The effects of environmental uncertainty and budgetary control effectiveness on propensity to create budgetary slack in public sector

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This study examines the relationship among environmental uncertainty, effectiveness of budgetary control and propensity to create budgetary slack in public organizations. For this purpose, the data collected from 460 public organizations' managers via questionnaire. Results of analyses show that negative and statistically significant relationship is found between environmental uncertainty and effectiveness of budgetary control and between effectiveness of budgetary control and propensity to create budgetary slack. However, environmental uncertainty has statistically significant and positive impact on propensity to create budgetary slack. It is also found that budgetary control has partial mediation effect on the relationship between environmental uncertainty and propensity to create budgetary slack.

Key Words: Budgetary slack, effectiveness of budgetary control, environmental uncertainty, public organization

INTRODUCTION

When the literature is examined, it is seen that many studies on organizational and behavioral factors affecting budgetary slack are carried out. In general, budgetary slack is seen as a serious impediment to use of organizational budget in an effective manner. However, there are also some researchers positing that budgetary slack could be beneficial for organizations (Bourgeois, 1981) and lack of budgetary slack could be harmful for the organization as much as high budgetary slack (Nohria and Gulati, 1997). Many studies in literature have focused on factors affecting the formation of budgetary slack. As an example to these studies and factors taken into consideration could be given as follows; organizational size (Merchant, 1981), information asymmetry (Onsi, 1973; Chow et al., 1988; Dunk, 1993; Dunk and Nouri, 1998; Douglas and Wier, 2000), ethic (Douglas and Wier, 2000), budgetary participation (Douglas and Wier, 2000; Dunk, 1993; Dunk and Nouri, 1998; Onsi, 1973), environmental uncertainty (Govindarajan, 1984, 1986; Kren, 2003), management control systems (Dunk, Yuen, 2004), national culture (Lau and Eggleton, 2004; 1993; Merchant, 1985a; Van der Stede, 2000; Dunk and Nouri, 1998), goal characteristics (Wu, 2005), organizational commitment (Nouri and Parker, 1996), organizational justice (Langevin and Mendoza, 2010; Little et al., 2002), performance evaluation (Dunk and Nouri, 1998; Fisher et al., 2002), religion (Sulaiman and Adnan, 2005; Adnan and Sulaiman, 2006). Onsi (1973) quotes from Cyert and March (1963) that the cost of the successful company tend to rise due to the presence of budgetary slack. However, he indicates that firms can find alternatives to reduce costs during the bad times. The amount of this reduction in costs is as a result of budgetary slack in the firm. Dunk (1993) stated that budgetary slack is also the problem of a conjuncture. According to Nohria and Gulati (1997), the main issue is what the optimum level of budgetary slack is. Kren (2003) signified that two processes including ex-ante and ex-post are effective in determining managers’ propensity to create budgetary slack. According to this approach, while environmental uncertainty and budgetary participation have the determining effect on...
managers’ propensity to create budgetary slack during the ex-ante process, control system has an impact during the ex-post process. Merchant (1985a) suggested that organizations’ budgeting system formation and application styles have an impact on managers’ propensity to create budgetary slack.

The studies on budgetary slack are generally conducted on private sector. Busch (2002) and Busch and Gustafsson (2002) examined the slack concept in public organizations in general terms. Busch (2002) touched upon the differences and similarities among organizational slack, budgetary slack and discretionary slack, and evaluated them in terms of public organizations. According to Busch (2002), as a result of increased productivity, efficiency and quality quest with reforms in public administration, it is required to evaluate new techniques, management information systems and organizational forms, and at this point, the terms of slack could be useful. Taking into account the differences between public and private sector in terms of management, it is necessary to examine factors affecting the propensity to create budgetary slack in public organizations. Busch and Gustafsson (2002), in their study investigating slack in public and private sector organizations, concluded that the amount of slack in public organizations is higher in comparison with private sector organizations. In addition they also indicate that management control system of public organization is not enough to reduce level of slack.

In this context, purposes of the current study is ordered as follow: 1) To examine the factors affecting the managers’ propensity to create budgetary slack in public organizations, 2) to investigate whether effectiveness of budgetary control has a mediation effect on relationship between environmental uncertainty and managers’ propensity to create budgetary slack, and 3) to provide input for strategies developed in order to reduce budgetary slack that is common in public organizations.

For the realization of the listed objectives, the data were collected through questionnaire from managers working in different public organizations. The relationship among environmental uncertainty, effectiveness of budgetary control and managers’ propensity to create budgetary slack is studied with the help of collected data.

The remainder of study is organized as follows: In second section, examining the literature, the theory and hypotheses are developed. The next section provides information about the research method of study. The following section presents the results of analyses and in last section, results and limitations of the study are discussed.

LITERATURE REVIEW AND THEORY DEVELOPMENT

Budgetary slack

Budgetary slack refers to the excess amount that is created in budget by budget managers by interfering to the budget formation process (Merchant, 1985a; Dunk, 1993). According to Kren (2003), budgetary slack is excess amount of optimal budget that is controlled by a manager to achieve his or her objectives. Young (1985) defines the budgetary slack as “the amount by which a subordinate underestimates his productive capability when given a chance to select a work standard against which his performance will be evaluated”. The main reason of managers’ propensity to create budgetary slack is to ensure that the budget can be easily attained (Wu, 2005). According to Nouri and Parker (1996), self-interests of the subordinates have decisive power on propensity to create budgetary slack, and they believe that it would be easier to attain budget by creating budgetary slack. Onsi (1973) indicated that budgetary slack is caused by the pressure and determination of performance criteria based on budget targets. Managers both protect themselves against unforeseen events and increase the probability of attaining budgetary targets by creating budgetary slack. According to Kren (2003) and Schiff and Lewin (1970), the most important indicators of existing slack in budget are exaggerated expenses, underestimated revenues and underestimated performance capacity.

In general, there is a common sight about that budgetary slack is unnecessary. At the root of this view, it lies that budgetary slack leads to distortion in the distribution of resources and waste of resource (Wu, 2005). Some researchers assert that lack of control causes the creation of budgetary slack (Govindarajan, 1986; Nouri, 1994). Nouri and Parker (1996) quoted from Waller (1988) that budgetary slack reduces the efficiency of budgeting in organizational planning and control. To protect company from budgetary slack, managers should be motivated to do their best for the organization and for this purpose, different incentives should be used (Wu, 2005). Managers see the budgetary slack as a measure for unexpected contingencies (Van der Stede, 2000; Onsi, 1973; Schiff and Lewin, 1970). According to Onsi (1973), budgetary slack can be used in a beneficial manner to the organization.

Because there is no generally commercial income in public organizations, Busch (2002) described budgetary slack as “a conscious overestimate of the costs ex ante”. The focal point of our study is managers’ propensity to create budgetary slack in public organizations, so that the current study is based on the Busch’s definition of budgetary slack.

The effectiveness of budgetary control

In terms of management accounting literature, effective control is quite important to achieve organizational objectives. Merchant (1985b) argued that using accounting information systems is very important, because they provide information that will be effective in motivation,
control and decision-making. Halioui and Leclere (2008) indicated that it is necessary to increase rationality of organization management for effective budgetary control system by reducing slack and rewarding managers attaining the budgetary objectives successfully. Onsi (1973) asserted that, in evaluation of organization's budgetary system effectiveness, it is necessary to identify the nature of budgetary slack in organization, behavioral factors affecting the creation and usage of slack and motivational forces leading managers to the slack. Berland (2001) suggested that budgetary control is more effective in static environment. Shields and Young (1993) stressed that participatory budgetary control is a reflection of organization's need to understand their environment, and it is effective on performance increasing.

In literature controversial findings have been obtained about the impact level of budgetary control on organizational performance. Yücel and Gunluk (2007) found that performance is negatively affected in an environment applied rigid budgetary control. However, Callahan and Waymire (2007) reported that tight budgetary control may not have an impact on performance of the firm. Chenhall (2003) and Otley (1978) asserted that when environmental uncertainty is high, budgetary control is not sufficient by itself.

In literature, there are some researches investigating the effect of budgetary control on budgetary slack creation significantly affecting the level of organizational performance. Some researchers are united around that slack is a result of lack of control (Govindarajan, 1986; Nouri, 1994). Van der Stede (2000) reported that the increase on tightness of budgetary control decreases budgetary slack. Kren (1997) suggested that budgetary slack can be reduced though information that is obtained from control system about performance capacity of managers, and formal control tools negatively affect the managers' perceptions about superiors' ability to detect slack. In parallel with Kren (1997), Lau (1999) asserted that control system gives more information to superiors and it increases top managers' ability to detect slack.

According to this approach, if managers realize the ability of superiors to detect budgetary slack, they would have fewer propensities to create budgetary slack. Kren (2003) found that control system has less impact on slack creation when the propensity to create budgetary slack is low.

Effectiveness of budgetary control affects budgetary slack creation in two ways.

First, because of the effectiveness of budgetary control, managers will be less prone to create budgetary slack by the reason of concern about the detection of slack by superiors. Second, thanks to effective budgetary control will increase the superiors' ability to detect slack and budgetary slack creation will reduce. Because the factors affecting the propensity to create budgetary slack are examined, the study focused on first effect. In summary, more effective budgetary control system, the less propensity of managers to create budgetary slack.

**Environmental uncertainty**

Environmental uncertainty refers to change and variability in the external environment of organization (Kren, 2003). Andrews (2008) defines the environmental uncertainty as a "product of managers’ perceptions of the combined complexity, instability, and unpredictability in the organizational environment". Ferris (1977) indicated that uncertainty is not only related to the physical environment but also individuals’ knowledge and perception of environment. Otley (1994) emphasized that empowerment of the subordinates is necessary to cope with uncertainty. Even though organizations need flexibility to be adapted to unstable conditions, environmental uncertainty may require more vertical control in organizations (Manolis et al., 1997)

Chenhall (2003) asserted that reliance on formal controls and importance attached to the traditional budget, are more in an organizations operating in an environment with high uncertainty. Govindarajan (1984) indicated that budgetary participation will provide more useful results when environmental uncertainty is high. However, when routine decisions are taken and uncertainty is low, budgetary participation will lead to the waste of time. Govindarajan (1986) demonstrates that environmental uncertainty is effective on budgetary slack.

Kren (2003) stated that environmental uncertainty has a direct and positive impact on propensity to create budgetary slack and higher environmental uncertainty leads to more propensities to create budgetary slack.

When the literature is reviewed, it is seen that researches found controversial results related to environmental uncertainty. Ezzamel (1990) asserted that there is a positive correlation between emphasis on budgets to evaluation and high environmental uncertainty. Dunk and Lyons (1997) argued that specific environmental factors affect the relationship between participative budgetary control process and departmental performance of public organizations. Merchant (1981) indicated that budgeting can be applied in different ways in different firms and some of these variation can be explained by investigating the effects of environmental uncertainty. Hassel and Cunningham (1993, 1996) found that the effectiveness of accounting controls in the budget process vary between the domestic and foreign units of multidimensional company, because of the differences in their environmental characteristics.

All these relations are hypothesized as follows and research model presented in Figure 1.

H1: Environmental uncertainty has positive effect on the managers’ propensity to create budgetary slack.

H2: Environmental uncertainty has negative effect on the effectiveness of budgetary control.

H3: The effectiveness of budgetary control has negative
effect on the managers’ propensity to create budgetary slack.

H₄: The effectiveness of budgetary control has mediation effect on the relationship between environmental uncertainty and managers’ propensity to create budgetary slack.

RESEARCH METHOD

The sample of this study is the managers working in public organizations in Turkey. Likert-type scale is used in questionnaire formed to collect data and the data is analyzed by using SPSS statistical analysis program.

Measurement

The scales are generally adapted from the scales whose validity and reliability are proved by using in various studies in literature. To measure managers’ propensity to create budgetary slack in public organizations, scale is adapted from Onsi (1973) budgetary slack attitude scale. To measure environmental uncertainty, we adopted two scales from Sia et al. (2004) and developed one scale by ourselves. To measure effectiveness of budgetary control, new scales are developed. The validity and the reliability of these new scales are proved by the results of this study.

The questionnaire is firstly applied to 50 managers and pre-tested. In line with the pre-test results, the questionnaire is finalized. The questionnaire is applied to the 615 managers in public organizations and 460 of them were analyzed.

ANALYSES AND RESULTS

Factor analysis revealed the structure with three-factors. These factors explain 74.350% of total variance. This rate is over the acceptable lower limit (0.60) for the social sciences (Nakip, 2003). Kaiser-Meyer-Olkin (0.823) and Barlett test results (p<0.00) show that analysis results are statistically significant (Mitchell, 1994). Cronbach α coefficient was used to measure reliability. According to this, cronbach α coefficients are as follows: Propensity to create slack 0.780; environmental uncertainty 0.758 and the effectiveness of budgetary control 0.935. All cronbach α coefficients are higher than 0.60 of acceptable lower limit (Nunnally, 1978; Malhotra, 1993). Factor loadings and cronbach α values for variables are presented in Table 1.

To examine the relationship between variables, correlation analysis is applied. The results of correlation analysis pointed out that there is a statistically significant relationship among environmental uncertainty, effectiveness of budgetary control and propensity to create budgetary slack at the level of 0.01. There is a statistically significant and positive relationship between environmental uncertainty and propensity to create budgetary slack. However statistically significant and negative relationships are drawn attention between the effectiveness of budgetary control and environmental uncertainty and between the effectiveness of budgetary control and propensity to create budgetary slack. Mean, standard deviation and Pearson correlation values related to variables are presented in Table 2.

Regression analyses

A series of regression analyses are conducted to investigate the relationship among environmental uncertainty, effectiveness of budgetary control and managers’ propensity to create budgetary slack. In first and second regression analyses, the separate effect of environmental uncertainty and effectiveness of budgetary control on propensity to create budgetary slack is examined. In third regression analysis, the joint effect of environmental uncertainty and the effectiveness of budgetary control on the propensity to create budgetary slack is examined. In forth and last regression analysis, the effect of environmental uncertainty on the effectiveness of budgetary control is examined. The results of analyses are presented in Table 3 and Table 4.

The results of the regression analyses investigating the relationship between environmental uncertainty, effectiveness of budgetary control and propensity to create budgetary slack, revealed that all three regression models are statistically significant (F:30,423, p<0.000; F:31,955, p<0.000; F: 27,400; p<0.000). The results are obtained in parallel with predicted. The environmental uncertainty (β=0.250; p<0.000) positively and significantly affects the managers’ propensity to create budgetary slack. However, the effectiveness of budgetary control (β=-0.255; p<0.000) has negative and statistically significant impact on managers’ propensity to create budgetary slack. As a result, the more environmental uncertainty
Table 1. Factor loadings.

| Factors and scales                                    | Factor 1 | Factor 2 | Factor 3 |
|-------------------------------------------------------|----------|----------|----------|
| PBC: Effectiveness of budgetary control (Crombach α: 0.935) |          |          |          |
| PBC1                                                  | 0.927    |          |          |
| PBC2                                                  | 0.903    |          |          |
| PBC3                                                  | 0.898    |          |          |
| PBC4                                                  | 0.889    |          |          |
| PBC5                                                  | 0.785    |          |          |
| PCBS: Propensity to create budgetary slack (Crombach α: 0.780) |          | 0.853    |          |
| PCBS1                                                 |          |          |          |
| PCBS2                                                 |          | 0.805    |          |
| PCBS3                                                 |          | 0.801    |          |
| EU: Environmental uncertainty (Crombach α: 0.758)     |          | 0.905    |          |
| EU1                                                   |          |          |          |
| EU2                                                   |          | 0.862    |          |
| EU3                                                   |          | 0.689    |          |

Table 2. Mean, standard deviation, correlation coefficients.

| Variable                                         | Mean    | Standard deviation | 1  | 2       | 3       |
|--------------------------------------------------|---------|--------------------|----|---------|---------|
| Propensity to create budgetary slack             | 3.4145  | 0.86972            | 1.00 | 1.00 | 1.00 |
| Environmental uncertainty                        | 3.1725  | 0.85656            | 0.250(**) | 1.00 |       |
| Effectiveness of budgetary control               | 3.6909  | 0.73101            | -0.255(**) | -0.191(**) | 1.00 |

** Correlation is significant at the 0.01 level (2-tailed).

Table 3. Regression analyses results.

| Reg. no  | Independent variable            | β     | t      | F      | R²     | Adjusted R² | Sig.   |
|----------|--------------------------------|-------|--------|--------|--------|-------------|--------|
| 1        | Environmental uncertainty      | 0.250 | 5.516* | 30.423 | 0.066  | 0.060       | * p<0.01 |
| 2        | Effectiveness of budgetary control | -0.255 | -5.653* | 31.955 | 0.065  | 0.063       | * p<0.01 |
| 3        | Environmental uncertainty      | 0.208 | 4.628* | 27.400 | 0.107  | 0.103       | * p<0.01 |
| 3        | Effectiveness of budgetary control | -0.216 | -4.788* | 27.400 | 0.107  | 0.103       | * p<0.01 |

Dependent variable: Propensity to create budgetary slack.

Table 4. Regression analysis results.

| Reg. no  | Independent variable            | β     | t      | F      | R²     | Adjusted R² | Sig.   |
|----------|--------------------------------|-------|--------|--------|--------|-------------|--------|
| 4        | Environmental uncertainty      | -0.191 | -4.163* | 17.329 | 0.036  | 0.034       | * p<0.01 |

Dependent variable: Effectiveness of budgetary control.

increases, the more propensities to create budgetary slack increases. Nevertheless, the increase in effectiveness of budgetary control reduces managers’ propensity to create budgetary slack. In third regression analysis, examining the joint effect of environmental uncertainty and effectiveness of budgetary control on propensity to create budgetary slack, the effect of environmental uncertainty (β=0.208; p<0.000) and budgetary control effectiveness (β=-0.216; p<0.000) decrease in comparison with the results of first (β=0.250; p<0.000) and second (β=-0.255; p<0.000) regression analyses. These results support hypotheses 1 and 3.
The results of regression analyses presenting in Table 4, show that environmental uncertainty has statistically significant (F: 17,329; p<0.000) and negative (β=-0.191; p<0.000) impact on the effectiveness of budgetary control in public organizations. In other words, the more environmental uncertainty increases, the more the effectiveness of budgetary control reduces. Environmental uncertainty has an explanatory power by 3.4% on effectiveness of budgetary control. This result support Hypothesis 2.

According to Baron and Kenny (1986, 1177), some specific conditions must be exist for mediation effect. They explain these conditions as follows: “First, the independent variable must affect the mediator in the first equation; second, the independent variable must be shown to affect the dependent variable in the second equation; and third, the mediator must affect the dependent variable in the third equation. If these conditions all hold in the predicted direction, then the effect of the independent variable on the dependent variable must be less in the third equation than in the second. Perfect mediation holds if the independent variable has no effect when the mediator is controlled.” (Baron and Kenny, 1986, 1177)

In line with these explanations, the results of analyses display that the effectiveness of budgetary control has partial mediation effect on the relationship between environmental uncertainty and propensity to create budgetary slack. This result provides evidence for Hypothesis 4.

Conclusion

This study examines how relationship exists among environmental uncertainty, effectiveness of budgetary control and managers’ propensity to create budgetary slack in public organizations. For this purpose, factor analysis, correlation, reliability and regression analyses are conducted with the help of the data obtained from 460 managers of the public organizations. The validity and reliability of the scales used in this study have generally been proven by using in different studies in literature. However, the new scales were developed to measure the effectiveness of budgetary control. The results proved the validity and the reliability of new developed scale.

According to results of the analyses, the increase in environmental uncertainty on one hand reduces the effectiveness of budgetary control, on the other hand increases the propensity to create budgetary slack. In addition, the effectiveness of budgetary control has a negative effect on the propensity to create budgetary slack. In other words, when the effectiveness of budgetary control increases, the propensity to create budgetary slack reduces. As a result of their research related to the effect of environmental uncertainty on propensity to create budgetary slack, Govindarajan (1986) and Kren (2003) had some findings supporting the results of current study.

The results also support the mediation effect of budgetary control effectiveness on the relationship between environmental uncertainty and propensity to create budgetary slack. The increase in effectiveness of budgetary control reduces the effect on the propensity to create budgetary slack that is caused by the increase in environmental uncertainty. According to this finding, in organizations operating in an environment with high uncertainty, the effectiveness of budgetary control is becoming more and more important due to prevention function against the managers’ self-interest behavior such as budgetary slack creation. Chenhall (2003) also obtained similar results and stated that environmental uncertainty increases the trust in formal controls and importance committed to the traditional budget. Lau (1999) also stated that budgetary control reduces the slack creation.

As all studies have, this study also has some limitations. In this study, only two variables (the environmental uncertainty and the effectiveness of budgetary control) affecting propensity to create budgetary slack were investigated, but there may be many factors affecting managers’ propensity to create budgetary slack in public organizations. In literature, the factors that are especially effective in creation of budgetary slack in private sector are investigated. It should be examined whether these factors are also effective on managers’ propensity to create budgetary slack in public organizations. Because this study is conducted in public organizations, its results are not generalized to the private sector. Another limitation of the study is managers’ disinclination to give information, misrepresenting or giving inadequate information related to budget in their units.

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