Full Length Research Paper

The effects of information asymmetry on budget slack: An experimental research

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Budget slack has been investigated as an organizational and behavioral matter and defined as the value through which managers intentionally set additional obligation to the resource of a certain budget or consciously underestimate productive capability. Based on the principles of agency theory, this research aims to scrutinize the effects of information asymmetry on budget slack in an organizational context where agents are compensated through budget-based compensation plans. In order to do so we used a positive approach-based research in which an experiment with independent samples which comprised of 233 professionals was carried out; its instruments for data analysis were the test *t* and factorial analysis. The results confirm the hypotheses of agency theory. We identified that, regardless of the position held in a company (principal or agent), they both use information asymmetry to set budget goals with slack, that is, beyond real necessity. This action occurs *ex ante* and *ex post* the company sets out the budgeting deadline date. We also identified that budget slack is transversal to the position held and is not only a means of manipulation by the agents. Through this experiment we could prove that information asymmetry sets a favorable environment for increasing budget slack.

Key words: Budget slack, Information asymmetry theory, business budget.

INTRODUCTION

The budget slack phenomenon has aroused theorists' and researchers' as Lukka (1988), Libby (2003), Douglas and Wier (2005), Davis et al. (2006), Junqueira et al. (2010), interest due to its impact on organizational perfor-mance and, as a consequence, on the shareholders' ROI. Economy theory postulates that a subordinate knows more about his task and the environment it developed than his superior (Berle and Means, 1932; Jensen and Meckling, 1976). Participative budgeting is used to diminish this gap as well as to get information and reduce uncertainty. Therefore, based on the agency theory, budget slack causes inefficient allocation of

organizational resource and underestimation of the profit on investment.

One of the mechanisms predicted by agency theory to understate interest conflicts between subordinate and superior is performance compensation and efficient and incessant monitoring of the agent's actions (Jensen and Meckling, 1976; Martinez, 1988). Performance compen-sation is an alternative to ease such conflicts but it is preceded by a contract. Budgeting concretizes one of these contracts and is one of the most used managerial instruments for planning, controlling and evaluating re-source allocation under agent's responsibility, especially,

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when the principal compen-sates agents based on the outcomes shown on the budget, evaluating the difference between planned expenses and real expenses.

The opportunity for budget slack arises from this relation of interest conflicts in an environment of information asymmetry between the involved agents (Libby, 2003; Nascimento et al., 2008). The slack is used in order to provide each actor advantage over the others due to conflicts, and this aspect is increased by information asymmetry, which enables different classified information between actors (Chow et al., 1988; Dunk, 1993; Chong and Eggleton, 2007). Accordingly, infor-mation asymmetry is one of the intrinsic factors in the relation principal *versus* agent and, therefore, it can provide conditions for building slack and the consequent compensation through achieved outcomes, regardless of real losses caused to the principal (Martinez, 1988; Fisher et al., 2002; Marginson and Ogden, 2005). Thus the problem which guides this research is: what are the effects of information asymmetry on budget slack in an organizational context where agents are compensated for the results in the budget?

In this context information asymmetry appears in several sorts of relationships between the principal and the agent, such as in the relationships between share-holders and managers in which the principal wants the agent to maximize his wealth or between the community and the company in which the latter (agent) is supposed to preserve the community interests, culture, values, environment *et cetera* (Berle and Means, 1932; Martinez, 1998). This relationship is explained by the agency theory. Jensen and Meckling (1976) define the agency relationship as a contract through which a person or more people (the principal) hire another person (the agent) to carry out a job for them and provide the agent with authority for making decisions over their patrimony, is what happens in the relationship between superior and subordinate in the process of budgeting.

In this paper, we aim to scrutinise the effects of infor-mation asymmetry on budget slack in an organizational context where agents are compensated for the results in the budget. As outspreads of our main objective we have: how adverse selection may favor the actors (agents and principal) in building budget slack during elaboration of participative budgeting; to identify how the incidence of moral hazard may influence actors' (agents and principal) actions in building budget slack during the execution of participative budgeting; and to investigate whether reduction of information asymmetry causes increasing of managers' and directors' efforts to set budget goals and actions closer to reality, since they are evaluated through the results shown in the budget.

This research is to contribute to the explanation of budget slack in the context of agency theory. Besides demonstrating through empirical evidence that infor-mation asymmetry is a factor which triggers budget slack, above all, the studies of the relation between asymmetry

and budget slack, comprehending the behavior of asymmetry in the budgeting process before (adverse selection) and after defining the budget (moral hazard), this investigation is especially relevant because there is no literature with similar mechanism of research yet (Faria, 2010).

Understanding the influence of information asymmetry on budget slack in Brazil is important for understanding and showing national reality to the world so that we can check whether it has the same problems we find in other countries already studied. Besides, there are companies in Brazil which use the model of business budget applied in this research, therefore our findings may assist Brazilian companies in setting up their strategic planning and assessment policy. Finally, information asymmetry is discussed here under an endogenous perspective of micro-economy, namely, it is discussed taking into account the relationships inside the companies.

THEORETICAL BASES

Budget slack

Budget slack has been investigated by theorists and researchers as an organizational and behavior matter defined as "the value through which managers inten-tionally set additional obligation to the resource of a certain budget or consciously underestimate productive capability" (Young 1985). For Douglas and Wier (2005), discussions on budget slack have its origin in managerial accountability literature early in the 1950s. Budget slack studies have aroused researchers' attention in the international scene due to the relevance of this phenomenon in the budgeting process of organizations and in its results.

Lukka (1998, 281) states that polarization of budget slack is still an untreatable matter in organizations since it is a complex and multi-faceted phenomenon which results from the interaction of several factors. Budget slack occurs when managers without prior consent from superiors overestimate expenses, underestimate receipts and overestimate demand of resource under their responsibility, aiming at self-satisfaction in a process of compensation for results related to the budget (Onsi, 1973; Libby, 2003; Davis et al., 2006; Junqueira et al., 2010).

Budget slack is the difference between estimated costs and real amounts needed to meet established needs, to represent the excess of resource requested to accom-plish a task, namely, it is an underestimation and/or overestimation of expenses or production foreseen in a budget (Dunk and Pereira 1997; Libby, 2003; Anthony and Govindarajan, 2006; Lima, 2008). This behavior, identified in the professionals related to budgeting, badly affects the planning and budgeting processes through the bias of allocation or use of resource (Nascimento et al.,

2008). Through budget slack the actors involved in the process elaborate budgets using information different from reality, summing or subtracting from real data so that the budget becomes flexible in the results which are presented according to one's interests.

Amongst the factors which affect this phenomenon, identified in prior research, we find: the size of the company; diversity and decentralization (Merchant, 1985; Rankin et al., 2008); uncertainty of the environment (Anthony and Govindarajan, 2006); features of the task (Young, 1985); information asymmetry (Chow et al., 1988; Dunk, 1993; Chong and Eggleton, 2007; Onsi, 1973); budget goals negotiated versus goals imposed by company governance; managers who use the budget to allocate resource and/or performance evaluation (Fisher et al., 2002), using a system of incentives based on the budget, thereby prompting truth versus a bonus payment system as a way of prompting budget slack (Chow et al., 1988; Waller, 1988); management of the actions to achieve budget goals (Dunk, 1993; Merchant, 1985; Onsi 1973); aversion to individual hazard (Kim 2006; Young, 1985); and social pressure (Young, 1985) and reputation (Waller, 1988; Marginson and Ogden, 2005).

In this sense, Yuen (2004) investigated the relation between attribute of goals and managers' divisional propensity to build budget slack. He also researched managers' perceptions of communication and rewarding systems – factors which influence the relation between the features of goals and the propensity to build budget slack. He used a sample of managers from 108 hotels in Macau. Results indicated that clear communication of goals and a rewarding system can help to address the problems of the budgeting process.

On the other hand, it is worth mentioning that budget slack may not always be the villain of the conflicting relationship between directors and managers, especially if there is a reduction in information asymmetry. By using quantitative and qualitative data in four logistical units of a hard disc manufacturer during 24 months, D'Avila and Wouters's (2005) research showed empirical evidence of how a company can use budgeting as a way of allocating additional financial resource (budget slack) aiming at making the task of achieving the goals of the company easier for managers, since they are free to exceed costing budgets in order to ensure the quality of available products as well as clients' full satisfaction. However, in this research we focus on the aspect of information asymmetry used as a means of self-benefit by the actors involved in the budgeting process.

Information asymmetry

Applications and solutions proposed by the agency theory up to now have been used in several fields. Economists use the structure principal-agent predicted in

agency theory to analyze the interactions of companies with their employees (Bensanko, 2006). An agent is found by a principal in order to make decisions or to take actions which affect the principal's profit. This relation can be rightly found in the position in which a director (principal) of a big industry, responsible for managing several manufacturing units, hires specialized managers of production (agents) to administer those units; they are, in turn, the director's legal responsibility. Problems arise in the agency relationships when actions taken by the agent or the information available to the agent cannot be used as the basis for a contract of incentives, that is, when a contract is incomplete (Klein, 1983; Bensanko, 2006).

On the basis of Ackerlof's (1970) assumptions and on Klann (2009) research, we can state that a direct consequence of information asymmetry is that, in a certain transaction, the party who owns more information derives greater benefits from the other. Thus information asymmetry occurs largely when there are differences in the level of information between two or more subjects of a contract (Cardoso et al., 2007; Pires, 2008). In the employee-employer relationship, for instance, there is information asymmetry when some information is available to the employee but it is not to the employer (Penno, 1984). It occurs because the employee intends to use classified information to enable self-satisfaction even when it means causing losses to the employer. In this context, agency theory is intensely related to it since it predicts interest conflicts between the principal and the agent, which are mostly promoted by the existence of information asymmetry between them (Stiglitz, 2000; Andrade and Rossetti, 2006).

Accordingly, the establishment of suitable rules and procedures under the directors' point of view to enable managers to work on budget planning is a means of enabling a secure flux of information and of making the budgeting process more transparent (Bruni and Gomes, 2010). The action of information asymmetry shows itself in two ways: adverse selection, which occurs *ex ante* the contract, and moral hazard, which occurs after the contract (Santos et al., 2007). Regarding budgeting, among some of its limitations, it can suffer from adverse selection and moral hazard since before budget closure information can be low-qualified and agents' behavior can change after it respectively (Covaleski et al., 2003). Figure 1 illustrates when these two effects show up in the trade relation as well as in the budgeting process:

Adverse selection

Within the problem of information asymmetry in trade, adverse selection appears while actors (principal-agent) have not been constituted in the trade relation yet, generally a process of purchasing and selling a product
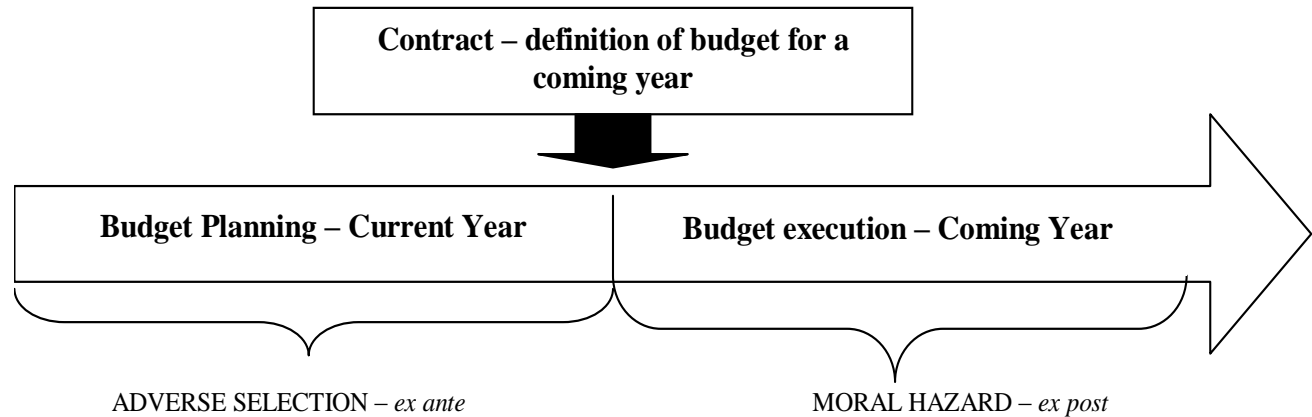
Figure 1. Occurrence of information asymmetry in budgeting.
Source: Adapted from Santos, 2007 p. 467.

or service. Martinez (1998, 5) says:

Adverse selection emerges when information is not equally allocated between principal and agent and, as a consequence, information asymmetry emerges. In other words, there is an amount of different information between agent and principal. The principal is incapable of determining whether the agent's actions are great or not. Actually in the context of adverse selection the problem of hidden information emerges.

Therefore an adverse selection consists of obtaining information which drives the other actor's satisfaction to decisions, that is, biased information turned to the perspective of maximizing results just for one party (Varian, 2006). In this sense both subjects (principal and agent) have information about the process they are part of (budgeting) but they keep it far from those who may reduce their possibilities of benefits. The agent also has classified information about his business and he keeps it hidden so that he can enjoy what his position provides him, inclusive to increase or not financial gains. Hence adverse selection can be found in the relationship between shareholders and directors, in which the first ones do not know some information about the budgets since directors have classified information. Accordingly, this phenomenon may occur in the relationship between directors and managers, for instance, the values to be negotiated as goals for the coming year's budget.

Thus managers can transfer information to directors that causes them to agree with joint decisions which may favor managers over directors. If there are not mechanisms for publicizing real information, then in extreme cases there is a hazard of eliminating market (confidence) to budget because there will not be any reliability on that information (Akerlof, 1970). Directors may not use budget due to its lack of truth in information

presented in proposals by managers, which would cause bad effects in the short-term business planning.

Besides, the same way government regulation in the market does not guarantee reliability nor perfect absence of faults in delivering fuel and in carrying out a surgery, standardizing budgeting procedures in a company does not guarantee that the budget will be perfectly elaborated and executed with real information (Pindyck, 2002; Mankiw, 2005). In this case, moral hazard is eminent because individual's behavior after establishment of the contract (starting point of budget execution) may be amended, namely, as managers know the norms of the contract, they will portray different behavior in order to maximize self-interest. This aspect is worsened when the budget and contracted goals are already of low-quality information because this way the manager will have greater freedom to deal with a budget with slack so that he can perform his duties and maximize his own benefits.

Moral hazard

"Moral hazard has its origin in the impossibility of predicting which opportunistic actions agents would take after their hiring, that is, it appears after the contract has been signed by both parties" (Nascimento and Reginato, 2009, 279). The problem of moral hazard is that there is a tendency of changing behavior from one of the parties of a contract after it has been signed, causing substantial damage to the other party (Mcconnell, 2001; Pindyck, 2002). For example, after concretizing budget planning for the following year, the agent commits himself to fulfilling what was planned. Part of (or all) the manager's compensation goals are related to the efficiency in complying with the budget and therefore both parties are very interested in achieving the results. However, the director cannot entirely predict the opportunistic action

that the manager can take to guarantee achievement of goals, using information asymmetry for both of them.

Figure 1 shows that moral hazard, in the budgeting process, occurs in a time perspective different from adverse selection. While adverse selection phenomenon happens before the budget planning deadline, moral hazard phenomenon occurs after the budget planning deadline; it may or may not coincide with the early implementation of the budget. Moreover, information asymmetry also acts during the implementation of the budget, especially in the relationship between directors and managers because the agent will pursue maximization of his interests and the principal will try to control the agent's actions more effectively, in this case, with the aid of the budget.

Thus, moral hazard occurs when directors are not able to observe the agent's actions after the establishment of the contract, hence there is a hidden action, in other words, the agent's action cannot be verified (Bronwing and Zupan, 2002; Santos et al., 2007). Information asymmetry comes from this system since the director is not able to perfectly control the manager's actions, whom in his turn also maintains information under his control so that he can use it for self benefit. On the other hand, the agent does not know the principal's actions perfectly either, strengthening the situation of information asymmetry between the actors in this process. Therefore, the principal can do something to test the agent, for instance, by creating a monitoring system without the agent's awareness of it.

Information asymmetry and participative budgeting

The participative budgeting process, in which the manager negotiates with the director, allows the first one to present a budget with slack, since he will use it to bargain results and ease achievement of the goals which will be set (Anthony and Govindarajan, 2006; Dechow and Shakespeare, 2009). In the participative budgeting process, a manager's situation is privileged for providing him a condition of generating opportunistic behavior, taking advantage of the information he has to bargain favorable results to his own interests, especially when the goals negotiated in the budgeting are to be the basis for variable compensation. However, just the manager's participation in the budgeting process does not explain slack, because it is necessary that this slack is not known by the director (asymmetry) so that the manager can establish a reserve and protect himself from an unsatisfactory performance evaluation, prioritizing his own interests over the ones of the organization (Libby, 2003; Dechow and Shakespeare, 2009; Junqueira et al., 2010).

In this perspective, Fischer et al. (2002) developed an experimental study with two groups of students in which the authors used two mechanisms: a) the use of budgets to allocate scarce resources; b) the use of budgets for performance evaluation. They posited that such competition not only would reduce the amounts subordinates would earn as a result of budget slack, but would also increase subordinates' effort and task performance, in contrast to compensation methods; all the results are the consequence of the presence or absence of information asymmetry, which is the independent variable of their research. On the other hand, D'avila and Wouters (2005) investigated budget management as a determinant to explain budget slack. Budget slack plays an important role in operating budgets in companies. Although this theory has negative results, as well as positive elements related to its presence, empirical literature has seen it as dysfunctional to organizations.

Chia (1995) researched the interaction effect of information asymmetry and decentralization on subunit managers' level of job satisfaction. He used a questionnaire as a technique for collecting data, which was submitted to 42 managers in Singapore. The results showed that a higher level of information asymmetry has a close relation to a higher level of job satisfaction for those managers who work under high decentralization conditions. Chong and Eggleton (2007) analyzed the effects of information asymmetry and organizational commitment on the relation between the level of confidence on compensation schemes based on incentives and management performance of 109 managers from a transversal section of Australian manufacturing companies. The results show evidence of greater management performance for managers with low organizational commitment and great dependence on compensation schemes based on incentives in high information asymmetry conditions.

When information asymmetry is used opportunely by managers in the company they can use it to hide any information, from behavioral evaluation results to low sales, not undertaking to justify such negative variations. Hence, we can relate the presence of information asymmetry to the subunit managers' low performance. They will not feel motivated to develop alternative methods of improving results because their inefficiencies can be covered by information asymmetry (Dechow and Shakespeare, 2009; Chong and Eggleton, 2007; Dunk, 1993).

METHODOLOGY

In order to achieve our objective in this research, we carried out an experimental study. For this experiment we split participants into two groups: a control group, comprised of people who have not been manipulated by the independent variable; and an experimental group, comprised of people who have been manipulated by the independent variable. The manipulation of
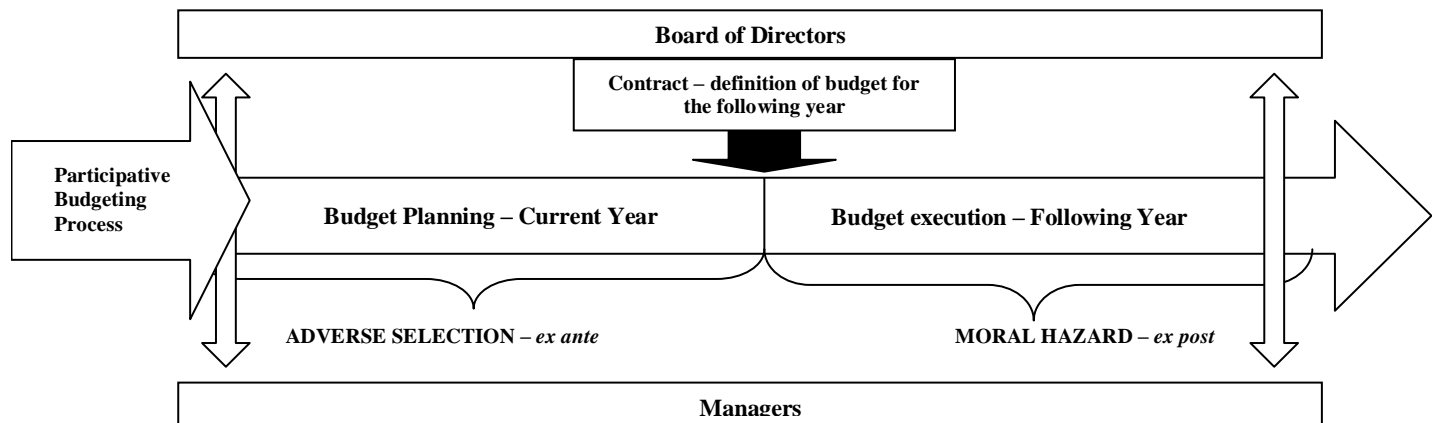
Figure 2. Research model.
Source: Designed by the authors, 2011.

variable incidence between the groups, maintaining other variables under control, allowed us to measure and to compare results, which constitute the main advantage of this method (Cooper and Schindler, 2003; Cozby, 2009).

Accordingly, this research shows that the presence of information asymmetry explains the existence of budget slack built by managers in the context of participative budgeting, which is a reference for results-based compensation; all of this was supported by Jensen and Meckling's (1976) ideas about agency theory. Information asymmetry can be found in the relationship between the unit manager and director, linked to the interest conflict between the parties and to the budgeting process, affording building of slack. In this proposed model of research (Figure 2), the relationship director/manager follows the agency theory approach, which proposes the interest conflict. Participative budgeting occurs between them; through it they set goals and resource allocation for the following year. During negotiations (*ex ante*) adverse selection works to provide information with slack from managers to directors. After establishing the budget and while carrying it out the next year, moral hazard (*ex post*) works to provide information with slack in order to feed the budget, maintaining results in accordance with the estimated goals, that is, managers' behavior is modified according to the results achieved at that time.

In this research the independent variable is information asymmetry, from which its incidence was manipulated in the questionnaires applied to the experimental groups. Both groups were subjected to situations based on real facts in which the unit manager (agent) and director (principal) made decisions. The only difference between the situations of the groups was that, in the experimental one information asymmetry was eliminated. Thus, we tried to identify the variations among the options of the experimental group participants in the dependent variable, compare them to the results of the controlling group and also collect such variations about this process among directors and managers.

The population comprised of graduate alumni of the MBA in Administration, Finance and Comptrollership. We chose this population for two reasons: firstly because in these faculties the number of people who are in the labor market and hold managerial and directorship positions is higher than the ones in under-graduate courses and graduate academic programs; the second reason is supported by the results of prior researches, such as Lima and Raimundo (2010). Moreover, Liyanarachchi and Milne's (2005) and Elliot et al. (2007) research empirically legitimate the studies carried

out on the basis of collecting data with alumni (undergraduate and graduate). The research sample of this research comprised of 233 questionnaires answered completely, 112 in the controlling group and 121 in the experimental one.

The dependent variable – budget slack – is the difference between estimated costs and real value necessary to satisfy foreseen needs, and the slack represents the excess of requested resources to carry out a task. The higher the estimated value is in relation to the real value, the higher budget slack will be. The independent variable – information asymmetry – was eliminated in the experimental group. Henceforth, we gauged the effect of this elimination on the dependent variable supported by participants' answers under this new condition – absence of information asymmetry (Merchant, 1985; Moene, 1986; Waller, 1988; Dunk and Perera, 1997; Lima, 2008). Four hypothetical situations, based on real ones, were created from an operational context where participants played the roles of directors (questions 1 and 3) and of managers (questions 2 and 4), whose decisions were demands in the operational context proposed in this research. Based on this structure and on the studies approached here, it was possible to establish eight researching hypotheses.

We used the questionnaire as a tool for collecting data; they comprised of multiple-choice questions and were split as follows: the experimental questions are presented; the statements on the *Likert* scale to gauge the sample's knowledge about budgets; and data about the respondents' profile are established. Questionnaires were randomly delivered to students since this is a main feature for the experiment success, above all for splitting the groups into controlling and experimental (Field, 2009). Lastly it is about an independent sample (people from the controlling group will not afterwards answer the questionnaire of the experimental group, neither *vice-versa*), so we tried to maintain equal numbers of participants in the groups in relation to the number of question-naires delivered in this sample, obeying the random delivery.

In order to validate the questionnaires, we previously tested them with a group of 22 Accountancy *lato-sensu* graduate students from one of the Higher Education Institutions chosen. We wrote down their comments and suggestions and, where it was possible, we inserted them in the questionnaire, that is, since they did not hinder the main objective of this research. We call attention to the fact that the students who participated in this previous test did not comprise the sample of this research so that we could avoid bias of previous knowledge of the questionnaire. To measure the effect of

Table 1. Sample experience.

Role	Experience (years)	Number of subordinate managers
Director	10.7	3
Manager	6.9	0

Source: Research data, 2011.

information asymmetry on budget slack, we compared the averages (Test *t*) between the questionnaires of the controlling group and experimental one. The independent test *t* is used in situations where there are two experimental conditions and different participants in each one (Vieira, 2006; Field, 2009). The analysis, compilation and tabulation of all data from the questionnaires were conducted by using specific software, in our case, the SPSS (Statistical Package for Social Sciences), version 15 or higher, and freeware.

To work with the data provided, we used the factorial analysis. Based on the data from the questionnaire and taking into consideration the number of questions which guides the theme, we decided to use the factorial analysis because, according to Bezerra (2007), "it is a statistical technique which tries, from evaluation of a group of variables, to identify the ordinary dimensions of variability that exist in a group of phenomena". As a requirement, Spearman's test was applied in order to check out the level of correlation among the 10 alternatives available in this section. The significance index (Sig.) was calculated and is relevant in case of results under 0.005 (Field, 2009).

PRESENTATION AND INTERPRETATION OF RESULTS

Participants' characteristics

We collected a total of 254 questionnaires, but only 233 were duly availed to this research. The others were discarded for presenting dubious answers, unanswered, lack of knowledge on budgeting or for filling in incorrectly. After classifying the sample data, we identified 112 questionnaires as the controlling group, from which 51 had a profile of director and 61 of manager. Regarding the experimental group, 57 had a profile of director and 64 of manager, a total of 121 questionnaires. Under exclusive look of roles, this research counts on 108 questionnaires of professionals who have managers (more than 1) as subordinates, holding the position of director. Furthermore, it counts 125 questionnaires answered by professionals who hold the position of managers (administrative, accounting and operational ones) experienced in business budgeting.

In the sample, the Accountancy major prevails both for the role of director (23% of total) and for the role of manager (30% of total). Secondly, the Administration major consists of 15% of directors and 18% of managers. The other majors altogether totaled 15%. This number lived up to our expectation because the focus of these majors is on administrative and controlling management.

This is a positive aspect to our research since we assume that most of them have already studied the basic contents of a business budget. Finally, we show the years of professional experience of this sample, as we can see on Table 1.

This sample shows that directors have an average experience of 10.7 years and managers have 6.9 years of professional experience. This difference also lived up to another expectation of ours that more important positions are held by more experienced people in the field. The directors also have an average of 03 subordinate managers, and this is a fundamental prerequisite for classifying this group. Besides, this is a natural consequence in the market that assigns greater responsibility to more experienced professionals.

Participants' level of knowledge on budgeting

Block II affirms on the Likert scale which aims at measuring the involvement of the respondent with the budget. The data were subjected to and approved in the test of normality and in the factorial analysis which identifies the reduced factors of available variables in this research. The first result of the factorial analysis shows the creation of three groups of factors with accumulated capacity of 61.25% of explanation. It evidences that the items available in the generated factors have a close relation between data in this sample. The KMO presented the result 0.763 as an acceptable one, indicating that the identification of factors is adequate for the level of the test carried out. We also carried out Bartlett's sphericity test to check the correlation significance between the scale items. The results (chi-square 640; 470 and significance of 0.000) prove that the scale factorial analysis can be considered appropriate, suggesting the existence of significant relations between the scale items. As predicted in the literature, only the Factor 1 was approved in the test, obtaining 0.796 as a result, so it is superior to the reference rate 0.700 (Hair et al., 2009).

Accordingly, the four items pointed out by this factor are taken into consideration for gauging respondents' involvement with the budget since they have greater correlation of results. It means that respondents chose similar answers in the questionnaire to the options q1 (Business budget is used in the company I work for), q2 (Among the activities related to my position there are

Table 2. Comparing averages of the sample H1 and H3.

Item	Group	Hypothesis (R$)	Average of the sample (R$)	Slack of the sample (R$)	%
H1	Controlling Director	200,000.00	212,254.90	12,254.90	5.77
H3	Experimental Director	200,000.00	204,122.81	4,122.81	2.02

Source: Data from this research, 2011.

Table 3. Comparing averages of the sample H2 and H4.

Item	Group	Hypothesis (R$)	Average of the sample (R$)	Slack of the sample (R$)	%
H2	Controlling Manager	40,000.00	44,139.34	4,139.34	9.30
H4	Experimental Manager	40,000.00	39,921.88	-78.13	-0.20

Source: Data from this research, 2011.

activities related to annual budget), q3 (I develop activities related to budget elaboration and daily monitoring) and q5 (I work for a company that improved its financial performance by using business budget), which demonstrate involvement with business budgeting. Thus, we may infer that this sample has significant relation to the theme and so the answers we got in the experiment are reliable, after all, we got them from professionals able to contribute to this research. If we add this information and the average time of professional experience together, we can confirm the quality of this sample, giving reliability to the collected opinions and, as a consequence, to the results disposed earlier.

Analysis of information asymmetry on budget slack

We emphasize that the data from this section were also subjected to the test of normality. The test carried out in the SPSS shows that the data was validated and approved, namely, this sample has a normal distribution. Afterwardst we conducted the statistical analysis with test *t*.

In Table 2 we present the results collected regarding Question 1 of the questionnaire. We compare the averages (test *t*) between the controlling and experimental groups as foreseen in H1 and H3. Concerning the information collected in H1, we observe that the general average of the respondents (R$ 212,254.90) demonstrates that the director decided to alter the budget value building the total slack of R$ 12,254.90, namely, 5.77% in relation to the original value. Therewith, he maximized his profit supported by asymmetry since he altered it based on classified information (information asymmetry).

From this result, it was possible to achieve the first part of specific objective 1 (1.1) through the H1 test. Confirmation of H1 makes it feasible to identify that

adverse selection favors the principal (director) in building budget slack during elaboration of participative budgeting because he decided to alter the budget value ($\mu_{Orç}$), building budget slack even when it was not necessary to the company aiming at maximizing his own interest. Yet based on Table 2, corresponding to H3, we can see the result of this same Question 1 that was applied to the experimental group, manipulating the independent variable – information asymmetry.

Regarding the information collected from H3, we can observe that the general average of the correspondents (R$ 204,122.81) demonstrates that the director decided to alter the budget value, building the total slack of R$ 4,122.81, that is, 2.02% in relation to the original value. This result shows that even without information asymmetry the director causes alteration in the budget value to maximize his own interest through the request of resources over real necessity of the budget. So, the value found in the experimental group – R$ 204,122.81 ($\mu_{Orç}$) – is different from zero, in other words, H3 was rejected. However, we can also observe on Table 2 that the elimination of information asymmetry in the budgeting context substantially decreased slack (from 5.77 to 2.02%). Even without total elimination of slack, this finding clearly demonstrates the influence of information asymmetry on budget slack. From the result gauged it was possible to achieve the first part of specific objective 3 (3.1) and prove that reduction of information asymmetry causes the increasing of directors' efforts in setting budget goals closer to reality, since they are evaluated through the results of this budget. After all, slack was reduced, representing a decrease of 3.75%.

In Table 3 we portray the results collected from Question 2 of the questionnaire, asked to managers. The averages (test t) are compared between the controlling and experimental groups as foreseen in H2 and H4. Concerning the information collected in H2, we observe that the general average of the respondents (R$

44,139.34) shows that the manager decided to alter the budget value, building slack into the total of R$ 4,139.34, that is, 9.38% in relation to the original value. From this he maximized his profit supported by asymmetry since he altered it based on classified information (information asymmetry) as it was proposed by the question.

From this result, it was possible to achieve the second stage of specific objective 1 (1.2) through the test of H2. Confirmation of H2 makes it feasible to identify that adverse selection favors the manager (agent) in building budget slack during the elaboration of participative budgeting because he decided to alter the budget value ($\mu_{Or\varsigma}$), which builds budget slack even when it is not really necessary to the company, aiming at maximizing his own interest.

Yet based on Table 3, corresponding to H4, we have the result of this same Question 2, which was applied to the experimental group with manipulation of the independent variable – information asymmetry. Regarding the information collected from H4, we can see that the general average of the respondents (R$ 39,921.88) demonstrates that the manager decided to alter budget value, eliminating slack with proposals of lower values in the budget. Therewith, the general average presents a negative slack total of R$ 78.13, that is, -2% in relation to the original value. This result shows that without information asymmetry the manager tries to eliminate budget slack without using adverse selection and may require resources when necessary.

Thus, the value we found in the experimental group – R$39,921.88 ($\mu_{Or\varsigma}$) – is different and lower in relation to the budget. So, H4 was confirmed. Moreover, it enables us to infer that the elimination of information asymmetry has an effect on budget slack, affording its elimination. The second part of specific objective 3 (3.2) was completed and it was proved that reduction of information asymmetry increases managers' efforts in setting budget goals closer to reality, since they are evaluated through the results presented in the budget.

Accordingly, it is possible to identify that an adverse selection favors the agent (manager) in building budget slack during the execution of participative budgeting because he decided to alter the budget value ($\mu_{Or\varsigma}$), building budget slack even when it was not necessary to the company, aiming at maximizing his own interest. However, the result demonstrates that managers, in a public information context during the budget elaboration, may not propose alterations in the budget, building budget slack to maximize their own interest. They may even set lower goals in relation to the original budget as a personal challenge in the context of performance evaluation based on budget results.

Furthermore, we can observe in Table 3 that the elimination of information asymmetry in the budget substantially reduced slack (from 9.38 to -0.20%). In this case, budget slack was completely eliminated among managers, confirming the strong influence of information asymmetry on budget slack given the amplitude of slack decreasing in the experimental context. Finally, we emphasize that there is no difference between managers' and directors' behavior in adverse selection, in other words, they choose information that facilitates self-interest accomplishment. Regardless of position, we noticed that they both used asymmetry to favor themselves and reduce slack when there is no information asymmetry during the budget elaboration.

In Table 4, concerning the information collected from H5, we observe that the general average of the respondents (R$ 300,784.31) demonstrates that the director decided to alter the budget value, building the total slack of R$ 10,784.31, that is, 3.59% in relation to the original value. Therewith he maximized his own profit supported by information asymmetry, since he altered it based on classified information (information asymmetry) even after the establishment of the budget, revealing the inherent moral hazard of this situation.

Therefore, the average found (R$ 300,784.31) confirms H5. With this result we achieved the first part of specific objective 2 (2.1) since we can see that the incidence of moral hazard may influence directors' actions, enabling building of budget slack during the elaboration of participative budgeting because they decided to alter the budget value ($\mu_{Or\varsigma}$), building budget slack even when it was not necessary aiming at maximizing their own interest. As proposed in this research, this same Question 3 was applied to the experimental group with manipulation of independent variable – information asymmetry – which corresponds to H7.

Regarding the information collected from H7, we observe that the general average of the respondents (R$ 290,087.72) demonstrates that the director decided to alter the budget value, building the total slack of R$ 87.81, that is, 0.03% in relation to the original value. This result shows that even without information asymmetry the director altered the budget value to maximize his own interest by requesting resources over the real needs estimated in the budget. So, the value found in the experimental group – R$ 204,122.81 ($\mu_{Or\varsigma}$)– is different from zero, that is, H7 was rejected. However, we also see on Table 4 that the elimination of budget slack in the budgeting context substantially decreased slack (from 3.59% to 0.03%). Even without total elimination of slack, this finding clearly demonstrates the influence of information asymmetry on budget slack given the amplitude of slack decreasing in the experimental context.

After carrying out H7 test, it was possible to achieve the third part of specific objective 3(3.3), proving that reduction of information asymmetry leads to increasing of directors' efforts in proposing actions closer to reality (a little difference of 0.03% in relation to the real value in the budget), since they are evaluated through the results

Table 4. Comparing the averages of the sample H5 and H7.

Item	Group	Hypothesis (R$)	Average of sample (R$)	Slack of sample (R$)	%
H5	Controlling Director	290,000.00	300,784.31	10,784.31	3.59
H7	Experimental Director	290,000.00	290,087.72	87.72	0.03

Source: Data from this research, 2011.

Table 5. Comparing averages of the sample H6 and H8.

Item	Group	Hypothesis (R$)	Average of the sample (R$)	Slack of the sample (R$)	%
H2	Controlling Manager	30,000.00	20,819.67	- 9,180.33	-44.09
H4	Experimental Manager	30,000.00	21,875.00	- 8,125.00	-37.14

Source: Data from this research, 2011.

presented in this budget. It is possible to infer that the absence of information asymmetry contributes to increase quality in the budget since this latter will present information really closer to reality.

In Table 5 we present the results collected from question 4 of the questionnaire applied to managers. We compared the averages (test t) between the controlling and experimental groups as foreseen in H6 and H8. Concerning the information collected from H6, we observe that the general average of the respondents (R$20,819.67) shows that managers decided to recognize in the task the least value in current year then to start the following year with the total budget slack of R$ 9,180.33, that is, -44.09% in relation to the original value. Therewith he maximized his own profit supported by asymmetry since he identified the then current value as strategy to guarantee leftover of resources to start the following year.

Ergo the second part of specific objective 2 (2.2) was achieved, proving that the incidence of moral hazard influences managers' actions in building budget slack during the execution of participative budgeting. So, we notice that moral hazard favors the agent (manager) in building budget slack during the execution of participative budgeting because he decided to inform a lower value to build resource slack for the following year so that he could maximize his own interest. Therefore, the average achieved (R$ 20,819.67) confirmed H6. As proposed in this research, this same Question 4 was applied to the experimental group by manipulating the independent variable – information asymmetry – which corresponds to H8.

Concerning the information collected from H8, we observe that the general average of the respondents (R$21,875.00) demonstrates that the manager decided to present part of the credit available in the then current year, having R$ 8,125.00 (37.14%) as budget slack to begin the following year with credit. So, by manipulating

information asymmetry and eliminating it, the value achieved in the experimental group – R$ 21,873.00 ($\mu_{Orç}$) is different from the amount of credit received, which should be included in the current year then. Thus, H8 was rejected.

The result shows that even in a context of public information managers tend to propose alterations, building budget slack in order to maximize their own interest. In this case, by presenting just part of credit in the current year then and only presenting the other part of it in the following year so that slack is maintained in the following budget. Therewith, we observe on Table 5 that the elimination of information asymmetry in the budget reduced slack (from -44.09 to -37.14%). Thus, even not totally eliminating slack in this experimental situation, this finding clearly shows the influence of information asymmetry on reducing budget slack.

Finally, it was possible to achieve the fourth part of specific objective 3 (3.4), attesting that reduction of information asymmetry increases managers' efforts in proposing actions closer to reality since they are evaluated through the results presented in this budget. At last, we emphasize that there is no difference between managers' and directors' behavior in adverse selection, that is, when they choose information which facilitates their own interest. Regardless of position, we notice that both of them use asymmetry in order to favor themselves and reduce slack when there is no information asymmetry during the budget elaboration.

The analysis of specific objective 1 in this study is supported by H1 and H2, both of them confirmed by the collected data. From it, we could achieve the first (1.1) and second (1.2) parts of specific objective 1, which is to check out how adverse selection is able to favor the principal (director) and the agent (manager) in building budget slack when elaborating the participative budgeting. We can see that in both positions there was alteration of the budget value, building budget slack even

when it was not necessary so that they could maximize their own interest and guarantee easy access to the goals set from that value.

The analysis of specific objective 2 in this study is supported by H5 and H6, both of them confirmed by the collected data. From it, we could achieve the first (2.1) and second (2.2) parts of specific objective 2, which is to check out how the incidence of moral hazard can influence principals' (directors) and agents' (managers) actions in building budget slack during the execution of participative budgeting.

After the establishment of budget (*ex post*), we observe that in both positions there was alteration of the budget value, building budget slack to maximize their own interest. In other words, even after the definition of budget rules, users, availing themselves of information asymmetry, decided to get alterations in the budget and/or in its entries to guarantee easy access to the goals and then get the variable compensation.

The analysis of specific objective 3 is supported by H5, H6, H7 and H8; all of them corresponding to the experimental group, where manipulation of information asymmetry occurred. It was also possible to fully achieve specific objective 3 (3.1, 3.2, 3.3 and 3.4), which is to investigate whether reduction of information asymmetry increases directors' efforts in setting budget goals closer to reality, since they are evaluated through the results presented in the budget. Even after rejection of H3, H7 and H8, it was possible to achieve specific objective 3 because there was reduction of budget slack in the four proposed situations (manager *ex ante*, manager *ex post*, director *ex ante* and director *ex post*), revealing that reduction of information asymmetry played an important role in the sample decisions. This rejection involved above all the impossibility of complete elimination of budget slack just with the variable information asymmetry, demonstrating that other studies must be carried out in order to identify other variables which can contribute to this matter.

In this context, models of business budget are used by a superior to obtain information and then reduce uncertainty (Shields and Shields, 1998). However, in the presence of this phenomenon – slack – business budget usefulness is compromised, organizational resources are unduly allocated and investment profit is biased to the interest of a certain group, which cannot be the shareholders', increasing transaction risk of a company (Fisher et al., 2002).

Regarding participative budgeting during building of budget slack, researches show that managers find it less necessary to build slack into their budgets when their participation in the process is reduced (*Top-down*) since budgets may have little (or no) influence from them, so their task is only to pursue goals set by the Board of Directors (Murray, 1990; Davis et al., 2006) (Table 6). Results also contrast with other researches because this sample is comprised of professionals who constantly use participative budgeting in activities related to building of slack in the controlling group, namely, using information asymmetry. So, in the sample analyzed, reduction of participation in the budgeting is not a determiner for building of budget slack.

We clearly notice this correlation when the manipulation of the variable information asymmetry occurred in specific objective 3, where we tried to check out our hypotheses (H3, H4, H7 and H8) concerning elimination of asymmetry, which facilitates direct reduction of budget slack. Supported by the results of researches which are the bases of this approach (Ramaswami et al., 1997; Denison, 2009; Kim, 2006), this research attests this understanding since results from the experimental group presented reduced budget slack (in a group it reached zero) when dealing with a situation without information asymmetry. Thus, it is clear in this sample that, when faced with such risk of favorable performance, unit managers (and the director in this research) will make use of information asymmetry in order to manage data and information which may completely, or as close as possible, achieve their objectives, confirming findings such as Chong and Eggleton's (2007), Denison's (2009) and Dechow and Shakespeare's (2009).

We also emphasize that absence of information asymmetry did not cause budget slack elimination in all hypotheses. This finding matches approaches that confirm the complexity of this phenomenon such as Lukka's (1988), Young's (1985), Shields and Shields's (1998) and Davis et al. (2006) studies. Therefore, various studies have been carried out on different sides of budget slack supported by sociological and psychological approaches and especially aesthetical studies in this context. Some results have been achieved such as improvement in communication and setting of goals in compensation schemes, which are indicated as a way of eliminating slack (Yuen, 2004). Moreover, D'avila and Wouters's (2005) studies state that budget slack plays an important role in the operation of budgets in organizations. So budget slack needs to be further studied for being a phenomenon closely related to the human being, whom makes the decisions, and so it is complex.

Conclusion

For evaluating the effects of information asymmetry on budget slack, this study lines up with the attention many authors have given to the theme such as Onsi (1973), Chow et al. (1988), Dunk (1993), Dunk and Perera (1997), Libby (2003), Fisher et al. (2002) and Lima (2008). Budget slack occurs when an individual over-estimates expenses and costs and understates receipts in order to facilitate achievement of his own goals.

Table 6. Researching hypotheses.

H1 – Directors will choose the option which will maximize their profit supported by information asymmetry on decisions made before the budget (adverse selection)
H2 – Managers will choose the option which will maximize their profit supported by information asymmetry on decisions made before the budget (adverse selection)
H3 –With public information directors will not try to maximize their profit on decisions made before the budget (adverse selection).
H4 – With public information managers will not try to maximize their profit on decisions made before the budget (adverse selection).
H5 – Directors will change their behavior and will try to maximize their profit supported by information asymmetry on decisions even after budget establishment (moral hazard).
H6 – Managers will change their behavior and will try to maximize their profit supported by information asymmetry on decisions even after budget establishment (moral hazard).
H7 – With public information directors will not change their behavior and will maintain their decisions even after budget establishment, eliminating moral hazard.
H8 – With public information managers will not change their behavior and will maintain their decisions even after budget establishment, eliminating moral hazard

Source: Elaborated by the authors, 2011.

In a context of agency relation where agents and directors are the actors, the effects of slack can be harmful to companies and in a residual level to the shareholders as well. Through budget slack the individuals involved in this process provide budgets with information different from reality. By adding and/or subtracting values from true data to make the budget flexible in the results, which disloyally guide all information demonstrated according to their own interest.

In this research we aimed to respond to what the effects of information asymmetry on budget slack are in an organizational context where agents are compensated on the basis of budget results. The final result reveals that the influence of asymmetry on budget slack is substantial and causes an increase in slack. This finding was confirmed especially through comparing data in an experimental context (without asymmetry). Thus we observed a sharp decrease, and in some cases total elimination, of budget slack when there was no information asymmetry, corroborating Yuen's (2004) studies which argues in favor of disclosing information as a preponderant factor to eliminate budget slack.

Therewith, we state that information asymmetry is one of the factors which contribute to building budget slack and is manipulated by agents in order to have budgets presenting convenient results so they can be compensated on achieved results regardless of real losses caused to the principal. This study contributes to general research for confirming that the influence of information asymmetry on budget slack is substantial. Individuals' behavior clearly shows it in the experimental group regardless of position held, manager or director; groups notably with interest conflicts in organizations. Therewith, we contribute to Hopwood's (1973), Fisher et al. (2002) and Kren's (2003) studies which identified that just managers evaluated through budget were more susceptible to dysfunctional behavior building slack only to achieve the goals set in the budget. In this research we also noticed this behavior among directors, whom tried to negotiate budgets which give them expectations of higher profit.

It is possible to confirm that, faced with interest conflicts, information asymmetry between both of them and performance evaluation somehow (or totally) linked to budget, actors' behavior suffered alterations due to these factors, resulting in budget slack which residually disfavors shareholders. Therewith, we confirmed that in Brazil (sample) the results match Chow et al.'s (1998), Young's (1985), Kren's (2003), Douglas and Wier's (2005) and Lima's (2008) studies. In this context, the use of questions-problem with different groups permitted us to identify that slack is used so that each actor may have advantage over others because of conflicts and this aspect is increased by asymmetry, which enables the

existence of different information among the actors. Information asymmetry favors both sides when there are interest conflicts because both of them have access to classified information.

Direct reduction of budget slack was also noticed under adverse selection and moral hazard views, that is, in different stages of budgeting. Thus, agent or principal, if any actor has got classified information he will use it to build budget slack, raising up the budget value even when it is not necessary so that he can maximize his own interest. With these new aspects, this research aims at contributing to consolidate discussions on information asymmetry as a factor which triggers off budget slack in the attempt to explain and predict slack behavior in business budget.

Our limitations in this research were the sample and the hypothetical situations which participants were subjected to, but real situations, where several sentiments are present, may have different results. Furthermore, the field of approach was directed strictly to information asymmetry as well as focus on participative budgeting. We may also take into consideration that according to positive approach of research, we carried out this study based on a sample which represents part of a population, therefore more information may be intrinsic within all the population and not included in this sample.

For future researches, we suggest checking out whether directors will use asymmetry to bargain better results together with managers through access to information managers may not know then such as strategic goals. We also suggest broadening the study and evaluating other variables which can explain the existence of slack even without information asymmetry. Finally, it is possible to check out whether policies for investigating budget variables (*ex post*) may result in lower budget slack, since strict mangers tend to concern about uncovering asymmetry.

ACKNOWLEDGEMENT

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