

CEO Locus of Control, Strategic Planning, Differentiation, and Small Business Performance: A Test of a Path Analytic Model

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Abstract

This study used data from 100 small business firms to examine a path analytic model of the relationships among CEO locus of control, futurity in strategy-making, structural differentiation, and economic performance. We found that the paths from CEO locus of control to structural differentiation and structural differentiation to performance were significant. We also found that when the effects were decomposed into their indirect components, the relationship between strategic futurity and performance reached significance.

Introduction

The position of the chief executive officer is not only the most intricate in the organization, it is also the most important (Castaldi, 1986; Shaw, 1991). Yet as Castaldi further observes, the study of CEOs of small organizations is an underinvestigated facet of small business research. As Miller and Droge (1986) note, the role of the chief executive officer is likely to be especially critical and perhaps overwhelmingly influential in small firms, in which the impact of the leader can be very direct and pervasive.

The primary purpose of the present study is to extend the work of Miller and his associates (1982, 1986a, 1986b, and 1988) by exploring the relationships between CEO locus of control, strategy-making, structure, and small business performance. A second purpose is to examine these relationships simultaneously in a causal model. Earlier work in the small business area by Miller, Kets de Vries, and Toulouse (1982), examined the relationship of locus of control to strategy, environment and structure; the impact of CEO personality on corporate strategy and structure (Miller and Toulouse, 1986a); the impact of strategy, structure, and CEO personality on performance (Miller and Toulouse, 1986b). With the exception of a study by Miller, Droge, and Toulouse (1988) which did not include the performance construct in investigating the relationships between CEO personality, environment, structure, strategy process, and strategy context in a causal

model, there have been no other studies examining these constructs simultaneously in a causal model.

Theoretical Background and Propositions

Locus of Control, Strategy-making, and Structure

The concept of locus of control (Rotter, 1966) refers to a generalized belief that a person can or cannot control his or her own destiny. Those who ascribe control of events to themselves are said to have an internal locus of control and are referred to as internals. People who attribute control to outside forces are said to have an external locus of control and are termed externals (Spector, 1982).

As Miller et al. (1982) observe, Rotter's (1966) locus of control is one personality characteristic that seems to hold much promise in explaining strategy making behavior and the adoption of certain structures in small firms. Miller et al. (1982) further argue that the task and action-orientation of internal executives and their greater ability to deal with stressful situations may prompt them to use more planning (futurity). Hence:

Proposition 1: CEO internal locus of control will have a negative influence on futurity. In other words the lower the manager's score on Rotter's scale, the higher the score on the futurity variable. It has been suggested that the

employment of strategies of innovation, risk taking, and futurity will necessitate delegation of authority for decision making and hiring of professional managers and experts (Miller, Kets de Vries, and Toulouse, 1982; Miller and Toulouse, 1986). As Miller and Toulouse further observe, this will in turn increase the diversity of goals, values and task orientations among managers; that is the degree of organizational differentiation. Hence:

Proposition 2: Futurity will have a positive influence on differentiation. Miller and Droge (1986) have argued elsewhere, that the inconclusive results in the literature addressing the determinants of structure may be due to the failure of researchers to consider a rather important determinant of structure: the personality of the chief executive officer. In two separate studies, Miller and his associates (1986a, 1986b) showed that in small firms, the personality of the chief executive and strategy-making variables were far more important predictors of organizational structure than were environmental uncertainty or technology. As pointed out earlier, locus of control is one personality characteristic that seems to hold much promise in explaining the adoption of certain structures in small firms (Miller et al., 1982). As Spector (1982) observes, because internals tend to believe that they can control the work setting through their behavior, they should attempt to exert more control than would externals. Hence:

Proposition 3: CEO internal locus of control will have a positive influence on differentiation. Since internals seem to want to exert control over their work setting (Spector, 1982), we would expect internals not to be willing to share control or delegate to subordinates. In other words, the lower the score on the Rotter scale (internal), the lower the desire to differentiate.

Strategy-making, Structure, and Performance

The logic relating strategy to performance is compelling (Kim and Lim, 1988). A number of researchers have tested and supported a linkage between strategy and performance. At the corporate level (Lieberson and O'Connor, 1972; Rumelt, 1977; Beard and Dess, 1979, 1981), and at the business unit level (Shepherd, 1972; Gale, 1972, 1974; Schoeffler et al., 1974; Buzzell, Gale, and Sultan, 1975). Hence:

Proposition 4: Futurity will have a positive influence on performance. In an examination of the structural-contingency model, Pennings (1975) found that the variance in effectiveness explained was primarily due to structural variables and not environmental variables. Dalton et al. (1980) have observed elsewhere that several researchers investigating the influence of a wide variety of structural dimensions on organizational performance have found positive, inverse, curvilinear, and zero relationships.

Although the research evidence has been mixed, we expect a negative relationship between structural differentiation and performance. We believe that with increase in diversity of goals and task orientations among managers or organizational differentiation, there will be pressure to adopt liaison devices that could ensure effective cross-functional collaboration. If the firm continues to employ structural differentiation in spite of this need for integration, performance will be negatively impacted. Hence:

Proposition 5: Differentiation will have a negative influence on performance.

Summary

The model examined in this research is presented in the form of a path analytic diagram in Figure 1.

Table 1
The Input Correlation Matrix

Variables	Means ^a	S.d. ^b	LOCU	FUT	DIFF	ROA
LOCU	5.46	3.18	1.000			
FUT	18.25	7.60	.005	1.000		
DIFF	10.31	4.15	.056	.308**	1.000	
ROA	0.50	0.43	-.143	-.007	-.166*	1.000

^a Were not included in the correlations input for LISREL.

^b Same as above (a).

* $p < .05$

** $p < .01$

According to the conventions of path analysis, locus of control (X_1) is termed an exogenous variable since it is not influenced by other measured variables in the model (Asher, 1983). The exogenous variable is presumed to cause variation in the endogenous variables (or dependent variables), but any variations in the exogenous variable are not to be explained by the model (Swamidass and Newell, 1987). Futurity (X_2), structural differentiation (X_3), and return on assets (X_4) are endogenous variables in the path analytic model in Figure 1. Locus of control is expected to have a direct negative influence on futurity and a positive direct influence on differentiation (Propositions 1 and 3). Futurity is expected to have direct positive influences on differentiation and performance (Propositions 2 and 4). Structural differentiation is expected to negatively influence performance (Proposition 5).

Methods

Sample and Procedure

The data sample consisted of 100 CEOs of small businesses from the Memphis, Tennessee, metropolitan area. In accordance with the Small Business Administration's size standards of no higher than \$17 million in sales, the firms ranged in size from sales of \$50,000 to a little over \$6,000,000 (mean = \$481,084.77, S.D. = \$447,447.02). The average number of employees was 30. Firms were in industries as varied as retailing, manufacturing, transportation, construction, and services. No standard industrial classification group represented more than 5% of the sample.

Four hundred and eighty randomly selected firms were contacted by mail. One hundred and ten CEOs agreed on follow-up telephone calls to be interviewed. All interviewees had been in their present positions for at least 8 years. Ten incomplete questionnaires were considered unusable, giving the study an adjusted response rate of 20.8%. Ninety-six percent of the interviewees in the final sample were men. The average locus of control score for the CEOs in this sample was 5.46 with a standard deviation of 3.18. So the sample can safely be characterized as a very internal one.

Variables and Measures

Locus of control

Rotter's (1966) internal-external scale, which consists of 23 locus of control and six filler items in a forced-choice format was used to measure this variable. Rotter's scale has been used widely, and its psychometric properties have been reported elsewhere (Spector, 1982; Roark, 1978; Hammer and Vardi, 1981; Harvey et al., 1974). Miller

and Friesen (1983) and Miller (1983, 1987, 1988) originated the measures for strategy-making and structure used in this study. See the Appendix for questionnaire items.

Futurity

As Miller and Friesen (1983) note, this variable reflects how far ahead the firm looks into the future in planning its strategies and operations. A relatively long time horizon (5 years) warrants a high score. A focus on crisis decision making and staving off disasters warrants a low score.

Differentiation

This variable is concerned with the diversity of goals, values and task orientations among managers (Miller, 1987).

Performance

Return on assets was chosen as a measure of performance because managers and external analysts often use it as a measure of the effectiveness and efficiency of top management (Grant, Jammine, and Thomas, 1988). It was measured in terms of a 3-year average (1983, 1984, 1987).

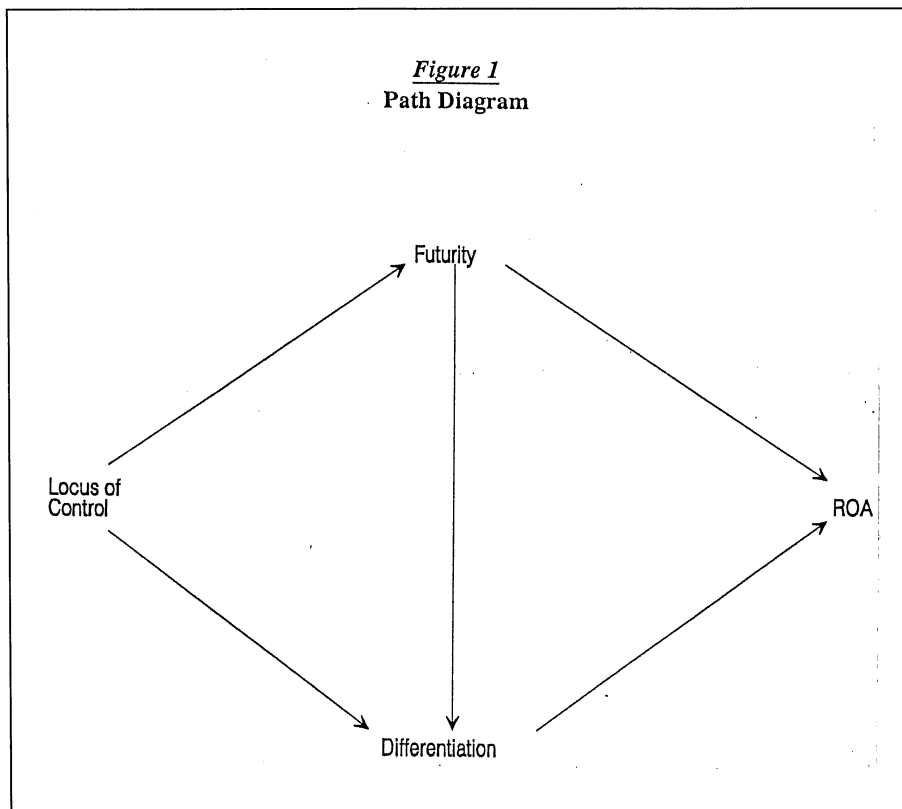
Analysis

Path analysis was used to empirically verify the direction and magnitude of causal relationships between variables hypothesized to be related. As Asher (1983) points out, one of the main advantages of this analytical technique is that it enables one to measure the direct and indirect effects that one variable has on another. In other words, path analysis enables us to decompose the correlation between any two variables into a sum of simple and compound paths with some of these compound paths being substantially meaningful indirect effects (Asher, 1983).

Results

Table 1 shows the intercorrelations, means, and standard deviations of the variables under investigation. The results of the path analysis are shown in Figure 2.

The data were analyzed using Joreskog and Sorbom's (1986) general maximum likelihood estimation method, LISREL VI, which can be used to estimate the unknown coefficients in a set of linear structural equations. LISREL provides t-values for parameters, or parameter estimates divided by their standard errors. According to Joreskog and Sorbom (1986), the t-values can be used to test



that internals are unwilling to share control would seem to support Spector's (1982) contention that internals have a need for control and actually seek situations in which control is possible.

Strategy, Structure, and Performance

The finding of a nonsignificant linkage between futurity and performance would seem to be in line with Pearce, Freeman, and Robinson's (1987) assertion that the lack of attention to environmental influences has led to a tenuous link between formal strategic planning and financial performance.

Although the path from strategy to performance is not significant, the results show that the indirect effect of futurity on performance (the paths from futurity to structural differentiation to performance) is statistically significant (1.71×-3.55

whether the true parameter is zero. If the t-value for a parameter is larger than two in magnitude, it can be judged to be different from zero.

As the results in Figure 2 show, one of the two exogenous/endogenous variables linkages (locus of control to structural differentiation) was significant. The linkage between differentiation and performance was the only significant direct endogenous/endogenous variables relationship among the three tested.

Discussion and Implications

Locus of Control, Strategy, and Structure

We had predicted that locus of control would have a negative influence on futurity. While our result was in the predicted direction, the lack of statistical significance would seem to be in line with Bresser and Bishop's (1983) assertion that formal strategic planning may be dysfunctional if it introduces rigidity and encourages excessive bureaucracy. Our findings seem to suggest that internals perceiving an overly bureaucratized and rigid planning system as a loss of personal control, would scale back on the amount of planning.

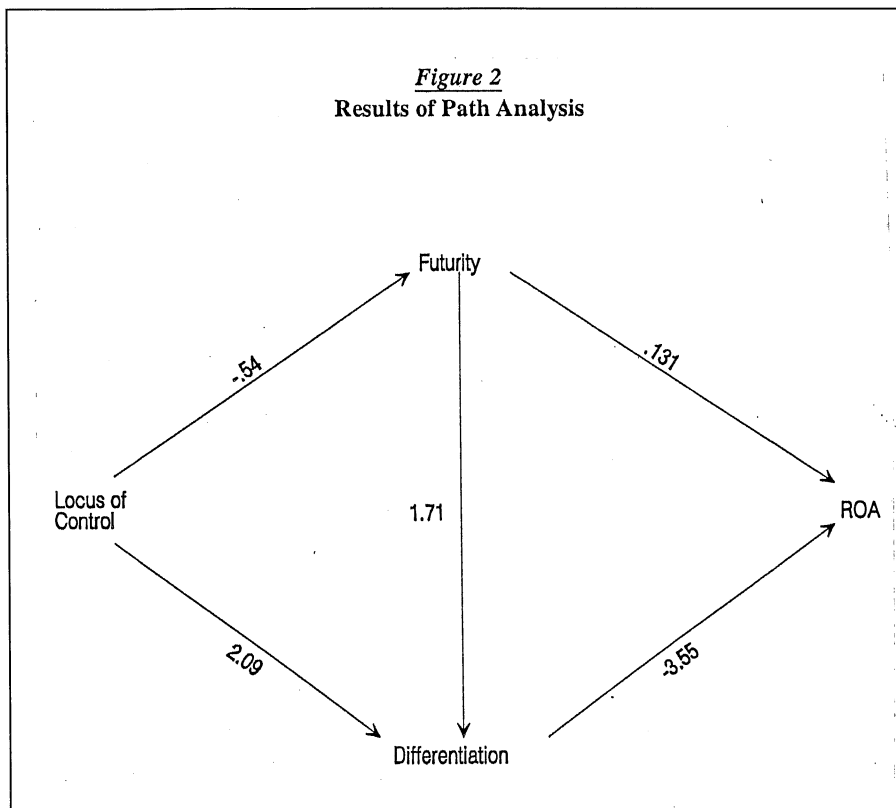
The effect of locus of control on differentiation was significant and in the predicted direction. This finding

= -6.07). As Sobel (1987 notes, since direct and indirect effects tap different (though related) aspects of the causal process under investigation, ignoring indirect effects can yield a misleading impression of the process, and create needless confusion and controversy.

The finding of a significant indirect effect of strategy on performance would seem to support the contention by a number of researchers (e.g., Pearce, Freeman, and Robinson, 1987) that when operating managers who must implement strategic plans are included in the strategy formulation process, the organization's performance is impacted. The impact in the study reported here as predicted is negative. It would appear from our results that an increase in the diversity of goals, values and task orientations among professional managers and experts (structural differentiation) will likely escalate interdepartmental conflict (Miller and Toulouse, 1986). This would account for the negative impact of differentiation on performance.


Conclusions

This study's findings overall suggest that there are two strong forces opposing increases in the diversity of goals, values and task orientations among professional managers and experts in small businesses the internals' need for control, and the escalation of interdepartmental conflict in



the absence of liaison devices that could ensure effective cross-functional collaboration. The finding of a nonsignificant direct relationship of planning and performance does not mean that strategic planning has no potential benefit for small firms. The benefits may lie in the insights and knowledge the planning process provides (Bracker and Pearson, 1986). Instead of examining formal planning processes, researchers may want to examine the relationship between CEO judgment and small business performance. They may also want to pay attention to environmental influences.

As with any cross-sectional study, caution should be exercised in causally interpreting the linkages in this study. As Russell (1929) notes, causal laws are really only applicable to completely isolated systems that are free from outside forcings. Further research using longitudinal data is needed to establish temporal ordering of the variables tested in our model.

In spite of these limitations, this study underscores the importance of simultaneously linking CEO personality, planning, and structure to small business performance. 

*** References ***

1. Asher, H. B. *Causal Modeling*, Sage Publications, Beverly Hills, California, 1976.
2. Beard, D. W., and G. G. Dess, Industry Profitability and Firm Performance: A Preliminary Analysis of the Business Portfolio Question, *Academy of Management Proceedings*, pp. 123-127, 1979.
3. Beard, D. W., and G. G. Dess. Corporate Level Strategy, Business Level Strategy, and Firm Performance. *Academy of Management Journal*, Vol. 24, pp. 663-688, 1981.
4. Bracker, J. S., and Pearson, J. N., Planning and Financial Performance of Small Mature Firms, *Strategic Management Journal*, Vol. 7, pp. 503-522, 1986.
5. Bresser, R. K., and R. C. Bishop, Dysfunctional Effects of Formal Planning: Two Theoretical Explanations, *Academy of Management Review*, Vol. 8, pp. 588-599, 1983.
6. Buzzell, R., G. Gale, and R. Sultan, Market Share A Key to Profitability, *Harvard Business Review* 53(1975): 97-107.
7. Castaldi, R. M., An Analysis of the Work Roles of CEOs of Small Firms, *American Journal of Small Business*, Vol. 10, pp. 53-64, 1986.
8. Dalton, D., W. Todor, M. Spendolini, G. Fielding, and R. Porter, Organization Structure and Performance: A Critical Review, *Academy of Management Review*, Vol. 5, pp. 49-64, 1980.
9. Gale, B., Market Share and Rate of Return, *Review of Economics and Statistics*, Vol. 54, pp. 412-423, 1972.
10. Gale, B., Impact of Strategic Position Relative to Rivals on Business Profitability, Working paper, Harvard Graduate School of Business Administration, Boston, 1974.
11. Grant, R. M., A. P. Jammie, and H. Thomas, Diversity, Diversification, and Profitability among British Manufacturing Companies, 1972-84, *Academy of Management Journal*, Vol. 31, pp. 771-801, 1988.
12. Hammer, T. H., and Y. Vardi, Locus of Control and Career Self-management Among Nonsupervisory Employees in Industrial Settings, *Journal of Vocational Behavior*, Vol. 18, pp. 13-29, 1981.
13. Harvey, J. H., R. D. Barnes, D. L. Sperry, and B. Harris, Perceived Choice as a Function of Internal-External Locus of Control, *Journal of Personality*, Vol. 42, pp. 437-452, 1974.

14. Joreskog, K. G., and D. Sorbom, *LISREL: Analysis of Linear Structural Relationships by the Method of Maximum Likelihood*, Scientific Software, Inc., Mooresville, 1986.
15. Kim, L., and Y. Lim, Environment, Generic Strategies and Performance in a Rapidly Developing Country: A Taxonomic Approach, *Academy of Management Journal*, Vol. 31, pp. 802-827, 1988.
16. Lieberson, S., and J. O'Connor, Leadership and Organizational Performance: A Study of Large Corporations, *American Sociological Review*, Vol. 37, pp. 117-130, 1972.
17. Miller, D., The Correlates of Entrepreneurship in Three Types of Firms, *Management Science*, Vol. 29, pp. 770-791, 1983.
18. Miller, D., Strategy Making and Structure: Analysis and Implications for Performance, *Academy of Management Journal*, Vol. 30, pp. 7-32, 1987.
19. Miller, D., Relating Porter's Business Strategies to Environment and Structure: Analysis and Performance Implications, *Academy of Management Journal*, Vol. 31, pp. 280-308, 1988.
20. Miller, D., and C. Droge, Psychological and Traditional Determinants of Structure, *Administrative Science Quarterly*, Vol. 31, pp. 539-560, 1986.
21. Miller, D., C. Droge, and J. Toulouse, Strategic Process and Content as Mediators Between Organizational Context and Structure, *Academy of Management Journal*, Vol. 31, pp. 544-569, 1988.
22. Miller, D., and P. Friesen, Strategy-making and Environment: The Third Link, *Strategic Management Journal*, Vol. 4, pp. 221-235, 1983.
23. Miller, D., M. Kets de Vries, and J. Toulouse, Top Executive Locus of Control and Its Relationship to Strategy-making, Structure and Environment, *Academy of Management Journal*, Vol. 25, pp. 237-253, 1982.
24. Miller, D., and J. Toulouse, Chief Executive Personality and Corporate Strategy and Structure in Small Firms, *Management Science*, Vol. 32, pp. 1389-1409, 1986a.
25. Miller, D., and J. Toulouse, Strategy, Structure, CEO Personality, and Performance, *American Journal of Small Business*, Vol. 10, pp. 47-62, 1986b.
26. Pearce, J. A., E. B. Freeman, and R. B. Robinson, The Tenuous Link Between Formal Strategic Planning and Financial Performance, *Academy of Management Review*, Vol. 12, pp. 658-675, 1987.
27. Pennings, J. M., The Relevance of the Structure Contingency Model for Organizational Effectiveness, *Administrative Science Quarterly*, Vol. 20, pp. 393-410, 1975.
28. Roark, M. H., The Relationship of Perception of Change in Finding Jobs to Locus of Control and to Job Search Variables on the Part of Human Resource Agency Personnel, *Dissertation Abstracts International*, Vol. 38, p. 207DA (University Microfilms No. 78-18558), 1978.
29. Rotter, J., Generalized Expectancies for Internal Versus External Control of Reinforcement, *Psychological Monographs*, Vol. 80, pp. 1-28, 1966.
30. Rumelt, R., *Diversity and Profitability*, Paper presented at the Annual Meeting of the Western Division, Academy of Management, Sun Valley, Idaho, 1977.
31. Schoeffler, S., R. Buzzell, and D. Heary, Impact of Strategic Planning on Profit Performance, *Harvard Business Review*, Vol. 52, pp. 137-145, 1974.
32. Shaw, B. M., Dressing Up Like an Organization: When Psychological Theories Can Explain Organizational Action, *Journal of Management*, Vol. 17, pp. 805-819, 1991.
33. Shepherd, W. G., The Elements of Market Structure, *Review of Economics and Statistics*, Vol. 54, pp. 25-37, 1972.
34. Sobel, M. E., Direct and Indirect Effects in Linear Structural Equation Models, *Sociological Methods and Research*, Vol. 16, pp. 155-176, 1987.
35. Spector, P. E., Behavior in Organizations as a Function of Employee's Locus of Control, *Psychological Bulletin*, Vol. 91, pp. 482-497, 1982.
36. Swamidass, P. M., and Newell, W. T., Manufacturing Strategy, Environmental Uncertainty and Performance: A Path Analytic Model, *Management Science*, Vol. 33, pp. 509-524, 1987.