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## THE IMPACT OF BUDGET PARTICIPATION ON INFORMATION MANIPULATION VIA ENVIRONMENTAL UNCERTAINTY: A STUDY OF QUOTED COMPANIES IN NIGERIA

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### Abstract

Information manipulation such as pulling profits from the subsequent year into the current year has been suggested as being dysfunctional for organisations. Hence, this analysis which examines the moderating effect of environmental uncertainty on the relationship between budgetary participation and information manipulation in quoted companies in Nigeria, was based on survey of managers in companies listed on Nigerian Stock Exchange. The result shows that there is a significant and positive relationship between budgetary participation and information manipulation ( $r = 0.59$ ), budgetary participation and environmental uncertainty ( $r = .61$ ). It was also discovered that perceived environmental uncertainty has a significant moderating effect ( $\Delta R^2 = 0.029$ ,  $DF = 14.302$ , Sig.  $DF = .000$ ) on the relationship between information manipulation and budgetary participation. The study recommend the involvement of managers in budget setting.

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## 1. Introduction

The budgeting system is a traditional way of managing and controlling companies. It is a control tool (Libby & Lindsay, 2003) which organisations use in planning and coordinating its affairs. The rationale for having a budget includes planning, performance evaluation and motivation (Hansen & Van der Stede, 2004). Hence, managers in organisations are engaged to take part in the setting of budgets within their respective departments. Eker (2006) described budget participation as the involvement of top managers and subordinates in the process of allocating resources to their activities and operations. Budget participation is an important subject in literature with studies suggesting its link with variables such as task difficulty and performance (Lau & Buckland, 2000), job satisfaction, job related tension or stress and managerial attitude (Brownell & Hirst, 1986; Chenhall, 1986; Shields, Deng & Kato, 2000). Overall, these studies suggest that budget participation can be linked to organisation or individual outcomes as well as behavioural outcomes.

Studies focusing on organisational or individual outcomes have shown that the findings have been equivocal. For example, Yahya, Ahmad & Fatima (2008) noted that budgetary participation improves managerial performance of Malaysian Ministry of Defence. According to this viewpoint, budget participation leads to high motivation and thus to high performance. However, Brownell and McInnes (1986) found that motivation does not mediate the relationship between budget participation and job performance. Further, while some studies report a significant positive association between budget participation and job performance (e.g. Brownell, 1982; Merchant, 1981) others report a significant negative association (e.g. Bryan & Locke, 1967). The importance of examining the varying dimensions of the effect of budget participation on several outcome variables stems from the current competitive environment for companies (Eker, 2006). The inconsistent findings have motivated researchers to further investigate the possibilities of the existence of mediating or moderating variables in the relationship between budget participation and other variables. Furthermore, there are indications from literature that research has been generally biased towards the positive consequences of budget participation, such as performance, satisfaction, attitude or motivation (Simons, 1987). Negative consequences such as information manipulation which were earlier identified as dysfunctional behaviours in the study of Birnberg et al. (1983) have been less considered empirically. Most studies focusing on behavioural outcomes have mainly considered budget participation in relation to budgetary slack

(Dunk, 1993; Van der Stede, 2000), data manipulation and myopia (Merchant, 1990), thus, suggesting that other behavioural outcome such as information manipulation remains sparse in the literature.

Therefore, the following specific objectives were set for the study.

To:

- (i) examine the impact of budget participation on information manipulation; and
- (ii) examine the moderating effect of perceived environmental uncertainty on the relationship between budget participation and information manipulation.

In achieving the above objectives, the following research questions were raised.

- (i) To what extent does budget participation impact on information manipulation of quoted companies?
- (ii) Does perceived environmental uncertainty moderate the relationship between budget participation and information manipulation of quoted companies in Nigeria?

In relation to the above research questions, two propositions were made.

- H<sub>01</sub> Budget participation has no significant impact on managers' extent of information manipulation.
- H<sub>02</sub> Perceived environmental uncertainty has no moderating effect on the relationship between budget participation and information manipulation of quoted companies.

The rest of the paper is divided into four sections covering discussions on literature review, research methods, the presentation of findings as well as conclusion.

## 2. Literature Review

Shields and Shields (1998) observed that budget participation has been receiving a lot of research attention for over forty years. Magner et al. (1996); Chong and Chong (2002) have examined the cognitive role of budgetary participation. These studies confirmed that budgetary participation facilitates the gathering of job-relevant information. According to Shields and Young (1993), one of the primary reasons that companies use participative budgeting is to facilitate the communication of private information from subordinates to superiors.

Although there is a lot of research attempting to find the relationship that budget participation has with job performance and/or satisfaction, the results from such studies have been equivocal. Several authors such as Gul et al. (1995); Lau et al. (1995); Milani (1975); Nouri and Parker (1998) have offered empirical evidence on the relationship between budgetary participation and performance. While some



studies have found a positive relationship between budget participation and job performance, others have suggested that there is a weak positive relationship, or even a negative relationship (Kenis, 1970; Milani, 1975; Lau et al, 1995), between the variables. These diverse results indicate that no simple relationship exists between budget participation and job performance, and suggest that there could be other variables involved.

Chenhall and Brownell (1988) observed both a significant direct relationship between budget participation and satisfaction and a significant indirect relationship between budget participation and satisfaction using role ambiguity as a mediating variable. Fourteen years after, a study to confirm these findings was carried out by Chong (2002) using a random sample which was observed to be a major limitation of the earlier study. Chong examined budgetary participation from two different dimensions vis-à-vis, budgetary involvement and budgetary influence of employees. Using structural equation modelling and a sample of ninety-seven managers, Chong's findings were consistent with those of Chenhall and Brownell (1988), except that it is the influence dimension of budgetary participation that is principally responsible for the results. These studies have focused primarily on positive consequences of budget participation.

Despite these various outcomes of the use of budget in several organisations, several short-comings have been linked with it (Hope & Fraser, 2003). For example, practitioners have expressed concerns about budgets impeding the allocation of organisational resources to their best uses and encouraging myopic decision making and other dysfunctional behaviours (e.g. Hope & Fraser, 2003; Merchant, 1985). These studies have suggested that there are behavioural outcomes which may arise from budget participation.

Joshi and Abdulla (1998) noted that empirical studies carried out in developed economies suggest that participation in the budget setting process could engender behavioural outcomes from the participants. Such behavioural outcome has largely been traced to how slack is built into the budget by subordinate managers. In one of the earliest studies, Williamson (1964) provided evidence that managers might try to influence the budget setting process and obtain budget slack. The studies of Dunk (1995), Govindarajan (1986) and Lukka (1988) argued on the link between participation in budget setting and budgetary slack. This slack was operationalised in terms of easily attainable targets which overstated cost or understated revenues. For example, Lukka (1988) argued that the higher the level of budgetary participation, the more opportunity is created for employees to create bias, thus provoking some control problem such as extent to which subordinates can be controlled by their various supervisors. On the contrary, Merchant (1985) provided evidence that participation might lead to a reduction in slack due to the possible communication between managers in which case subordinates felt less

pressure to create slack.

Following the inconsistencies in the results of the budget participation research, studies in this area took another dimension through the arguments that certain variables may affect the relationship between budget participation and its outcomes. The external environment has been operationalised in terms of uncertainty, hostility, ambiguity and complexity (e.g. Chenhall 2003, Khandwalla 1977). Environmental uncertainty was described by Kren (2003, p. 153) as the change and variability in the external environment of organisation; a description which is consistent with the study of Tung (1979). Similarly, Andrews (2008) defined environmental uncertainty as a "product of managers' perceptions of the combined complexity, instability, and unpredictability in the organisational environment" (p. 26). Uncertainty has received the most attention of the external environment in prior empirical contingency studies and has been described as "situations in which probabilities cannot be attached and even the elements of the environment may not be predictable" (Chenhall 2003, p. 137). Despite such attention, very sparse studies in the literature have focused on the possible effect of environment on the MCS-dysfunctional behaviour link (Soobaroyen, 2007).

Merchant (1985) suggested that a joint effect of participation and uncertainty on budgetary slack. Govindarajan (1986) explored how environmental uncertainty influences the relationship between budget participation and managerial performance, managers' attitude and motivation (including propensity to budgetary slack, budget usefulness, budget attitude, budget relevance, and budget motivation). The study found that when environmental uncertainty increases, budget participation has a positive impact on managers' performance, managers' attitude and motivation while a negative impact was found on the propensity to create budgetary slack.

The relationship between environmental uncertainty, managerial autonomy and size in budget characteristics was examined by Ezzamel (1990). Using a cross-sectional study of eighty-one managers, the study argued that high environmental uncertainty was associated with an emphasis on budgets for evaluation and required explanation of variances but also high participation and interpersonal interactions between superiors and subordinates. Similarly, Merchant (1990) surveyed and interviewed fifty-four managers in two firms and argued that environmental uncertainty moderated the relationship between emphasis on financial control and two consequences of control system (data manipulation and myopia). Findings from the study revealed that managers operating in relatively uncertain environments were significantly more likely to react to budget pressure by pulling profits from the subsequent year into the current year than were those operating in relatively certain environments.

Hirst (1981) investigated the effect of different uses of accounting performance measures on dysfunctional behaviour of subordinates using situational approach (task uncertainty). The study hypothesised that high emphasis on subordinates' evaluative situation can reduce the incidence of dysfunctional behaviour in situations of low task uncertainty. The study found that a medium to high (medium to low) emphasis on accounting performance measures minimizes the incidence of dysfunctional behaviour in situations of low (high) task uncertainty. In a later study, Hirst (1983) also found that task uncertainty played a significant moderating role in the relationship between budget emphasis and job-related tension but no direct relationship was noted. The study suggested that more research must consider other forms of dysfunctional behaviour. Hayes and Cron (1988) also investigated the degree of task uncertainty engendered by the zero-based budgeting (ZBB) system and the character of performance measures used to evaluate units that employ ZBB. The paper argued that ZBB materially increases the degree of task uncertainty and found that the increase in task uncertainty creates incentives to engage in dysfunctional behaviour, largely in the form of invalid data reporting.

Hartmann (2005) made a clear distinction between task uncertainty and environmental uncertainty. The study described task uncertainty as the ambiguity caused by the complexity and diversity of tasks performed by the manager. In contrast to environmental uncertainty, task uncertainty is an intrinsic job characteristic that relates to managerial work processes. Using data from a survey of two hundred and fifty managers in eleven organisations, the study proposed that tolerance for ambiguity moderated the relationship between appropriateness of accounting performance measure (such as emphasis on the budget) and uncertainty. The study found that the two types of uncertainty (environmental uncertainty and task uncertainty) have opposite effects on managers' opinions about the appropriateness of accounting performance measure, and that these effects are moderated by tolerance for ambiguity.

Kren (2003) investigated the effect of uncertainty, participation and control system monitoring on the propensity to create slack using forty-nine respondents from forty-four companies. The study found that the largest effect on propensity to create slack arose from a direct positive link from environmental uncertainty. Furthermore, the study suggested that managers engage in budgetary slack creation as a hedge against uncertainties in the environment. Shields and Shields (1998) posited that there is more scope at this stage to explore the antecedents of budgetary participation, particularly those relating to the concept of uncertainty. With most of these studies largely from developed economies, developing countries including Nigeria would benefit from this study given the suggestion by IFAC (2011) that attitudes and behaviour affects the performance of organisations.

### 3. Methodology

A cross sectional survey research design was adopted in this study. The population of the study is made up of two hundred and eighteen (218) quoted companies on the Nigerian Stock Exchange (NSE, 2011). A sample size of one hundred and twelve (112) quoted companies was selected. This represents about 51% of the total.

The data collection instrument consisted of a self-administered questionnaire. The questionnaire measured items on budget participation, information manipulation and environmental uncertainty. The questionnaire was constructed on a five-point Likert-scale. A moderate regression analysis was carried out in analysing the data.

#### 3.1 Measurement of variables

Three (3) variables were examined in this study. These variables are; budget participation, perceived environmental uncertainty, and information manipulation.

##### Budget Participation

This was measured in terms of extent of managers' involvement in securing a budget for the organisation. The six items in the study of Milani (1975) and used in prior studies of Naser, Mah'd, Nimer & Al-okdeh (2011) and Tsui (2001) on a Likert scale was adopted in this study on a five-point scale ranging from strongly disagree to strongly agree.

##### Perceived Environmental Uncertainty

The measure was adapted from the study of Milliken (1987) which identified three major types of uncertainty which are state, effect and response uncertainties. Several studies (Ezzamel, 1990; Merchant, 1990) have used one or combination of these three types of uncertainties. More recently, the studies of Ashill and Jobber (2009); Sund (2008) have adapted these three types of uncertainties.

##### Information Manipulation

The study relied on the insights gained from previous studies of Birnberg et al. (1983) and Sobarooyen (2007). This is defined in terms of methods used in distorting the information system. Such methods consist of smoothing and filtering.

#### 4. Results

The result of the correlation analysis as reported in Table 1 shows positive relationships between all the variables of the study at  $p < 0.05$ . Budget participation is found to be positively correlated with information manipulation ( $r = 0.588$ ) and perceived environmental uncertainty ( $r = 0.613$ ).

Table 1: Correlation matrix of the variables in the study

	BP	IM	PEU
Budget Participation (BP)	1		
Information Manipulation (IM)	.588(**)	1	
Perceived Environmental Uncertainty (PEU)	.613(**)	.601(**)	1

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

Source: Research survey

The first hypothesis investigated the influence that budget participation has on information manipulation. The results suggest a positive and significant correlation as shown in Table 1 but such significance does not mean a causal relationship exists; hence, the study also used linear regression. The result of the analysis shows that 34% of the variability in information manipulation can be accounted for by looking at budgetary participation. In order to provide answers to the second research question, moderated regression analysis (MRA) was used. In running the regression, the block form was used by entering the predictor variables: budget participation in one block, perceived environmental uncertainty (PEU) as one block while the product of these variables were entered in another block.

The results indicated that the moderating variable is statistically significant at  $p < 0.05$ . The model with the moderating variable explained 38% of the variation in information manipulation. The moderating effect of perceived environmental uncertainty accounted for a significant increase in  $R^2$  at  $p < 0.05$  ( $\Delta R^2 = 0.029$ ,  $DF = 14.302$ ,  $Sig. DF = .000$ ). Details of this result are presented in Table 2. Therefore, conclusion can be drawn that the moderating effect of perceived environmental uncertainty results in better prediction of information manipulation as a behavioural outcome of control systems.

Table 2: Model Summary on Moderating Effect of Perceived Environmental Uncertainty (PEU)

Model (c)	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error of the Estimate	Change Statistics		
					R <sup>2</sup> Change	F Change	Sig. F Change
1	.588(a)	.346	.344	.42493	.346	163.702	.000
2	.613(b)	.375	.371	.41607	.029	14.302	.000
beta values	$b_0 = 1.584$ , $b_1 = .345$ (BP), $b_2 = .056$ (BP*PEU)						
t-value (Sig)	BP = 5.209 (.000), BP*PEU = 3.782 (.000)						

a Predictors: (Constant), BP

b Predictors: (Constant), BP, BP\*PEU

c Dependent variable: IM

Source: Research Survey

The findings of this study are consistent with the study of Merchant (1990) which argued that environmental uncertainty moderated the relationship between emphasis on financial control and two consequences of control system (data manipulation and myopia). Merchant noted that managers operating in relatively uncertain environments were significantly more likely to react to budget pressure by pulling profits from the subsequent year into the current year than were those operating in relatively certain environments. The study of Kren (2003) also provided support that the largest effect on propensity to create slack arose from a direct positive link from environmental uncertainty.

#### 5. Conclusion and Recommendation

This study on the relationship between budget participation and information manipulation via environmental uncertainty provided evidence using Nigeria data. The results from the targeted companies has shown that budget participation gives room for information manipulation and that perceived environmental uncertainty moderates the budget participation and information manipulation relationship in Nigerian quoted companies. Evidence has been found on the moderating effect of perceived environmental uncertainty on the relationship between budget participation and information manipulation. The finding suggests that companies facing high environmental uncertainty will likely engage more in information manipulation. The results of this study are compatible with research findings in the developed countries.

The study recommends that managers should place emphasis on the extent to which managers should be involved in setting budgets for their departments or



organisation. Furthermore, managers should be provided with detailed information about the level of environmental uncertainty as perceived by the managers so that managers would not have varying uncertainties about their environment. Finally, the study recommends that other variables such as strategy should be explored while collaboration with other researchers in terms of investigating and comparing the budget participation/information manipulation link in other countries of the world especially, companies operating under similar circumstances as in Nigeria should be a useful approach.

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