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DETERMINANTS OF FIRM PERFORMANCE: THE RELATIVE IMPORTANCE OF ECONOMIC AND ORGANIZATIONAL FACTORS

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We decompose the inter-firm variance in profit rates into economic and organizational components. Using a representative model from each paradigm we find that both sets of factors are significant determinants of firm performance. Further findings are that the two effects are roughly independent and that organizational factors explain about twice as much variance in profit rates as economic factors.

INTRODUCTION

In the business policy literature there are two major streams of research on the determinants of firm performance. One is based primarily upon an economic tradition, emphasizing the importance of external market factors in determining firm success. The other line of research builds on the behavioral and sociological paradigm and sees organizational factors and their fit with the environment as the major determinants of success. Within this school of thought, little direct attention is given to the firm's competitive position. Similarly, economics traditionally has disregarded factors internal to the firm.[1]

Theory or empirical evidence of linkages to performance abound within each paradigm, but surprisingly little has been done to integrate the two and evaluate the relative effect of each on firm profitability. Notable exceptions are recent works by Grinyer, McKiernan and Yasai-Ardekani (1988), Miller (1986), White (1986), White and Hammermesh (1981), and Lenz (1981), who discussed and/or evaluated a limited number of contingent relationships between economic and administrative factors. No work has been done, however, to assess the relative importance of these two sets of explanatory factors.

In this paper we begin such an integrated examination of firm profitability. Utilizing a unique economic and behavioral data base, we construct and test three models of firm performance, first an example from an economic perspective, second an example from an organizational perspective and the third an integration of the other two. We are then able to decompose the inter-firm variance in profit rates into its economic and organizational components.

Before describing the study we would like to make two things clear. First, we do not propose to synthesize all economic and organizational theories of firm performance. We have taken an

[1] The following statement, from Buzzell and Gale (1987), is typical. 'Our treatment of strategy is also confined to dimensions that can be measured in reasonably clear terms. In contrast, some other elements of strategies cannot be readily measured, or perhaps measured at all. There has been much discussion for example, of the pervasive influence of corporate cultures on success or failure. No doubt companies differ in terms of their cultures, and such differences unquestionably affect performance. But we know of no way to measure the key policies, management processes, or personality factors that shape corporate cultures. Consequently, we have made no effort to explore this area, or others that would be equally difficult to quantify or even classify' (p. 21).

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example from each class of models. We will argue that these examples are somewhat representative but they are, nonetheless, only examples. Readers who find one or both of our examples too simplistic may well expect a more complex example to capture more of the variance in firm profits. This problem of selecting a representative model seems particularly acute for the organizational perspective because of its numerous theories and levels of analysis found in the literature, but that model actually does better in our sample. Second, we use accounting rates of return as our measure of performance. Within the economic tradition these have been the subject of some debate (Bentson, 1985), but they are still commonly used, and arguments have been raised in their defense (Long and Ravenscraft, 1984; Jacobson, 1987). The choice of profit rates is less obvious vis-à-vis the organizational literature. While profits have been used within that tradition, so has a large number of other concepts of performance (e.g. satisfaction, survival, etc.). If the organizational model had performed less well, this would have been a serious problem.

In the next two sections we present our economic and organizational models. We then describe our data and give the results, ending with a discussion of the implications of our findings.

ECONOMIC MODEL OF FIRM PERFORMANCE

Industrial organization economics has proven extremely useful to researchers of strategy content in providing a basic theoretical perspective on the influence of market structure on firm strategy and performance. While there is a range of specific models, major determinants of firm-level profitability include: (1) characteristics of the industry in which the firm competes; (2) the firm's position relative to its competitors; and (3) the quality or quantity of the firm's resources. Scherer (1980: Ch. 9) surveyed many of the specific models of both industry- and firm-level performance, and Porter's review (1981) describes the influence of the I/O paradigm on business policy.

Our economic model, while only an example, includes several of the explanatory variables considered in the literature. We divide these into the three classes mentioned above. Each is discussed in turn.

Industry variables

A long tradition, most often associated with Bain (1956) is concerned with identifying properties of industries contributing to above-average profitability. A large set of variables (growth, concentration, capital intensity, advertising intensity, etc.) have performed differently in different studies, but the overall importance of these factors is beyond dispute (Ravenscraft, 1983). In a study such as ours, where interest is focused on the importance of industry *per se*, rather than on characteristics of more or less attractive industries, the effect of industry can be captured by the average industry profits. A recent study by Schmalensee (1985) shows that differences between industries as measured by average industry return on assets account for almost all the explained variance in business unit performance.

Variables relating the firm to its competitors

The key member of this class is relative market share, a variable which has been widely used in strategy and is emphasized by BCG (1972) and PIMS (PIMS, 1977; Buzzell and Gale, 1987). Originally perceived as the source of market power (Shepherd, 1972) market share and more specifically relative market share as viewed for this study serves as a proxy for some firm-specific relative competitive advantage resulting from learning effects and other firm specific assets (Karnani, 1984).

Firm variables

We complete our model with firm size. This is most often interpreted as a source of organizational costs (Shepherd, 1972), or X-inefficiencies (Leibenstein, 1976). From a strategy perspective we note that size also may be an indicator of diversification, which by and large has been found to affect performance negatively (Rumelt, 1982; Porter, 1987; Wernerfelt and Montgomery, 1988).

Overall, the typical economic model of firm performance explains from 15 to 40 percent of

the variance in profit rates across firms. Apart from random effects, measurement errors, and so forth, one can suggest at least three explanations for the 'remaining' variance. First, there may be important economic variables, the extent of which cannot be measured (e.g. assets that are specific to an industry or a trading partner). Second, the 'true' model may be such that intervening economic variables differ from case to case, making aggregate analysis difficult. Third, with very few exceptions (e.g. Armour and Teece, 1978), organizational factors are not considered in this literature.

ORGANIZATIONAL MODEL OF FIRM PERFORMANCE

Perhaps even more than their economist counterparts, organizational researchers have developed a wide variety of models of performance. While the organization behavior and theory literatures are rich in the breadth and depth of their studies of organization structures, systems, and people, the variety of conjectures and empirically tested models makes aggregation difficult. For example, just determining the appropriate construct of performance or effectiveness involves measures ranging from employee satisfaction to shareholder wealth (Cameron, 1986; Goodman and Pennings, 1977; Steers, 1975). In broad terms this stream of research suggests that managers can influence the behavior of their employees (and thus the performance of the organization) by taking into account factors such as the formal and informal structure, the planning, reward, control and information systems, their skills and personalities, and the relation of these to the environment. That is, managers influence organizational outcomes by establishing 'context', and that context is the result of a complex set of psychological, sociological, and physical interactions.

The difficulty in working with such multifaceted models (see, for example, Lenz, 1981) lies in developing, collecting and aggregating appropriate measures (Bonoma, 1985; Bower, 1982). Many constructs within the literature are difficult to measure and those which are relatively easier to capture are often at the micro (individual) level. For example, can we say that a firm on the whole is bureaucratic just because it has several levels to its hierarchy? Can a firm be over-differentiated in one area and under-differentiated in another, but on the whole be just about right? In contrast, firm performance is an aggregate phenomenon.

One research stream which has attempted to capture the multidimensional aspect of these significant organizational phenomena—the effects of structure, motivation, group dynamics, job enrichment, decision-making, leadership, goal setting and planning, etc.—is that of organizational climate. Long a prominent concept within the organizational sciences, 'organizational climate' was originally defined as follows:

> The concept of climate provides a useful bridge between theories of individual motivation and behavior, on one hand, and organizational theories, on the other. Organizational climate, as defined here, refers to the perceived, subjective effects of the formal system, the informal 'style' of the managers, and other important environmental factors on the attitudes, beliefs, values and motivations of the people who work in a particular organization (Litwin and Stringer, 1968: 5).

And more recently as:

> the perceived properties or characteristics found in the work environment that result from actions taken consciously or unconsciously by an organization and that presumably affect subsequent behavior (Steers and Lee, 1983: 82).

Just as geographic regions have different 'climates' as a result of the immediate interaction of temperature, humidity, wind, sunlight and rain/snow to make them favorable or unfavorable climates for living, so can a firm have as the interaction of its facilities, structures, systems and people a favorable or unfavorable work climate.

Developed in the 1960s, and still a major concept today, climate uniquely refers to a broad class of organizational and perceptual variables that reflect individual–organizational interactions which affect individual behavior (Glick, 1985; Steers and Lee, 1983; Field and Abelson, 1982; James and Jones, 1979; Schneider, 1975; Litwin and Stringer, 1968). It is important because it provides a conceptual link between analysis at the organizational level and at the employee level, precisely the requirements of this study.

Unlike objective measures of organization structures such as 'M-form' or systems such as

'capital budgeting policies', climate as measured by employee response to questionnaires reflects the individual's perceptions of that employee about the effect or presence or nature of certain organizational phenomena. Climate is not structure—size, production processes, arrangements, or number of levels. Structure may influence human behavior, but it is not necessary to examine human behavior to describe an organization's structure. Additionally, the same structures in different organizations may produce very different climates (Springer and Gable, 1980) as structure is only one of the many factors that significantly influence the worker's perceptions of his or her work environment.

Numerous studies have demonstrated how changes in organizational structures, systems and practices have altered climate measures and hence individual performance (Pritchard and Karasick, 1973; Litwin and Stringer, 1968; Forshand and Gilmer, 1964). Lawler *et al.* (1974) studied 117 research laboratories and demonstrated that both organizational structure (span of control, size, levels) and organizational processes (performance reviews, budgeting, collaboration) were more closely associated with climate measures than with performance (both subjective and objective) measures, and that organizational climate was directly linked to performance. Other more clinical efforts have shown linkages between managerial practices and attributes or dimensions of organization climate and firm performance (Simmons and Mares, 1983; Likert, 1961). Figure 1 illustrates the assumed causality of the traditional climate model of firm performance.

To empirically validate that climate was indeed a firm-level construct, Drexler (1977) examined 1256 work groups representing 6996 individuals in 21 organizations to test the strength of the organizational climate construct at the organizational level rather than at a departmental or some sub-organizational level. His findings strongly support the use of our measures of organizational climate for firm or organizational-level analysis.

> The results reported in this study should encourage those researchers who consider organizational climate to be an organizational attribute. A large share of the variance in measures of climate that describe organization-wide conditions and procedures is organization specific. While there are differences in organization climate across departments in the same organization, the departmental effects are much weaker than the organizational effects (Drexler, 1977: 41–42).

Denison (1982), using the same climate instrument with substantially more firms, also demonstrated that climate measures were more appropriate at the organizational level rather than at the group or individual levels. Glick's (1985) review of the psychological and organizational climate literature and the empirical corrections he makes to Drexler's work leads him to conclude, 'Thus, the concrete conclusion is that Drexler's aggregated perceptual measures are indeed reliable measures of organizational climate.' Given constraints on data access it was not possible to duplicate the above tests for this study; nor was it deemed necessary, given these prior tests of the same instrument.

Of course, there are many competing theories and concepts of firm-level performance and no single construct has emerged in the literature. We will interpret a positive association between overall firm climate and profitability as support for one theory of organizational determinants of performance. It is possible to interpret the climate scores in light of competing theories. That is, high climate scores may indicate that the key contingencies are satisfied, or that corporate culture is appropriate to the environment, etc. (Denison, 1984). If one subscribes to such an alternative theory, the climate measures are infected with even more noise and the R^2 values from our models are biased towards zero. We use the climate data because they have some significant history in the literature, capture many elements of organizational phenomena, are appropriate for analysis at the firm level, are largely influenced by managerial actions and are available for a reasonable number of representative firms.

DATA AND MEASURES

The sample includes 60 *Fortune* 1000 firms representing both dominant and lesser members of their respective industries. These firms together comprise over 300 lines of business as determined at the four-digit SIC level. While the sample is not large, it is clearly representative of major

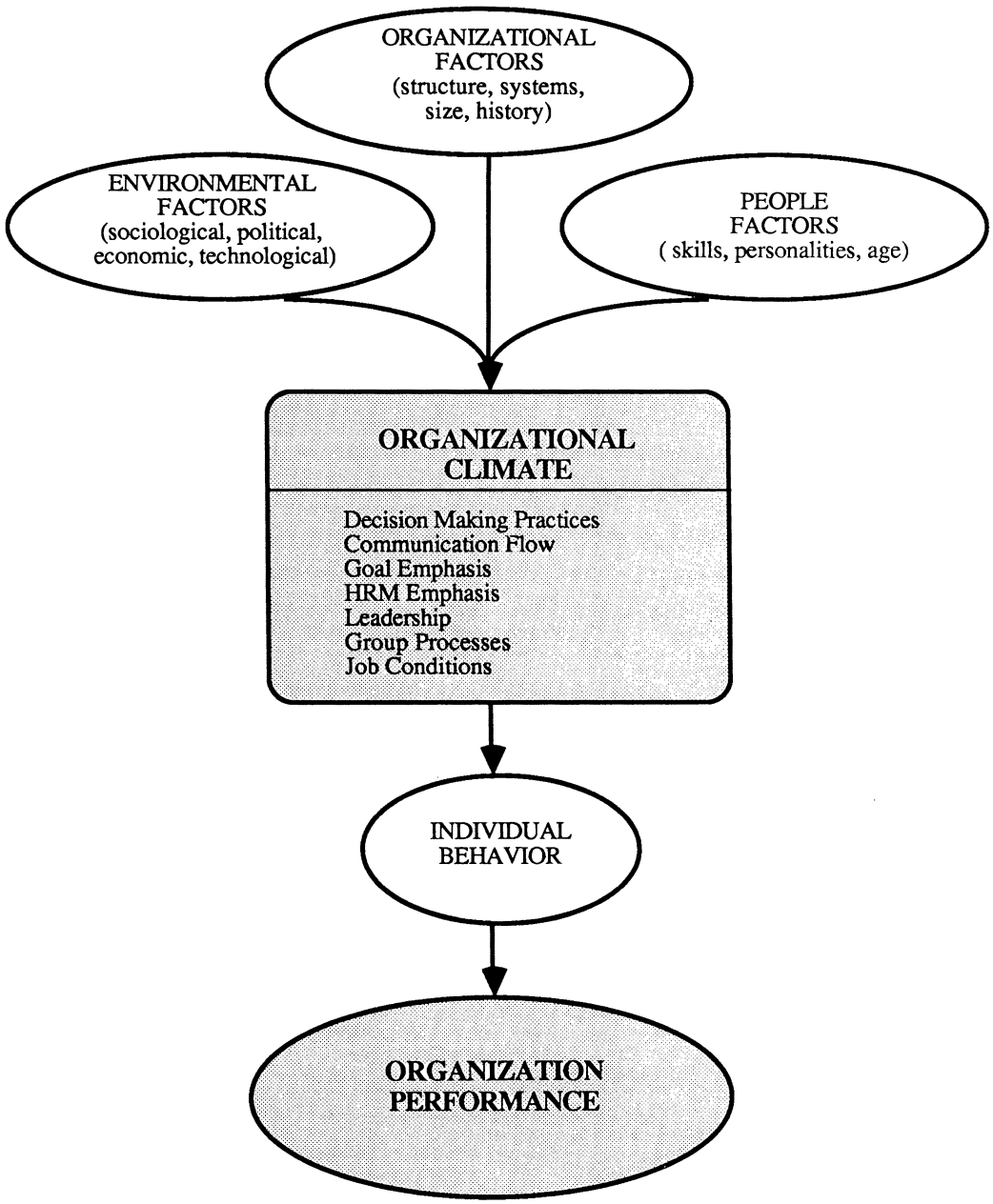

Figure 1. A traditional model of organizational climate

corporations in the United States. For a more detailed discussion of the sample and its characteristics see Hansen (1987).

Performance measure

The measure for firm-level performance (FIRMπ) was selected as the 5-year average return on assets as reported by Compustat. Because the availability of organizational survey data, discussed later, dictated the sample, not all the data are from a single year. In order to adjust profit for annual effects such as inflation, the risk-free rate as determined by the T-bill rate was subtracted from the ROA for each firm as prescribed by Shepherd (1970: 50–51). This multi-

year average seemed appropriate given the long-term strategic and structural variables in this study, and is consistent with previous strategy studies (Grinyer *et al.*, 1988; Rumelt, 1982; Christensen and Montgomery, 1981).

Economic variables

The economic variables are at the four-digit SIC level and come from Trinet/EIS, the FTC Line of Business Data, and the Census of Manufacturers. Firm financial information was obtained through Compustat tapes.

Industry profitability (INDπ), is defined as the sales weighted average return on assets across the firm's lines of business. It would be desirable to take our sample firms' own effect out of average industry profits, but we were not able to do this consistently. As mentioned above, INDπ was selected to summarize the effects of all industry-level variables such as growth rate, concentration, barriers, etc. Given this, inclusion of an additional industry-level variable would lead to a misspecification of the model.

To indicate firm competitive position, we use the relative market share as calculated by the sales weighted ratio of the firm's market share divided by the four-firm concentration ratio in its four-digit SIC industry. This ratio is similar to the relative market share as developed by PIMS (1977). We of course expect the sign of this variable (RELMS) to be positive.

At the firm level we use firm size (SIZE), defined as the natural logarithm of total assets. This should measure inefficiencies resulting from size or diversification and we expect a negative sign (as in Shepherd, 1972). A common problem with this measure is that the size variable enters in the denominator of FIRMπ. Accordingly, measurement errors in this variable will generate a negative bias in its coefficient and increase the amount of variance it accounts for in the regression. While the magnitudes of these effects are difficult to assess, their salience is limited given that our results attribute relatively low variance to economic factors.

Organizational variables

As mentioned above, it is very difficult to get good data on organizational factors. Our measure of climate is derived from the Survey of Organizations (SOO) instrument described in Taylor and Bowers (1972). Tested and developed by the Institute for Social Research at the University of Michigan, this questionnaire captures many dimensions of organizational factors including characteristics of communication flow, emphasis on human resources, decision-making practices, organization of work, job design, and goal emphasis. It has already been noted that this specific operationalization of organizational climate is accepted as appropriate for organizational-level studies (Glick, 1985; Mossholder and Bedeian, 1983; Denison, 1982; Drexler, 1977).

Briefly, the SOO operationalizes climate in a somewhat prescriptive manner. That is, it assumes that the presence of work groups with clear, consistent and high individual, group, and organizational standards and goals, linked through effective communications utilizing participatory decision-making techniques, is evidence of good management. Employees who feel properly rewarded with pay and recognition, and who have leaders/managers who train, help, listen and are experts in their tasks, are more productive. Finally, workers who are members of work groups that have standards and are mutually supportive lead to better performance. For this study we use the results of over 50,000 questionnaires administered to 60 publicly traded, non-regulated *Fortune* 1000 firms. The majority of the firms (47) came from the SOO data and the rest from a similar instrument used by the Forum Corporation (1974). (A Chow test allowed us to pool the two after testing for homogeneity in construct and content)[2]

Our data consist of averages per firm. In a few cases only one of many divisions was surveyed, but in most cases unweighted averages among multiple divisions are involved.[3] Because of the large sample size our data are better than those obtained from 'key informant' methods, but it is beyond dispute that the data contain large amounts of noise.

All the major dimensions of the SOO questionnaire are intended to measure different constructs (Taylor and Bowers, 1972), but we found the climate variables to have a noticeable amount of collinearity. Thus, only two of the variables were

[2] This test was taken from Pindyck and Rubinfeld (1981: 121–123) and was conducted at the 5 percent level.

[3] Unfortunately we have not been able to get evidence on the amount of variation across divisions of given firms.

selcted for our models. In particular, we use (a) Emphasis on Human Resources (HRM.EMPH) which measures the employee's perception of how concerned the organization is with his welfare, work conditions, etc., and (b) Emphasis on Goal Accomplishment (GOAL.EMPH) which measures the employee's perception of relative emphasis on achieving aggressive goals or objectives.[4] We chose these variables for four reasons. One, they are well grounded in major streams of research. HRM.EMPH comes directly out of the human relations school of thought (Barney, 1986; McGregor, 1960; Roethlisberger and Dickson, 1947). The other variable, GOAL.EMPH, can be associated with Barnard's (1968) organization purpose and is more representative of the scientific management school of research, specifically the work on goal theory by Locke (1978). The strength of goal theory research in both laboratory and field settings, and the size of its impact, is significant and well established in the literature. Second, the two variables represent the logical tension between attention to an employee's needs and task accomplishment. This, too, has been an item of research within the literature (Blake and Mouton, 1964). Third, these variables were the least correlated among the climate dimensions. And fourth, these two (in addition to a few others) were available from both the SOO and the Forum instrument, enabling maximum sample size. While our selection may appear to be somewhat arbitrary, it should be noted that our results are very similar for other pairs of climate variables.

Data description

Tables 1 and 2 provide the descriptive statistics for the variables and the correlation matrix. It can be seen from the correlation matrix that the climate measures—HRM.EMPH and GOAL.EMPH—exhibit the strongest correlations with firm-level profit. The sample was tested for multicollinearity and for heteroscedasticity using the Goldfield–Quandt tests (Bass, Cattin and Wittink, 1978). This revealed no problems.

[4] For each firm, many employees answered many questions pertaining to each of these two variables. The values we use are the average scores across individuals and questions. See, e.g., Taylor and Bowers (1972) for a copy of the questionnaire and further details.

Table 1. Description of variables

Variable	No. of cases	Minimum value	Maximum value	Mean	Standard deviation
FIRMπ	60	−0.100	0.237	0.047	0.065
INDπ	60	0.010	0.225	0.112	0.046
RELMS	60	0.023	0.820	0.208	0.181
SIZE	60	3.148	9.850	7.277	1.520
HRM. EMPH	60	2.487	4.114	3.092	0.354
GOAL. EMPH	60	2.801	4.410	3.501	0.383

RESULTS

Table 3 shows the results of three models of firm performance—the economic, the organizational, and the integrated. For each variable the *b* coefficient, its significance level based upon its *t*-statistic, and the standardized *b* weights are reported. In addition, the computed *F*-ratio for the regression, its probability (*p*-level) and the unadjusted (R^2) and adjusted ($\bar{R}^2$) $R^{2\prime}$ values are provided.

Economic model

The least-squares estimation for the economic model was significant at the 0.009 level and the signs of all the coefficients were in the expected direction. Somewhat surprising was both the insignificance of the relative market share variable and the relatively low $\bar{R}^2$ of 0.141. A few recent studies suggest that high absolute or relative share may not be as closely associated with firm profits as argued in the BCG (1972) framework (Jacobson and Aaker, 1985; Rumelt and Wensley, 1981) and that even low market share firms may indeed be just as profitable given certain favorable industry- and firm-specific conditions (Woo, 1981; Hammermesh, Anderson and Harris, 1978). Nevertheless, the economic model as a whole is successful in explaining firm profit performance.

Organizational model

The organizational model is also highly significant with its coefficients in the expected positive direction. While the HRM.EMPH variable is highly significant (p-level less than 0.000) the apparent interrelation between it and the

Table 2. Correlation matrix of variables in models

	FIRMπ	INDπ	RELMS	SIZE	HRM.EMPH	GOAL.EMPH
FIRMπ	1.000					
INDπ	0.293	1.000				
RELMS	0.119	0.075	1.000			
SIZE	−0.259	−0.071	0.375	1.000		
HRM.EMPH	0.600	0.110	−0.162	−0.250	1.000	
GOAL.EMPH	0.438	0.053	−0.021	−0.064	0.545	1.000

GOAL.EMPH variable keeps the latter insignificant. When run as two models with the variables kept separate, the GOAL.EMPH variable is positive and significant at the 0.005 level. The organizational model alone explains substantially more of the profit variance than the economic model alone. Given the extremely large number of surveys used to formulate the measures, and the long history of importance in the management literature of motivating employees and goal theory (Locke, 1978), the results are not overly surprising to organization theorists (although those from an economic perspective may find them noteworthy).

Integrated model

The third, or integrated, model of firm performance is also highly significant. The signs of the coefficients are in the expected direction, and it explains even more of the firm's performance with an $\overline{R}^2$ of 0.457. The RELMS variable is now significant and with the expected sign indicating the importance of the firm's market share relative to its major competitors. However, the GOAL.EMPH variable remains insignificant. It is worth noting that the $\overline{R}^2$ of this model is only slightly smaller than the sum of the $\overline{R}^2$ values of the two partial models. So our specific economic and organizational factors appear to be roughly independent contributors to performance.[5]

[5] It must be noted, from our previously presented climate model, that climate is the effect of numerous 'environmental' factors including organization structures, systems, and people. We are not arguing that these underlying factors are not contingent upon competitive or other external conditions, but that the resulting climate is largely independent. Thus, firms in 'bad' industries, 'dog' businesses or weak competitive positions should be able to achieve good climates and capture the profit benefits of those efforts.

Variance decomposition

To decompose the interfirm variance in profit rates we will start with the combined model and use *F*-tests to see if there are significant differences in the amount of explained variance as we drop either group of variables from the complete model. Figure 2 starts at the bottom with the combined model and then reports the significance of the *F*-test between it and the two submodels. Finally, the two submodels are tested from the null model. This method is presented by Kmenta (1971) and utilized by Schmalensee (1985).

Both economic and organizational factors are highly significant, together or alone. However, at either level the organizational factors explain more variance than the economic factors. To formally analyze this, Table 4 gives the incremental contributions to R^2 for the economic and organizational models (Theil, 1971). Three things are important. First, both the models explain substantial amounts of firm profitability. Second, the organizational factors account for about twice as much variance as the economic factors. And third, the models are approximately orthogonal, suggesting that these are indeed two independent effects.

CONCLUSIONS AND IMPLICATIONS

We integrated two sample models of firm performance, one from the economic paradigm and one from the organizational paradigm. The results confirm the importance and independence of both sets of factors in explaining performance. However, the results also indicate that organizational factors explain about twice as much variance in firm profit rates as economic factors.

Regarding the model specification, one can question the direction of causality. There are,

Table 3. Regression results of economic, organizational, and integrated models

Dependent variable: FIRMπ (ROTA)

	Independent variables									
	CONSTANT	INDπ	RELMS	SIZE	HRM.EMPH	GOAL.EMPH	No. of cases	*F* ratio	Probability	R^2	$\overline{R^2}$
Economic model											
b coeff.	0.092	0.356	0.080	−0.014			60	4.232	0.009	0.185	0.141
(sign.)	(0.045)	(0.042)	(0.096)	(0.016)							
(std. β)		0.253	0.221	−0.324							
Managerial model											
b coeff.	−0.338				0.094	0.027	60	17.319	0.000	0.378	0.356
(sign.)	(0.000)				(0.000)	(0.209)					
(std. β)					0.514	0.158					
Integrated model											
b coeff.	−0.304	0.276	0.096	−0.009	0.089	0.027	60	10.947	0.000	0.503	0.457
(sign.)	(0.000)	(0.048)	(0.014)	(0.049)	(0.000)	(0.178)					
(std. β)		0.197	0.266	−0.214	0.482	0.157					

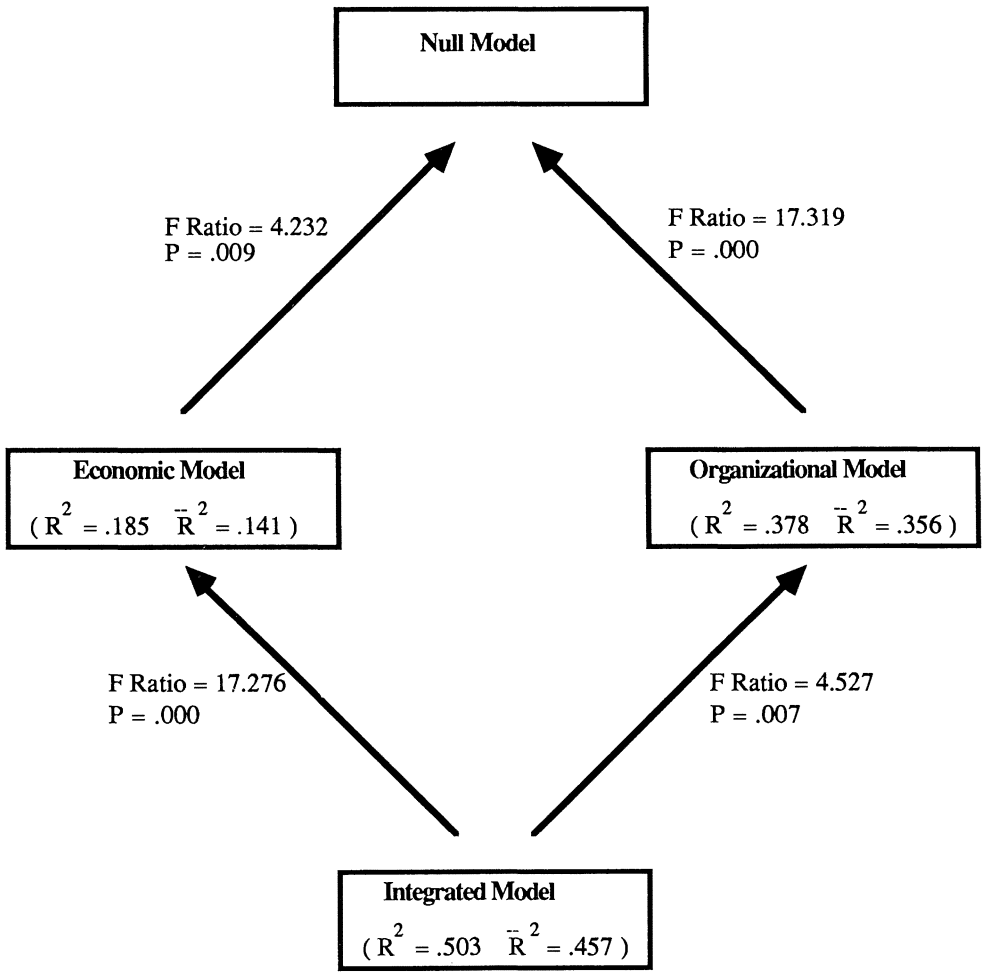

Figure 2. Testing the differences of the three models

Table 4. Estimated variance decomposition (percentage of variance explained)

Economic Model*	18.50
Organizational Model*	37.78
Multicollinearity	−10.14
Adjustment†	−0.46
Error	54.30
Total	100.00

*Incremental contributions to R^2.
†$\bar{R}^2 - R^2$.

however, several arguments supporting our interpretation. First, it may be argued that 'good' organizational practices help a firm select good economic environments, or obtain relative advantage through the creation of intangible or invisible assets (Itami and Roehl, 1987). If this is true, our estimate of the importance of organizational factors is biased downward. So our results may be even stronger than it first appears. Second, one might suspect that high performance allows firms to maintain good climates. However, rational managers would not invest in this were it not for a positive effect of climate on profits. Third, the empirical results of Denison (1982), who found that profitability lagged organizational climate by 2–3 years, contradicts this. Fourth, most theory in the area postulate this direction of causality. Finally, early and recent clinical studies point in the same direction. Nevertheless, our result is subject to the usual discussion of causality versus association. The answer depends substantially on the model in which one chooses to interpret the results.

Additionally some issues may be of concern because of our data set. In particular, it is true that our economic model explains less profit variance than some earlier studies (our percentage variance explained is in fact almost identical to Schmalensee, 1985). The fact that many of our firms are widely diversified may yield an understanding of this: aggregation over many industries will tend to reduce the amount of variance explained by industry effects.[6] In contrast, older samples may contain less diversified firms. Nevertheless, even if the importance of the economic factors is underestimated here, they are still of much smaller importance than the organizational factors. In fact, because our organizational variables also contain errors of measurement, our estimate of their importance is biased downward as well.

Regarding future research, we feel that the results from the present study are very encouraging. *If* one can get firm-level data on organizational factors it should be possible to look at numerous other examples. Further, it would be interesting to move beyond variance decomposition and consider various interactions (contingencies) between economic and organizational variables. Both economists and organization theorists could benefit from work in this area. Also, note that the approximate orthogonal independence between the two examples implies that the perspectives are supplementary rather than complementary. Thus, our knowledge of firm performance is greatly enhanced by our study of multiple paradigms. While this independence may suggest that neither the economic nor the organizational paradigm needs to significantly account for the other in their respective studies, we hesitate to overstate this empirically derived 'independence'. So while our results may actually give a rationale for the current lack of interaction between researchers from the two paradigms, our conclusion is that each perspective has much to gain by incorporating broader models of organizational performance.

Our findings have important managerial implications. First, they confirm that industry selection and positioning within an industry are important contributors to performance. Second, we see that good administrative practices are even more important and third, that the economic and organizational effects are roughly independent. That is, there is little overlap between the two effects: top management teams that can demonstrate excellence in both arenas—competitive positioning in the market place and building organizational context—will do significantly better than those that strive for more unidimensional concepts of excellence. Additionally, if our findings of the relative importance can be generalized, it would suggest that the critical issue in firm success and development is not primarily the selection of growth industries or product niches, but it is the building of an effective, directed, human organization in the selected industries.

[6] We are indebted to a referee for this argument.

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