may affect his risk perception;

b) The sensitivity to risk reflects the level of risk aversion or neutrality, which is measured through rating scales (as high, medium or low);

c) Fear arises from specific events, which are perceived by the individual as harmful consequences of a certain event. For each risk event, damage will be foreseen representing the worst-case scenario, which, in its turn, influences the risk perception.

Sjöberg (2000) also states that an individual's risk perception regarding events that affect him directly is different from the risk perception involving other people, such as his family or people in general.

Identifying the agent's profile and his interpretation of risk perception is an additional challenge for the development of an incentive program. For Weber and Milimman (1997) the risk profile is inherent to the individual; risk perception, however, may vary depending on the circumstances or past events and, therefore, the attitude towards risks may be driven by events that took place in the executive's daily life or by historical facts. For example: an individual may perceive low risk in decisions regarding his personal life but high risk in his professional decisions, presenting different levels of risk sensitivity in each situation. In the authors' opinion, records of materialization of risks in the past may increase risk sensitivity.

According to Eisenhardt (1989), the basic measurement unit for analyzing the agency theory corresponds to the agreements entered into by and between the principal and the agent. In this context, the author indicates that managing risks related to the agency problems is directly related to the principal's capacity of establishing a relationship with the agent in which the parties' interests and commitments are sufficiently explicit. In order to better align interests, it is also important to know and respect the agent's risk profile, as well as the level of supervision the principal should exercise over the agent.

Eisenhardt (1989) mentions some possibilities for a proper balance when sharing risks between the agent and the principal, according to the characteristics of each stakeholder. Risk-neutral agents have a perception with lower risk sensitivity and tend to undertake more uncertainties. On the other hand, risk-averse agents have more risk sensitivity and tend to not accept uncertainties. In the author's opinion, the incentive model should take into account the agent's acceptance regarding the principal's risk transfer, according to Table 1.

Table 1.
Relation between models of incentive programs and principal-agent risk profiles

Professional	Risk profile	More applicable incentive model
Agent	Risk averse	Models with less variation resulting from assessment of performance
	Risk neutral	Models based on performance, with variable compensation
Principal	Risk averse	Models based on performance, with variable compensation
	Risk neutral	Models with less variation resulting from assessment of performance

Source: Adapted from Eisenhardt (1989)

For Eisenhardt (1989), a risk-neutral professional is more susceptible to undertaking risks than a risk-averse professional. Regarding this relation, Cooper and Faseruk (2011), on the other hand, states that in cases in which the risk perception is high, the risk-taking behavior tends to be less recurrent.

Behavioral variables should also be considered upon assessment of the risk perception (and risk-taking). Seo and Sharma (2018), researching the restaurant industry in the USA, identified a connection between CEO overconfidence and risk-taking. Results suggested that overconfident executives tend to strategically adopt riskier investments.

Chng and Wang (2016), in their research, analyzed career ambition and strategic risk behaviors. Based on an experiment, the authors concluded that in situations where performance levels are decreasing, managers' career ambitions intensified the managers' response to incentive programs. However, in opposite situations (increase in performance levels), career ambitions did not influence the managers' response to incentive programs.

Research Methodology

Outlining the hypotheses

Based on the theoretical foundation researched, it was possible to establish the theoretical basis, their connections and the cause and effect relationships, which are summarized in Figure 2.

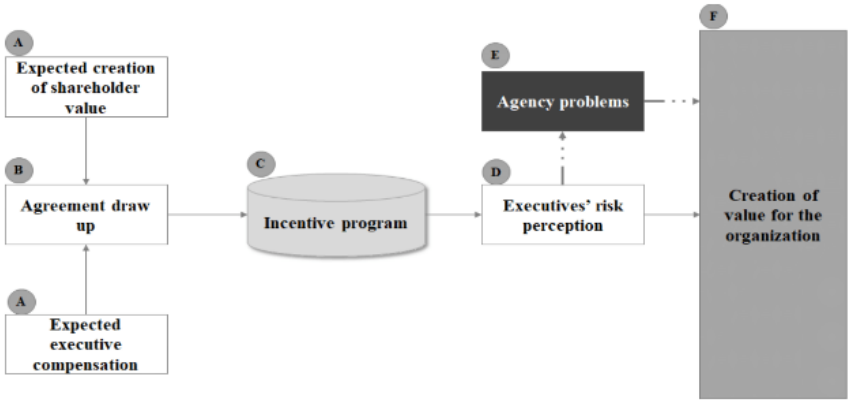

Figure 2.
Schematic view of incentive programs as an instrument for creation of value or drivers of risks arising from agency problems
Source: Authors

Figure 2 makes it evident that the agent's risk perception can be a variable that influences the path between the incentive program and the creation of value for the organization. This is the key subject of this study, which was submitted to the research techniques applied and tested through the hypotheses listed below.

The relation between the qualification criteria components in Figure 2 was tested through the connectors specified in Figure 3, including the main lines of research and theoretical foundations used.

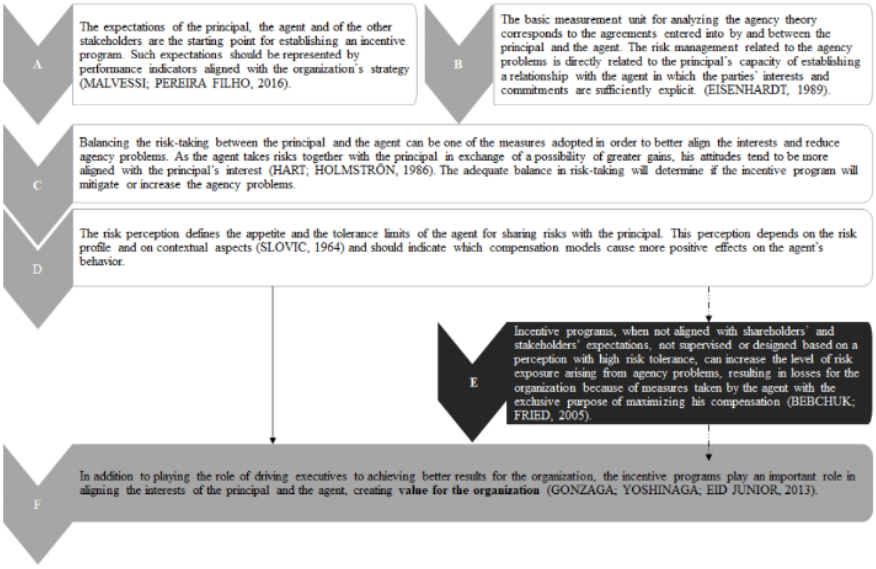

Figure 3.
Legend of the researched relation between the theoretical foundations
Source: Authors

Considering that the main objective of the study was to verify the relation between incentive programs and executives' risk perception, as well as the relation between incentive programs and the creation of value for organizations, the research methodology was directed to analyzing if

the incentive models combining variable and long-term compensations can reduce the agent's uncertainties regarding the benefits he will eventually earn and, consequently, maximize his efforts for shareholder value creation, in addition to preventing agents from adopting measures that may expose the organization to unacceptable risk levels.

This study tests the hypotheses mentioned below, taking into account the evaluation of the theoretical foundations listed herein.

a) H1: There is a positive correlation between the term of payment of compensations and the executive's motivation for the creation of value in organizations;

b) H2: There is a positive correlation between the variability of compensations and the executive's motivation for the creation of value in organizations.

c) H3: There is a positive correlation between the term of payment of compensations and the executive's risk perception[1];

H4: There is a positive correlation between the variability of compensations established in the incentive programs and the executive's risk perception[2].

Applied techniques

The study contemplated a descriptive research with a quantitative approach. Using likert scales applied to a sample of executives from companies in different segments of the market, it was possible to collect data regarding the compensation models applied for executives participating in the research, as well as their level of motivation and their risk perceptions depending on the compensation models used in their companies.

The following techniques were applied:

a) The reliability of the collection instrument used in the research was tested based on the calculation of Cronbach's Alpha, as suggested by Hair et al. (2009);

b) The normality test of data distribution was performed based on Kolmogorov-Smirnov and Shapiro-Wilk tests, considering a 5% probability of error. These tests are recommended by Hair et al. (2009) as a way of assessing the asymmetry level in data distribution and supporting the election of the tests to be applied;

c) Finally, the quantitative method of logistic regression was used, which, according to Hair et al. (2009), corresponds to a special form of regression, in which the non-metric and binary dependent variable represents a multivariable relation with the regression coefficients, evidencing the relative impact of each independent variable (predictors);

d) The adjustment ratio of the logistic regression models was tested based on Hosmer-Lemeshow statistics.

Population, sample and collected data

Two hundred executives from medium and large-sized Brazilian companies in several segments of the market, with national and foreign capital, were invited to participate in the research. Invitations were sent by means of emails with access links designated. Only executives holding leadership positions were invited, selected from a database of professionals of the researchers' relationship network.

A self-administered survey was applied to this population of executives, aiming at testing the hypotheses through questionnaires addressing the researched variables. Likert scale questions were used, with answers ranging from strongly disagree to strongly agree, and including somewhat disagree and somewhat agree.

Out of the 200 executives invited, 155 agreed to answer the questionnaire, of which 121 concluded the entire process, determining a valid return ratio of 60% as basis for the research. Using the same definitions used by Hair et al. (2009), the minimum sample of nine observations per independent variable in a logistic regression test was respected, as six independent variables were used in the research and 121 valid observations were considered.

Variables used

In order to improve the predictive power of the statistical models applied in Research 2, the results of the questions collected in ordinal format, which represent the dependent variables, were converted to binary format, considering the following criteria:

a) Dependent variables: dependent variables corresponded to the executive's risk profile, as well as the incentive program's power of persuasion to lead the executive to create value.

- The dependent variable related to the incentive program's power of persuasion to motivate the executive into creating value for the organization was used to test hypothesis H1 and H2. This variable resulted from the joint analysis of the answers to the two questions below:

> The way I am rewarded today maximizes my motivation to make the most effort to generate the most value for the organization I work for.
>
> The way I am rewarded today has the best possible balance between fixed and variable remuneration.

For responses with values equivalent to totally agree or partially agree, a value of 1 was assigned to the dependent variable. For responses equivalent to partially disagree and strongly disagree, a value of 0 was assigned to the dependent variable. The level equivalent to indifference was not considered and this decision did not influence the result, since there were few responses in this regard.

Similar criteria were adopted by Araújo (2012), in his study on the role of subcultures in risk perception and behavior in an organization,

when the author adopted the premise that only high agreement responses would be converted to a value of 1 on the scale binary.

- The dependent variable related to the executive's risk perception, used to test hypotheses H3 and H4, resulted from the analysis of responses to 7 situations that tried to measure the executive's risk perception, in which the participants answered the questions reproduced below:

In order to achieve the goals included in the criteria for assessing my performance, I would be willing to:

i. Fail to comply with internal standards that I consider bureaucratic and unnecessary;

ii. Encourage subordinates to excessive working hours, adventitiously exceeding 10 daily hours;

iii. Deliver products or services with slightly inferior quality, imperceptible to the client, in order to maximize the company's profit;

iv. Accept the merits for other person's achievements (a member of my team or a peer);

v. Occasionally fail to comply with laws or regulations applicable to my professional activities;

vi. Fail to comply with precepts set forth in the company's code of conduct;

vii. Offer, promise or provide improper advantage to public officials in order to promote gains to the company.

For this variable, considering that the tolerance limit for the 7 questions included in the questionnaire should be minimum for a risk-averse individual, the value 0 was only assigned to "strongly disagree" answers, in which it is considered that the individual has a risk-averse perception. The value 1 was assigned to all other answers, in which it is considered that the individual has a risk-neutral perception, and, in this case, it is assumed that the individual is inclined to take some risks in order to maximize his compensations.

The use of the terms risk neutral or risk averse to classify executive's risk perception follows the same definitions used by Eisenhardt (1989), who uses the same terms to characterize the executive's risk perception within the context of the agency theory.

b) Independent variables: descriptive information regarding the incentive programs provided by individuals in the research, in addition to demographic data, such as age, time working at the company, number of children, gender, level of VC and level of LTC.

With these variables, it was possible to test hypotheses H1, H2, H3 and H4, by studying the effect of several compensation models and personal characteristics (independent variables) on the risk perception (dependent variable of model 1 of logistic regression) and on the power of persuasion of the incentive program to lead the executive into creating value (dependent variable of model 2 of logistic regression).

Analysis of Results

Reliability of the collection instrument

According to Hair et al. (2009), Cronbach's Alpha (α) coefficient is the most used measure to assess the reliability of collection instruments used in scientific researches. Therefore, such measure was chosen to assess the consistency of the scales used in the research questionnaire.

The coefficient α calculated for the collection instrument was 0.601. Maroco and Garcia-Marques (2006) affirm that an average coefficient α of 0.60 can be acceptable in scientific researches. Hair et al. (2009) also suggest that the minimum acceptable coefficient α is 0.60. Therefore, the collection instrument was reliable pursuant to the minimum acceptable levels of reliability.

Descriptive statistics

The sample used in the Research was composed of 121 executives who fully concluded the information collection questionnaire. Of these, 52% of the executives participating in the research were directors, superintendents or CEO's and 48% held manager positions. The respondents work at companies from several marke segments, however, there is a concentration of 48% in the services segment.

With respect to the VC compensation models adopted for the majority of executives who formed part of the sample, such compensation does not exceed 30% of the total compensation, as can be observed in Figure 4.

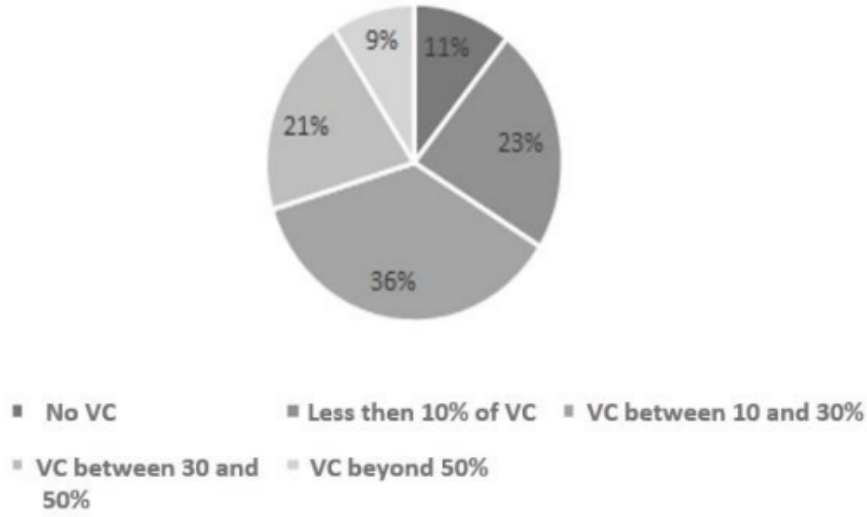

Figure 4.
Distribution of VC representativity on total compensation
Source: Authors

As it was found in the research carried out by Deloitte Touche Tohmatsu (2017), the majority (88%) of the sample of executives participating in this study (Figure 5) stated they do not receive LTC.

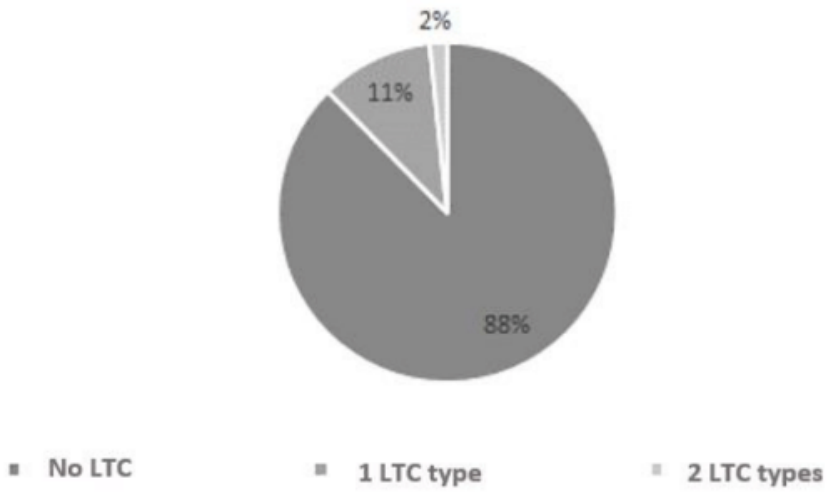

Figure 5.
Distribution of LTC representativity on total compensation
Source: Authors

The low level of use of LTC instruments jeopardizes the alignment of the interests of the agent and the principal, increasing the risk of agency conflict. According to Farrell, Kadous and Towry (2008), organizations that use LTC measures encourage their executives to think of the organization's perpetuity.

Regarding descriptive statistics of the dependent and independent variables:

· Men represent 87% of the sample and, in the average of the survey responses, indicated having a more neutral perception of risks than women;

· Professionals between 30 and 40 years old represent 39% of the sample and, in the average of the survey responses, represented the age group with the highest percentage of professionals with neutral perception of risks. In the 40- to 50-year-old age group and over 60, the percentage of risk-averse professionals was higher than the risk-neutral one.

· Professionals with less than 5 years of work in the current company represent 37% of the sample and, in the average of the survey responses, represented the time period in the company with the highest percentage of professionals with a neutral perception of risks. The percentage of professionals with more than 20 years of risk-averse company was higher than the risk-neutral ones, which demonstrates that, in the analyzed population, the longer the time at home, the greater the risk aversion.

· When analyzing the distribution of the risk perception of professionals among the ranges of representativeness of variable remuneration, in the average of the sample surveyed, it is noticed that the lower the representativeness of variable remuneration, the greater the percentage of executives averse to risk.

· When analyzing the distribution of the power of induction for the generation of value among the ranges of representativeness of the

variable remuneration, in the average of the researched sample, it is noticed that the professionals who receive higher proportions of variable remuneration are those who answer that the remuneration models motivates them to generate value. As the ranges of representativeness of variable compensation fall, the percentage of positive responses related to the executive's motivation also reduces.

· When analyzing the distribution of the perception of risk of professionals among the ranges of representativeness of long-term remuneration, in the average of the sample surveyed, it is noticed that the lower the representativeness of long-term remuneration, the greater the percentage of executives averse to risk.

· When analyzing the distribution of the power of induction for the generation of value among the representative ranges of long-term remuneration, in the average of the sample surveyed, in the two groups the number of executives with positive responses is higher than the number of executives with negative responses.

Normality test of the data distribution

The normality test of the data distribution was measured through Kolmogorov-Smirnov and Shapiro-Wilk tests. Both had a probability of error of 5%, and the results suggest that such data have a non-normal distribution.

This result supports the election of the logistic regression test for this research, which, according to Hair et al. (2009), includes samples with non-normal data distribution.

Logistic regression models

Two logistic regression models were developed:

a) Model 1 of logistic regression

b) Model 2 of logistic regression

Model 1 of logistic regression

In this model 1, hypotheses H2 and H3 were tested by evaluating the chances of an executive adopting a risk-neutral or risk-averse position, according to variations in the independent variables, represented by the compensation models and demographic characteristics.

As the logistic regression model stepwise forward was used, three steps were considered, until a set of independent variables that best represents the regression model to assess the probability of risk-taking by the executive was found.

Table 2.
Variables in the equation of model 1 of logistic regression

		b	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Representativityof VC	0.430	0.177	5.914	1	0.015	1.538
	Constant	-0.967	0.542	3.188	1	0.074	0.380
Step 2[b]	Representativity of VC	0.533	0.190	7.852	1	0.005	1.704
	Age	-0.603	0.229	6.904	1	0.009	0.547
	Constant	0.400	0.750	0.284	1	0.594	1.491
Step 3[c]	Representativity of VC	0.585	0.199	8.646	1	0.003	1.795
	Age	-0.534	0.238	5.012	1	0.025	0.586
	Time working at the company	-0.292	0.149	3.814	1	0.051	0.747
	Constant	0.789	0.791	0.994	1	0.319	2.201

a. Variable included in step 1: Representation VC.

b. Variable included in step 2: Age.

c. Variable included in step 3: Time working at the company.

Source: Authors

As it is possible to notice in Table 2, three variables have statistical significance to compose the model, with a standard error of 5%.

The results of model 1 of logistic regression proposes that:

a) VC representativity increases the chances of leading the executive into adopting a risk-neutral attitude: with odds ratio of 1.79, the result for model 1 of logistic regression suggests that incentive programs with greater VC representativity increase by 1.79 the chances of leading the executive into adopting a risk-neutral attitude.

Table 3.
Levels of probability of executives assuming a risk-neutral perception according to the VC level

Representativity of VC	Probability of the executive taking more risks in order to maximize his compensations
Zero (does not receive VC)	80%
Up to 10% in VC	88%
Between 10% and 30% in VC	93%
Between 30% and 50% in VC	96%
Over 50% in VC	98%

Source: Author

According to Table 3, models in which more than half of the executive's compensation is variable have a 98% probability of leading him into adopting a risk-neutral attitude, in other words, taking more risks.

b) **Senior executives tend to adopt a more risk-adverse attitude:** With odds ratio of 0.58, the result for model 1 of logistic regression suggests that senior executives tend to adopt a more risk-adverse attitude.

Table 4.
Levels of probability of executives assuming a risk-neutral perception according to age

Age	Probability of the executive taking more risks in order to maximize his compensations
<30 years	56%
between 30 and 40 years	43%
between 40 and 50 years	31%
between 50 and 60 years	21%
>60 years	13%

Source: Author

According to Table 4, executives who are over 60 years of age have only a 13% probability of adopting a risk-neutral attitude, while executives who are under 30 years of age have a 56% probability of adopting a risk-neutral attitude.

c) **Executives who have worked for a longer time in the company tend to take less risk**: Executives in a long pe With odds ratioof 0.75, the result for model 1 of logistic regression suggests that, after a longer period working at the company, executives tend to adopt a more risk-adverse attitude.

Table 5.
Levels of probability of executives assuming a risk-neutral perception according to the time working at the company

Time working at the company	Probability of the executive taking more risks in order to maximize his compensations
less than 5 years	62%
between 5 and 10 years	55%
between 10 and 15 years	48%
between 15 and 20 years	41%
>20 years	34%

Source: Authors

Table 5 illustrates the distribution of probabilities of risk-averse perceptions as executives work for a longer period at the company. Executives who have been working at the company for more than 20 years have only a 34% probability of adopting a risk-neutral attitude, while executives who have been working for less than 5 years have a 62% probability of adopting a risk-neutral attitude.

A substantial statistical significance was not noted in the relation between the level of long-term compensation and the executives' risk perception.

Other independent variables (number of children and gender) did not present a statistical significance and were removed from model 1 of logistic regression.

The adjustment ratios of model 1 of logistic regression presented in Table 6, tested by Hosmer-Lemeshow statistical test, presented

satisfactory results, with a significance coefficient of 0.545, greater than the minimumof 0.05 recommended (Hair et al., 2009).

Table 6.
Adjustment ratios of model 1 of logistic regression

Summary of the model	
Chi-square	6.925
Degrees of freedom	8
Sig. Hosmer and Lemeshow	0.545
Log-2 likelihood	147.721[b]
Cox & Snell R-square	14%
Nagelkerke R-square	18%

Source: Authors

Additionally, it was found that the average of correct predictions of model 1 was 69%, which indicates a good predictive power.

Model 2 of logistic regression

In this model, hypotheses H1 and H2 were tested by evaluating the chances of an executive being motivated to create value, according to variations in the independent variables, represented by the compensation models and demographic characteristics.

Even though the logistic regression method stepwise forward was used, Table 7 presents that only one step of the model was implemented, as only the independent variable related to VC was considered significant.

Table 7.
Variables in the equation of model 2 of logistic regression

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Representativity of VC	0.844	0.242	12.116	1	0.000	2.326
	Constant	-0.959	0.638	2.260	1	0.133	0.383

a. Variable included in step 1: Representativity of VC.

Source: Authors
a. Variable included in step 1: Representativity of VC.

With odds ratio of 2.3, the result for model 2 of logistic regression suggests that incentive programs with greater representativity of VC increase by 2.3 the chances of leading the executive into being motivated to create value.

Table 8.
Levels of probability of executives being motivated according to representativity of VC

Representativity of VC	Probability of executives being more motivated to create value
Zero (does not receive VC)	47%
Up to 10% in VC	67%
Between 10% and 30% in VC	83%
Between 30% and 50% in VC	92%
Over 50% in VC	96%

Source: Authors

Table 8 demonstrates the the power of persuasion of the incentive program to motivate the executive to create value for the organization. It illustrates the distribution of probabilities of persuading the executive into being motivated to create value as the representativity of VC over the executive's total compensation increases.

The result reveals that more representative the remuneration, the greater the agent's motivation. Models in which more than half of the executive's compensation is variable have a 96% probability of persuading him/her into being motivated to create value for the organization, against a 47% probability of essentially fixed compensation models.

The result found can be compared to previous studies as follows:

a) Aguiar and Pimentel (2017) found a similar result when their study demonstrated that there is a positive and significant correlation between variable compensation and the financial performance of researched companies;

b) Gonzaga, Yoshinaga and Eid Junior (2013) found a positive and significant correlation between VC and companies' market performance, measured through earnings per share and return per share. However, even though a positive and significant correlation between VC and ROE was found, the coefficient was negative, which indicates an inverse relation between VC and financial performance;

c) Camargos and Helal (2007) found a positive correlation between executives' compensation and companies' performance;

d) In their study on compensation models in companies in the Brazilian electricity sector, Nascimento, Franco and Cherobim (2012) did not find a positive or significant correlation between the level of variable compensation and indicators of financial performance, including ROE.

The adjustment ratios of model 2 of logistic regression showed in Table 9, tested by Hosmer-Lemeshow statistical test, presented satisfactory results, with a significance coefficient of 0.072, greater than the minimum of 0.05 recommended (Hair et al., 2009).

Table 9.
Adjustment ratios of model 2 of logistic regression

Summary of the model	
Chi-square	6,989
Degrees of freedom	3
Sig. Hosmer and Lemeshow	0.072
Log-2 likelihood	111.327[a]
Cox & Snell R-square	11%
Nagelkerke R-square	18%

Source: Authors

Additionally, it was found that the average of correct predictions of model 2 was 81%, which indicates a good predictive power.

A substantial statistical significance between LTC and executives' motivation to create value was not found.

In their study on the influence of the implementation of long-term compensation models, Nascimento et al. (2013) did not find a statistically significant difference in the performance of companies that adopt compensation instruments based on stock options in comparison with companies that do not adopt such mechanism. Beuren, Silva and Mazzioni (2014) noted in their study that there are no significant differences between financial performance and the implementation or not of share-based compensation. However, the authors identified a positive alignment between the compensation by stock options and the market performance of researched companies.

Discussion of Results and Practical Implications

Study results make it evident that there is a strong influence of the level of representativity of VC on risk perception and also on the incentive programs' capacity of motivating executives to create value, which supports hypotheses H2 and H4.

All techniques applied lead to the conclusion that increasing representativity of VC induces executives to being motivated to create more value. In other words, models combining executives' compensation with organization's results can produce better results. On the other hand, all applied techniques also lead to the conclusion that increasing VC leads executives to taking more risks on behalf of the organization. This potential paradox imposes an additional challenge for organizations upon the design of their compensation models. The challenge is to identify the correct balance between the representativity of the VC in the incentive program, in order to guarantee the adequate motivation of the agent, balanced with the level of risk to be assumed by the agent to achieve his goals and maximize his compensation.

The effect of compensations on the executives' risk perception was another relevant research finding. Increasing VC leads executives to adopt a more risk-neutral perception, which means that the offer of a potential increase in gains can cause executives to adopt behaviors that lead to taking more risks in order to maximize their compensation. Compensation programs with essentially fixed compensations lead executives to a more risk-averse perception. This conclusion can make organizations rethink their compensation models, as to adjusting the aggressiveness of the variability level according to the risk appetite undertaken by their executives.

Personal characteristics, such as age and time working at the company, were also considered relevant for risk perception. These conclusions make it possible to identify the best way to balance the representativity of VC according to the executive's demographic characteristics.

Through the interpretation of the results for this research and its adaptation to the reality of each organization, it is possible to develop optimized incentive models, taking into account the variables

assessed and relations identified. The effectiveness of an incentive program depends on its alignment with the strategy and can result from factors such as: i. Organization's strategy and risk appetite; ii. Demographic aspects of the executive personnel; and iii. Level of complexity, communication plan and acceptance of the model by the executives.

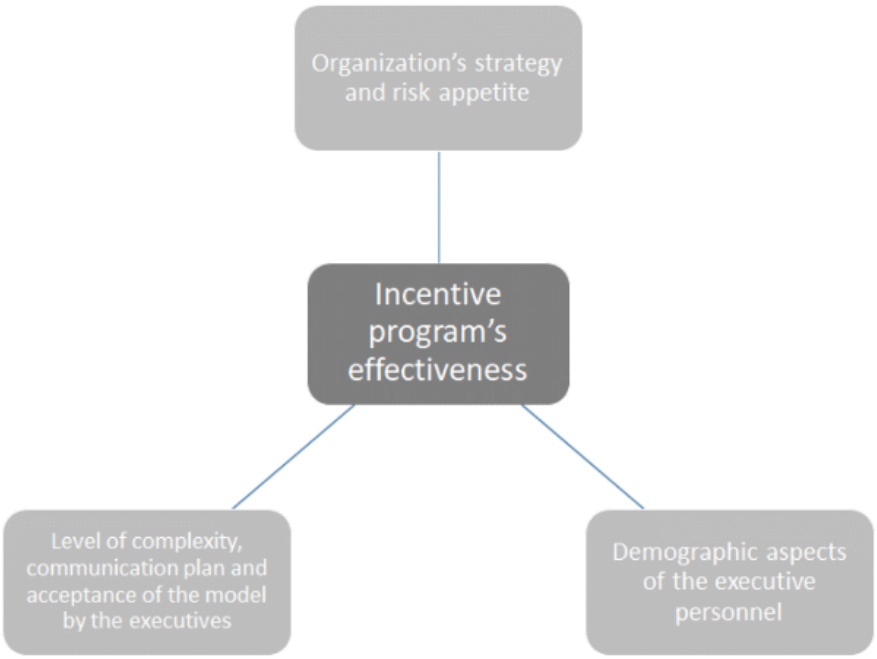

Figure 6.
Elements that may determine the effectiveness of incentive programs
Source: Authors

The combination of the three elements in Figure 6 will determine if the incentive program will present the right amount of motivation for executives, without leading them to exceed the limits of risk-taking expected by the company.

a) **Organization's strategy and risk appetite**: Companies seeking growth and counting on stronger governance structures can adopt more aggressive compensation models, with more representative VC levels, even though this means taking more risk, as the correlation between VC level and executive's tendency to taking risks is positive, and it also motivates the creation of value. In this case, the increase in the propensity for creating value may offset the increase in the propensity for risk-taking by the executive. On the other hand, it is clear that organizations with more aggressive VC models should invest more in governance and count on stronger supervision structures and internal controls in order to offset the increase in risk exposure;

b) Demographic aspects of the organization's executive personnel: Older executives tend to have a lesser disposition to risk exposure, therefore, implementing more aggressive VC instruments for older

professionals may not influence their risk perception with the same intensity as it would influence younger professionals;

c) **Level of complexity, communication plan and acceptance of the model by executives:** The model's simplicity and transparency can ensure greater effectiveness in the motivating effect of incentive programs, especially regarding LTC. The current study did not demonstrate a significant relation between executives' motivation and LTC level, possibly due to the low level of implementation of such practice and due to the fact that it is not widely known in Brazil (Deloitte Touche Tohmatsu, 2017). This statement confirms the findings from Pepper, Gore and Crossman (2013), which show that unawareness and uncertainty cause executives to have reservations and not to be motivated by LTC.

Comparing with Eisenhardt (1989) findings regarding the Agency Theory, this framework shows that the circumstances in which the agent and the principal diverge in the definition of objectives, especially in the division of levels of importance to the capital / labor paradox, require governance mechanisms that take into account specific characteristics of the Organization, the principal and the agent, such as demographic aspects and risk tolerance limits.

Final Considerations

In practical terms, the results of this study bring a series of assumptions that may be potentially adopted by organizations upon the development of their incentive programs. Compensation models should be adapted taking into account both the target audience (executives) and the organization's strategy.

The small number of companies adopting LTC models represented a limitation for this research.The finding, however, coincides with the results of the research carried out by Deloitte Touche Tohmatsu (2017), which demonstrated that less than 15% of the 140 Brazilian companies researched adopt long-term compensations. Due to this limitation, the statistical power of models used to test hypotheses H1 and H3 was reduced.

Despite the mentioned limitation, this study brings important contributions in addition to the results presented. This is one of the pioneering studies in Brazil that sought to analyze executive compensation based on data collected directly from executives. Most studies on the phenomenon are carried out using secondary data. Theoretically, the article also advances by incorporating individual variables in the tested models, such as risk perception and motivation to add value, associating them with variations in executive remuneration.

Regarding suggestions for future studies, it is possible to highlight that the assessment of variables associated with executive motivation can be performed in a broader manner, since compensation is not the only instrument used to mitigate the risks of agency conflicts (Eisenhardt,

1989). It is important to take into account other elements forming part of the instruments for alignment of interests, such as:

a) Mechanisms that develop the executive's intrinsic motivation;

b) Corporate governance;

c) Organizational culture;

d) Behavior facing risk;

e) Impact on the executives' risk perception of regional aspects, macroeconomic context or the type of industry in which the company operates.

f) Specific mechanisms to adapt incentive programs for companies with controlling shareholders, when there is an overlap between control and management. For these companies, the need to monitor agency conflict can be reduced.

Additionally, the use of demographic data with grouping variables can be explored in future studies as a way of expanding the conception on how personal characteristics can be better combined with the compensation model to be applied. Demographic data, such as education level and training, can help complement the study.

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Notes

[1] A positive correlation between LTC and risk perception assumes that, the greater the LTC level, the higher the tendency of risk-taking by the executive.

[2] A positive correlation between VC and risk perception assumes that, the greater the VC level, the higher the tendency of risk-taking by the executive.