© *Academy of Management Journal*
1994, Vol. 37, No. 6, 1649–1665.

STRATEGIC PLANNING AND FIRM PERFORMANCE: A SYNTHESIS OF MORE THAN TWO DECADES OF RESEARCH

C. CHET MILLER
Baylor University
LAURA B. CARDINAL
University of Texas at Dallas

Building on previous contingency frameworks, we developed an encompassing contingency model that might explain the inconsistent planning-performance findings reported in previous research. The model was empirically tested using meta-analytic data drawn from 26 previously published studies. Results suggest that strategic planning positively influences firm performance and that methods factors are primarily responsible for the inconsistencies reported in the literature. The substantive contingency factors that we examined, some of which have been frequently cited as important by previous researchers, did not have a large impact.

Numerous researchers and executives advocate strategic planning. Armstrong (1982), for example, argued that an explicit planning process rather than haphazard guesswork results in the collection and interpretation of data critical to creating and maintaining organization-environment alignment. Similarly, Ansoff (1991) argued that planning generally produces better alignment and financial results than does trial-and-error learning.

Despite the intuitive appeal of these arguments, several researchers have countered that explicit strategic planning is dysfunctional, or at best irrelevant. One of the most widely circulated criticisms is that planning yields too much rigidity. Proponents of the rigidity hypothesis maintain that a plan channels attention and behavior to an unacceptable degree, driving out important innovations that are not part of the plan. Given that the future parameters of even relatively stable industries are difficult to predict, these theoreticians consider any reduction in creative thinking and action dysfunctional. Mintzberg, for example, when critiquing the planning, positioning, and design schools of strategic management, argued that all organizations must deal with uncertainty and that it is therefore dangerous for them

Partial support for this research was provided by a sabbatical award from the Hankamer School of Business, Baylor University. We wish to thank Gregory G. Dess, Elizabeth B. Freeman, William H. Glick, R. Duane Ireland, and the formal reviewers of this journal for their valuable input.

to articulate strategies because explicit strategies "are blinders designed to focus direction and block out peripheral vision" (1990: 184). Mintzberg offered a succinct summary of this position: "Setting oneself on a predetermined course in unknown waters is the perfect way to sail straight into an iceberg" (1987: 26).

Two decades of empirical research have not produced consistent support for either of the positions stated above (Mintzberg, 1991; Pearce, Freeman, & Robinson, 1987). Further, contingency models developed by proponents of planning to account for the inconsistent planning-performance findings reported by previous research have been virtually ignored in empirical work and their value, therefore, has been unknown (for further discussion of the lack of contingency models in empirical planning-performance research, see Pearce, Freeman, & Robinson [1987] and Powell [1992]).

The absence of a systematically validated model capable of accounting for the inconsistent planning-performance findings has been a problem. In light of the importance many researchers and executives attach to strategic planning, this problem appeared to us to be of particular importance. One purpose of this study was to build on previous contingency frameworks in order to put forth an encompassing contingency model that could explain the inconsistent findings reported in the literature. A second purpose was to test the model using a meta-analytic technique designed to test multivariate contingency models (Miller, Glick, Huber, & Wang, 1991). The testing of the model was accomplished with a database consisting of the findings and characteristics of 26 published studies.

PLANNING-PERFORMANCE MODEL

A simple planning-performance model can be stated as follows: strategic planning positively affects performance, or more specifically, the amount of strategic planning a firm conducts positively affects its financial performance. We developed a more encompassing model as a series of contingency hypotheses. The hypotheses reflect two sets of variables: substantive contingency variables and methodological contingency variables.

Substantive Contingency Variables

Firm size. One of the major purposes of strategic planning is to promote the process of adaptive thinking or thinking about how to attain and maintain firm-environment alignment (Ansoff, 1991; Armstrong, 1982; Grinyer, Al-Bazzaz, & Yasai-Ardekani, 1986). From the perspective of adaptive thought, small and large firms probably benefit from strategic planning to similar degrees. For small firms, adaptive thinking is very valuable because it can help executives overcome the vulnerability of their firms by helping them avoid missteps (Aram & Cowen, 1990). As Bruderl and Schussler (1990) and many others have noted, a liability of smallness renders small firms particularly vulnerable to demise. For large firms, adaptive thinking is very valuable because it can help to create an internal environment not conducive to dysfunctional inertia. As Haveman (1993), Hitt, Hoskisson, and Ireland (1990), and others have argued, bureaucratic features of large firms can promote dysfunctional inertia by inhibiting underlying organizational capacity for adaptation.

A second major purpose of strategic planning is to help managers integrate and control various parts of a firm (Grinyer et al., 1986; Vancil & Lorange, 1975). Such integration and control involves multiple parts of the firm contributing directly or indirectly to a unified strategic planning process and being held accountable for any incongruity with an existing plan; Vancil and Lorange (1975) elaborate these points. In contrast to the benefits of adaptive thinking, the integration and control benefits of strategic planning are probably greater for large firms than for small ones. The reason for this difference in integration and control benefits is that large firms are more complex and therefore more difficult to integrate and control than small firms. This heightened difficulty makes planning and other managerial tools that assist in integration and control more critical in large firms (Grinyer et al., 1986; Kukalis, 1989). As Armstrong noted, careful planning in the face of high complexity can ensure that "the various bits and pieces fit together" (1982: 203).

In sum, we suggest that both small and large firms can benefit from strategic planning. Large firms, however, appear to gain more because they can derive considerable benefits not only from adaptive thinking, but also from integration and control. Small firms can derive considerable benefits from adaptive thinking but probably gain less than large firms from the integration and control aspects of strategic planning. Thus,

> *Hypothesis 1a: Strategic planning affects performance more strongly in large firms than in small firms.*

> *Hypothesis 1b: Samples of large firms exhibit stronger planning-performance correlations than samples of small firms.*

Capital intensity. Capital-intensive firms possess capital assets, that is, plants and equipment, that are expensive relative to the annual output values of the firm (cf. Denning & Lehr, 1972; Grinyer et al., 1986; Kukalis, 1989). Further, these assets tend (1) to require long periods of consistent use to produce an adequate return on investment, (2) to be difficult to adapt to uses for which they were not originally designed, and (3) to require long lead times for the accomplishment of moving from intent to acquire through acquisition to full use (Denning & Lehr, 1972; Grinyer et al., 1986; Kukalis, 1991). With respect to long-term adaptive thinking, strategic planning is critical for capital-intensive firms because capital asset requirements must be accurately determined far in advance (Grinyer et al., 1986; Kukalis, 1991). Clearly, this is not the arena for guesswork. With respect to integration and control, strategic planning is valuable because capital-intensive firms require steady, surprise-free, coordinated operations to be successful (Grinyer et al., 1986; Schmenner, 1986).

In many labor-intensive firms, long-term adaptive thinking about labor requirements is undoubtedly important. Nonetheless, changing the composition or size of the labor force in most labor-intensive firms tends to be easier than changing plant and equipment in the typical capital-intensive firm (cf. Christodoulou, 1988; Denning & Lehr, 1972; Grinyer et al., 1986; Kukalis, 1989; Schmenner, 1986). Thus, long-term adaptive thinking is probably less critical in labor-intensive firms than in capital-intensive firms. Further, with respect to integration and control, it is doubtful that labor-intensive firms require more coordinated operations than capital intensive firms. Thus,

> *Hypothesis 2a: Strategic planning affects performance more strongly in firms that are capital-intensive than in those that are labor-intensive.*

> *Hypothesis 2b: Samples of capital-intensive firms exhibit stronger planning-performance correlations than samples of labor-intensive firms.*

Turbulence. Numerous researchers (e.g., Armstrong, 1982; Pearce et al., 1987) have suggested that the effect of strategic planning on performance is contingent upon the level of turbulence firms face. The most common line of reasoning is that executives in firms facing high turbulence must rely on large amounts of strategic planning to cope with changing, unpredictable conditions, while executives in firms facing low turbulence need less strategic planning (e.g., Ansoff, 1991; Miller & Friesen, 1983). As Miller and Friesen argued, "A dynamic environment must be studied more carefully and diligently to afford executives with an adequate degree of mastery" (1983: 223). In an analysis of how executives approach individual strategic decisions, Glick, Miller, and Huber (1993) concluded that comprehensive analysis is critical in turbulent industries so that changes can be properly classified as transient or nontransient.

An argument that runs counter to the preceding reasoning is that executives in firms facing turbulent environments should not arrange for high levels of planning because future states of turbulent environments are impossible to predict (e.g., Mintzberg, 1973). Unless an environment is extremely turbulent, however, it seems that many aspects of strategic planning, such as scenario analysis, can be extremely helpful. Such aspects of planning were specifically formulated to deal with unpredictable shifts in environments, and they have been used with success in numerous firms (e.g., Stokke, Ralston, Boyce, & Wilson, 1990). In sum,

> *Hypothesis 3a: Strategic planning affects performance more strongly in firms facing turbulent environments than in other firms.*

> *Hypothesis 3b: Samples of firms facing turbulent environments exhibit stronger planning-performance correlations than samples of other firms.*

Methodological Contingency Variables

Differences in research methods across studies may produce differences in findings. One advantage of our approach to meta-analysis was the ability to assess and control for such methods effects while testing for the effects of substantive contingency variables. We included five methods factors, or methodological contingency variables, in our model: (1) industry effects uncontrolled or controlled, (2) archival or informant source of planning data, (3) archival or informant source of performance data, (4) operational definition of planning focused on standardized-formalized planning or planning in general, and (5) quality of assessment strategy.

METHODS

The hypotheses were tested with a form of meta-analysis that involves regressing correlations onto hypothesized contingency variables (Hedges & Olkin, 1985). Analyzing contingency variables simultaneously in a multiple regression format allows proper assessment of the relative explanatory power of each contingency variable because those variables directly compete against one another in the same statistical analyses. Thus, our approach overcomes Guzzo, Jackson, and Katzell's (1987) criticism that meta-analytic techniques are not well suited to dealing with multiple contingency variables.

Data

Thirty-five relevant studies of the planning-performance link were identified in journals and books. Twenty-six of these studies yielded correlational estimates of the focal link. We identified relevant studies through published reviews of the planning-performance literature, key journals' tables of contents, and the *Social Science Citation Index*.

We excluded from our database of 35 studies those that did not contain at least one of the following seven performance subconstructs: sales growth, earnings growth, deposit growth, return on assets, return on equity, return on sales, and return on total invested capital. These seven performance subconstructs underlie the bulk of planning-performance research in that they are the most popular performance variables. Examining additional subconstructs, such as earnings per share, would have resulted in adding only a few studies to our database and would have interfered with our ability to create a simple growth versus profitability contrast in our analyses. Table 1 lists the studies included in the database.

Measures

Planning-performance correlations. Product-moment correlations between planning and performance were obtained for 43 different samples contained in the 26 usable studies; note that our unit of analysis is the sample rather than the study. In some cases, we transformed a *t*-value, an

TABLE 1
Studies Included in the Database[a]

Authors	Year	Authors	Year
Ackelsberg & Arlow	1985	Leontiades & Tezel	1980
Ansoff et al.	1970	Miller & Toulouse	1986
Bracker et al.	1988	Odom & Boxx	1988
Bracker & Pearson	1986	Orpen	1985
Burt	1978	Pearce et al.	1987
Capon et al.	1987	Powell	1992
Denning & Lehr	1972	Rhyne	1986
Fulmer & Rue	1974	Robinson	1982
Gable & Topol	1987	Robinson & Littlejohn	1981
Gershefski	1970	Robinson et al.	1986
Grinyer & Norburn	1975	Robinson & Pearce	1983
Jenster & Overstreet	1990	Robinson et al.	1984
Jones	1982	Sapp & Seiler	1981
Kallman & Shapiro	1978	Thune & House	1970
Karger & Malik	1975	Whitehead & Gup	1985
Klein	1981	Wood & LaForge	1979
Kudla & Cesta	1982	Woodburn	1984
Kukalis	1991		

[a] Several available studies (e.g., Ansoff et al., 1971) were not incorporated into our database because the researchers used data from other studies already in the database.

F-value, a χ^2-value, a standardized mean difference, or a square root of a sum-of-squares ratio into a product-moment correlation.

If correlations with more than one performance subconstruct were obtainable for a given sample, we obtained all the correlations. Next, within each sample, correlations associated with growth and those associated with profitability were separately averaged. Averaging across growth and profitability subconstructs was motivated by (1) the conceptual similarity of the three growth subconstructs, (2) the conceptual similarity of the four profitability subconstructs, and (3) our desire to analyze the growth and profitability correlations separately in order to ascertain whether the hypothesized contingency variables influenced the planning-growth relationship and the planning-profitability relationship differently. The within-sample averaging for growth and profitability seemed appropriate because preliminary meta-analytic analyses indicated that planning influences the three growth subconstructs similarly and influences the four profitability subconstructs similarly. After the within-sample averaging, we had 42 planning-growth correlations and 36 planning-profitability correlations for our analyses.[1]

[1] Despite the within-sample averaging, a few samples provided more than one planning-growth correlation, or more than one planning-profitability correlation, or more than one of each because different levels of one of our methods variables had been utilized. For example, Rhyne's (1986) sample provided two planning-profitability correlations: one for industry effects

(continued)

Substantive contingency variables. *Firm size* was assessed by estimating the average number of employees in the firms used in each sample. Following Huber, Miller, and Glick (1990), we coded a sample as having large firms if the firms appeared to have more than 500 employees on average and as small otherwise. Although our preference was to code and use actual average number of employees, many researchers did not report these numbers for their samples. *Capital intensity* was assessed by estimating the percentage of each sample's firms that were capital intensive. Following previous research (Schmenner, 1986; Woodward, 1965), we considered professional service firms, mass service firms, and small-batch manufacturing firms to be labor intensive and all other firms to be capital intensive. Thus, a sample comprising 40 accounting firms and 60 electric utilities was coded as 60 percent. Although assessing capital intensity through balance sheet data would have been ideal, such data were not available. Following Huber and colleagues (1990), we assessed *turbulence* by taking into account whether the original researchers had divided a study's pool of firms into high-turbulence and low-turbulence groups. When firms had been so divided, we coded the high-turbulence sample 2 and the low-turbulence sample, 0. All other samples were coded as 1.

Methodological contingency variables. We assessed *industry effects uncontrolled or controlled* by ascertaining whether an original researcher or researchers had controlled industry effects either statistically or through sampling. This variable was coded as 0 if industry effects had not been controlled and as 1 otherwise. *Archival or informant source of planning data* was assessed by identifying the source of planning data for each sample. Most researchers obtained planning data for a given firm by having an executive informant assess strategic planning (in two cases, data from a secondary informant were added to the data from the primary informant). In a few studies, planning data were obtained through an archival source. This variable was coded as 0 if an archival source of data had been used and was coded as 1 if an informant source had been used. *Archival or informant source of performance data* was coded as 0 if an archival source of data had been used and as 1 if an informant source had been used. In several of the informant-source studies, researchers had compared the informant performance data to archival data, but had used the unadjusted informant data in their primary analyses. *Operational definition of planning* was assessed by examining researchers' measures of planning, their descriptions of their measures, or both. This variable was coded as 0 if the amount of (or emphasis on) strategic planning was defined in terms of standardized planning guidelines or written plans. The variable was coded as 1 if planning was instead defined in terms of all strategic planning, whether reflecting standardization and formalization or not. *Quality of assessment strategy* was assessed by

controlled and one for industry effects uncontrolled. Thus, a few samples are represented more than once in one or both final sets of correlations.

examining whether researchers had used planning ratings that represented a period of time appropriate for what was being studied. Specifically, this variable was coded as 0 for two strategies: (1) Researchers used planning ratings corresponding to a point in time near or past the end of the performance measurement period and did not ensure that the planning scores represented an earlier time period. Researchers following this assessment strategy build into their work a basic reverse lag problem. The second strategy reflects the following: (2) The planning ratings corresponded to an earlier point in time but the researchers failed to ensure that the values had not changed before or early in the performance measurement period. Researchers following this second assessment strategy run the risk of unmeasured changes in planning occurring early in a performance assessment period, causing new performance levels that are not predictable from the original planning ratings. It should be noted that performance is typically assessed over three to five years, allowing changes in planning that occur early in a period to have important effects on performance before the end of the period. We coded the quality of an assessment strategy as 1 if the problems highlighted above were avoided for a portion of a sample—for instance, if the stability of planning ratings was ensured for firms high on the planning scale but not for firms low on the scale. The variable was coded as 2 if the problems highlighted above were avoided for an entire sample, with researchers ensuring that planning ratings were reasonably stable over an appropriate time period for an entire sample.

Two raters independently coded data for the substantive and methodological contingency variables (all coded data are available upon request). All reliabilities were acceptable, averaging .91 and ranging from .74 to 1.00. Table 2 presents the correlations among the variables.

RESULTS

The sample-size-weighted means of the 42 planning-growth correlations and the 36 planning-profitability correlations are .17 and .12, respectively (both $p < .001$). These mean correlations support two conclusions: planning positively influences growth, and planning positively influences profitability. These conclusions are, however, too simple. They do not account for the variance reported in the literature: planning-growth correlations ranged from −.31 to .75, and planning-profitability correlations ranged from −.21 to .71. Both the Hedges and Olkin (1985) and Hunter, Schmidt, and Jackson (1982) meta-analytic chi-square tests rule out the possibility that the variation in either of the two sets of correlations is solely due to sampling error. Thus, the initial meta-analytic procedures confirmed the need to test more encompassing theoretical models.

Planning-Growth

Two complications were encountered in working with the set of planning-growth correlations. First, only Miller and Toulouse (1986) divided their pool of firms into high- and low-turbulence samples. Thus, the vast

TABLE 2
Sample-Size-Weighted Correlations[a,b,c]

Variables	1	2	3	4	5	6	7	8	9
1. Planning-performance correlation		.44***	−.20	.37**	.27*	.16	−.32**	−.26*	.10
2. Industry effects uncontrolled or controlled	.14		.22	−.01	−.23	−.06	−.18	−.57***	.00
3. Archival or informant source of planning data	−.20	.05		−.26	−.05	−.12	.18	−.02	−.01
4. Archival or informant source of performance data	.25*	.21	−.50**		.40**	−.34*	−.70***	−.27	−.01
5. Definition of planning	.23	−.08	−.21	.33*		−.10	−.30	.01	−.06
6. Quality of assessment strategy	.29*	.18	−.26	−.21	−.21		.57***	.20	.03
7. Firm size	.02	−.07	.49**	−.53***	−.27	.22		.46**	.04
8. Capital intensity	.06	−.44**	.26	−.34*	.01	.10	.35*		−.02
9. Turbulence	.27*	−.03	−.02	−.09	−.04	.06	.01	.04	

[a] Correlations above the diagonal correspond to the planning-growth database (42 observations) and those below the diagonal correspond to the planning-profitability database (36 observations).

[b] Note that variable 1 is itself a correlation. Thus, for example, the positive correlation of .44 between the industry control variable and the planning-growth correlations means that when industry effects are controlled a planning-growth correlation with a higher numerical value is observed.

[c] Significance levels for correlations between the contingency variables and the planning-performance correlations (column 1 and row 1) were found using simple regression analyses (Hedges & Olkin, 1985). Significance levels for the remaining correlations were found in the traditional manner.

* $p < .05$
** $p < .01$
*** $p < .001$

majority of planning-growth observations in our database were coded as 1 for turbulence, rather than as 0 or 2. The absence of reasonable variance renders the results associated with turbulence highly questionable, not only because of potential Type II error problems but also because extraneous, unspecified characteristics of the Miller and Toulouse study could have strongly influenced our results. To be conservative, we did not use turbulence as a predictor of the planning-growth correlations. Second, only Orpen (1985) and Robinson, Pearce, Vozikis, and Mescon (1984) collected planning data through an archival source. Thus, unmeasured characteristics unique to these two studies may confound the effects of the source of planning data. To be conservative, we did not use source of planning data as a predictor of the planning-growth correlations.

In the first regression analysis, the planning-growth correlations were regressed onto the methods variables. The results of model 1 in Table 3 suggest that each of the four usable methods variables has an important effect on the planning-growth correlations. Specifically, the results suggest that planning-growth correlations are stronger when researchers control for industry effects ($p < .001$), collect performance data from key informants ($p < .01$), measure planning as all strategic planning ($p < .05$), and use a high-quality assessment strategy ($p < .01$).

In the second analysis, we added firm size and capital intensity. Contrary to our hypotheses, these variables were not found to be significant predictors (see model 2).

In the final planning-growth analysis, we used a stepwise procedure. In order to develop a parsimonious final model, we iteratively added and replaced each of the methods and substantive variables, stopping the stepwise procedure when the value of the chi-square indicating the incremental predictiveness of the model was not significant at the .10 level (Hedges & Olkin, 1985). The results of this analysis mirror the earlier results: each methods variable increased the incremental predictiveness of the model, but neither substantive variable did so. Further, the lack-of-fit chi-square (Hedges & Olkin, 1985) indicates that the model produced by the stepwise analysis fits the data very well (see model 3).

Planning-Profitability

First, we regressed the planning-profitability correlations onto the methods variables. The results for model 4 in Table 3 suggest that three of the methods variables have important effects. Specifically, the planning-profitability correlations are stronger when performance data are collected from key informants ($p < .10$), when planning is measured as all strategic planning ($p < .10$), and when a high-quality assessment strategy is used ($p < .01$).

In the second planning-profitability analysis, firm size, capital intensity, and turbulence were added to the methods variables. Contrary to our hypotheses, size and capital intensity were not significant predictors. Turbulence was, however, found to be an important predictor (see model 5). It

TABLE 3
Results of Regression Analysis[a]

Variables	Planning-Growth[b] Model 1	Model 2	Model 3	Planning-Profitability[c] Model 4	Model 5	Model 6	Model 7
Industry effects uncontrolled or controlled	.179*** (.043)	.199*** (.053)	.179*** (.043)	.004 (.045)	.030 (.052)		
Archival or informant source of planning data				.078 (.101)	.019 (.115)		
Archival or informant source of performance data	.135** (.049)	.094 (.062)	.135** (.049)	.123† (.065)	.149* (.066)	.106* (.050)	.113* (.050)
Definition of planning	.099* (.050)	.091† (.050)	.099* (.050)	.085† (.045)	.085† (.046)	.081† (.045)	.092* (.045)
Quality of assessment strategy	.089** (.033)	.114** (.039)	.089** (.033)	.091** (.030)	.073* (.033)	.079** (.026)	.073** (.026)
Firm size		−.102 (.074)			.060 (.061)		
Capital intensity		.001 (.001)			.000 (.001)		
Turbulence					.112* (.047)	.109* (.047)	.109* (.047)
Intercept	−.047	−.033	−.047	−.081	−.213	−.098	−.109
Multiple R	.71***	.73***	.71***	.49**	.59**	.56***	.62***
Adjusted R^2	.45***	.46***	.45***	.12**	.15**	.22***	.30***
Lack-of-fit X^2	34.66	32.10	34.66	53.11**	45.70*	48.43*	34.93

[a] Table entries are unstandardized regression coefficients; standard errors, adjusted following Hedges and Olkin (1985), are in parentheses.
[b] Forty-two correlations were being predicted; 2,283 organizations underlay the correlations.
[c] Thirty-six correlations were being predicted; 2,237 organizations underlay the correlations.
† $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

appears that stronger planning-profitability correlations emerge when firms face turbulent environments ($p < .05$). In other words, it appears that planning affects profitability more strongly in turbulent environments.

As with the planning-growth correlations, we applied a stepwise procedure to the planning-profitability correlations. The results of the stepwise analysis mirror the earlier results: source of performance data, definition of planning, quality of assessment strategy, and turbulence increased the incremental predictiveness of the stepwise model (see model 6).

Because the lack-of-fit chi-square for the stepwise model indicated that the model did not fit the data very well, we carried out an outlier analysis, deleting observations having the largest studentized residuals one at a time.[2] After two observations had been deleted, the planning-profitability model fit the data. The results of the new stepwise analysis indicated that the same variables were important as in the original stepwise analysis (see model 7). If the observation with the largest studentized residual in this final analysis is deleted, the same variables are again found to be important.

DISCUSSION

The two main purposes of this study were to develop a model capable of explaining the inconsistencies reported in the planning-performance literature and to test the model using data from over two decades of planning-performance research. The percentage of variation in the correlations explained by our predictors is substantial: 45 percent for planning-growth and 30 percent for planning-profitability.

Implications

Planning-growth. Planning was found to be strongly and positively related to growth in studies in which industry effects were controlled, an informant source of performance data was used, planning was defined as not requiring written documentation, and the quality of the assessment strategy was high. The regression coefficients from the stepwise model can be used to calculate an expected correlation of .50 for this context.[3] When industry effects are uncontrolled, an archival source of performance data is used, only standardized or formalized planning is measured, and a low-quality assessment strategy is used, the expected correlation is $-.05$.

With respect to industry effects, it appears that failing to control for type of industry creates enough noise in data to significantly reduce the empirically observed planning-growth relationship (for an excellent discussion of industry effects in strategic management research, see Dess, Ireland, and Hitt

[2] Studentized residuals are residuals divided by their respective standard errors. Although they are not perfect indicators, studentized residuals tend to be large for outlying observations. For further information, see, for example, Cook (1979).

[3] The regression coefficients yield z-correlations that must be transformed to r's (Hedges & Olkin, 1985).

[1990]). With respect to operational definitions of strategic planning, it appears that focusing exclusively on standardized planning guidelines and written plans is problematic. Taking a more general approach appears to result in a more accurate estimate of the amount of (or emphasis on) strategic planning. With respect to the quality of an assessment strategy, it appears that utilizing proper lags and ensuring the stability of planning scores over an appropriate period of time is crucial.

Two interpretations exist for our finding concerning the source of performance data. It may be that key informants provide performance data that are more accurate than the data available through archival sources. In other words, it may be that informant data, which individuals typically give under conditions of promised anonymity for their firms, basically reflect true performance, but archival data to a substantial degree reflect public relations, tax, and other extraneous considerations that create noise in the data.[4] On the other hand, because informants may believe that planning does or should affect performance, they may consciously or unconsciously attempt to provide performance data that match planning levels. Such attempts could lead to inappropriately inflated planning-performance correlations. With the data we currently have, we cannot empirically assess the value of the two competing interpretations.

Planning-profitability. Planning is very positively related to profitability when an informant source of performance data is used, planning is measured without reference to written documentation, the quality of an assessment strategy is high, and the environments faced by the firms in a sample are turbulent. Under these circumstances, the expected correlation is .43. If an archival source of performance data is used, planning is defined as standardized and formalized planning, a low-quality assessment strategy is used, and the environments are only moderately turbulent, the correlation falls to approximately zero. Our findings concerning turbulence are particularly important in light of the current debate over whether more comprehensive approaches to planning and decision making are required in turbulent settings (cf. Ansoff, 1991; Mintzberg, 1990).

Cautionary Note

Despite our use of cumulative data from over two decades of planning-performance research, a cautionary note concerning size and capital intensity is in order: it may be that the lack of size and capital intensity effects is the result of suboptimal measures. For size, we used a dichotomous measure instead of a continuous one as data for a finer-grained continuous measure were not available. For capital intensity, we focused on the type of firms utilized in a sample. Balance sheet data may have been more valid.

Another possible explanation for the lack of size and capital intensity effects is multicollinearity: size and capital intensity were somewhat highly

---

[4] We thank a reviewer for highlighting this interpretation.

correlated with one another and with several of the methods variables. This multicollinearity reduces somewhat the stability of the multiple regression estimates.

Although suboptimal measures and multicollinearity may have had some impact on our findings, the results of several non–meta-analytic studies suggest that our results are valid. For size, results from most of the relevant non–meta-analytic studies suggest that the variable does not moderate the planning-performance link (e.g., Fulmer & Rue, 1974; Kukalis, 1989). For capital intensity, the available non–meta-analytic evidence is more mixed. The results of one study (Capon, Farley, & Hulbert, 1987) suggest that capital intensity does not moderate the planning-performance link. The results of the second available study (Kukalis, 1989) suggest that capital intensity may have moderating effects, but the support for these effects is weak. In support of moderating effects, the results of this second study show a (1) planning-performance correlation for high-capital-intensity firms that is significantly different from zero and a (2) planning-performance correlation for low-capital-intensity firms that is not significantly different from zero. On the other hand, running counter to the idea that there are moderating effects, the two correlations described above are not significantly different from each other.

We originally argued that planning positively affects performance to a greater extent in large than in small firms and to a greater extent in capital-intensive than in labor-intensive firms. Our findings suggest, however, that planning affects performance equally in large and small and capital-intensive and labor-intensive firms. Consistent with our original arguments, it appears that small firms and labor-intensive firms can benefit from the adaptation aspect of strategic planning. Contradicting our original arguments, it appears that such firms can benefit to a degree that places them on an equal footing with large and capital-intensive firms.

CONCLUSION

Consistent with expectations, we found strategic planning to positively affect firm performance. Researchers (e.g., Greenley, 1986; Mintzberg, 1990) who have concluded that planning does not generally benefit performance appear to have been incorrect. Contrary to expectations, we found that variation in planning-performance relationships is explained best by methods variables. It appears that methodological differences across studies have been largely responsible for the inconsistent findings reported in the literature and largely responsible for the debate concerning the value of strategic planning.

REFERENCES

Ackelsberg, R., & Arlow, P. 1985. Small businesses do plan and it does pay off. ***Long Range Planning,*** 18(5): 61–67.

Ansoff, I. 1991. Critique of Henry Mintzberg's "The design school: Reconsidering the basic premises of strategic management." ***Strategic Management Journal,*** 12: 449–461.

Ansoff, H. I., Avner, J., Brandenburg, R. G., Portner, F. E., & Radosevich, R. 1970. Does planning pay? The effects of planning on success of acquisition. ***Long Range Planning,*** 3(2): 2–7.

Ansoff, H. I., Brandenburg, R. G., Portner, F. E., & Radosevich, R. 1971. ***Acquisition behavior of U.S. manufacturing firms, 1946–1965.*** Nashville: Vanderbilt University Press.

Aram, J. D., & Cowen, S. S. 1990. Strategic planning for increased profit in the small business. ***Long Range Planning,*** 23(6): 63–70.

Armstrong, J. S. 1982. The value of formal planning for strategic decisions: Review of empirical research. ***Strategic Management Journal,*** 3: 197–211.

Bracker, J. S., Keats, B. W., & Pearson, J. N. 1988. Planning and financial performance among small firms in a growth industry. ***Strategic Management Journal,*** 9: 591–603.

Bracker, J. S., & Pearson, J. N. 1986. Planning and financial performance of small, mature firms. ***Strategic Management Journal,*** 7: 503–522.

Bruderl, J., & Schussler, R. 1990. Organizational mortality: The liabilities of newness and adolescence. ***Administrative Science Quarterly,*** 35: 530–547.

Burt, D. N. 1978. Planning and performance in Australian retailing. ***Long Range Planning,*** 11(3): 62–66.

Capon, N., Farley, J. U., & Hulbert, J. M. 1987. ***Corporate strategic planning.*** New York: Columbia University Press.

Christodoulou, C. 1988. Australian industry: Sophisticated planning and weak R&D? ***Long Range Planning,*** 21(1): 82–89.

Cook, R. D. 1979. Influential observations in linear regression. ***Journal of the American Statistical Association,*** 74: 169–174.

Denning, B. W., & Lehr, M. E. 1972. The extent and nature of corporate long-range planning in the United Kingdom—II. ***Journal of Management Studies,*** 9: 1–18.

Dess, G. G., Ireland, D. R., & Hitt, M. A. 1990. Industry effects and strategic management research. ***Journal of Management,*** 16: 7–27.

Fulmer, R. M., & Rue, L. W. 1974. The practice and profitability of long-range planning. ***Managerial Planning,*** 22(6): 1–7.

Gable, M., & Topol, M. T. 1987. Planning practices of small-scale retailers. ***American Journal of Small Business,*** 12(2): 19–32.

Gershefski, G. W. 1970. Corporate models—The state of the art. ***Management Science,*** 16: B-303–312.

Glick, W. H., Miller, C. C., & Huber, G. P. 1993. The impact of upper-echelon diversity on organizational performance. In G. P. Huber & W. H. Glick (Eds.), ***Organizational change and redesign: Ideas and insights for improving performance:*** 176–214. New York: Oxford Press.

Greenley, G. E. 1986. Does strategic planning improve company performance? ***Long Range Planning,*** 19(2): 101–109.

Grinyer, P. H., Al-Bazzaz, S., & Yasai-Ardekani, M. 1986. Towards a contingency theory of corporate planning: Findings in 48 U.K. companies. ***Strategic Management Journal,*** 7: 3–28.

Grinyer, P. H., & Norburn, D. 1975. Planning for existing markets: Perceptions of executives and financial performance. ***Journal of the Royal Statistical Society (A),*** 138: 70–97.

Guzzo, R. A., Jackson, S. E., & Katzell, R. A. 1987. Meta-analysis. In L. L. Cummings & B. Staw (Eds.), ***Research in organizational behavior,*** vol. 9: 407–442. Greenwich, CT: JAI Press.

Haveman, H. A. 1993. Between a rock and a hard place: Organizational change and performance under conditions of fundamental transformation. ***Administrative Science Quarterly,*** 37: 48–75.

Hedges, L. V., & Olkin, I. 1985. ***Statistical methods for meta-analysis.*** New York: Academic Press.

Hitt, M. A., Hoskisson, R. E., & Ireland, R. D. 1990. Mergers and acquisitions and managerial commitment to innovation in M-form firms. ***Strategic Management Journal,*** 11: 29–47.

Huber, G. P., Miller, C. C., & Glick, W. H. 1990. Developing more encompassing theories about organizations: The centralization-effectiveness relationship as an example. ***Organization Science,*** 1: 11–40.

Hunter, J. E., Schmidt, F. L., & Jackson, G. B. 1982. ***Meta-analysis: Cumulating research findings across studies.*** Beverly Hills, CA: Sage Publications.

Jenster, P. V., & Overstreet, G. A., Jr. 1990. Planning for a non-profit service: A study of U.S. credit unions. ***Long Range Planning,*** 23(2): 103–111.

Jones, W. D. 1982. Characteristics of planning in small firms. ***Journal of Small Business Management,*** 20: 15–19.

Kallman, E. A., & Shapiro, H. J. 1978. The motor freight industry—A case against planning. ***Long Range Planning,*** 11(1): 81–86.

Karger, D. W., & Malik, Z. A. 1975. Long-range planning and organizational performance. ***Long Range Planning,*** 8(6): 60–64.

Klein, H. E. 1981. The impact of planning on growth and profit. ***Journal of Bank Research,*** 12(2): 105–109.

Kudla, R. J., & Cesta, J. R. 1982. Planning and financial performance: A discriminant analysis. ***Akron Business and Economic Review,*** 13(1): 30–36.

Kukalis, S. 1989. The relationship among firm characteristics and design of strategic planning systems in large organizations. ***Journal of Management,*** 15: 565–579.

Kukalis, S. 1991. Determinants of strategic planning systems in large organizations: A contingency approach. ***Journal of Management Studies,*** 28: 143–160.

Leontiades, M., & Tezel, A. 1980. Planning perceptions and planning results. ***Strategic Management Journal,*** 7: 503–522.

Miller, C. C., Glick, W. H., Huber, G. P., & Wang, Y. D. 1991. Understanding technology-structure relationships: Theory development and meta-analytic theory testing. ***Academy of Management Journal,*** 34: 370–399.

Miller, D., & Friesen, P. H. 1983. Strategy-making and the environment: The third link. ***Strategic Management Journal,*** 4: 221–235.

Miller, D., & Toulouse, J. M. 1986. Chief executive personality and corporate strategy and structure in small firms. ***Management Science,*** 32: 1389–1409.

Mintzberg, H. 1973. Strategy-making in three modes. ***California Management Review,*** 16(2): 44–53.

Mintzberg, H. 1987. The strategy concept II: Another look at why organizations need strategies. ***California Management Review,*** 30(1): 25–32.

Mintzberg, H. 1990. The design school: Reconsidering the basic premises of strategic management. ***Strategic Management Journal,*** 11: 171–195.

Mintzberg, H. 1991. Learning 1, planning 0: Reply to Igor Ansoff. ***Strategic Management Journal,*** 12: 463–466.

Odom, R. Y., & Boxx, W. R. 1988. Environment, planning processes, and organizational performance of churches. ***Strategic Management Journal,*** 9: 197–205.

Orpen, C. 1985. The effects of long-range planning on small business performance: A further examination. ***Journal of Small Business Management,*** 23(1): 16–23.

Pearce, J. A., Freeman, E. B., & Robinson, R. B. 1987. The tenuous link between formal strategic planning and financial performance. ***Academy of Management Review.*** 12: 658–675.

Pearce, J. A., Robbins, D. K., & Robinson, R. B. 1987. The impact of grand strategy and planning formality on financial performance. ***Strategic Management Journal,*** 8: 125–134.

Powell, T. C. 1992. Strategic planning as competitive advantage. ***Strategic Management Journal,*** 13: 551–558.

Rhyne, L. C. 1986. The relationship of strategic planning to financial performance. ***Strategic Management Journal,*** 7: 423–436.

Robinson, R. B. 1982. The importance of outsiders in small firm strategic planning. ***Academy of Management Journal,*** 25: 80–93.

Robinson, R. B., & Littlejohn, W. F. 1981. Important contingencies in small firm planning. ***Journal of Small Business Management,*** 19(3): 45–48.

Robinson, R. B., Logan, J. E., & Salem, M. Y. 1986. Strategic versus operational planning in small retail firms. ***American Journal of Small Business,*** 10(3): 7–16.

Robinson, R. B., & Pearce, J. A. 1983. The impact of formalized strategic planning on financial performance in small organizations. ***Strategic Management Journal,*** 4: 197–207.

Robinson, R. B., Pearce, J. A., Vozikis, G. S., & Mescon, T. S. 1984. The relationship between stage of development and small firm planning and performance. ***Journal of Small Business Management,*** 22: 45–52.

Sapp, R. W., & Seiler, R. E. 1981. The relationship between long-range planning and financial performance of U.S. commercial banks. ***Managerial Planning,*** 30: 32–36.

Schmenner, R. W. 1986. How can service businesses survive and prosper? ***Sloan Management Review,*** 27(3): 21–32.

Stokke, P. R., Ralston, W. K., Boyce, T. A., & Wilson, I. H. 1990. Scenario planning for Norwegian oil and gas. ***Long Range Planning,*** 23(2): 17–26.

Thune, S. S., & House, R. J. 1970. Where long-range planning pays off. ***Business Horizons,*** 13: 81–87.

Vancil, R. F., & Lorange, P. 1975. Strategic planning in diversified companies. ***Harvard Business Review,*** 53(1): 81–90.

Whitehead, D. D., & Gup, B. E. 1985. Bank and thrift profitability: Does strategic planning really pay? ***Economic Review*** (Federal Reserve Bank of Atlanta), 70(9): 14–25.

Wood, D. R., & LaForge, R. L. 1979. The impact of comprehensive planning on financial performance. ***Academy of Management Journal,*** 22: 516–526.

Woodburn, T. L. 1984. Corporate planning in South African companies. ***Long Range Planning,*** 17(1): 84–99.

Woodward, J. 1965. ***Industrial organization: Theory and practice.*** London: Oxford Press.

C. Chet Miller earned his doctoral degree in organizational studies at the University of Texas at Austin. He currently is an assistant professor in the Hankamer School of Business, Baylor University. His current research interests center on strategic management processes and diversity in upper-echelon executive groups.

Laura B. Cardinal earned her doctoral degree at the University of Texas at Austin. She is currently a visiting assistant professor in strategic management at the School of Management, University of Texas at Dallas. Her research interests are focused on managing innovation processes in large firms and managing technology in R&D laboratories.