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REVIEW ARTICLE

ORGANIZATION CONTEXTS AND MANAGEMENT ACCOUNTING SYSTEM DESIGN: EMPIRICAL EVIDENCE FROM NIGERIA

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ABSTRACT

Organization contexts (termed organizational contextual variables, hereafter) and management accounting system design (MASD) have been linked in literature. The tendency that has grown over the last couple of years is how to reflect these contexts in MASD. Researchers have argued in this area of accounting research that the paucity or dearth of empirical research was the product of complex interactions and inter-relationships among organizational contextual variables and the difficulty in developing theories of how these complex interactions influence MASD. The objective of this paper is to extend the frontiers of previous efforts by examining the impact of organizational contextual variables on MASD. To do this, we extended the model used by incorporating into the model, organization size (SIZ) and organization technology (TEC).Using a sample size of sixty(60) companies, and the Ordinary Least Square(OLS) regression of SPSS 17.0 to test the relationships, our findings revealed that while SIZ was significantly and positively associated with MASD, no relationship was established between TEC and MASD. Based on these findings, it was recommended that designers of management accounting system should incorporate organization contexts into MASD so as to change the perception and pressure on the system.

INTRODUCTION

Contextual impacts and management accounting system design (MASD) have been documented in literature. A number of researchers have called for the need to broaden the scope of research into the impact of organizational contexts on MASD. Sathe (1975), Banbury and Nahapiet (1979) and Amigoni (1978) attempted to find the relationship between the impacts of organizational contextual variables and MASD. Robbins (1990) in *Organization Theory* regarded contextual variables as factors that shape and determine how job tasks lead to meeting organizational goals. Chenhall and Morris (1986) tried to link perceived environment uncertainly, structure and organizational interdependence as

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contextual variables with MASD. The focus of that study was to find out factors that impinge on the design of management accounting system. Gordon and Natayanan (1984) earlier did a study to find out how some contextual variables are associated with MASD. Their findings suggested that contextual variables which was associated with MASD in one environment or organization might not hold through in another environment or organization. In other words, contextual variables and associations with MASD do not always hold through in all circumstances and situations. This was the case of Moores and Mula (1993) whose findings in Australian organizations revealed a contrast of what Gordon and Narayanan (1984) derived in America, using the same contextual variables. While Gordon and Natayanan (1984) found perceived environment uncertainty significantly associated with MASD, this finding was in contrast with Moores and Mula's (1993).

The above mixed findings portend unsettled results in literature. As suggested by Chenhall and Morris (1984), authors of accounting and organizational research have tried to broaden their research horizons to involve more variables in the study of organization contexts-MASD relationships. Moores and Mula's (1993) inclusion of strategy was intended to broaden MASD model. In their finding, strategy was found to be associated with MASD. The influence of strategy on MASD had earlier been considered by Simons (1987, 1990).

No doubt, the influence of contextual variables on MASD has led to a more consideration of contextual variables in the developed countries (Gordon and Narayanan, 1984 and Moores and Mula, 1993), while little has been done in the developing countries. It has been argued, though, that the paucity of empirical research in general terms could be traced to both the complex interrelationships among contextual variables and the difficulty in developing theories of how these complex interactions influence MASD (Chenhall and Morris, 1986). It is against this background, that this paper is a contribution to the copious literature in this area of accounting research. To this end, the paper presents additional evidence of the relationships and effects of contextual variables and MASD. Specifically, the paper is designed to:

* re-examine the relationship between MASD and
  - (i) Perceived Environmental Uncertainty (PEU) defined as management's perception of uncertainty in the environment.
  - (ii) Organization Structure (ORS) defined as the level of decentralized decision autonomy.
  - (iii) Organizational Interdependence (OID) defined as the level of exchanges between different sections or segments within the sub-units.
  - (iv) Strategy (STR) defined as the way the organization positions itself within the environment.
  - (v) Company Size (SIZ) defined as the number of employees in the organization, and
  - (vi) Technology (TEC) defined as the combination of skills, knowledge, abilities, techniques, materials, machines, computer tools and other equipment in converting inputs to output in line with Perrow's(1970) routine and non-routine technology.
* examine the joint reaction between the six contextual variables and MASD.
* replicate in Nigeria, Chenhall and Morris' (1986) model which was earlier extended by Moores and Mula (1993).

Based on these objectives, the rest of the paper is organized as follows: the next section presents a review of literature on contextual variables and MASD as well as the hypotheses formulated. This is followed in section 3 by the methodology and data. Results and discussion of results as well as the inplications for MASD are highlighted in section 4. This is followed by conclusion and remarks in section 5.

Literature Review

Over the last twenty years, many researchers have advocated contingency approaches to understanding and appreciating MASD and the influence of contextual variables (Gordon and Narayanan, 1984; Chenhall and Morris, 1986, and Moores and Mula, 1993). Perceived Environmental Uncertainty (PEU) is one contextual variable that has attracted a lot of interest among researchers.

According to these researchers, the contextual variable of PEU has influenced MASD. In a study conducted by Gordon and Narayanan (1984), PEU was found to influence MASD. Other studies conducted have either confirmed this relationship (Chenhall and Morris, 1986) or contrasted it (Moores and Mula, 1993). The researchers were interested in understanding the relationship between PEU and MASD. Gordon and Narayanan (1984) found out a positive and significant relationship between PEU and MASD. They maintained that the higher the PEU, the greater the need for MASD attributes operationalized as external, non-financial and ex-ante information (Burns and Stalker, 1961; Lawrence and Lorsch, 1967 and Duncan, 1972). They argued that planning becomes problematic in uncertain, operating situations because of the unpredictability of future events (Chenhall and Morris, 1986). They further contended that it was important to recognize the environment in the design of management accounting system.This finding, however, contrasted Gordon and Narayanan's (1984) findings. Moores and Mula (1993) in their study found limited influence of PEU on MASD. In fact, the finding indicated that PEU's influence called for greater need for only non-financially oriented information.

Organization structure (ORS) and MASD relationship was linked in Moores and Mula's (1993) findings. ORS appeared to be a major importance relative to PEU and a major driving force behind MASD. Nevertheless, this finding was not consistent with Chenhall and Morris's (1986) and Gordon and Narayanan's (1984) findings. Chenhall and Morris (1986) found out that the importance of ORS as defined by decentralized decision autonomy was stressed by Lorsch (1970), Watson (1965), and Moores and Mula (1993). ORS was viewed as one element of contextual variables that impinge on the overall control system within an organization Robbins (1990) and Moores and Mula (1993) regarded it as the formal specification of the different roles, job tasks for organization members with established pattern of relationships between the component parts of an organization, with the details of communication, control and authority pattern. According to Robbins(1990),ORS was a natural influence on MASD. In *Organizational Theory* by Robbins (1990), organization structure was theoretically associated with responsibility accounting. Large and technically-sophisticated organizations and administrative controls strategies, defined by decentralization and structuring,was linked with a strong emphasis on MASD (Moores and Mula, 1993); small and dependent organizations were found to be associated with interpersonal control strategies defined by centralization and lack of autonomy (Bruns and Waterhouse, 1975); functional differentiation with formality of the budgetary process; organization strictures with future oriented information (Gordon and Narayanan,1984); and decentralization with perceived usefulness of aggregated and integrated information (Chenhall and Morris, 1986).

Organization interdependence (OlD) has been discussed and linked with MASD (Thompson, 1967). Chenhall and Morris's (1986) study incorporated this context into MASD model to find out its influence on MASD. The finding revealed that OID is an important variable in MASD. In situations of interdependency of segments, MASD becomes complex, because of increased problem of coordination. However, where there are pooled situations in which there are no exchanges on one hand on in the presence of exchanges on the other hand (sequential or reciprocal exchanges), Thompson (1967) found that pooled situations explained more (significant) variation in MASD than in sequential situations. The dichotomy of pooled situational and consequential situations have been used by Baumler (1971) and Watson (1965).

Strategy and MASD relationships have attracted attention in accounting research. This has involved the identification of the organizations strategic direction and the evolution of MASD. Moores and Malu (1993) argued that strategy played an explanatory role in MASD.This could be explained by the strategic positioning and the way systems evolve interactively with strategy. In their study, Moores and Malu (1993) concluded that MASD reflected organization's various strategic directions depending on the strategic imperatives generated within competitive markets.

Strategies could be multifaceted, depending on the strategic direction of the organization. So the level of influence on MASD would reflect the strategy. Mintzberg (1973) identified entrepreneurial adaptive or planning modes. Miles and Snows (1978) proposed defender, prospector, analyzer and reactors strategies. Porter's (1980) classification of overall cost leadership, differentiation and focused strategies explained the level of influence on MASD. According to Simons (1987), a high performing prospector organization would seem to attach a great deal of importance to forecast data. Simons (1990) de-aggregated MASD attributes to find out how strategic uncertainties could be linked with MASD. In his findings, Simons (1990) reported that organization, facing strategic uncertainties, due to unstable and rapidly changing markets, used planning and budgeting interactively to set agenda, strategies and action plans. In similar reasoning, a low cost strategy within a relatively stable environment used MASD in a programmed, rather than interactive, way. In Miller and Friesen (1982), findings revealed that comprehensive controls were positively related with innovation in conversative form. Nevertheless, entrepreneurial adaptive mode and MASD were negatively and significantly linked.

In literature, contingency researchers have argued either theoretically or through the result of empirical analysis that contextual variables as organizational size (Bruns and Waterhouse, 1975, Merchant, 1981) and technology (Woodward, 1965, Perrow, 1970) explain a significant portion of MASD. Organization size, proxied by the size of the employees in the organization (SIZ), is positively related with formalization (Geeraerts, 1984), work division and coordination (Blau and Schoenhen, 1971; Child, 1972, and Pugh and Hickson, 1976). Robbins (1990), in defense of the use of size of the employees as a proxy, argued that the number of employees in an organization appeared to be highly rated, and approximated the more popular gauge of size. However, in a study conducted by Miller (1989), SIZ and MASD (defined by centralization) relationship is hazy and unclear.

On the other hand, organization technology defined by Perrow's (1970) routine and non-routine typology, was found to be positively related to low complexity and high formalization. According to Perrow (1970), low emphasis on MASD begot low formalization. While routine technology was positively related to centralization, non-routine technology was related to decentralization and low formalization. Routine technology is characterized by standardization, coordination and controls (which is the high emphasis of MASD). However the characteristic features of non-routine technology presuppose some flexibility, low formalization and decentralization (which is the low emphasis of MASD).

MASD has been defined and operationalized by different authors and researchers. Chenhall and Morris (1986) defined it in terms of information characteristics. They de-aggregated management accounting system to include scope, timeliness, aggregation and integration. Scope was described in terms of external, non-financial and future-oriented information. Timeliness was defined as the frequency and speed of reporting. Aggregation was seen by was of time or period, functional areas and decision models. While integration was defined in terms of precision of activities and interrelationships within sub-units as well as reporting on intra-sub-units. The operationalization of MASD by Chenhall and Morris (1986) was consistent with that of Gordon and Narayanan (1984).

However, Moores and Mula (1993) simply described MASD attributes as external, non-financial and ex-ante information. External information was seen as those broad factors outside the control of the management; the non-financial information is internal and inclusive of information relating to the specific objectives to be attained but exclusive of financial information. For the ex-ante information, it is the historical cum futuristic data types that relate to organization's objects.

In Chenhall and Morris's (1986) study, broad *scope* was described as the external, non-financial and ex-ante information.This description was in alignment with Moores and Malu's (1993)

description of MASD. Scope was found to be related with PEU. In the same study, OID and ORS, defined by decentralization were, found to be associated with MASD attributes of aggregation and integration. Their findings indicated further that managers facing PEU required broad information to improve decision response time and their environmental scanning.

Given the mixed results in literature, we propose the following hypotheses.

H_1: Perceived Environmental Uncertainties (PEU) are positively related to Management Accounting System Design (MASD).
H_2: Organization Structure (ORS) is positively related to MASD.
H_3: Organizational Interdependence (OID) is positively related to MASD
H_4: Strategy (STR) is positively related to MASD
H_5: Organization Size (SIZ) is positively related to MASD
H_6: Organizations Technology (TECH) is positively related to MASD
H_7: The joint reactions of the above variables are positively related to MASD.

Methodology and Data

In testing the relationship between these contextual variables and MASD, we employed the research instrument of questionnaire and followed up interviews with respondents. We used a cross sectional research design in gathering data from the quoted companies in Nigeria. We used sixty (60) companies from five (5) industrial sectors. Our population and sample sizes were 220 and 120 companies quoted and active as at 31st Dec. 2009. The simple random sampling was used in the selection of companies. This was to ensure fair representative of all quoted companies. However, in the choice of sectors, the judgmental sampling method was used. This was to ensure that the sectors with the highest number of companies were captured. Only sixty (60) responded to out mailed questionnaires. This represented about 50% response rate. The questionnaires received were in Banking, Conglomerates, Foods and Beverages, Insurance, Brewery . Further, the companies' profiles were such that, they are not only quoted on the Stock Exchange, they also operate in competitive levels locally and overseas.

To ensure that questions asked in the questionnaires captured the variables tested, the chief executive officers or their designates were chosen to supply the relevant responses to questions asked using the five-scale linker type. For each of the responses and the short form type of questionnaire adapted from Gordon and Narayanan (1984) and Moores and Mula (1993) were used. Responses were factors-analyzed to reduce the level of details by ascertaining the underlying dimensions of each data set. Each independent as well as the attributes of the dependent variable (MASD) were decomposed to capture and reflect relevant sub-questions relating to the decomposed parts. All sub-questions responses for each independent variable were operationalized by averaging the coded responses to obtain a value. This was done for all the variables, both dependent and independent variables. The linear regression of Statistical Package of Social Sciences (SPSS) 17.0 was used to establish associations or otherwise between the reduced set of variables (dependent and independent variables.

Table 1 shows the retrieved questionnaires from the companies. It also gives the analysis of retrieved questionnaires from each sector and the percentage response of the retrieved questionnaires

Table 1. Distribution and retrieval of questionnaires to quoted companies

Sectors	*Received Mailed Questionnaire*	*Questionnaire Distributed*	*Response Rate*
Banking	10		
Conglomerate	17		
Food &	23*		
Beverages	5		
Insurance	3		
Brewery	3		
Total	**60**	**120**	**50%**

* 10 out the 23 received questionnaires from Food & Beverages were rejected on grounds of improper

filling of questionnaires. This however reduced the response rate to 41.67.7%. The researcher found this rate of sufficient representative in view of the fact that most of the responses emanated from conglomerates and food beverages.

Operationalization of Variables and Model Specification

Perceived Environmental Uncertainties (PEU): This variable has been identified as an important influence on MASD because it makes managerial planning and control difficult (Burns and Stalker, 1961; Lawrence and Lorsh, 1967, and Chenhall and Morris, 1986). Besides, planning function, in the face of PEU, becomes difficult and problematic (Gordon and Narayanan, 1984 and Chenhall and Morris,1986). This variable was measured by a series of sub-questions.The subquestions reflected the level of complexity defined by the intensity of competition for the inputs and outputs. PEU was inclusive of the increase in legal, political and economic constraints surrounding the organization and level of change arising from the frequency of scientific breakthrough.

Organization Structure (ORS): This is defined by the level of decentralization; and it has been seen as an explainable influence on MASD (Gordon and Narayanan, 1984 and Chenhall and Morris, 1986). The factors identified were structure of authority factor and structure of activities.The two-factor analysis was previously used by Khandwalla (1977).

Organizational Interdependence (OID): This has been previously examined as an explainable variable in MASD (Baumler, 1971 and Chenhall and Morris (1986). It was measured by the intensity of exchanges within the segments of sub-units and within the organization.

Strategy (STR): This reflects the positioning of the organization within the environment. It has been argued that the way an organization positions itself within the environment determines the quantum of planning and control information required by it. While Miller and Friesen (1990) found STR-MASD relationship unclear, Moores and Mula (1993) measured STR by decomposing it (i) as product differentiation (ii) as marketing Meanwhile, questions loaded on *product differentiation* factor included questions relating to importance of introduction of new products, market segmentation, leading competitors in the introduction of new products, the use of prestige pricing and advertising, dominance of distribution channels, importance of quality of products. The factor of *marketing* and cost-oriented strategies had questions of combination of price cutting, frequent product innovation, cooperation with competitors and the risk attitude of senior managers.

Organization Size (SIZ): Robbins (1990) linked SIZ, proxied by the number of employees, with MASD. A large-sized organization is more likely to have more staff on its pay roll than a small – or medium-sized organization, and in consequence, a more complicated MASD. SIZ was measured by the number of employees with training and qualification.

Organizational Technology (TEC): This is defined by the level of computer skills, knowledge, facilities possessed by its workforce. It includes the ease by which inputs are converted to outputs. Perrows (1970) routine and non-routine technology typology linked technology with complexity of organization structure. High complexity leads to a complex MASD and vice versa (Robbins, 1990).

Management Accounting System Design (MASD): This is defined in terms of the importance of external information, non-financial information and ex-ante information. These attributes have been used by Moores and Mula (1993) and consistent with the *scope and timeliness* attributes of Chenhall and Morris' (1984) definition of MASD. It was measured by a three-factor analysis of MASD attributes defined by Moores and Mula (1993). External information was analyzed by questions relating to broad factors that are external to the organization. Such factors include economic condition, population growth, social, cultural, legal and technological information. Questions relating to total market share, consumer tastes, competitors' actions, machine efficiency and employees' absenteeism, were used to capture non-financial information. The ex-ante information relates to historical- or

futuristic-based information or events as they relate to the organization. The use of these attributes and factor analysis in this study were consistent with those of Gordon and Miller(1976), Chenhall and Morris (1984), and Moores and Mula (1993).

Model Specification

The following model extends Moores and Mula's (1993) model. It incorporates organizational size (SIZ) and organizational technology (TEC) as additional variables to the model.

TEC = Organizational technology

$MASD_{3i}$ = Management Accounting System Designed Defined in terms of

i = 1 = External information attributes (EXIF)

i = 2 = Non-financial/economic information attributes (NOFI)

i = 3 = Ex ante information attributes (EXAN).

Where, the variables to be estimated are as defined and $\beta_1 > 0$, $\beta_2 > 0$, $\beta_3 > 0$, $\beta_4 > 0$, $\beta_5 > 0$, $\beta_6 > 0$, $\beta_7 > 0$, $\beta_8 > 0$, $\beta_9 > 0$ (to be estimated) .U_t=stochastic term to be determined

Table 2. Descriptive Statistics for all Variables (N=50)

Vars.	Mean	Std. dev.	Vars	Mean	Std. dev.	Vars	Mean	Std.dev
EXIF	4.1826	0.59926	NOFI	4.0064	0.33455	EXAN	4.2294	0.31261
PEU	4.6348	0.37924	PEU	4.5348	0.37924	PEU	4.5348	0.37924
ORS	4.6124	0.32156	ORS	4.6124	0.32156	ORS	4.6124	0.32156
OID	4.2834	0.37255	OID	4.2834	0.37255	OID	4.2834	0.37255
STR	4.5052	0.36785	STR	4.5052	0.36785	STR	4.5052	0.36785
SIZ	4.5548	0.21254	SIZ	4.5548	0.21254	SIZ	4.5548	0.21254
TEC	3.6160	0.49005	TEC	3.6160	0.49005	TEC	3.6160	0.49005

*30% of companies pursued product differentiation and mainly in conglomerate and food / beverages sectors.

The descriptive statistics for the attributes of MASD and the contextual variables are shown side by side in table 2.Table 3, however, presents the OLS regression results as shown below.

Data Analysis, Results and Implications

The OLS results for MASD and the contextual variables are presented in tables 2 and 3, with the contextual variables regressed on each of the

Table 3. OLS Regression Results for the Companies (n=50)

Var	Coefs	t-stats	Var	Coefs	t-stats	Vars	Coefs
EXIF	-	-	NOFI	-	-	EXIF	-
PEU	0.798	7.922*		0.428	2.506*		0.737
ORS	-0.037	0.726		0.018	0.158		0.333
OID	0.056	0.558		-0.116	-3.123*		-0.213
STR	0.040	0.388		0.383	2.308*		-0.080
SIZ	0.123	2.145*		0.056	0.545		0.024
TEC	0.029	0.299		0.034	0.296		0.149
Adj. R^2 =	61.7%			53%			61.9%
F-stat =	14.147			10.198			14.383
D.W. =	1.840			1.892			2.131

*Significant at 5%

$MASD_{3i} = \beta_0 + \beta_1 PEU + \beta_2 ORS + \beta_3 OID + \beta_4 STR + \beta_5 SIZ + \beta_6 TEC$

PEU = Perceived Environmental Uncertainties.

ORS = Organization structure proxied by the level of decentralization

OID = Organizational interdependence

STR = Strategy

SIZ = Organizational size

attributes of MASD de-aggregated into EXIF,NOFI and EXAN. In table 3, MASD attributes were decomposed into its attributes such that the independent variables were regressed on each of the attributes of EXIF, NOFI and EXAN as suggested by Moores and Mula (1993). Using the MASD attribute of EXIF, PEU and SIZ were

found to be associated with MASD. Two out of the six contextual variables were significantly related to EXIF. This indicates, as shown by the positive signs of PEU and SIZ, that the variables were significantly and positively related to MASD as defined by EXIF. Increased PEU and SIZ were associated with externally-oriented information (EXIF) for Nigerian companies. This finding was consistent with Chenhall and Morris's (1986) finding with the U.S companies and Moores and Mula's (1993) finding derived from an Australia-based study.Furthermore,PEU-MASD relationship in terms of MASD attributes of EXIF, NOFI and EXAN,was consistent in terms of the significant and positive relationship between PEU and MASD in the Gordon and Narayanan's (1984) finding in the U.S. In the meantime, the relationship between EXIF and the contextual variables showed an adj. R^2 of 0.617, indicating that 61.7% of the dependent variable (EXIF) was explained by the independent variables. The F-statistic of 14.147 confirmed that the model was a good fit, indicating that there was a linear and significant relationship between the dependent variable and the independent variable. The absence of auto correlation was confirmed by D.W. of 1.846 which is within the bounds of 1 to 4 (Iyoha, 2004 and Gujarati, 2004).

In the same table 3, the contextual variables were regressed on the MASD attribute of NOFI. Results indicate that three(3), out of the six contextual variables, were significantly related to NOFI. The contextual variables were PEU, STR and OID. The positive signs of PEU and STR indicate that increased PEU and STR would lead to increased influence on NOFI. In other words, higher PEU and STR were significantly associated with higher perceived importance attached to non-financial information. Thus, it would appear that our apriori expectation was supported, namely that PEU (consistent with Chehall and Morris, 1986) and STR (consistent with Moores and Mula, 1993) were positively and significantly related to NOFI. Meanwhile, OID was negatively and significantly related to NOFI. This indicated that organizations with interdependent units sought to minimize the influence on MASD in the area of non-financial information. This was a reflection of the findings of Thompson (1967) whose study indicated that interdependent organizations tended to provide managers in interdependent organizations with sufficient autonomy to administer the resultant sub-units (Chenhall and Morris, 1986). Other statistics relating to NOFI- contextual variables relationship include, adj. R^2 (0.53), F-stat. (10.198) and D.W. (1.892). The adj. R^2 of 0.53 indicated that 53% of the changes in the variation of NOFI were explained by the independent variables. While the 49% was unaccounted for. The F-stat of 10.198 showed that the model was a good fit and the D.W of 1.892 indicated the absence of autocorrelation, being within the bounds and suggested by Iyoha, 2004 and Gujarati, 2004.

Finally, the contextual variables and MASD as defined by EXAN were examined to find out the relationships. Table 3 also presents the detailed results of significant relationships between PEU, ORS and OID. As noted in the NOFI – contextual variables relationship on one hand and EXIF – contextual variable relationship on the other hand, PEU is a common variable, significantly and positively related to all attributes of MASD. Just as in NOFI-contextual variables relationship, OID is negatively and significantly related to EXAN. However, ORS was found to be positively and significantly related to EXAN, indicating that ORS, proxied by the level of decentralization, provides managers with greater responsibility over planning and control activities and greater access to information not available to the corporate world (Waterhouse and Tiessen, 1978; Chenhall and Morris, 1989, and Moores and Mula (1993). However, this finding was not consistent with Gordon and Narayanan's (1984) finding which indicated that organizational structure was not the driving force in MASD. The adj. R^2 of 0.619 indicated the level of variations in EXAN that was explained by the independent variables. The model-is-good and the absence-of-autocorrelation statistics of 14.383 and 2.131 respectively, confirmed the fitness of the model and the linear and significant relationship between EXAN and the independent variables. However, TEC failed our apriori expectation of positive and significant relationship with MASD. It was found to be insignificant in its relationship with MASD.

From our results and findings, some implications are discernable for those responsible

for management accounting system design. One, the higher the perceived environmental uncertainties,the greater the premium that will be placed on MASD attributes of external,non-financial and ex-ante information. Therefore, the designers of management accounting systems must recognize and proactively recognize PEU in the MASD, Two, organization size, proxied by the number of employees, is a variable in the externally-oriented information and by extension MASD. Consequently, competencies of employees (Okafor, 2005) job training (Ndiokho, 1994), mentoring opportunities (steger and Erwee, 2001 and Goleman, 2004) should be pursued to change the employees' total perception and, in consequence, the pressure on MASD.

Conclusion and Remarks

Contextual variables and their relationships with management accounting design have become a subject of interest to researchers and authors. This is because outcomes of such interrelationships will help aid decision making. Therefore, management accounting system in any organization is germane to the survival of the 21st century era of information age. The information age we are now, takes into account the need for organizations not just to survive but also to be in business. The organizations' goals and objectives go beyond just to make profit or increase the shareholders share value. If this is true, then the organization must be able to design a management accounting system that takes into account the various organizational contexts. This may include all the variables that have been examined in our study. Certain contextual variables like PEU, SIZ, ORS, STR and OID have been found to impact on management accounting system design, indicating that these organizational contextual variables must be at play before designing management accounting system.

While empirical evidence from Nigerian did not support and totally agree with previous studies, our findings were consistent with Chenhall and Morris's (1986) and Moores and Mula's (1993) findings in terms of PEU-MASD relationship. For STR – MASD relationship, our finding was consistent with Moores and Mula (1993) while OID-MASD negative relationship in our finding was in agreement with Thompson's (1967) finding. For ORS-MASD positive relationship, confirmed Waterhouse and Tiessen (1978) but not consistent with Gordon and Narayanan (1984).

To this end, we caution that interpretation of our results be done with caution because of some limitations and constraints. These limitations and constraints arise from our comparative objectives and the cross sectional data.The extension of models by previous researchers and the blind comparison of Moores and Mula (1993) in Australia and Gordon and Mahayana (1984) in the U.S, two seeming developed countries, with Nigeria of relatively unstable environment, limit easy generalization. Besides, the measure of ORS as the level of decentralization, SIZ, as the number of employees are further limitations. The measurement of the qualitative variables by averaging a number of questions and the factor analysis may not be precise. All these seeming constraints, not withstanding, the empirical results support our propositions that PEU, SIZ, ORS and OID, except TEC, influence MASD, either positively or negatively.

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