

INTERACTIVE EFFECTS OF ORGANIZATIONAL STRUCTURE AND PERFORMANCE EVALUATION STYLES ON JOB-RELATED TENSION AND PERFORMANCE

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ABSTRACT

Previously conflicting results of Hopwood (1972) and Otley (1978) have provided exciting research opportunities in the area of management accounting systems. A number of subsequent research projects have attempted to offer possible explanations by introducing either intervening or moderating variables. Like previous research, this study also attempted to reconcile the conflicting findings by introducing a moderating variable: organizational structure. The study followed the argument of Otley (1980) who suggested that organizational structure may have an important impact on the way in which an accounting system functions. It was hypothesized that high (low) emphasis on the budgets would be congruent in a situation of low (high) degree of decentralization. A sample consisting of middle-level managers from 139 companies listed on the Kuala Lumpur Stock Exchange was selected for data collection purposes. The findings, however, failed to confirm the presence of interactive effects of organizational structure and performance evaluation styles on job performance and job related tension. This was attributed to the poor response rate.

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BACKGROUND

Numerous studies have attempted to resolve the conflicting findings of Hopwood (1972) and Otley (1978). A number of either moderating or intervening variables have been introduced and empirically tested in attempts to explain the conflicts (e.g., Brownell, 1982; Hirst, 1983; Govindarajan, 1984; Imoisili, 1985).

Brownell (1982), in an empirical study of a manufacturing firm, confirmed the hypothesis that a high (low) budget emphasis led to better performance in a situation where high (low) participation existed, hence showing a positive relation between budget emphasis and managerial performance with budgetary participation as a moderating variable. In a subsequent replication study within a different setting, Hirst (1987) documented evidence inconsistent with Brownell's (1982) findings.

Hirst (1981) suggested and later empirically demonstrated (Hirst, 1983) that task uncertainty moderated the link between budget emphasis and job related tension (hereafter referred to as JRT). The evidence suggested that the relationship between JRT and budget emphasis was negative (positive) if task uncertainty was high (low).

Imoisili (1985) considered role stress as an intervening variable and measured performance and dysfunctional behaviours, among others, as dependent variables. His findings were, however, not statistically significant and he suggested that the lack of significance could mainly have been due to his sample exercising high budget emphasis. Tight economic conditions in which the sample companies were operating during the period of the study might have been the cause for high emphasis on the budget, thereby potentially affecting the findings.

Govindarajan (1984) offered environmental uncertainty as a possible intervening variable in an attempt to reconcile Hopwood's (1972) and Otley's (1978) findings. His findings, consistent with his hypotheses, showed that low (high) budget emphasis would increase performance if coupled with high (low) environmental uncertainty.

The role of organizational structure in the link between budget emphasis and JRT, and between budget emphasis and managerial performance, however, has never been considered or empirically tested. Otley (1980: 415) argued that "organizational structure and technology may be seen to have an important effect upon the way in which an accounting system functions". Based on the argument, the present study explored the role of

organizational structure on the link between budget emphasis and JRT, and budget emphasis and managerial performance.

THEORY DEVELOPMENT AND HYPOTHESES FORMULATION

Contingency theorists of management accounting argue that the choice of an accounting system depends largely on the circumstances peculiar to a company. In other words, there is no one accounting system which applies best to all circumstances. It is therefore argued that circumstances may have substantial influence on the choice of the accounting system (to be adopted).

The same line of argument can also be extended to the choice of an organizational structure. Khandwalla (1977), for example, argued that organizational structure helps an organization in three major ways. Firstly, it incorporates mechanisms which can reduce external and internal uncertainty. Secondly, it allows the organization to undertake a wide variety of activities. Thirdly, it can keep the activities in which the organization is involved, coordinated. The structure of an organization can be anywhere along a continuum—highly decentralized at one extreme, or highly centralized at the other extreme. The former may be referred to as an “organic” type of structure, while the latter may be referred to as a “mechanistic” type of structure (Burns & Stalker, 1961).

Under a highly decentralized structure, an individual manager is given the freedom to make decisions concerning his or her subunits, with minimal interferences coming from the top level management (i.e., his or her superiors). On the contrary, a highly centralized structure practices a norm where decisions are made at the top level and an individual manager only receives and implements whatever has been decided upon.

There are several factors that potentially influence the choice of the organizational structure, one of which may be the environment in which the organization operates. As the environment becomes increasingly and continually unpredictable, dynamic and complex, the structure is likely to be more decentralized (i.e., organic) (Thompson, 1967; Chenhall et al., 1981). The rationale is that as the environment is continually changing (i.e., dynamic), the manager needs to be very responsive and adaptive in order to ensure the firm’s survival. Decisions need to be made in a more timely manner so that the information gathered will not lose its decision-usefulness value. Managers cannot rely on standardized procedures; rather, the procedures should be made flexible enough to respond effectively to the environment. The tendency to adopt a highly-decentralized structure (i.e., organic) when high environmental uncertainty

is perceived has been empirically supported by Gordon and Narayanan (1984).

In a highly stable environment, tasks are relatively routine and hence standardized procedures seem to be appropriate for operational purposes. Hopwood (1972) argued that accounting data (reported in performance reports) is not reflective of actual managerial performance if the environment is constantly changing. Performance reports present only the outcomes, while the managerial processes through which decision making is constantly required is not accounted for. If the organization adopts a highly decentralized structure, implying a highly uncertain, dynamic and complex environment, high reliance on accounting data does not seem appropriate. As argued by Hopwood (1972), the use of a budget constrained approach (i.e., high reliance on accounting data) would potentially lead to dysfunctional behaviours, *inter alia*, high JRT and low performance among the managers. The evidence he presented supports the contention. Govindarajan's (1984) findings also support the contention; he found that high (low) budget emphasis when coupled with low (high) environmental uncertainty would result in improved performance.

Since the environment in a highly decentralized company is not stagnant, the outcomes from managers' decisions may not be materially visible in a relatively short period of time (e.g., one year). As budgets usually cover a period of up to one year, high emphasis on budgets may not be appropriate for a firm adopting a highly decentralized structure. Hopwood (1972) also argued that a firm with high reliance on budgets evaluates managers on the basis of their ability to meet short-term attainments. He argued further that a firm with a profits-conscious style (i.e., less emphasis on budgets), on the contrary, evaluates managers on the basis of their ability to achieve the firm's long run goals.

The use of budgets in performance evaluation may thus be appropriate in a highly centralized firm, where the tasks are expected to be repetitive, the relationship between inputs and outputs is fairly stable and known, and the disturbance from the external environment is low. The outcomes from operating decisions are visible in a relatively short period and are capable of being shown in the performance reports. Therefore, the time frame covered by the budgets is sufficient to evaluate the managers concerned. Hence, the practice of relying on the budgets may not result in dysfunctional behaviours among the managers in a highly centralized firm (i.e., low degree of decentralization).

Misfits and uncertainties as a result of evaluating managerial performance on the basis of budgets will cause conflicts, tensions, and anxieties among the managers being evaluated (Hopwood, 1972). As a consequence, the managers will be likely to experience a high JRT and a lower level of

performance. To summarize, the relationships between variables may be diagrammatically depicted as in Figure 1 below.

Figure 1
Degree of Decentralization

		high	low
Budget emphasis	high	incongruent (low performance and high JRT)	congruent (high performance and low JRT)
	low	congruent (high performance and low JRT)	incongruent (low performance and high JRT)

Following from the above discussion, two hypotheses can be tested. Firstly, high (low) reliance on budgets will directly and negatively (positively) associate with job performance when the situation of low (high) degree of decentralization holds. Secondly, high (low) reliance on budgets will directly and negatively (positively) associate with JRT when the situation of low (high) degree of decentralization prevails. In their null forms, the hypotheses can be stated as follows:

- 1) H₀₁: Organizational structure will not significantly interact with budget emphasis thereby influencing job performance.
- 2) H₀₂: Organizational structure will not significantly interact with budget emphasis thereby influencing JRT.

METHOD

To test the above hypotheses, a cross-sectional empirical study was carried out, with data collected from profit-oriented, medium size firms located in the major cities of Peninsular Malaysia. The sample consisted of middle-level managers of 139 companies listed on the Kuala Lumpur Stock Exchange. The study employed a questionnaire-based survey method in the data collection process.

Budget emphasis was measured using Brownell and Hirst's (1986) instrument. The instrument listed ten performance criteria, two of which were accounting-based; the remaining were non-accounting-based. The instrument originated from the studies of Hopwood (1972) and Otley (1978), and had been modified to make it more applicable to non-

manufacturing settings, which was the focus of this study. Respondents were asked to rate the importance attached to each criterion by their superior on a five-point Likert-type scale.

To Measure the JRT, the JRT index of Kahn et al. (1964) and the scale developed by Rizzo et al. (1970) were utilized. The index used fifteen items, which required self-reports by the respondents of how frequently they felt "bothered" by certain aspects of their work situations. The index encompassed four dimensions of job stress: role ambiguity, role conflict, role overload, and resource inadequacy.

Job performance was measured using an instrument previously developed by Mahoney et al. (1963, 1965). The instrument was nine-dimensional, requiring respondents to rate their own performance. It called for a single overall performance in addition to the eight sub-dimensions of managerial performance: planning, investigating, coordinating, evaluating, supervising, staffing, negotiating, and representing. The overall rating was used as a measure for managerial performance, the validity of which was shown by regressing the overall rating on the eight sub-dimensions. Mahoney et al.'s (1963) work suggested that the variance resulting from the regression should explain about fifty five per cent of the variance in the overall rating.

Organizational structure was measured using Gordon and Narayanan's (1984) instrument. The construct was measured by five questions about degree centralization, normalization of authority, and the degree to which general characteristics of bureaucracy existed in the organization. Each of the questions was measured on a seven-point scale. The average score of all the questions was used as the measure of the degree of decentralization existing in the respondent's organization.

DATA ANALYSIS

The hypotheses were tested using a multiple regression model. The test would determine the extent of the interactive effects of organizational structure and budget emphasis on both job performance and JRT. The regression model was as follows:

$$Y = a + b_1 \cdot x_1 + b_2 \cdot x_2 + b_3 \cdot x_1 \cdot x_2 + e,$$

where Y = performance/JRT,
 x_1 = budget emphasis,
 x_2 = organization structure, and
 e = error term.

The b_3 coefficient would determine the interactive effects of budget emphasis and organizational structure. However, an additional test, namely Pearson's correlation, was also employed to understand further the relationship between the variables in the study. In addition, the data collected were also categorized so that they could fit the cells illustrated in Figure 1. Consequently, the means of each cell would be compared with each other against the mean of the observations as a whole to investigate difference in means between the cells.

RESULTS

Of the 139 sets of questionnaire distributed, twenty-three were returned, representing a response rate of seventeen per cent. The researcher's investigation of ten empirical articles, recently published in some accounting journals¹, which used regression analysis for hypothesis testing, revealed that, after discarding outliers, the average number of observations (i.e., cases) was 62.75. Since the number of observations (i.e., cases) for the present study was far below the average, the results would need to be interpreted with caution as they would be potentially driven by the small number of cases included in the regression. Based on the twenty-three responses, the average age of the respondents was thirty-six years old. Their average working experience (in their current areas) was 9.5 years and their average years in the current position was three years. The average number of employees directly under the supervision of the respondents was sixty-seven.

A regression analysis of job performance found that the eight sub-dimensions of the performance measurement explained only 44.28 per cent of the variance in the overall rating of performance. The finding was not supportive of the requirement laid out by Mahoney et al. (1963) whereby the variance should not be less than fifty-five per cent. Once again, the results of the statistical analysis would need to be cautiously interpreted in the light of the constraints.

Table 1 and Table 2 show the results obtained from a multiple regression test, with job performance as the dependent variable in the former and with JRT as the dependent variable in the latter. The coefficient of interest for the purpose of testing the null hypotheses, was the b_3 and its attached p-value as indicated in both of the tables.

The b_3 was expected to be positive. According to Table 1, the beta coefficient of b_3 was positive, which was supportive of the alternative hypothesis. However, its statistical insignificance led to the acceptance of the null hypothesis (H_0). Therefore, there were no interactive effects between budget emphasis and organizational structure on job performance. None

of the variables (i.e., b_1 and b_2) were statistically significant, which was contradictory to both Hopwood (1972) and Otley's (1978) findings. The low F-ratio suggested that all the independent variables were not significant in the regression model. Hence, all the beta coefficients were not significantly different from zero.

Table 1
Regression of Job Performance on Budget
Emphasis and Organizational Structure

Variable	DF	Parameter estimate (beta)	Std. error	t-value	p-value
intercept	1	47.34	37.44	1.265	0.2267
b1	1	-9.10	8.32	-1.094	0.2923
b2	1	-11.56	10.36	-1.115	0.2834
b3	1	2.50	2.31	1.084	0.2967

F-value=0.585 (0.6345*), R-square=0.11

* p-value

Table 2 presents the findings for the testing of H_{0_2} .

Table 2
Regression of JRT on Budget Emphasis
and Organizational Structure

Variable	DF	Parameter estimate (beta)	Std. error	t-value	p-value
intercept	1	8.92	12.79	0.697	0.4971
b1	1	-1.47	2.84	-0.517	0.6130
b2	1	-1.07	3.54	-0.304	0.7653
b3	1	0.24	0.79	0.305	0.7651

F-value=1.593(0.2357**), R-square=0.25

** p-value

According to Table 2, the b_3 coefficient, which was used to test H_{02} , was positive (and in the hypothesized direction), but it was not statistically significant. Therefore the null hypothesis of no interaction between budget emphasis and organizational structure on JRT was accepted. The low value of F-ratio indicated that the independent variables were not significant in explaining the JRT. Hence, all the beta coefficients were not significantly different from zero.

To understand the relationships between the variables, a correlation test was also conducted (findings are not presented in detail here). The results showed that only the correlation coefficient between JRT and budget emphasis was statistically significant. The coefficient was negative and its p-value was 0.03, which was supportive of previous findings by Otley (1978).

Figure 2 below attempts to fit the figures into the cells of Figure 1. The figures at the top of each cell represent the mean value of job performance of the respective cell and the figures in brackets represent the mean value of job performance of the observations as a whole. The figures at the bottom of each cell represent the mean for JRT of the respective cell and the figures adjacent to it (in brackets) represent the mean value of JRT for the observations as a whole.

Figure 2
Degree of Decentralization

		Degree of Decentralization	
		high	low
Budget emphasis	high	5.00 (5.3) 2.38 (2.4)	5.11 (5.3) 2.27 (2.4)
	low	5.3 (5.3) 2.66 (2.40)	5.00 (5.3) 2.50 (2.4)

As depicted earlier in Figure 1, the theory suggested that, job performance would be higher and the JRT would be lower in the cells at the top right and at the bottom left (signified as congruent cells in Figure 1) compared to the other two cells. Both of the (congruent cells) suggest that job performance was higher relative to the other two incongruent cells; this was consistent with the theory. However, for JRT, only the top right cell supported the contention that JRT should be lower, while the bottom left cell did not support the contention. Unfortunately, none of the means in the cells was statistically significantly different from the mean of the observations as a whole.

DISCUSSION AND CONCLUSION

The very low response rate, from an already low number of cases, might have contributed to the disappointing findings of this study. Not only did the findings fail to support the researcher's contentions, they also failed to provide evidence consistent with those of previous research. The fact that the interactive effects of organizational structure and budget emphasis were not significant both for job performance and JRT was supported in the Pearson's correlation analysis. The analysis showed, among other things, that the correlation coefficient of organizational structure and budget emphasis was negative and its attached p-value was not statistically significant. The analysis also revealed that budget emphasis was negatively correlated with JRT and the coefficient was statistically significant. The findings, then, were not supportive of the findings of Hopwood (1972), but to some extent, were supportive of Otley's (1978). One explanation that could be offered for the findings was that the sample firms were not drawn solely from manufacturing companies (as opposed to Hopwood's sample), but rather, from a combination of different types of businesses (including service sectors). The issue of budgets originated from the manufacturing sector, which was the focus of Hopwood's study. Compared to other sectors, manufacturing relies heavily on budgets because they are used as plans for annual operations, which involve budgets for production of outputs. The consequence of combining all sectors in the analysis is a zero effect, with one effect balancing out the other.

Finally, as argued by Govindarajan (1984), the sample firms in Hopwood's study were cost centres, whereas the sample firms in Otley's were profit centres. Therefore, the nature of the sample firms in this study might have borne more resemblance to Otley's than to Hopwood's.

STUDY LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

The study did not measure the type of environment in which the sample firms operated. Hence, the degree of decentralization prevailing in the firms was taken as it was, without attempting to find the rationale for adopting the decentralization. Therefore, future research can be more fruitful if the type of environment in which a firm operates is incorporated in the study. The study can then employ a three-way interaction between budget emphasis, organizational structure, and the type of environment. Secondly, the study was conducted on a cross-sectional basis. It might be a good idea to use a sample consisting of four companies which fit the matrix presented in Figure 1 well, and thereby obtain the effects of the combination on both JRT and job performance. Such a study might best be conducted using a case study approach.

Finally, the small number of respondents is an issue that may be addressed in future research. The study may be replicated with a larger number of respondents, for example, sixty three respondents (i.e., the average number of cases suggested in the ten published empirical papers reviewed by the researcher). With a larger number of respondents, better and more meaningful conclusions could then be reached.

NOTE

1. The journals included *Accounting, Organizations, and Society*, *Contemporary Accounting Research*, and *Journal of Accounting and Public Policy*.

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