An Adaptive Model of the Effect of Environment, Structure, and Diversification on Strategic Performance

Kamel E. Ghorab, Ph. D., Fadia M. Hegazy, Ph.D.

Abstract-- The current study is an attempt to investigate the environment-strategy-structure-performance relationships in an integrative sense. This investigation is performed in light of the adaptive strategy model. Statistical analysis is performed using the PLS method on a structural equations framework. Analysis of data from 112 large manufacturing firms has yielded significant findings. (1) analyzing strategic performance in terms of slack generation, slack investment, and stakeholders' satisfaction provides additional dimensions to modeling the environment-strategy-structure-performance relationships, (2) higher levels of environmental munificence were associated with lower levels of diversification, and higher levels of slack generation, (3) higher levels of environmental instability were associated with lower levels of diversification, divisionalization and slack investment, (4) higher levels of diversification and divisionalization were associated with higher levels of slack generation and investment, (5) size did not mediate the strategy-structure relationship, (6) both a firm's ability to generate slack and its ability to invest it were positively associated with its stakeholders' satisfaction.

INTRODUCTION

Investigation of the relationship between strategy and structure is central to strategic management. Since Chandler's [22] study on the relation between strategy and structure, research in this area has branched into two streams. The first stream of studies has concerned itself with investigating the dynamics and performance implications of degree of diversification-organization interface [24] [58] [60] [62] [64] [70] [78] [79] [86]. The second stream of studies has focused on linkages among environmental characteristics, organizational strategy, structure, size, and performance outcomes [2] [6] [8] [9] [13] [18] [23] [37x] [38] [47z] [50] [67]. The merits of these two schools of thought suggest the potential of integrative research.

Although many researchers, [56] [32] [57] for example, have called for the examination of the simultaneous relationships among strategy, structure, and environmental variables, few have tried to examine those relationships in a systemic manner.

In response to those suggestions, Keats & Hitt [48] have developed and tested an integrative model of relationships among environmental dimensions, diversification, firm size, structural divisionalization, and economic performance. Their methodology was based on structural equations analysis. Their results provided support for portions of all three models of environment-organizational strategy-economic performance interface described by Romanelli & Tushman [69] - the external control, strategic management, and inertial models. However, the strategic management model received the weakest support. In the study conclusion, the authors called for future research to assess their model and improve on it.

The current study is an attempt to investigate the relationships in the strategic management model. It focuses on reexamining strategic management as it relates to organizational functioning. It will attempt to answer a major question: Will the above-described model (Keat & Hitt’s) hold if a different setting is employed and more variables are introduced to it? The model assumptions will not be examined, however its conclusions will be.

Since the main interest of the current study is in examining the strategic management model in particular, therefore we decided to base our analysis on a well established framework of strategic management described by Chaffee [19]. An adequate introduction of his framework will be detailed in the next section on review of related literature.

THEORETICAL FOUNDATION

Models of Strategy

Virtually everyone writing on strategy agrees that no consensus on its definition exists [15] [37] [41] [45] [52] [72] [74] [77]. Analysis by Chaffee [19], reveals that the strategy definitions in the literature cluster into three distinct groups based on each group primary focus: a linear strategy model, an adaptive strategy model, and an interpretive strategy model.

Linear Strategy. It is widely adopted and focused on sequential action involved in strategic planning [22]. It portrays top management as having substantial flexibility to change the organization. Through its strategy, an organization deals with its stakeholders' satisfaction. This model suggests dominance of the environment-
organization-performance (profitability and productivity) relationships in a sequential time-frame fashion.

Adaptive Strategy. According to this model, the organization is expected continually to assess its internal as well as external environment variables. It proposes that the organization and its parts change in order to be aligned with the environment conditions [43]. This model suggests dominance of environment-organization-performance (generation and investment of slack and stockholders' satisfaction) relationships in a simultaneous time frame fashion.

Interpretive Strategy. This model defines strategy as orienting frames of reference that allow the organization and its environment to be understood by organizational stakeholders and motivates them to act in ways that are expected to produce favorable results [82]. It is based on a social contract, rather than an organismic or biological view of the organization [49]. Moreover, it emphasizes to deal with the environment through symbolic actions and communications. Still in its attempts to deal with structural complexity, notably conflicting and changing demands for organizational output, it emphasizes attitudinal and cognitive complexity among diverse stakeholders in the organization. This model suggests dominance of stakeholders' satisfaction-traditional performance (generation of slack)-strategy (investment of slack) relationships and environment-stakeholders' satisfaction relationships.

Given the current study purpose, it is decided to employ the adaptive model as a theoretical basis to the empirical investigation. It is considerably difficult, given available resources, to collect the required data to examine aforementioned relationships based on the interpretive model. The relationships under investigation in the adaptive model are more complex and dynamic than in the linear model.

Strategy and Structure
A basic premise of thinking about strategy concerns the inseparability of organization and environment [11] [51] [80]. The organization uses strategy to deal with changing environment. Examining the variables included in Keats & Hitt’s (1988) model, the hypothesized relationships among these variables, and the employed analytical approach, it is found that most of these aspects agree with the current study. Therefore, these aspects will be employed in the adaptive strategy model investigated here.

Figure 1. Adaptive Strategy Model Hypothesized Relationships

Environment

- Time (t)
- Munificence
- Instability
- Complexity

Strategy

- (t+1)
- Diversification
- Size
- Divisionalization

Performance

- (t+2)
- Slack Generation
- Slack Investment
- Stakeholders’ Satisfaction

H1, H2, H3, H4, H5, H6, H7, H8, H9, H10, H11, H12, H13, H14, H15, H16, H17, H18, H19
H1: It is expected environmental that munificence will have a negative effect on diversification strategy. An organization may attempt to buffer itself in response to perceived volatility or low munificence in a particular domain through diversification [55] [60x].

H2: It is expected that environmental instability will have a negative impact on diversification. Divisionalization allows development of specialized knowledge to deal with specific environmental elements (e.g., instability and complexity) and creates decentralized decision-making authority to take needed actions [83] [47x].

H3: It is expected that environmental instability will have a negative effect on diversification strategy [55]. The adaptive model tends to focus the manager’s attention on means, and the ‘goal’ is represented by coalignment of the organization with its environment. Rather than assuming that the organization must deal with the environment, this model assumes that the organization must change with the environment [44] [73].

H4: It is expected that environmental complexity will have a positive effect on divisionalization. MacCrimmon and Taylor [54] and Bobbitt and Ford [14] suggested that organizational decision makers deal with environmental complexity by structural divisionalization.

H5: It is expected that diversification strategy will have a positive effect on the organization size. Growth in size may result from diversification, often accomplished via acquisition of other firms [42] [87]. Grinyer and Yasai-Ardekani [38] found that size was correlated with both diversification strategy and structure. They suggested that firm size may mediate the strategy-structure relationship. Beyer and Trice [10] suggested that the relationship between size and structural complexity depends on firm strategy. Thus, increased diversification may result in increased size, making a firm more complex to manage.

H6: It is expected that organization size will have a positive effect on diversification strategy. Size may also affect diversification-strategy decisions. As firms grow, they tend to increase their market share and enjoy economies of scale, thereby increasing their market power and organizational slack [15] [16]. These in turn provide a firm with the ability and resources to seek further diversification [53]. However, Hannan and Freeman [40] argued that inertia also increases with size. At some point, firm size may constrain further diversification moves.

H7: It is expected that organization size will have a positive impact on divisionalization. Increased size may exert administrative pressures on a firm's structural configuration, requiring increased decentralization and specialization of decision making [42].

H8: Divisionalization may also positively affect a firm's diversification. Pitts [63] argued that structure institutionalizes strategy and thereby provides the premises for strategic decision making. Additionally, Staw, Sandelands, and Dutton [76] and Christensen & Stevenson [25x] suggested that executives' commitments to established policies preclude perception of threats or need for change. Thus, structure influences strategy.

H9: It is expected that increased divisionalization will result positive slack generation. Bettis and Hall [8] and Montgomery [58] questioned that linkage. Increased size may strain the increasingly decentralized authority [12].

H10: It is expected that increased diversification will have a positive effect on slack generation.

H11: It is expected that diversification strategy will have a positive effect on slack investment.

H12: It is expected that divisionalization will have a positive impact on slack investment. The transformation processes pursued by a firm can be classified into two broad categories: adaptive specialization and adaptive generalization [20] [21]. In adaptive specialization, the emphasis is predominantly on profitably exploiting the firm's current environment, and generating a net surplus of contributions over the inducements paid to various stakeholders of the firm for their cooperation [4]. Adaptive generalization, on the other hand, is concerned with the investment of the firm's net surplus of 'slack' resources [28] for improving its ability to adapt to uncertain or even unknown future environments.

H13: It is expected that as slack generation increases, it will lead to increased slack investment. A firm's ability to invest its slack depends on its ability to generate this slack.

H14: It is expected that as slack generation increases, it will improves stakeholders’ satisfaction.

H15: It is expected that as slack investment increase, it will improves stakeholders’ satisfaction.

H16: It is expected that environmental munificence will have a positive impact on slack generation. Munificent environments...
present opportunities for promoting slack resources that can support growth [48].

H17: It is expected that environmental instability will have a negative impact on slack generation. A firm will invest its net surplus of 'slack' resources [28] for improving its ability to adapt to uncertain or even unknown future environments.

H18: The primary influence of environmental munificence is on the firm size. It is expected that environmental munificence will positively affect the organization size. Munificent environments present opportunities for expansion in existing and new markets.

H19: It is expected that environmental complexity will have a negative impact on divisionalization. Complex environments may place constraints on firm growth. According to Lawrence and Lorsch [50], complex environments require high internal differentiation. Therefore, firms must use resources to train, hire, and develop specialists to manage interdependencies in their environment. Thus, they have fewer resources to invest in assets or external market promotion designed to increase product sales and market share.

In their study, Keats & Hitt [48] have found that: (1) The influence of environmental instability was pervasive. On one hand, it had significant negative effects on diversification, divisionalization, and operating performance. On the other hand, it had significant positive effects on market performance. (2) Neither munificence nor complexity exhibited a significant relationship with diversification, divisionalization, or either performance dimension. (3) Both munificence and complexity exhibited significant relationships with organization size. The first had a positive effect while the second had a negative impact on size. Divisionalization had significant positive effect on diversification. However, size did not exhibit the mediating role suggested by related literature [38]. (4) Diversification strategy exhibited a significant relationship with only one of the two performance dimensions; it had positive effect on market performance. (5) Operating performance had a significant negative impact on market performance.

METHODS

Study Sample
Our study sample was drawn from Rumelt's [71] diversification strategy and corporate structure database. Most of the firms in the database (252 of 262) were in manufacturing. Three criteria were followed in selecting the sample firms: (1) the few firms involved with retailing or services were excluded to maintain comparability with related studies. (2) the firms that were objects of merger or acquisition, or had exhibited a major shift in industrial or major-product-group classification over the time frame of the study were excluded too. (3) the accessibility of all study relevant data.

The 112 firms thus selected represent a broad range of industries, all with two-digit Standard Industrial Classification (SIC) codes between 20 and 39. The sizes of the firms ranged from $162 million to $23 billion in sales (median = $1.45 billion) and from $96 million to $17 billion in net assets (median = $1.0 billion).

Table 1 shows the composition of selected sample compared with that of the Fortune 500. The range of diversification represented is slightly more constrained than that of the entire Fortune 500. In two cases we have to use trend analysis in order to extrapolate three missing values of R & D expenditures in order to complete the set of data.

<table>
<thead>
<tr>
<th>Category</th>
<th>Percent in Current Study Sample</th>
<th>Percent in Fortune 500</th>
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<tbody>
<tr>
<td>Single-business</td>
<td>11.8</td>
<td>14.4</td>
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<tr>
<td>Dominant</td>
<td>36.6</td>
<td>22.6</td>
</tr>
<tr>
<td>Related</td>
<td>46.4</td>
<td>42.3</td>
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<tr>
<td>Unrelated</td>
<td>5.5</td>
<td>20.7</td>
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</table>

Construct and Variable Measurement
Since the constructs in Figures 2 are not directly measurable they must be implied from measured variables. Accordingly, a ‘latent variable’ design with multiple indicators for each construct was chosen. Constructs are represented by a combination of variables that can be empirically measured. This latent variable design has recently been applied in the management literature (e.g. Bagozzi [3]; Chin [24x]; Fornell & Larcker [35]; Peterson [62x]; Venkatraman & Ramanujam [81]; Keats & Hitt [48]).
Measures of Environmental Characteristics
The environmental dimensions were operationally defined in terms of the SIC codes. Related literature has supported the use of industry as a suitable aggregate for the study of organizational actions [29].

Following the same method used by Keats & Hitt [48], the selection of environmental indicators was based on examination of Dess and Beard's [29] factor loadings. The variables that had strong factor loadings on their respective factors (munificence, instability, complexity) and relatively weak loadings on the others were adapted, thus enhancing construct validity. Data for the environmental measures of industry munificence and instability were obtained from Annual Survey of Manufactures and from COMPUSTAT tapes for industry complexity. Environmental indicators will computed over the period 1969-1978.

Munificence. Starbuck [75] and Aldrich [1] state that organizations seek out environments that permit organizational growth and stability. Dess and Beard [29] study suggested that industry growth in sales ($r_s$), price-cost margin ($r_{pc}$), total employment ($r_{emp}$), and value added ($r_{va}$) were loaded highly on the munificence factor. Following that result, the current study designated these four indicators for environmental munificence to estimate the adaptive strategy model. They were specified as the rate of growth (regression slope coefficient of the dependent variable against time over a ten-year period 1964-1973 or 1969-1978) divided by the mean value of the dependent variable (to adjust for absolute industry size). Total sales = Value of shipments, price-cost margin = value added by manufacture minus total wages. Data for these variables are taken from Census of Manufactures 1964-1978.

Instability. Much of the literature in organization theory and business policy theory has dealt with instability and suggests that turnover, absence of pattern, and unpredictability are the best measures of environmental stability-instability. Aldrich [1] stated that environmental turbulence "leads to internally induced change ... that are obscure to administrators and difficult to plan for" (1979:p. 69). Dess and Beard [29] study suggested that volatility of sales ($\text{var}_s$), price-cost margin ($\text{var}_{pc}$), employment ($\text{var}_{emp}$), and value added ($\text{var}_{va}$) in the dominant industry over the period of study were loaded highly on the instability factor. Following that result the current study designated these four indicators for environmental instability to estimate the strategic management model. Standard error of the regression slope coefficient divided by mean value to measure the dispersion about the regression line obtained when each dependent variable was regressed on time over the period 1964-1973 or 1969-1978. Data for these variables are taken from Census of Manufacturers 1964-1978.

Complexity. Three elements are of concern when dealing with environmental complexity. They are: the number, diversity, and distribution of task-environments elements [1] [29]. In this research, the indicator for the complexity dimension for the study period is computed based on Grossack's [39] dynamic measure of industry concentration. Regression coefficient of terminal-year market shares of all firms in a given industry upon their shares in the initial year. Data for these variables are extracted from COMPUSTAT database.

Measures of Organizational Characteristics
Diversification Strategy. Rumelt's [70] system of diversification categories is adopted here. Related literature has reported strong support of Rumelt's ratio-based measure [25] [58] [30]. The values for this variable are obtained from Rumelt's 1978 data bank. The level of diversification for each firm as of 1974 is ranked from 1 to 9, according to the following order of categories: single business, single vertically integrated business, dominant-product vertically integrated business, dominant constrained, dominant linked, dominant unrelated, related constrained, related linked, unrelated businesses, multibusiness and unrelated portfolio.

Size. For a study of this nature, related literature suggests for a study to use size measures that reflect firm sales and assets [46]. Thus, in the present study, size is measured in terms of dollar sales volume (SV) and net assets (NTA) for 1974. Values for those measure are obtained from COMPUSTAT tapes.

Structural Divisionalization. This study employs Rumelt's 1974 system of structural divisionalization. The values for this variable are obtained from Rumelt's 1978 data bank. The level of divisionalization for each firm as of 1974 is ranked from 1 to 5, according to the following order of categories: simple functional organization, functional organization with subsidiaries for separate products, geographic divisions, product divisions, and the highly decentralized holding company form with a small head office.

Measures of Performance
Measures Of The Quality Of A Firm's Transformation. Performance measures that help evaluate the quality of a firm's
transformation processes pursued by a firm can be classified into two broad categories: adaptive specialization and adaptive generalization. Generation of slack can often be quantified through financial measures; however, evaluating how well a firm has invested its slack is more difficult.

This study uses a few of the publicly reported financial measures for evaluating the manner in which a firm has managed its slack resources. Five variables are selected to assess a firm's ability to generate slack. Profitability is an obvious determinant of a firm's slack resources. This study uses cashflow by investment ratio (CFBYIN) as a measure of profitability. Productivity is another important measure of a firm's ability to generate slack. Sales revenue per employee (SABYEM) is a crude measure of the firm's labor productivity, and the firm's sales revenue per dollar of total assets (SABYTA) is a measure of its capital productivity.

The ability of the firm to raise long-term capital resources is yet another measure of the slack available to it. Two popular measures of this ability are its market to book ratio (MBYB) and its long-term debt to equity ratio (LDTBYEQ) [16].

Five variables are chosen to evaluate a firm's ability to invest its available slack. A popular measure of a firm's investment in its future is the percentage of its sales revenues that it allocates to R & D expenses (RDBYSA) [61] [9]. Another measure is the percentage of sales revenues that the firm allocates to advertising expenses (ADBYSA) [9]. Other uses of the firm's slack are abnormal increases in its fixed and working capital expenditures [16], as measured by increases in the capital expenditures to sales ratio (CEBYSA) and working capital to sales ratio (WCBYSA). Dividend payout ratio (DIVPAY) was used as a third measure of slack usage [16].

**Measures of Multiple Stakeholders’ Satisfaction.** A necessary condition for excellence is the continued cooperation of the firm's multiple stakeholders. Minimizing their dissatisfaction should be a concurrent objective of 'excellent' companies. Stockholders' satisfaction is assessed in terms of three variables: quality of management value as a long-term investment measured by after-tax return on shareholders' equity (ROA), price/earning ratio (PE) and dividend to equity ratio (DIVBYEQ), and financial soundness measured by the firm's quick ratio or current assets excluding inventories by current liabilities (QUICK) and total debt to equity ratio (DBYEQ), and use of corporate assets measured by the firm's pre-tax return on gross assets (ROA). Quality of management as a variable of stakeholders’ satisfaction was dropped because it is extremely difficult to measure.

Customers' satisfaction is assessed in terms of three variables: quality of products and services measured by cost of goods sold as a percentage of sales revenues, and innovation measured by R & D as a percentage of sales revenues (RDBYSA) and product differentiation measured by advertising expenditures as a percentage of sales revenues (ADBYSA). Order backlog as a percentage of sales revenues is a feasible measure of a firm's quality of products and services nonetheless it is dropped because of lack of data.

Employees' satisfaction is assessed in terms of the firm's ability to attract and keep its employees measured by per employee labor and related expenses (LBYEMP).

Community satisfaction evaluated in terms of the firm's social responsibility is extremely difficult to measure using available data in the study databank. Therefore, it is dropped.

**Testing Procedure**

A structural modeling approach was chosen to evaluate both error in construct measurement and error in hypothesized relations. Rather than using the well-known LISREL model [47], Wold's method [84] [85] of latent variables partial least-squares (PLS) was employed. The choice was motivated by several considerations. First, managerial data do not often satisfy the requirements of multi-normality and interval scaling, or attain the sample size required by maximum-likelihood estimation (ML). Second, Wold's method of PLS avoids many of the restrictive assumptions underlying ML techniques and ensures against improper solutions and factor indeterminacy.

A general PLS model is composed of two parts: the structural model and the measurement model. The structural model specifies the relations among the constructs (or latent variables) while the measurement model specifies the relations between the manifest variables and the constructs which they represent. It is assumed for estimation purposes that the unobservables are specified as linear combinations of their respective indicators and, for convenience, that all variables are standardized. The measurement model enables us to evaluate whether the constructs are measured with satisfactory accuracy.
RESULTS

The Measurement Model

Table II contains the PLS descriptive statistics for the measurement model. Average variance captured ($r_{vc}$) ranges between 0.69 and 0.90. These results indicate satisfactory convergent validity for all constructs in the theoretical model. Moreover, the reasonably low average squared correlations among constructs indicate that the model also satisfies the condition of discriminant validity in the given formulation.

<table>
<thead>
<tr>
<th>Table II: Measurement Model Descriptive Statistics</th>
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<tr>
<td><strong>PLS Descriptive Statistics</strong></td>
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<tr>
<td><strong>Convergent Validity</strong></td>
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<td>Munificence</td>
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<td>Instability</td>
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<td>Complexity</td>
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<td>Diversification</td>
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<td>Size</td>
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<td>Divisionalization</td>
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<td>Slack Generation</td>
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<td>Slack Investment</td>
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<td>Stackholders’ Satisfaction</td>
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<td><strong>Discriminant Validity</strong></td>
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<td>Divisionalization</td>
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(a) Average variance captured
(b) Average of the squared correlations of the parameter of the particular construct with all other constructs
(c) The construct is based on a single indicator.
Table III reports the PLS parameter estimates and the error variance of each indicator for the measurement model. One notes that across all indicators and constructs the measurement model loadings are high and consistent in sign, and the residual variances are generally small. Thus, it can be concluded that the constructs of interest are measured in this case with more precision.

<table>
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TABLE III (continued)

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<td></td>
<td>ADBYS A</td>
<td>.66</td>
<td>.29</td>
</tr>
<tr>
<td></td>
<td>LBYS A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(a) indicates a fixed or single indicator.

The Structural Model

The estimates of the structural model are reported in Table IV. Also given in this table are the jack-knife t-test significance results (see Fenwick [33] for the underlying computational procedure).
TABLE IV  
Structural Model Parameter Estimates

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Relation</th>
<th>PLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>MUNF ➔ DF (-)</td>
<td>-.29*</td>
</tr>
<tr>
<td>H2</td>
<td>INST ➔ DV (-)</td>
<td>-.32*</td>
</tr>
<tr>
<td>H3</td>
<td>INST ➔ DF (-)</td>
<td>-.45*</td>
</tr>
<tr>
<td>H4</td>
<td>COMP ➔ DV (+)</td>
<td>.11</td>
</tr>
<tr>
<td>H5</td>
<td>DF ➔ SZ (+)</td>
<td>-.04</td>
</tr>
<tr>
<td>H6</td>
<td>SZ ➔ DF (+)</td>
<td>.08</td>
</tr>
<tr>
<td>H7</td>
<td>SZ ➔ DV (+)</td>
<td>.12</td>
</tr>
<tr>
<td>H8</td>
<td>DV ➔ DF (+)</td>
<td>.19</td>
</tr>
<tr>
<td>H9</td>
<td>DV ➔ GS (+)</td>
<td>.27</td>
</tr>
<tr>
<td>H10</td>
<td>DF ➔ GS (+)</td>
<td>.23</td>
</tr>
<tr>
<td>H11</td>
<td>DF ➔ IS (+)</td>
<td>.20</td>
</tr>
<tr>
<td>H12</td>
<td>DV ➔ IS (+)</td>
<td>.41</td>
</tr>
<tr>
<td>H13</td>
<td>GS ➔ IS (+)</td>
<td>.56</td>
</tr>
<tr>
<td>H14</td>
<td>GS ➔ SS (+)</td>
<td>.23</td>
</tr>
<tr>
<td>H15</td>
<td>IS ➔ SS (+)</td>
<td>.87</td>
</tr>
<tr>
<td>H16</td>
<td>MUNF ➔ GS (+)</td>
<td>.67*</td>
</tr>
<tr>
<td>H17</td>
<td>INST ➔ IS (-)</td>
<td>-.33*</td>
</tr>
<tr>
<td>H18</td>
<td>MUNF ➔ SZ (+)</td>
<td>.58</td>
</tr>
<tr>
<td>H19</td>
<td>COMP ➔ SZ (-)</td>
<td>-.31*</td>
</tr>
</tbody>
</table>

(a) Sign of the hypothesized relationship (direct effect)

(*) Significant at 0.01 significance level

\[
\left[ \frac{(J_p - P)}{(s_p/\sqrt{N})} \right] \times \left[ \frac{1}{(N - 1)/(2N - 1)} \right] \]

The statistic is approximately distributed with N - 1 degrees of freedom 
where \(J_p\) = jack-knife estimate of p, \(s_p\) = standard deviation of the jack-knife estimate, and N = the number of subsamples used for jack-knifing, in this case 111.

One important finding of estimating the model, in its given formulation, is the insignificance of size as a mediating factor as suggested by Grinyer and Yasai-Ardekani [38]. This agrees with Keats & Hitt's [48] findings.

For the adaptive model, size is found to be insignificant as a mediating factor. Only six relationships (H4,H5,H6,H7, and H8) do not pass the 0.01 significance hurdle. Further, the coefficients of determination R² of the diversification, size, generation of slack, investment of slack, and stakeholders' satisfaction relations are 0.61, 0.52, 0.75, 0.68, 0.83, respectively. Given that the stakeholders' satisfaction is the central focus of the model, it is obvious that a satisfactory fit is obtained.
Direct Effects
Environment and Diversification. It was hypothesized that environment (munificence and instability) and diversification levels would be negatively related given the relatively large firms in the study sample (H1 and H3). The results in Table IV support both hypotheses (-0.29 and -0.45). Judging from the size of the coefficients one can conclude that, in the industries studied, the direct effect of adapting to the environmental changes through diversification is quite important. Through its diversification, a firm interprets and adapts to its environment in order to exploit the prevailing opportunities and hedge against any threats in it.

Environment and Size. It was hypothesized that environment munificence and size (H18) would be positively related. Further, environment complexity and size (H19) would be negatively related. The results in Table IV support both expectations (0.58 and -0.31). Munificent environments present opportunities for expansion, on one hand. This agrees with Keats & Hitt’s [48] findings. Complex environments, on the other hand, place constraints on firm growth. This, also, agrees with Lawrence and Lorsch’s [50] arguments.

Environment, Organizational Strategy And Generation Of Slack. It was hypothesized that environmental munificence and generation of slack are positively related (H16). Estimated results in Table IV support this hypothesis (0.67). It indicates that munificent environments induce firm ability to generate slack. Also, it was hypothesized that the higher a firm's diversification level, the better its ability to generate slack would be (H10). In addition, it was argued that the higher a firm's level of divisionalization, the better its ability to generate slack would be (H9). Estimated results show that higher levels of both organizational factors are indeed positively related to a firm's ability to generate slack (0.23 and 0.27). In adapting to the environmental changes, which may represent opportunities or threats, a firm may choose to diversify or restructure to better align itself to its environment.
Environment, Organizational Strategy And Investment Of Slack. It was hypothesized that environment instability and a firm's investment of slack would be negatively related (H17). The results in Table IV show support of this hypothesis (-0.33). This indicates that uncertain environments induce firms to conserve in investing their available slack. Also, it was hypothesized that diversification and divisionalization would be positively related to investment of slack (H11 and H12). The results in Table IV show support of these hypotheses (0.20 and 0.41). This indicates that diversification posture and organizational structure influence a firm's investment strategy. In addition, a firm's ability to generate slack was hypothesized to influence its ability to invest this slack in the positive direction. This is supported by results shown in Table IV (0.56).

Generation Of Slack, Investment Of Slack And Stakeholders’ Satisfaction. It was hypothesized that generation of slack and stakeholders' satisfaction, on one hand, would be positively related (H14), and that investment of slack and stakeholders' satisfaction, on the other hand, would also be positively related (H15). The results in Table IV highly support these two hypotheses (0.23 and 0.87). Based on the size of the second coefficient, a sound investment of strategic slack implies the firm success and satisfies its stakeholders.

Total Effects
The previous discussion was limited to the direct relations among constructs without referring to the indirect effects on endogenous variables. For example, environmental munificence influences an organization's ability to generate slack not only directly, but also through the diversification-generation of slack relation (DF GS). Therefore, indirect effects need to be considered to evaluate the total impact of one construct on another.

An important observation is that none of the relationships commented on earlier changes in sign. Thus, while some effects change in absolute size, the established relationships among the constructs still hold, suggesting that indirect effects are in general less important than the direct effects. Some interesting changes in magnitude are to be noted, however. First, the total effect of environmental munificence on generation of slack (0.48) is lower than the direct effect (0.67). This is probably due to the indirect link (MUNF DF) and (DF GS). While higher industry growth may mean less need to use diversification as a buffer, it is likely to contribute positively to generation of slack. The fact that the total effect of environmental munificence on generation of slack is lower than the direct effect may reflect the mixed effect of diversification on generation of slack, which supports Montgomery's doubts and Bettis and Hall's idea about this linkage.

Second, the total effect of diversification on investment of slack (0.11) is lower than the direct effect (0.20). This is due to the indirect link (GS IS). While diversification may mean higher returns, i.e. generation of slack, that positively affects the ways a firm invests its accumulated slack, a firm can benefit from low levels of diversification to enable it to achieve the advantages of specialization whereas the firms that are not highly diversified nor specialized cannot enjoy high returns. This agrees with PIMS study findings (1974).

DISCUSSION
Results supported a reasonable number of the relationships depicted in the proposed model. The formulated model suggests dynamics similar mainly to Keats & Hitt [48] and different in part from those predicted by past research. However, Keats & Hitt [48] used an integrative model similar to ours, whereas past research primarily examined only parts of a model or used inadequate analytical methods.

The suggested strategic model received strong support. Each of the environmental dimensions and organizational variables was found to affect at least one organizational performance variable in a simultaneous time frame fashion. Clearly, however, firm organizational strategy, in terms of diversification and divisionalization, was the dominant influence in affecting its ability to generate slack. The results show that firms in this study that had high diversification degree and chose to decentralize its decision making had better opportunities to generate different kinds of slack resources. This result is supported by growth potential in the environment which was found significant as an influence on firm ability to generate slack.

In addition, firm diversification and divisionalization strategies were also dominant factors in affecting its ability to invest slack resources. Firms in this study that have generated a great amount of slack resources, diversified its business and chose to decentralize its decision making had better chance to invest their slack resources. This result is supported by low levels of environmental instability which was found significant as an influence on firm ability to invest its slack. However, Bourgeois [17] warned that firms should not necessarily seek reduced uncertainty because this may result in missing opportunities.

Instability was found significant as an influence on firm divisionalization. Instable industries exerted pressure on firm structure, requiring decentralization, which agrees with Williamson [83].
Munificence seem to exert a dominant influence on diversification strategy. Firms in this study were found to buffer themselves in response to low munificence through diversification [55] [25z].

The combination of a good ability to generate slack and a good chance to invest it was found significant as an influence on firm stackeholders' satisfaction [21].

Most of the model dominant theoretical relationships were proven significant. Above all, the model exhibited a good statistical fit.

CONCLUSIONS

The results of this study suggest that a large portion of the adaptive strategy as described by Chaffee [19] has relevance for organizational functioning. Unlike in Keats & Hitt’s model, the strategic management linkages received substantial support in the current study.

The study suggests that better representative model of strategic management yields more relevant information that explain the functional relationships among environment, strategy and performance.

The findings are limited by (1) the fact that estimating the study models is based on the use of accounting data, (2) the proxy measures that are chosen as to estimate the latent variables, (3) the statistical technique that is selected to estimate the relationships of concern to the study, (4) the time period that is used as a timeframe for the statistical analysis, and (5) the model that is employed to represent the relationships among organizational constructs of interest. Future research is suggested to assess the validity of estimated relationships based on different strategic model, such as the interpretive model.

Considering different proxy measures to estimate the latent variables in the model is another area to look at. The use of different structural model is also feasible.

REFERENCES


