

# EXECUTIVE REMUNERATION AND ORGANIZATIONAL LIFE CYCLES: A FOCUS ON BRAZILIAN COMPANIES

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## ABSTRACT

This study aimed to analyze the remuneration of executives in each phase of the business life cycle. A descriptive, documentary, survey-type study was performed with a predominantly quantitative approach, using a sample of 560 observations across 112 companies. For the definition of the current life cycle phase of each company analyzed, Dickinson's (2011) methodology was chosen, which classifies the life cycle into the five phases of start-up, growth, maturity, turbulence, and decline, based simultaneously on the signs of the operating, investment, and financing cash flows. The construction of the econometric model was based on Madhani (2012), Ventura (2013), and Koh et al. (2015). The results suggest that the highest level of executive compensation was in the turbulence phase, followed by the growth, decline, and start-up phases, with the lowest level observed in the maturity phase. It was concluded that the level of remuneration paid to the executives of the companies studied herein is related to the organizational life cycle, which corroborates the contingency and agency theories.

**Keywords:** executive remuneration, salary, management practices, organizational life cycle

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## RESUMO

*Essa pesquisa teve como objetivo analisar a remuneração de executivos em cada uma das etapas do ciclo de vida das empresas. Para tanto, realizou-se uma pesquisa descritiva, documental e de levantamento, com abordagem predominantemente quantitativa, utilizando uma amostra de 560 observações, referentes a 112 empresas. Para definição do ciclo de vida no qual se insere cada empresa estudada, optou-se pela metodologia de Dickinson (2011), a qual classifica os estágios do ciclo de vida em cinco fases (nascimento, crescimento, maturidade, turbulência e declínio), baseando-se simultaneamente nos sinais dos fluxos de caixa operacional, de investimento e financiamento. Para construção do modelo econométrico, baseou-se em Madhani (2012), Ventura (2013) e Koh et al. (2015). Os resultados encontrados sugerem que o maior nível de remuneração paga aos executivos foi na fase de turbulência, seguida de crescimento, declínio, nascimento, sendo o menor, observado na fase da maturidade. Conclui-se que o nível de remuneração paga aos executivos das empresas estudadas se relaciona com o ciclo de vida organizacional, corroborando com as teorias da contingência e agência.*

*Palavras-chave: Remuneração de Executivos. Salários. Práticas Gerenciais. Ciclo de Vida Organizacional.*

## 1 INTRODUCTION

Debates over executive remuneration have been increasing, particularly due to the corporate scandals that occurred at Enron and WorldCom during 2002, the bursting of the real estate bubble in the US market in 2008, and the countless economic problems that have been gaining momentum in recent years, especially the recent crises whose impacts on countries such as Greece and China (both in 2015) are yet to be determined.

One possible influence of these economic aspects on companies is that current remuneration systems aim to motivate the chief executive officers (CEOs) and maximize the company's performance. Thus, in search of "optimal contracts", as advocated by the agency theory, contracts are created that have a fixed (direct salary) and variable (stock options, stock restrictions, etc.) amount. However, company performance is not only influenced by the managerial practices used by executives, but by economic factors, factors linked to the company's sector, crises, and recessions; these can encourage opportunistic behavior by managers through manipulation of performance measures (Conyon, 2006).

Executive remuneration is present in the literature as a target of research within various contexts. For example, Jensen (2003) discussed a remuneration system for managers based on the achievement of budgetary goals. Laksmana (2010) related corporate governance to executive remuneration. Gregg, Jewell, and Tonks (2010) found evidence of the relationship between company size and the amount paid to executives. Chien (2012) showed the effects of executive remuneration on company performance. and Wang and Sing (2014) sought to relate executive remuneration to organizational life cycle phases.

The study by Wang and Sing (2014) aimed to review the potential links between executive remuneration and organizational life cycles, explaining the relationship between them and the perspective of contingency theory as well as offering propositions about the level and mix of CEO remuneration and the phases of the organizational life cycle.

From this perspective, the research question becomes "**What is the relationship between the executive remuneration of the Brazilian companies studied and their organizational life cycle phases?**" Thus, the purpose of this article is to analyze the executive remuneration in each phase of the life cycle of the Brazilian companies studied.

This study is justified because it stimulates the debate on the phenomenon of the remuneration system and its endogenous relationship with organizational contingencies in Brazil. When there

is cash availability, investment opportunities, and demand, motivations can exist at specific phases of the business life cycle and influence the executive remuneration policy. Another effect may be from the methodological differential, because Wang and Sing's (2014) study was limited to making theoretical propositions regarding the possible effects of life cycle phases on executive remuneration.

Thus, to meet the proposed objective, Dickinson's (2011) methodology was chosen; it subdivides the life cycle into the five phases of start-up, growth, maturity, turbulence, and decline and is based on the signs (i.e., positive or negative) of the operating cash, investment, and financing flows. The construction of the econometric model was based on the studies by Madhani (2012), Ventura (2013), and Koh et al. (2015).

The remainder of the article is structured as follows: the next section presents a literature review of executive remuneration and organizational life cycles; section 3 describes the methodological procedures, with the formulation of the research hypotheses and a description of the sample; section 4 provides the analysis of the results; and, finally, the conclusion is presented with suggestions for future research.

## 2 EXECUTIVE REMUNERATION FROM THE PERSPECTIVE OF THE CONTRACTUAL THEORY OF THE CORPORATION AND THE AGENCY THEORY

The contractual theory of the corporation and the agency and contingency theories are widely used in accounting research, and they provide important support for solving accounting problems related to the managerial area; for example, performance measurement and compensation systems for managers. For Godfrey, Hodgson, Holmes, and Tarca (2006), the positive accounting theory generally focuses on two types of agency contracts: management contracts and debt contracts. The agency theory provides a rich source of explanation for the existence of accounting practices.

The contractual theory of the corporation considers contractual relations to be the essence of the company, serving as a link to a set of contractual relationships between individuals (Jensen & Meckling, 1976). As Godfrey et al. (2006) explained, it exists because it is less expensive for individuals to initiate transactions (or contracts) through a central organization than to create them individually. According to Lopes and Martins (2012), the proper functioning of a company depends on the contractual equilibrium established. If one of the parties is not satisfied with the terms of the contract or with its execution, the company's activities may be impaired or even disrupted.

From this perspective, Sunder (2014) advised that to explain a particular aspect of company behavior, attention may be focused on relevant subsets of agents. Jensen and Meckling (1976) defined an agency relationship as a contract in which one or more persons (the principal/s) involve another person (the agent) to perform some service on their behalf, which involves delegating some decision-making authority to the agent. For the purposes of this article, the manager is the central agent of the discussion, whose mutual and self-motivated cooperation with the firm materializes in the provision of his or her abilities and in the right to receive salaries, bonuses, and other benefits.

However, Sunder (2014) recalls that "agents are rational in the sense that, within the constraints of their opportunities and information, they do not consciously choose less desirable courses of action, in spite of the more desirable ones". Put differently, the rationality of individuals' means that they do not consciously do what they do not want to do, and they seek to maximize their wealth. Based on this premise and in the presence of the separation of ownership and

control within the organizational environment, conflicts arise between owners and managers; these are analyzed in light of the agency theory.

The agency theory is used in accounting research to answer the following two questions: (i) How do the characteristics of the information, accounting, and compensation systems affect (reduce or worsen) incentive problems? and (ii) How does the existence of incentive problems affect the form and structure of the information, accounting, and compensation systems? According to Lambert (2001), the characteristic of the agency theory that made it attractive to researchers in the accounting area is that it explicitly allows for the incorporation of conflicts of interest, incentive problems, and mechanisms to control them. Its unit of analysis is the contract between the principal and the agent. Its assumptions include the information asymmetry between the principal and the agent and the conflict in goals.

In the agency relationship between the principal and the agent, owner, and manager, Lambert (2001) recalled that the question about how to measure performance is important, given that the accounting and budgetary systems, performance measurement, transfer of prices, and decision support affect how people and organizations interact.

The focus of this article is on performance measurement in the agency relationship between the manager (agent) and the company (principal) from the perspective of the positivist branch of agency theory. According to Eisenhart (1989), positivist researchers focus on identifying situations in which the principal and the agent are likely to have conflicting objectives, and then describe the governance mechanisms that limit the agent's self-interest behavior.

In this context, one of the conflicting situations studied by Jensen (2003) refers to the contradictory effects associated with the use of budgets in an organization's systems for measurement and remuneration of performance. From the viewpoint of this author, managers circumvent the system and destroy value when defining goals that are easy to achieve and are often harmful to the company (but beneficial to the manager), for example, by allocating anticipated revenues from future periods to the current fiscal year to achieve goals.

Several other studies that used different approaches have been conducted regarding the remuneration system for managers. Among them, Krauter (2013) investigated the relationship between executive compensation and the financial performance of Brazilian companies, obtaining significant statistical evidence regarding this association. Krauter (2013) found a relationship between financial remuneration and financial performance and between nonfinancial remuneration and financial performance. According to the author, the results indicate that remuneration can help direct the efforts of executives toward the strategic objectives of the business, thus contributing to the company reaching higher levels of financial performance.

Oliva and Albuquerque (2007) found evidence of alignment between the corporate governance structure and the compensation system for executives and board members, including continuous monitoring of operating and financial results, a concern for showing investors the reliability of their controls, and the existence of periodic auditing and care regarding remuneration.

Another finding by Oliva and Albuquerque (2007) was the tendency for expansion in the variable remuneration for the administrators; however, possible excess in this practice is not cause for concern since it tends to reduce possible conflicts and increase the performance of companies. While identifying the variable remuneration practices of 21 large companies, Oyadomari et al. (2009) found results that suggest the association of variable remuneration with individual goals and the achievement of organizational goals, with the possibility of an agency conflict arising if the former are not aligned with the latter.

The studies cited exemplify the debate about executive compensation, whose discussion continues to have shortcomings. Souza and Borba (2007) indicate that despite the existence

of papers published in Brazil that discuss aspects of corporate governance and its development, and specifically executive compensation, there has been little development of the topic at the national level. One of these shortcomings is the association of executive remuneration with organizational life cycle phases, which is the focus of this study.

### 3 ORGANIZATIONAL LIFE CYCLES AND CONTINGENCY THEORY

The study of remuneration of managers/executives continues to attract the attention of researchers, as explained by Wang and Sing (2014), with the focus generally being on issues related to its effectiveness and fairness. However, these authors criticized the fact that such studies are generally static; that is, they do not consider the various phases of a company's evolution and their relation to the remuneration system of the CEO. Additionally, previous studies cited by the authors concluded that payments to the CEO are not simply a function of size, but may be affected by factors endogenous to the firm. In accordance with this viewpoint, Wang and Sing (2014) allege that the life cycle phases of organizations can capture the interactive effects that endogenous and exogenous factors have on CEO remuneration.

Variables such as external environment, competitive strategy, mission, and technology are considered to be contingent variables. Thus, contingency theory is the basis for relating specific contingencies to the development of systems, as is the focus of this article, which addresses the executive remuneration system influenced by organizational life cycle phases.

The contingency approach suggests that particular characteristics of a system will depend on an organization's specific circumstances. Thus, contingency theory must identify specific aspects of a system that are associated with certain well-defined circumstances and demonstrate appropriate compatibility (Otley, 1980). Consequently, an essential issue in contingency theory is the understanding of which variables affect an organizational configuration, without establishing a general administrative strategy applicable to all organizations and circumstances.

As Wang and Sing (2014) indicated, the literature on contingency theory is rich in evidence that the external contexts of an organization have a significant impact on its strategies, structures, processes, technology, and culture, and, subsequently, on its remuneration systems and practices. Wang and Kaarst-Brown (2014) stated that contingency theory has been associated with executive remuneration research, and from this perspective, remuneration is not a fixed system but rather an open system that varies according to different environmental and strategic conditions that the executives encounter.

Thus, Wang and Sing (2014) suggested that the level and combination of CEO remuneration are contingent on a set of organizational variables that may change at each phase of the organizational life cycle. The phases of the organizational life cycle cited by Wang and Sing (2014) are start-up, growth, maturity, and decline.

The organizational life cycle was also discussed by Lima (1997), who used the proposal of Machado-da-Silva, Veira, and Dellagnelo as a basis for identifying the phases as entrepreneurship, formalization, and flexibilization, and added organizational decline. The study by Lima (1997) suggested that formalization has a dynamic character because it takes on different characteristics and functions during the life of an organization, and the author explained that the level of organizational formalization is generally low in the start-up and establishment phase of organizations, peaks at the end of the bureaucratic formalization phase, decreases during the flexibilization phase, and may rise again or remain low in the decline phase.

From another perspective, the study by Faveri et al. (2014) sought to identify the relationship between the different phases of the organizational life cycle and the planning process of 116 companies that provide accounting services in the state of Santa Catarina; the majority of the entities were in the start-up and rejuvenation phases, and only half of them used a budget. Their results indicated a negative correlation between the start-up and decline phases, and a positive correlation between the growth, maturity, and rejuvenation phases. Klann, Klann, Postai, and Ribeiro (2012) also concluded that there is a relationship between the life cycle phases and the level of planning used by companies, in which the planning tools (budget, strategic planning, and budget control) are used differently depending on the company's phase of development.

For companies in financial difficulties, Koh, Durand, Dai, and Chang (2015) found evidence that their restructuring strategies are influenced by their current life cycle phase; they explained that in the early life cycle phases, companies tend to reduce the number of employees, whereas mature companies are more likely to be involved in asset restructuring. They also argued that the influence of the organizational life cycle is more pronounced in the choice of financial restructuring strategies such as dividend reduction or capital structure variation.

Lavanda and Pereira (2012) characterized the use of management control systems according to the organizational life cycle phase in 22 radio companies in the state of Santa Catarina, showing that, as the sampled companies evolved from growth to maturity, they made their controls more interactive. The organizational life cycle phases considered in this study are those proposed by Lester, Parnell, and Carraher (2003) and cited by Lavanda and Pereira (2012), namely: start-up, growth, maturity, and decline.

The discussion of organizational life cycle and its impact on the managerial accounting system was also the focus of research by Carvalho, Saraiva Júnior, Frezatti, and Costa (2010) who, through a bibliometric analysis of 22 papers related to the topic, concluded that the managerial accounting system changes as configurational factors within and outside the company change throughout the different phases of the organizational life cycle. Following this line of reasoning, this study focuses on the discussion of the impact of the modifications occurring throughout the organizational life cycle phases on the remuneration system for executives.

The literature review by Wang and Sing (2014) found empirical evidence that five organizational characteristics (company age, size, diversification, innovation, and performance) vary according to the organization's life cycle phases, therefore making them determinant characteristics of the remuneration of the CEO. The understanding is that an organization will use different compensation systems, with emphasis on a particular combination of CEO salary, bonuses, share-based remuneration, and benefits in every phase of the organizational life cycle, thereby motivating and rewarding the CEO to make effective decisions pertaining to the challenges or problems corresponding to each of these phases.

## **4 METHODOLOGY**

### **4.1 Typology and selection and composition of the sample**

Using the typology adopted by Beuren (2004), this study has the characteristics of descriptive, documentary, and survey-type research, with a predominantly quantitative approach. The documentary research materialized through the collection of information in the Reference Forms and the Cash Flow Statements disclosed by the companies studied for the period between 2010 and 2014.

The study period was between 2010 and 2014 because beginning in 2010 companies with shares in the stock exchange became obliged to report the remuneration of their executives, in accord-

ance with normative instruction no. 480 of the Brazilian Securities and Exchange Commission (Comissão de Valores Mobiliários (CVM)). The data obtained were statistically processed as described below.

The realm of this research consisted of all the nonfinancial companies listed on the BM&F-Bovespa. For the composition of the sample (nonprobabilistic), those companies that disclosed information about the remuneration of their executives in their Reference Forms were selected. Financial companies were excluded from the population, as these companies have specific regulations in addition to different capital structures and profit calculations. Additionally, companies were excluded that did not present information regarding executive remuneration during the analyzed period. Thus, the study sample was 112 companies, including 560 observations.

#### 4.2 Description of the model for measuring the life cycle phases

In accordance with Chart 1, Dickinson's (2011) model was used to measure the life cycle phases. It classifies the companies into the following five phases: (1) start-up, (2) growth, (3) maturity, (4) turbulence, and (5) decline. This method differs from Anthony and Ramesh's (1992) model that is normally used internationally and recently used in Brazil by Lima, Carvalho, Paulo, and Girão (2015) because it is based on the Cash Flow Statement (Demonstração do Fluxo de Caixa (DFC)), which has been a mandatory report for Brazilian companies since 2008, with its corresponding allocation into operating, investment, and financing cash flows.

This method considers the multiple signs of the operating, investment, and financing activities to perform the classification into the life cycle phases. Of particular note is that the only phase that allows multiple classification possibilities is the turbulence phase, since it has three distinct sign scenarios for its classification.

Chart 1. Classification of the life cycle phases

Cash flow	Start-up	Growth	Maturity	Turbulence	Decline
Operating	-	+	+	+ - +	- -
Investment	-	-	-	+ - +	+ +
Financing	+	+	-	+ - -	+ -

Source: Dickinson (2011)

Dickinson (2011) indicated that the main advantage of using the cash flow patterns is that the results obtained are "organic" to the operations and can be more congruent to economic theory resulting from a normal distribution without performing calculations for indicators that may contain bias from the researcher. Although relevant, other methods, such as that of Anthony and Ramesh (1992), may have disadvantages because the models require a prior assumption about the life cycle phase, arbitrary scores are attributed, and a uniform distribution of the life cycle phases among all the companies is assumed.

Operationally, Dickinson's (2011) model incorporates the expected signs of the cash flows for classification at each phase of the life cycle, in accordance with previously established theoretical assumptions. Thus, in the start-up phase because companies need new customers, they suffer deficits because of low revenues and contingent costs, which results in negative operating and investment cash flows. In the growth and maturity phases, profit margins are maximized because of the increases in investment and efficiency, which results in positive operating cash flow. However, in the decline phase, companies have a declining growth rate, which leads them to lower prices so that the operating cash flow will decrease until it becomes negative.

Dickinson (2011) emphasized that financing cash flows are positive for companies in the

start-up and growth phases, due to creditors' expectations about the companies' future performance. However, in the maturity phase, companies begin to pay their debts and distribute cash to shareholders, which results in a negative financing cash flow. Finally, in the decline phase, companies do not have a pattern, since financing cash flows can be positive or negative.

A possible gap in the model is the turbulence phase; no theoretical support has been found in the life cycle theory to represent the signs shown by the cash flows because it is a transition phase for firms. Thus, cash flows that do not show the signs indicated for the other phases should be classified within the turbulence phase.

### **4.3 Model that correlates executive remuneration with the life cycle phases**

To achieve the general objective of this study, which is to analyze executive remuneration in each of the life cycle phases of the Brazilian companies studied, and based on the literature review adopted, the following research hypotheses were formulated:

**H1:** Companies in the start-up phase pay their CEOs the lowest level of total remuneration.

The theoretical assumptions that supported the creation of the hypotheses were based on the study of Wang and Singh (2014). Thus, for **H1**, it is expected that in the start-up phase the remuneration of the CEOs would be at the lowest level, due to organizational contingencies in which basic provisions, such as legal and social benefits, will be prioritized. The justification for this is that managers have their managerial capacity limited, which leads to the board members reducing the remuneration. For Sender (2004), in the start-up phase, organizations need funds that provide flexibility for possible changes. Thus, it is expected that they will not commit high levels of funds toward executive compensation.

**H2:** Companies in the growth phase pay their CEOs a higher level of total remuneration than those in the start-up phase.

Regarding **H2**, it is expected that companies in the growth phase (per Wang and Singh (2014)) would have a higher level of remuneration than in the start-up phase because in the growth phase more qualified professionals are hired, responsibility is transferred from the founders of the company to the CEOs, and additionally the challenges are encountered. For example, an increase in the number of products offered by the company, efforts to enter new geographic markets, and the construction of new distribution and more advanced logistics systems to meet market demands.

**H3:** Companies in the maturity phase pay their CEOs a higher level of total remuneration than those in the start-up and growth phases.

For **H3**, it is expected that companies in the maturity phase will remunerate their CEOs higher than those in the start-up and growth phases. According to Black (1998), mature companies change their strategic objectives because they can maximize and stabilize profits. For Wang and Singh (2014), mature companies develop complex management systems and corporate governance mechanisms, and they also attempt to discover unexploited market niches and differentiated products; therefore, the remuneration mix for executives tends to be maximized.

**H4:** Companies in the turbulence phase pay their CEOs a higher level of total remuneration than those in the start-up, growth, and maturity phases.



For **H4**, although there is a gap in the literature regarding the turbulence phase of companies because the signs of the cash flows do not maintain a pattern in accordance with the agency theory advocated by Jensen and Meckling (1976), it is suggested that CEOs have an aversion to risk; therefore, firms try to avoid discretionary practices that maximize the utility of managers, which enables higher compensation for executives.

**H5:** Companies in the decline phase pay their CEOs the highest level of total remuneration compared to the other phases.

Finally, in **H5**, it is expected that companies in the decline phase will remunerate CEOs with greater benefits than the other phases. According to Wang and Singh (2014), during this period companies attempt to restructure themselves, including often hiring new managers who accept the new challenges with compensation proportionate to the risk of compromising their image in the market.

To respond to the previously structured hypotheses and the objectives of this study, an econometric model was created, based on the studies of Madhani (2012), Ventura (2013), and Koh et al. (2015). It is shown in the following equation:

$$\ln REMT = \alpha + \beta_1 DNASC + \beta_2 DCRES + \beta_3 DMATUR + \beta_4 DTURBU + \beta_5 DDECLI + \beta_6 BASACOES + \beta_7 BONUS + \beta_8 ROE + \beta_9 ROA + \varepsilon_{it} \quad (1)$$

where:

-  $\ln REMT$  = logarithm of the mean remuneration received from the statutory board of directors of company  $i$  at time  $t$ .

-  $DNASC$  = a dummy variable that indicates the start-up phase of the life cycle; 1 will be assigned to companies in the start-up phase and 0 to the others.

-  $DCRES$  = a dummy variable that indicates the growth phase of the life cycle; 1 will be assigned to companies in the growth phase and 0 to the others.

-  $DMATUR$  = a dummy variable that indicates the maturity phase of the life cycle; 1 will be assigned to companies in the maturity phase and 0 to the others.

-  $DTURBU$  = a dummy variable that indicates the turbulence phase of the life cycle; 1 will be assigned to companies in the turbulence phase and 0 to the others.

-  $DDECLI$  = a dummy variable that indicates the decline phase of the life cycle; 1 will be assigned to companies in the decline phase and 0 to the others.

-  $BASACOES$  = a control dummy variable that indicates share-based payment; 1 will be assigned to share-based receipt and 0 to the others.

-  $BONUS$  = a control dummy variable that indicates bonus-based payment; 1 will be assigned to bonus-based receipt and 0 to the others.

-  $ROE$  = a control variable that indicates the return on net equity of company  $i$  in period  $t$ .

-  $ROA$  = a control variable that indicates the return on the assets of company  $i$  in period  $t$ .

-  $\varepsilon_{it}$  = an error term of the regression of company  $i$  in period  $t$ .

It is emphasized that the equation created to meet the objectives outlined in the study displays high collinearity in its variables for the phases of the life cycle, considering that they are all dummy variables. As a form of mitigation, each life cycle phase was tested individually.

## 5 RESULTS

This section is dedicated to the description and analysis of the data collected in the study to achieve the established objective. Initially, the variables considered in the study were descriptively analyzed via the mean, standard deviation, and maximum and minimum values. The models used and the results that support or refute the established hypotheses are then discussed.

### 5.1. Descriptive analysis

Table 1 shows the descriptive statistics for the variables studied for the period between 2010 and 2014. The results show that the mean executive remuneration for the companies in the sample was 6.08, with a maximum of 14.07.

Table 1. Descriptive statistics of the sample between 2010 and 2014

Variables	Mean	Standard deviation	Minimum value	Maximum value	Observations
REMM*	6.08	1.31	1	14.07	560
ROA	16.91	325.44	-323.48	7691.25	560
ROE	101.43	2250.50	-661.72	53242.80	560
ASSETS**	4.29	2.91	0.68	8.49	546
MEMBERS	6.00	3.17	2.00	37	570

Source: Data from the study (2015)

\* REMM (log); \*\* ASSETS (log)

According to Table 1, the indicators of profitability (ROA and ROE) were highly scattered; among the companies analyzed, some had negative returns while others did not. The ROA ranged from -323.48 to 7,691.25, with a mean of 16.91, while the ROE ranged from -661.72 to 53,242.80, with a mean of 101.43. These results suggest heterogeneous characteristics of the companies studied with respect to the returns obtained on their assets and net equity, which can be justified by the variety of operational contexts and sectors of the sampled companies.

The considerations made regarding the ROA and ROE can be extended to the assets, whose values ranged between 0.68 and 8.49, with a mean of 4.29, resulting in the determination of the existence of different company sizes in the sample. Finally, the average number of members of the statutory boards of directors was six, but there was a wide range (e.g., there were 37 members in the company TOVS S.A); this reinforces the heterogeneous characteristics of the companies studied.

To determine the current life cycle phases of the companies in the sample, the classification described in the methodology was performed; the results are summarized in Table 2. The results show that 80% of the companies in the sample are in the growth and maturity phases, at 39% and 41%, respectively.

Table 2. Number of companies in the sample in each organizational life cycle phase

LIFE CYCLE PHASE	COMPANIES	
	NUMBER	PERCENTAGE
START-UP	44	8%
GROWTH	217	39%
MATURITY	230	41%
TURBULENCE	51	9%
DECLINE	18	3%
TOTAL	560	100%

Source: Data from the study (2015)

As discussed earlier, companies in the growth phase lack the professionals most qualified to face the challenges that this phase imposes. In the maturity phase, companies need to develop complex management systems and governance mechanisms in addition to the challenges of discovering new markets and products. Thus, the preponderance of the growth and maturity phases in the companies studied may have a positive impact on the mix of the executive compensation, which reinforced the need for this investigation.

The results of Tables 1 and 2 reveal the predominant characteristics of the companies in the sample: heterogeneity in size, mean remuneration paid to their executives, number of members in their statutory boards, averages for returns on assets and positive net equity, and the concentration of 80% of these companies in the growth and maturity phases.

For Ventura (2013), scattered results aggravate the presence of heteroscedasticity in the regressions, but the author considered this to be normal in the findings due to the inclusion of companies from different sectors and of varying sizes, as were present in this study.

Table 3. Correlation matrix of the variables studied

	REMMEAN*	ROA	ROE	ASSETS**	MEMBERS
REMMEAN*	1.000				
ROA	0.0208	1.000			
ROE	0.0227	0.9984	1.000		
ASSETS**	0.1296	0.0046	0.0092	1.000	
MEMBERS	-0.0786	-0.0102	-0.0134	0.0515	1.000

Source: Data from the study (2015)

\* REMM (log); \*\* ASSETS (log)

Finally, Table 3 presents the correlation of the study variables via a correlation matrix. Its results show that the highest degree of correlation for the mean remuneration was with the assets. There was a negative correlation between the mean remuneration and the remuneration of the members which, despite indicating a low level, behave as expected, since a higher number of members on the statutory board leads to less remuneration.

## 5.2 Results and analysis of the research hypotheses

To identify the econometric model suited to the research objectives, the specification tests of the panel data models (the Chow *F*-test, the Breusch-Pagan LM test, and the Hausman test) were performed. The Chow *F*-test tests for the best model between the POLS and fixed effect, using the following hypotheses: H0 = the intercepts are equal for all cross-sections (POLS) and H1 = the intercepts are different for at least one of the cross-sections (fixed effects). The results obtained indicated the random effect model.

The Breusch-Pagan test determines if the random effect model is better than the POLS. The results indicated that the *p*-value was 0.00, which means that H0 is rejected and that the POLS model should be rejected; therefore, the random effect model should be used. Corroborating this result, the Hausman test evaluates the best model between the fixed effect and random effect models, whose hypotheses are as follows: H0 = error correction model is suitable (random effect) and H1 = error correction model is not suitable (fixed effect). The *p*-value found was 0.1394; therefore, because it is greater than 0.05, it suggests that the best model is the random effect model.

Thus, analysis by individual organizational life cycle phase was chosen; the regressions are presented in Table 4. The results show that in all of the organizational life cycle phases, the

total variable of the assets (in logarithm, LnAssets) was significant at 5%, which indicates a positive relationship between assets (company size) and executive remuneration.

In addition to the assets variable, from Table 4 it can be seen that in the start-up, growth, turbulence, and decline phases, the number of members of the statutory board was significant at 5%, but in an inverse relationship with executive compensation; that is, the higher the number of members, the lower the remuneration. This result confirms those in previous studies; for example, Ventura (2013). In the maturity phase, the number of members resulted in the same behavior but was significant at 10%.

Table 4. Results for the estimation of the relationship between remuneration of the statutory board and the organizational life cycle phases through the Random Effects Panel, between 2010 and 2014

Variables	Random effects				
	Start-up	Growth	Maturity	Turbulence	Decline
Bonus	0.0568 (0.710)	0.0715 (0.643)	0.0744 (0.627)	0.0586 (0.698)	0.0573 (0.706)
Partresultados	0.2936 (0.118)	0.2953 (0.106)	0.3221* (0.080)	0.3008 (0.102)	0.2943 (0.114)
Share-based	0.1851 (0.365)	0.1912 (0.347)	0.1842 (0.370)	0.1830 (0.373)	0.1855 (0.367)
ROA	-0.0009 (0.457)	-0.0009 (0.421)	-0.0005 (0.640)	-0.0004 (0.719)	-0.0009 (0.457)
ROE	0.0001 (0.435)	0.0001 (0.395)	0.0001 (0.611)	0.0001 (0.703)	0.0001 (0.433)
Start-up	-0.0001 (0.999)	-	-	-	-
Growth	-	0.1368 (0.228)	-	-	-
Maturity	-	-	-0.2110* (0.057)	-	-
Turbulence	-	-	-	0.2072 (0.171)	-
Decline	-	-	-	-	0.0186 (0.832)
LnAssets	0.0641** (0.030)	0.0643** (0.028)	0.0648** (0.026)	0.6345** (0.032)	0.0641** (0.030)
Members	-0.0412** (0.040)	-0.0405** (0.042)	-0.0388* (0.052)	-0.4013** (0.044)	-0.0412** (0.039)
Cons	5.8412 (0.000)	5.7713 (0.000)	5.8900 (0.000)	5.8155 (0.000)	5.8398 (0.000)
Obs.	546	546	546	546	546

Source: Data from the study (2015)

Notes: \* and \*\* indicate significance of 10 and 5%, respectively.

Observing the coefficients and signs of each of the organizational life cycle phases in accordance with Chart 2, it can be seen that in the growth phase the coefficient obtained is greater than that in the start-up phase and has the expected sign, which suggests the **nonrejection** of hypothesis two (**H2**), in which the companies in the growth phase pay their CEOs a higher level of total remuneration than those in the start-up phase. These results corroborated the theoretical assumption of Wang and Singh (2014), because in the growth phase more qualified professionals are hired because of the transfer of responsibility from the founders of the company to the CEOs and the challenges that this phase imposes; for example, an increase in the number of products offered by the company and efforts to enter new geographic markets.

Chart 2. Summary of the expected and actual results

Life cycle phases	Expected sign	Actual sign	Hypotheses
Start-up	-	- / NS	NC
Growth	+	+ / NS	NR
Maturity	+	- / NE	R
Turbulence	+	+ / NS	NR
Decline	+	+ / NS	NC

NS = Not significant, NR = Not rejected, R = Rejected, NE = Not expected, NC = Not conclusive

The coefficient obtained for the growth phase (0.1368) exceeded that of the maturity phase (-0.2110), which suggests that growing companies remunerate their CEOs at a higher level than those in the maturity phase; this contradicts hypothesis three (**H3**).

Among the coefficients obtained in the first three organizational life cycle phases, the lowest value was obtained unexpectedly in the maturity phase; therefore, hypothesis one (**H1**), which stated that companies in the start-up phase pay their CEOs the lowest level of total remuneration, is **rejected**.

Of the five organizational life cycle phases, the turbulence phase (0.2072) had the largest coefficient. It was larger than the maturity, growth, and start-up phases, as well as the decline phase (0.0186), which suggests the **nonrejection** of hypothesis four (**H4**), which states that the remuneration paid to CEOs in the turbulence phase exceeds the level of remuneration paid in the start-up, growth, and maturity phases. Additionally, this result also suggests **rejection** of hypothesis five (**H5**), which states that companies in the decline phase pay their CEOs the highest level of remuneration.

## 6 FINAL CONSIDERATIONS

This study aimed to analyze the executive remuneration in each phase of the business life cycle. Dickinson's (2011) methodology was chosen to define each company's current life cycle phase. It classifies the life cycle into the five phases of start-up, growth, maturity, turbulence, and decline, and is based on the signs of the operating, investment, and financing cash flows. The construction of the econometric model was based on the studies by Madhani (2012), Ventura (2013), and Koh et al. (2015).

The results obtained revealed heterogeneous characteristics in the companies studied in terms of size, mean remuneration paid to their executives, and the number of members on their statutory boards, as well as in the averages for returns on assets and positive net equity; however, 80% of these companies were concentrated in the growth and maturity phases.

Among the variables studied, the highest degree of correlation obtained for the mean remuneration was with the assets. It is emphasized that there was a negative correlation between the mean remuneration and the number of board members which, despite indicating a low level, behave as expected. For each phase of the organizational life cycle, the coefficients obtained with the regression model suggest that the highest level of remuneration paid to executives was in the turbulence phase, followed by the growth, decline, and start-up phases, with the lowest level observed in the maturity phase.

From the above, it was concluded that the level of remuneration paid to the executives of the companies studied is related to the organizational life cycle, in which the highest level of remuneration occurred in the turbulence phase and the lowest in the maturity phase. These results are consistent with the agency theory, which posits that executives are averse to risk; therefore, it is assumed that the statutory boards of national companies decide to maximize the remuneration of executives in periods of greater risk. These results are especially consistent with the contingency theory, which posits that specific aspects of the entity, such as the organizational life cycle phase,

determine the managerial strategies; that is, they influence the executive remuneration policy.

A limitation of the study is the reduced period for disclosure of executive remuneration; only since 2010 were companies with shares in the stock exchange obliged to report the remuneration on their reference forms.

For future studies, the use of Anthony and Ramesh's (1992) method is suggested for measuring the life cycle phases with the aim of ratifying the results found. Additionally, the temporal scale should be increased to capture the effects of companies' macroeconomic cycles, which generally last 10 years. This period was not used due to the limitation of the mandatory disclosure of executive remuneration.

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Contribution	[Author 1]	[Author 2]	[Author 3]
1. Definition of research problem	√	√	√
2. Development of hypotheses or research questions (empirical studies)	√	√	√
3. Development of theoretical propositions (theoretical work)	√		
4. Theoretical foundation / Literature review	√	√	
5. Definition of methodological procedures	√	√	√
6. Data collection	√	√	
7. Statistical analysis	√		
8. Analysis and interpretation of data	√	√	
9. Critical revision of the manuscript			√
10. Manuscript writing	√	√	
11. Other (please specify): - Correções solicitadas pelos avaliadores	√	√	√
- Tradução do artigo para língua inglesa			√