REORGANIZATION: CONTINGENT EFFECTS OF CHANGES IN THE CEO AND STRUCTURAL COMPLEXITY

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ABSTRACT

I employed structural contingency theory, neglected in recent organizational studies, to examine two variables, structural complexity and changes in the chief executive officer in their relationship with an important form of change, administrative reorganization. I found that changes in the CEO and structural complexity significantly influence administrative reorganization. Findings also indicated that organizational size is positively related to reorganization. However, environmental munificence, organizational age, and changes in organizational size did not influence reorganization. I argued for the importance of attending to both internal and external pressures for organizational change.

INTRODUCTION

Causes of organizational change have been the subject of interest to many researchers (Bartlett, Ghoshal, & Birkinshaw, 2004; Baker & Cullen, 1993; Haveman, 1993; Chandler, 1962; Hoskisson & Galbraith, 1985; Modarres & Fowler, 2005). Despite the difficulties in its implementation, change seems relatively common and tends to be an integral part of structural redesign, formation of political alliances and shifts in the bases of power (Hall, 2002; Eisenhardt & Bourgeois, 1988), changes in the strategic directions and organizational objectives (e.g., Hoskisson, Hitt & Ireland, 2008), and dynamism in the marketplace (Schilling & Steensma, 2001). Organizations capability to adapt to changing conditions tend to vary. An important area of change concerns with reorganization of administrative framework (e.g., Baker & Cullen, 1993). A number of previous researchers have held to the view that organizational success tends to be contingent on timely reorganization of the administrative framework in response to internal and external environmental conditions (Oliver, 1988; Porter, 1991).

Other researchers have argued that established organizations tend to become inert and rarely reorganize (Hannan & Freeman, 1984; 1989). In this view, in the long term adaptation in response to internal and external forces tend to be improbable. Primarily, due to, idiosyncrasies in investment in organization-specific skills, and complexity of the structural arrangements tend to prolong if not inhibit comprehensive reorganization. Moreover, the executives within structurally complex and bureaucratic organizations tend to be constrained by complex interrelated functions and inertia.
forces; hence, lack capabilities to institute change (e.g., Haveman, 1993). The other stream of research views organizations as flexible and adaptive to evolving market conditions, and top administrators as capable of implementing change. For example, strategic contingency theorists have drawn attention to the importance of strategic choice in implementation of change under various environmental conditions (e.g., Chandler, 1962; Tushman & Romanelli, 1990).

A number of structural contingency theorists (e.g., Blau, 1970; Chandler, 1962; Galbraith, 1973) have argued that internal contextual factors significantly influence organizational structure and change (see Scott, 1992, pp. 226-283 for an extensive review of this literature). Despite this rich heritage of theory and research, there has been a virtual absence of theoretical or empirical work from a structural contingency perspective in the past 15-20 years, prompting Pfeffer (1997:162) in a recent essay on new directions for organization research to ask the question: "What has happened to structural contingency theory?" In the current research I return to the structural contingency perspective and examine two critical variables omitted in past research, structural complexity and changes in the chief executive officer, in their relationship with an important form of change, administrative reorganization.

**THEORY AND HYPOTHESES**

**Changes in CEO and Reorganization**

Previous researchers have considered CEOs as symbolic figures in the organizations with marginal impact on change in organizations. Early research by Cohen and March (1974) showed that complex decision-making processes in higher education institutions relegate the chief executive’s job to a symbolic and illusive position. As such, changes in the chief executive position tend to be marginal or no influence on existing administrative structure. The symbolic aspects of top executive leadership, however, tend to be rooted in the inertia within decision-making processes. That is, top echelon’s commitment to past practices and structural arrangements may also pressure the CEOs to reinforce the commitment to the existing administrative structure and strategic orientation (e.g., Ghemawat, 1990; Tushman & Romanelli, 1990).

Thompson (1967) remarked that complexity of the structure tends to impact CEO’s influence on implementation of change. Thompson provided a paradoxical view about the top executive managers’ capability to influence change. Given the complexity of certain organizations chief executives tend be constrained by diverse interests, hence, unilateral actions by presidents on significant issues are relatively rare. However, for highly complex organization to adapt new strategic directions in response to a new set of environmental circumstances the top executive’s leadership tends to be fundamentally important. Changes in the CEO facilitate a new leadership style that creates opportunities for change and promotes an atmosphere of expectancy about reorganization (e.g., Romanelli & Tushman, 1994). Moreover, new chief executives tend to be
uncommitted to past organizational strategies established by their predecessors, in part, due to differences in their functional background and their perception of environment which tend to influence interpretation of information on organizational effectiveness (e.g., Waller, Huber & Glick, 1995; Dearborn & Simon, 1985; Romanelli & Tushman, 1994). Hence, replacement of top executive tends to have significant consequences for the organization’s structure and decision making processes (Pfeffer, 1981).

According to Miller, Droge and Toulouse (1988), CEOs do influence the direction of the organization through redesigning the administrative framework. However, the impact of CEO on administrative framework tends to be through selection of a number of viable strategies and strategy-making processes within any context (e.g., Porter, 1980). Selection of strategic options influences choices of structural designs that can be used to support and implement CEO’s strategic options. Different strategies require different structural framework (e.g., Miller, 1988), and structures respond to the particular control and coordinative problems created by the strategies and strategy-making processes that are ultimately selected (Nelson & Winter, 1982). Hence, choices of strategies by CEOs require administrative reorganization (e.g., Chandler, 1962; Rumelt, 1986), which permits CEOs to ensure orderly and controlled progress toward their objectives. According to Neilson and McGrath (2007) CEOs tend to make a strong case for change by clearly and persuasively articulating the factors that are driving it. Similarly, Miller, Droge, and Toulouse (1988) remarked that executives make decisions in an intendedly rational way, by performing analysis and consulting frequently with other managers to improve their chances of success. Those activities may, in turn, create a need for structural integration devices to promote consultation and for specialization and controls to provide the expertise and information needed for analysis (e.g., Fredrickson, 1986). Moreover, the new chief executive typically puts in motion a series of actions designed to solidify and institutionalize that executive’s power, which has serious consequences for the careers of other high level administrators (Pfeffer, 1981). That is, the new successor is likely to create a new administrative structure by replacing the occupants of high level positions. Hence, reorganization enhances the ability of the new CEO to implement change.

\[ H1: \quad \text{Changes in chief executive officer is positively associated with administrative reorganization} \]

**Structural Complexity and Rates of Reorganization**

What impact does structural complexity have on the organizational flexibility or stability? Previous research has made contrasting arguments on the association between structural complexity and change (Path II, Figure 1). The relationship between structural complexity and change may be negative. A number of researchers have argued that high levels of complexity foster decomposition of the structure into quasi-autonomous departments. As such, the suppression of the links across
the partition barriers are created between the domains of legitimate actions, as different sets of rules tend to evolve independently in separate domains (March & Olson, 1989) which tend to limit change. Other studies have viewed organizational inertia to be rooted in structural complexity (Tushman & Romanelli, 1985). In this view, greater specialization and structural independence tend to promote greater use of formalized procedures to remedy problems in communication and coordination among activities. The byproduct, however, is more stability and rigidity, since organizations may find it problematic to overrule established control and coordination mechanisms to reorganize. Organizational learning theory also extends a compelling explanation about development of stability in organizations with complex structures (Levitt & March, 1988). The specialization and structural decentralization encourages divisions to develop competencies and accrue experience with technologies and routines. Over time the competence trap occurs as established prior experiences discourage organizations to reorganize and change direction. Hannan and Freeman (1984) argued that high degrees of complexity and structural coupling may greatly slow the required adjustments and change. Moreover drastic reorganization may consolidate greater political opposition by various groups within organization. Similarly, March and Olson (1989) argued that within complex institutions reorganization tends to be a difficult task to accomplish. Resistance by divisional and departmental administrators may inhibit reorganization.

There is also considerable theoretical support for the idea that high structural complexity has the opposite effect. A number of scholars have shown a direct relationship between structural complexity and change. Hage and Aiken (1970) showed that the greater the complexity the higher the rates of change in rendering new services and programs. Increases in the programs and services also require greater coordination of programs and activities. High levels of complexity also tend to stimulate change through structural decentralization and departmentalization of various specialists. Such structural arrangements tend to influence the coordinative mechanisms and necessitate greater administrative efforts (Blau, 1970). Chandler (1962) made a similar argument. In his inductive study, Chandler indicated that administrative reorganization became necessary as organizations diversified into new fields and selected administratively more bureaucratic M-form over U-form structures. Reallocation of administrative duties within M-forms allowed top executives to focus on strategic decisions and future investments (Williamson, 1985).

Similarly, Blau and Schoenherr (1971) argued that structural complexity resulted from proliferation of divisions requires greater portion of top administrative time in communication and coordination of activities. Administrative reorganization reallocates top administrative duties and facilitates a more efficient coordinative mechanism. In this view, structural complexity tends to result in polities built around the principles of division of labor and specialization and partitioning the experts and officials into self-contained separate domains (e.g., March & Olson, 1989). As such, high levels of complexity make integration more problematic (Lawrence & Lorsch, 1967) and increase the internal requirements for coordination among departments which necessitate high rates of reorganization. Moreover, specialization of personnel within complex organizations tends to
increase access to cutting-edge knowledge base that impel and facilitate change (Haveman, 1993). Parallel to the rational arguments on the relationship between complexity and change is the political argument that organizational politics within highly complex organizations also tends to be an impetus for reorganization. According to Pfeffer (1981) well endowed organizations tend to adopt greater structural differentiation by giving legitimacy to various groups or subunits and allocating resources to support the activities of such units within their unique domains. The legitimization of various subunits and groups within them and separation of functions necessitates a coordinative mechanism, and requires reorganization within administrative structure.

**H2:** There is a positive association between structural complexity and administrative reorganization.

![Figure A](image_url)

**METHODOLOGY**

**Sample and Data**

Two sources of data were used in this study. All data were collected from published sources. The first data set was collected on the four-year universities. The source of the data set was the Yearbook of Higher Education (YHE), Marquis Academic Media, editions 1-10. The time period over which these data were collected included 1969 to 1979 academic years. A random sample of
202 organizations was selected. The National Directory of Higher Education was considered first section which was used in the present study. The data reported in the first section included administrative apparatus (from deans to presidents), job titles and size of the enrollment. This reporting began to add the positions of department chairs beginning in 1973. Structural differentiation was reported as the number of departments.

**MEASUREMENT OF VARIABLES**

**Dependent Variable**

**Administrative Reorganization.**

Administrative reorganization, the dependent variable in the present study, was considered as the readjustments of administrative duties. Administrative duties can be expanded or reduced marginally in an evolutionary fashion, the focus of this study, however, was on the drastic task reassignments which require reallocation of tasks, and addition and deletion of positions. A reorganization, not just marginal readjustments of duties, was considered legitimized when, 1) new reassigned tasks necessitated addition of new positions, 2) position deletion required other administrators to take on new positions, and 3) changes in the titles constituted major reallocation of duties. Two independent surveys of presidents of four-year colleges showed that university presidents felt that title changes did constitute reorganization in their universities. The operational indicator of reorganization consisted of: 1) the number of annual changes in the administrative titles, discounting any additions and deletions of positions, and 2) the absolute value of number of administrative positions (additions and deletions). Title changes also reflected a major reallocation of duties. The present study focused on high level of academic administration, within the sampled data academic administration includes presidents, chancellors, vice chancellors, vice presidents, academic deans and directors, and division heads for instruction, academic affairs, student personnel, libraries, admissions, business and finance, registration, special programs, adult and continuing education, and research.

**Independent Variables**

**Structural Complexity.**

Following Blau and his associates (Blau, 1973; Blau & Schoenherr, 1971) this study considered structural differentiation (complexity) to be the number of academic departments. The measure of the complexity was the cumulative average of number of departments for the years 1974
and 1975 (1974 + 1975/2). Given some fluctuation in number of departments over ten-year period the cumulative average of this variable provided a good assessment of the levels of complexity.

**CEO Changes.**

In the present study changes in the CEO were measured as the average cumulative in the top executive (president) changes beginning 1974 to 1978 (president changes have been measured as the average of (1971+1972+1973)/3). Given the number of presidential changes over three year period prior to reorganization, the cumulative average indicated a good assessment of changes in the presidents over the measurement periods (1971-1973).

**Control Variables**

Some variance in rates of reorganization may be explained by variables other than structural complexity, and changes in the CEO. This study controlled for four of these.

**Organizational Size.**

In the sample of universities and colleges size has been operationalized as the number of full-time equivalent students. Student enrollment is an important resource base for academic institutions (Cameron, Kim & Whetten, 1987). Based on the author’s interview with administrators within academic institutions levels of enrollment tend to influence the administrators’ decision-making processes. Size in the present study was operationalized as the cumulative average of the number of full-time equivalent students for the years 1974 and 1975 (1974 + 1975/2). Considering the marginal fluctuations in the enrollments, the mean of these five years indicate a good assessment of the organizational size.

**Changes in organizational size.**

Changes in organizational size lead to increased pressures for reorganization of administrative framework. Changes in size in the present research were operationalized as proportional change in the number of full-time equivalent between years 1970 and 1975.

**Environmental munificence.**

Environmental munificence is the availability of resources in the environment to support growth strategies (McArthur & Nystrom, 1991). Following the study by Baker and Cullen (1993) the population age of 18-24 were considered as the college age individuals and the measure of
available resources in the environment. The proportional change in the number of college age individuals within the organizations’ states seem to be the relevant indicator of changes in the environmental conditions and also indicative of the demand for services offered by the institutions within this sample.

**Organizational Age.**

Organizational age has been argued to have both positive and negative association with change. A number of researchers have argued that as institutions get older the increase in he levels of activities and the learning processes enhances the organizations’ capabilities to adapt to changing conditions (Singh, Tucker & House, 1986). The life cycle theorists, however, have argued that younger organizations tend to have a more plastic structure than organizations at latter part their existence. In this research age of the organizations were measured as 1969 (beginning of study) minus founding year.

**Procedures and Design**

The path diagrams in the model (Figure 1) centers attention on three fundamental relationships. The main effects are changes in the CEO predicting rates of reorganization. Second, the main effect of structural complexity predicting rates of administrative reorganization. The model in this paper also controls for the effects of environmental munificence, organizational age, changes in organizational size, and organizational size on rates of reorganization.

**Measurement Period.**

The design of the study was based on the ten year data set. To measure the effects of independent variables on the reorganization (dependent variable) I divided the data into two measurement periods. In order to have a design that maximizes the information on reorganization (the dependent variable), the independent variables were measured prior to the reorganization. Changes in the CEO were measured as the average CEO changes between 1971 to 1973. Structural complexity was measured at mid-point of data set as the average structural complexity on year 1974 and 1975. Reorganization was measured as the cumulative reorganizations between 1974 to 1978. There were two years of overlap between measure of structural complexity and reorganization, allowing the measurement of contemporaneous effects. The cumulative measures of reorganizations, therefore, were associated with structural complexity and changes in CEOs.
ANALYSIS AND RESULTS

Data Characteristics

Means, standard deviations and intercorrelations among control variables and main effects are presented in Table 1.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Means</th>
<th>S.D.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Reorganization</td>
<td>10.43</td>
<td>8.96</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Changes in Size</td>
<td>1.07</td>
<td>.69</td>
<td>.02</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Organization Age</td>
<td>57.44</td>
<td>47.52</td>
<td>.03</td>
<td>.20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Environment Munificent</td>
<td>1.26</td>
<td>2.88</td>
<td>.03</td>
<td>-.01</td>
<td>- .04</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Organization Size(^b)</td>
<td>3.71</td>
<td>.64</td>
<td>.48(^*)</td>
<td>.15</td>
<td>.01</td>
<td>.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Structural Complexity</td>
<td>13.75</td>
<td>11.21</td>
<td>.43(^)</td>
<td>.03</td>
<td>.10</td>
<td>.64(^{**})</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. CEO Change</td>
<td>.14</td>
<td>.16</td>
<td>.14(^)</td>
<td>-.12</td>
<td>-.03</td>
<td>-.02</td>
<td>.03</td>
<td>-.03</td>
</tr>
</tbody>
</table>

\(^a\) N= 144-200.
\(^*\) p < .05
\(^**\) p < .01
\(^b\) Logarithmic transformations were used.

REGRESSION ANALYSIS

Hierarchical regression was employed to test the impact of control variables and main effects on reorganization. The regression model (after all variables were entered in the equation) explained 30 percent of the variance in the dependent variable, reorganization, as noted in Table 2.

In the first step, regressing reorganization onto control variables, changes in size, environmental munificence, organizational size, and organizational age yielded significant results [F (4, 166) = 10.91, p < .001]. This set of variables produced 20 percent of the variance in the dependent variable reorganization. Given the significance of set of control variables the effects of individual variables were examined. Changes in the organizational size (growth and decline) did not yield significant results (p < .9). Similarly, environmental munificence did not yield any significant results (p < .5). Findings showed that organizational age as a main effect does not have a significant influence on reorganization (p < .7). Results did yield significant effect for the organizational size on the rates of reorganization (p < .001). Structural complexity and changes in the CEO were entered into the equation next. This set of variables explained and additional 10 percent of the variance in reorganization [F (6, 138) = 9.02, p < .001] as illustrated in step 2 of Table
2. Given the significance of this set, the main effects of changes in CEO and structural complexity were examined.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model I</th>
<th>Model II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changes in Size</td>
<td>.67 (2.13)</td>
<td>-.13 (2.23)</td>
</tr>
<tr>
<td>Organizational Age</td>
<td>.01 (1.16)</td>
<td>.01 (1.01)</td>
</tr>
<tr>
<td>Environmental Munificence</td>
<td>.06 (1.15)</td>
<td>.09 (1.77)</td>
</tr>
<tr>
<td>Organizational size</td>
<td>5.67 (1.02)</td>
<td>5.19 (1.45)</td>
</tr>
<tr>
<td>Structural complexity</td>
<td>.17** (.07)</td>
<td>(.07)</td>
</tr>
<tr>
<td>CEO Changes</td>
<td>8.34* (4.15)</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-14.55 * (1.79)</td>
<td>13.30 ** (2.35)</td>
</tr>
<tr>
<td>R²</td>
<td>.20¥</td>
<td>.30¥</td>
</tr>
<tr>
<td>Δ R²</td>
<td>.20¥</td>
<td>.10¥</td>
</tr>
</tbody>
</table>

Unstandardized regression coefficients are shown, with standard errors in the parentheses.

- * p < .001
- ** p < .01

Regressing reorganization onto changes in CEO yielded a significant result. This finding was consistent with hypothesis 1. [B = 8.34, p < .04]. The regression analysis also yielded significant result on the relationship between structural complexity and reorganization [B = .17, p < .01]. This result supported hypothesis 2.

**DISCUSSION**

Findings indicated control variables, with the exception for organizational size, did not yield significant influence on reorganization. Even though organizations respond to environmental conditions and take advantage of the resources availability in munificence environments (e.g., McArthur & Nystrom, 1991), findings in this research did not support reorganization in response to conditions in macro environments. As main effect, changes in organizational size did not have a significant impact on reorganization. Similarly, organizational age did not yield a significant influence independently on administrative reorganization. Other research studies have found that changes in size in combination with other contextual variables such as age influence reorganizations.
Young growing organizations trend to have higher requirement for reorganization than old growing organizations (e.g., Baker & Cullen, 1993).

In line with related research by Baker and Cullen, 1993; Blau (1970), and Child (1972b), the results of this study showed a significant link between size and administrative reorganization. Large universities reorganized their administrative framework, in part, due to higher levels of complexity and necessities for managing coordination and control among subunits. The results on size-reorganization relationship were inconsistent with ecological theorists (e.g., Hannan & Freeman, 1989). The pressures for structural inertia were overcome by large size and increased complexity. Such a dynamic capability to reorganize may have been facilitated by availability of the valued resources and capabilities of managers to reallocate resources from existing programs to new activities, such as, training top administrators on organizational-specific skills (e.g., Baker & Cullen, 1993) and enable them to adapt organizational structure to changing conditions.

Structural complexity as indicated by the findings did have a significant influence on administrative reorganization. High levels of complexity required greater administrative efforts in integration and coordination and stimulated reorganization in administrative structure. Within the sample of academic institutions the complexity created by greater numbers of departments and programs strongly influenced institutions to reorganize administratively through reallocation of administrative duties in order to coordinate among departmental units. Highly complex institutions restructured through various stages of development and gained knowledge to reorganize more frequently in response to internal cues (e.g., Baker & Cullen, 1993; Ford, 1980a). Results on the effects of structural complexity on reorganization were not consistent with more accepted view that complexity creates greater inertia.

The findings revealed that changes in the CEO have a significant influence on the administrative reorganization. New chief executives did have a major influence on administrative reorganization, primarily due, to necessity of establishing an administrative framework that may be more in favor of new CEO’s goals and objectives. Moreover, changing the administrative framework may have allowed the new CEO to alter the existing practices and routine in favor of new programs. These results were congruent with studies by (Romanelli & Tushman, 1994; and Gabarro, 1987) which indicated that CEO succession followed by changes in the composition of the executive team and power distribution within organizations. Considering the insignificant effects of environment on reorganization, it is noteworthy to indicate that top administrators reorganize largely in response to internal pressures than external environmental conditions.

**FUTURE RESEARCH**

Our data suggest that organizational size, structural complexity and changes in CEO are major forces for administrative reorganization. The forces for change and stability in organizations tend to be rooted in institutionalized practices in larger more complex organizations. This research
possesses important implications for future studies on reorganization. The present research has purposefully a narrow focus on the influence of size, complexity and changes in the CEOs on administrative reorganization. The future inquiry is certainly warranted to understand the interactive effects of size and complexity. The interactive changes in CEO and organizational size, changes in CEO and structural complexity, and interactive effects of changes in CEO and changes in organizational size on administrative reorganization constitute particularly promising factors for future investigation.

Findings in the present research have important implications for top echelon and strategic decision makers. Results show that managers reorganized based on available information and cues form internal environment (Nisbett & Ross, 1980). The top managers in this study may have responded to the immediate environments in making decisions. The complexity of the structure created immediate problems for coordination and control and this may have taken the attention of the managers rather than external environmental factors.

REFERENCES


