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One More Time: A Look at the Factors  
Influencing Firm Performance

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One More Time:  
A Look at the Factors Influencing Firm Performance

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## ONE MORE TIME:

### A LOOK AT THE FACTORS INFLUENCING FIRM PERFORMANCE

#### ABSTRACT

Several recent studies examine the factors influencing firm performance. Schmalensee (1985) concludes that performance is largely the result of industry effects--that some industries are more profitable than others, and so the choice of industry in which to participate is a crucial management task. A study by Wernerfelt and Montgomery (1988) concludes that performance is also influenced by the extent of diversification, with narrowly diversified firms enjoying higher performance than widely diversified firms. Hansen and Wernerfelt (1989) conclude that both economic and organizational factors influence performance.

This study makes a further contribution to unraveling the performance puzzle. We introduce an important new variable, comparative gross margin as a proxy for management skill; use more recent data and alternative measures; and reach conclusions that differ from previous studies. Based on our results, we propose that relatively few new insights will come from additional studies examining the relationship between diversification strategy and performance. Rather, new strategic management research might focus on how management skill moderates relationships among industry membership, diversification strategy, and performance.



A large body of industrial organization research suggests that performance is largely the result of industry effects--that some industries are more profitable than others, and so the choice of industry in which to participate is a crucial management task. Strategic management rejects this narrow view, arguing that firm effects--strategies selected and implemented at the firm and business levels--will also influence firm performance. Until fairly recently, the term "strategies" often referred to the diversification strategies pursued by firms, and strategic management researchers have given considerable attention to the relationship between diversification strategy and performance. In fact, a survey of the strategic management literature would suggest that a firm's choice of diversification strategy is not only a key strategic decision, but also a principal source of competitive advantage.

A newer stream of strategic management research, however, is challenging both of these perspectives. These researchers are examining a variety of firm-specific strategic factors, including firm-specific knowledge, business segment strategies, and the structural relationship between corporate and business segment strategies. This stream of literature points to management skill as a key strategic variable, but work on management skill as a strategic variable has not been well linked to other research predicting firm performance.

This paper provides evidence on the interactive relationships among industry context, diversification strategy, management skill, and firm performance, and suggests that management skill plays an important role in influencing firm performance.

## A REVIEW OF THE VARIOUS PERSPECTIVES ON PERFORMANCE

### The Influence of Industry Membership on Performance

Long before strategic management researchers began exploring the topic of diversification, economists maintained that the structural characteristics of an industry would influence the profitability of firms in that industry. While economists have been interested in the topic of diversification, their focus has been on the possibility that firms would use the profits generated in one industry to subsidize entry and expansion, and that continued expansion would lead ultimately to increased concentration in another industry. By raising the level of concentration in an industry, diversification might enable firms to increase the profitability of that industry (Scherer, 1980). A study by Rhoades (1973), for example, examined the relationship between diversification and performance in 241 manufacturing industries and concluded that diversification is associated with wider price-cost margins.

One of the key assumptions of industrial organization research, however, is that firms don't matter much--that differences in profitability across firms can be largely explained by industry membership and that industry performance could be explained by barriers to entry and other structural characteristics. Empirical work by economists appears to support this view (see for example Bain, 1951, 1956).

Perhaps the clearest expression of this view is in a recent article by Schmalensee (1985). This research assesses the relative influence of industry, firm, and market share effects on profitability. Using cross-sectional data from the 1975 Federal Trade Commission Line of Business database, Schmalensee concludes that 1) firm effects do not exist, 2) industry effects exist and are

important, 3) market share effects exist but have a negligible influence on performance, and 4) industry and market share effects are negatively correlated (1985:349).

The strategic implication of Schmalensee's research is straightforward--firm performance is a function of the ability to acquire business units in profitable industries. Schmalensee argues that Mueller's (1983) findings of persistent firm-level profitability "are traceable to persistent differences at the business unit or industry level, combined with relatively stable patterns of activity at the firm level" (1985:349). Schmalensee also concedes, however, that

it is important to recognize that 80 percent of the variance in business unit profitability is unrelated to industry or share effects. While industry differences matter, they are clearly not all that matters (1985:350).

#### Diversification Strategy and Performance

A principal objective of strategic management research is to understand how firms achieve competitive advantage over rivals in order to enjoy superior economic performance. The field assumes that more is involved than simply selecting individual industries or markets in which to compete. Instead, strategic management researchers argue that the configuration of individual businesses into a corporate portfolio--a firm's diversification strategy--can be a source of competitive advantage. As a result, strategic management researchers have shown a considerable interest in diversification, focusing specifically on the relationship between diversification strategy and performance.

Rumelt's Strategy, Structure and Economic Performance (1974) provided a basis and catalyst for this study of diversification. Building on the work of Wrigley (1970), Rumelt developed a diversification taxonomy based on relatedness, and nearly all subsequent research has defined diversification strategy in terms of relatedness. Rumelt concluded that firms pursuing related diversification strategies enjoyed higher levels of performance than firms pursuing unrelated diversification strategies.

Rumelt's original study was later replicated by Christensen and Montgomery (1981) and Bettis (1981). Both of these studies concur with Rumelt's conclusion that firms pursuing related diversification strategies outperform firms pursuing unrelated diversification strategies. In addition, Christensen and Montgomery examine the intervening influence of market structure variables on the relationship between diversification strategy and performance. Specifically, Christensen and Montgomery suggest that firm size and market share and industry concentration, growth rate, and profitability are also important influences on performance. They also suggest that firms located in markets which constrain growth or profitability are the most likely candidates to pursue unrelated diversification strategies.

Bettis similarly examines the intervening influence of various strategic decision variables including expenditures on advertising and research and development, as well as capital intensity. He finds that these factors also influence the higher levels of performance enjoyed by firms pursuing related strategies.

The results of these studies are in general agreement with many of the early studies in the finance literature which found few advantages for widely unrelated diversification (Gahlon & Stover, 1979; Mason & Goudzwaard, 1976; and

Melicher & Rush, 1973). Many of these studies find that not only does unrelated diversification fail to improve returns, but also that diversifying firms do not achieve any significant risk reduction.

The literature, however, shows little consistency or consensus. While the studies just cited suggest that firms pursuing related diversification strategies may enjoy advantages over firms pursuing unrelated strategies, other studies (Bettis & Hall, 1982; Lubatkin, 1987; Michel & Shaked, 1974; and Weston, Smith, & Shrieves, 1972) have reached the opposite conclusion--that unrelated strategies can be more (or certainly no less) advantageous than related strategies. In short, the diversification literature suggests that in spite of extensive research, an understanding of diversification remains elusive; the nearly two decades of research have produced few definitive conclusions, and the findings of these studies are often contradictory.

One issue which has emerged from the diversification literature is the question of the relative importance of diversification strategy versus the choice of industry membership. The Christensen and Montgomery and the Bettis and Hall studies noted above suggest that much of the high performance of firms pursuing related diversification strategies could be attributed to industry effects. Specifically, Bettis and Hall argue that the high returns of the pharmaceutical firms in Rumelt's sample which were pursuing predominantly related strategies may have been responsible for his findings. Rumelt (1982) later replicated his original study and conceded that industry effects were significant. He concluded, however, that performance differences across categories persisted even after controlling for industry effects.

Similarly, Grant, Jammie, and Thomas also find a significant relationship between diversification strategy and performance. They note, however, that the

importance of this relationship must be tempered by the fact that the diversification variables in their study accounted for only "a small proportion of interfirm differences in profitability. Industry membership accounted for a larger proportion" (1988:795).

#### Management Skill As an Important Influence on Firm Performance

Prahalad and Bettis (1986) suggest that existing studies offer only partial answers to understanding the relationship between diversification strategy and performance. They suggest that we need to view management of the large, diversified firm as a task which requires knowledge not only of each individual business in which the firm operates, but also of the particular requirements of managing a portfolio of businesses in a large, diversified firm. More specifically, they propose that the relationship between diversification strategy and performance will be influenced by the "dominant logic" of firms' managers. This dominant logic is the shared understanding of the processes needed to manage large diversified firms. According to this view, more complex firms and unrelated diversification strategies require a broader dominant logic to ensure high performance.

Kazanjan and Drazin (1987) similarly describe how successful diversification requires a process of organizational learning. Through diversification, firms enter new domains, and to be successful, managers must acquire new knowledge. Other related research suggests that business unit strategies require appropriate administrative relationships between the business unit and the corporate central office if performance is to be enhanced (Gupta, 1987; Govindarajan, 1988). Taking a different perspective, Hill and Hoskisson (1987) also examine the relationship between strategy and structure, and



Hoskisson (1987) concludes that firms pursuing market and product diversification strategies enjoy higher performance when organized along a multidivisional organizational structure.

Still other approaches have examined firm-specific knowledge and skills which might be responsible for high performance. For example, Lippman and Rumelt (1982) and Rumelt (1984) offer a theory of "uncertain imitability" in which firms develop new production functions resulting in "firm heterogeneity as an outcome rather than as a given" (Rumelt, 1984:562). According to this model, unexpected events occur which are the source of potential rents. These can include changes in technology, relative prices, consumer tastes, and laws and regulations. The managers of successful firms are able to exploit these changes, but do so in a way that leads to "causal ambiguity." As a result, managers of competing firms in the same industries are uncertain as to how to imitate the actions of these successful firms. Levels of performance can therefore vary widely within the same industry.

Rumelt's research supports this view. After analyzing the rates of return on capital of 1,292 U.S. corporations over a 20 year period, he finds that "the variance in long-run profitability within industries is three to five times larger than the variance across industries" (1987:141).

Porter (1980, 1985) examines how firms and business segments can exploit aspects of industry structure or the value chain to achieve competitive advantage, and suggests that firms and business segments must pursue one of three generic strategies--cost leadership, differentiation, or focus. Porter's cost leadership strategy bears a remarkable similarity to the least cost production techniques which characterized the so-called American System of

Manufactures.<sup>1</sup> A more recent analysis suggests that problems of competitiveness and the poor performance of many firms can be traced to an abandonment of these least cost production techniques (Melman, 1983).

This underscores an important point--that we really know very little about how high performing firms develop and implement strategies which lead to competitive advantage. Yet, this would seem to be a very important influence on the level of firm performance. This paper proposes that this newer, diverse stream of strategic management literature points to management skill as a key strategic variable, likely to be an important influence on firm performance. We will argue that management skill is the reason why some firms consistently enjoy levels of performance above industry averages. While this view is hardly new as a theme in business policy and strategy, it has not been adequately operationalized in quantitative research, and it has not been well linked to the research stream explicitly concerned with performance.

#### TOWARD AN INTEGRATION OF THESE PERSPECTIVES

This review has sought to describe the major themes of three literatures. Yet each seems to have its limitations. Schmalensee's findings are remarkable, but his analysis largely ignores the highly diversified nature of large firms. Furthermore, we would disagree with his view of "relatively stable patterns of

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<sup>1</sup>A number of studies examine the importance of efficiency and productivity in the growth of the United States' economy during the nineteenth and early twentieth centuries. These studies emphasize how the impact of the American System of Manufactures with an emphasis on least cost production techniques resulted in the spectacular growth experienced by the United States economy. See for example, North (1961), Rosenberg (1969), Layton (1973), David (1975), Mayr and Post (1981), and Hounshell (1984).

activity at the firm level" (1985:349). Instead of the "relatively stable patterns" described by Schmalensee, we see continuous acquisition and divestment activity (Duhaime & Grant, 1984; Porter, 1987), suggesting that much more is involved in managing a large diversified firm than one-time selection of the right industries in which to participate.

On the other hand, not only has diversification research been plagued by inconsistent findings, but diversification studies implicitly assume that firms have equal abilities at developing and implementing strategies--an assumption that does not seem realistic. This is a limitation we see in the recent study by Wernerfelt and Montgomery (1988). Wernerfelt and Montgomery extend Schmalensee's study and find that not only are industry effects important in explaining differences in firm performance, but that firm focus (the extent of diversification) is also important in explaining differences in performance--that narrowly diversified firms enjoy higher performance than widely diversified firms.

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Wernerfelt and Montgomery use a resource-based view of the firm (Wernerfelt, 1984) to explain this finding, suggesting that narrowly diversified firms are better able to transfer competencies and resources among business segments. This resource-based view is appealing, but it ignores the difficulties of implementing strategies which capture the benefits of transferring resources among business segments. Duhaime and Grant (1984) and Porter (1987) note the widespread acquisition and divestment activity of large firms. These studies suggest that firms may find the transfer of competencies and resources to be very difficult.

The managerial control literature offers an explanation for why synergies are so elusive. Hamermesh (1977), for example, argues that information, and

especially "bad news" moves very slowly through organizations. Business segment managers who detect unfavorable environmental circumstances have every incentive to prevent this information from flowing to the central offices of large firms. Furthermore, when information about or from a business segment does arrive at the central office, senior managers there may face major challenges in comprehending information and integrating this information with relevant facts about the market conditions in which the various business segments operate. In some large firms, these information lags are likely to constrain attempts to share resources across business segments.

All of these considerations suggest that the level of management skill is likely to be a key influence on firm performance. We agree with Grant, Jammine, and Thomas when they conclude that the "total impact of diversification on performance depends on complex interactions between diversification strategy, corporate capabilities and resources, and external environment" (1988:795). A key element of these corporate capabilities, in our view, is the level of management skill. The managers of high performing firms are likely to have a much better developed understanding of the cause-effect relationships which lead to success in a particular industry or market; they also understand how to coordinate and integrate the activities of large, multibusiness firms successfully.

A similar conclusion is reached by Hansen and Wernerfelt who examine economic and organizational influences on performance, and find both to be significant. Using data gathered from questionnaires, they examine two variables, emphasis on human resources and emphasis on goal accomplishment, to assess organizational influences. They conclude "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" (1989:409).

The dominant logic described by Prahalad and Bettis and the organizational learning described by Kazanjian and Drazin have so far remained conceptual. Furthermore, while Hitt and Ireland (1986) and Snow and Hrebiniak (1980) assess the relationship between corporate level distinctive competencies and firm performance using questionnaires to assess distinctive competencies, we know of little additional research which has sought to analyze explicitly the relationship between management skill and performance.

We believe that firms with higher levels of management skill will enjoy either lower costs or higher prices than rivals in the same industries. Specifically, a high level of management skill will enable a firm to operate more efficiently than its rivals either because the firm is better able to transfer competencies and resources among its business activities or because the firm is better able to manage information requirements. Alternatively, a high level of management skill might also enable a firm to better exploit environmental and technological changes. This would permit the firm to implement new strategies, and offer new products or services at a premium price, thereby enjoying a higher gross margin than rivals.

Therefore, we believe that management skill can be represented by the difference between a firm's gross margin and the average gross margins of the markets in which that firm operates. Our interest is in how a firm's gross margin compares with the gross margins of other firms and business units operating in the same industries or markets. We believe that management skill is a necessary condition to achieve a high gross margin relative to rivals, and

so our measure--gross margin adjusted for industry membership--is a good proxy for management skill.

## RESEARCH PROPOSITIONS

This research study has a number of aims. We want to examine whether a significant relationship exists between the new variable, comparative gross margin as a proxy for management skill, and firm performance. We also want to re-examine the influence of industry membership and diversification strategy on performance using different data and measures. Finally, integrating these three perspectives, we want to examine the relative influence of industry membership, diversification strategy, and management skill on firm performance.

More specifically, this research examines the following propositions:

- 1) The choice of industry will have a significant influence on the level of firm performance.
- 2) The choice of diversification strategy or the extent of diversification may or may not have a significant influence on the level of firm performance, but
- 3) management skill, as measured by the gross margin adjusted for industry membership, will have a significant influence on the level of firm performance.

## METHODOLOGY

### Data and Samples

All data required for this study were gathered from the Compustat database. This database consists of financial and market performance data for over 6000 firms. The database also includes financial data on the business

segments of these firms as required by the Financial Accounting Standards Board's (1988) Statement of Financial Accounting Standards No. 14, "Financial Reporting for Segments of a Business Enterprise."

We identified all of the firms in the 1989 Fortune "500" for which data were available for the years 1984 through 1988. Most of the existing diversification literature draws on samples which include data from the 1970s and early 1980s, a time of business and economic volatility. The time frame covered in this study (1984 through 1988), is marked by continuous economic expansion, avoiding periods of wide cyclical and inflationary variations.

We created two samples--first, a sample of those firms which reported results for two or more business segments during each of the five years 1984 through 1988, and a second sample consisting of the firms in the first sample plus firms that reported results for only one business segment during the same five year period. We felt this distinction was important, especially after reviewing the papers by Schmalensee and Wernerfelt and Montgomery. Schmalensee's sample consisted of only multibusiness firms, while Wernerfelt and Montgomery's sample, drawn from a sample developed by Lindenberg and Ross (1981), consisted of both single and multibusiness firms. It is possible that the more diverse sample used by Wernerfelt and Montgomery may have influenced their findings. We therefore conducted our empirical tests on the two samples; one consisting only of multibusiness firms (like Schmalensee), the other more diverse, including both single and multibusiness firms (like Wernerfelt and Montgomery).

While samples drawn from the Fortune "500" are certainly not representative of the entire population of business enterprises which remains overwhelmingly atomistic, the largest industrial corporations do account for a

very large share of total business activity. Throughout the 1980s, for example, the sales revenues of Fortune "500" firms have accounted for over 40 percent of the total gross national product (Abelson & Jacob, 1989). As a result, an interest in the factors influencing the performance of these large firms is certainly warranted. While samples drawn from the Fortune "500" would be inappropriate for some research questions, the issues raised in this paper would seem to warrant use of samples drawn from this population.

For purposes of this study, industry is defined by four-digit SIC code. We realize that industry is an elusive concept and that any definition is likely to have advantages as well as limitations. One key advantage of defining industries by four-digit SIC codes is that the Compustat database provides aggregate data for nearly 300 industries defined by four-digit SIC codes. In addition, defining industry by four-digit SIC code avoids the pitfalls of defining industries too broadly. Particularly for the research questions raised in this paper, a narrower definition of industry<sup>6</sup> is more conservative than a broader definition.

#### Variables and Procedure

We used return on assets (ROA), where ROA is net income as a proportion of total assets, to assess firm performance. While a variety of other accounting and market measures could conceivably have been used to assess firm performance, we agree with Holzmann, Copeland, and Hayya (1975) that ROA is widely viewed and accepted by managers as a measure of firm performance and the success of business strategies. Furthermore, Schmalensee and Hansen and Wernerfelt also use rate of return measures to assess performance.



The influence of industry effects is assessed using average industry return on assets (INDROA). Since large, multibusiness firms are likely to be active in more than one industry, we felt the need to first identify the industries in which our sample firms operate, and then determine the proportion of each firm's activity in each industry. To do this, we identified from the Compustat database the primary SIC codes of each firm's business segments. We then calculated for each firm the weighted average of the industry ROAs for the industries represented by these business segment SIC codes. The weighted average was based on each segment's proportion of the firm's total sales.

Diversification (DIV) is assessed using a continuous measure of developed by Davis and Duhaime (1989). Similar to the entropy measure developed by Palepu (1985), this is a continuous measure which uses SIC classifications to identify and evaluate the extent of diversification.<sup>2</sup> The Davis and Duhaime measure is particularly useful for this study because it uses business segment data available on the Compustat database to measure diversification.

Management skill (SKILL) is evaluated as each firm's gross margin adjusted for average industry gross margin, where gross margin is operating income after depreciation as a proportion of sales. Again, because multibusiness firms are likely to be active in more than one industry, industry gross margin was

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<sup>2</sup>The extent of diversification (DIV) is the sum of measures for related diversification (DR) and unrelated diversification (DU), where

$$DR = \sum \{ [(SEGSales/GRPSales) * \ln(GRPSales/SEGSales)] * (SEGSales/TOTSales) \}$$

$$DU = \sum \{ (GRPSales/TOTSales) * \ln(TOTSales/GRPSales) \}$$

where SEGSales is sales for each segment of each company as reported by Compustat, GRPSales is total sales for all segments which share the same two-digit SIC code in each company, and TOTSales is total sales of each company.

calculated the same way we calculated INDROA. The SKILL variable then is the firm's gross margin less this composite industry gross margin.

Two variables in this study, INDROA and SKILL, require the use of industry averages. Other studies requiring firms' industry averages have used the industry average of the primary or largest business segment. Since conditions and performance levels can vary widely across the industries in which multibusiness firms compete, this is an incomplete and possibly misleading industry average for multibusiness firms. Our construction of composite industry averages which are weighted averages of all industries in which a multibusiness firm competes gives us greater confidence in the validity of our results than if we had used previous methods.

Missing data reduced our multibusiness sample to 268 firms and our single and multibusiness sample to 329 firms. Sample observations are five year averages. Summary statistics and correlation matrices for these variables for the sample of multibusiness firms and the sample of single and multibusiness firms are shown in Table 1.

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Insert Table 1 about here  
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Building on the work of Schmalensee, Wernerfelt and Montgomery, and Hansen and Wernerfelt, we developed the following descriptive model:

$$ROA = b_0 + b_1(INDROA) + b_2(DIV) + b_3(SKILL)$$

We tested this model on the two samples (multibusiness firms and single and multibusiness firms). We then tested a number of sub-models, imposing various restrictions, excluding one or more variables from the model.

## RESULTS

The results for the sample of multibusiness firms are illustrated in Figure 1, and the results for the sample of single and multibusiness firms are illustrated in Figure 2. This form of presentation is identical to that used by Schmalensee, Wernerfelt and Montgomery, and Hansen and Wernerfelt. In each figure, results for the full model are shown at the bottom of the figure, and the results of various restricted models are shown above this full model. As with the earlier articles, the arrows correspond to restrictions excluding one of the three effects, and the numbers next to the arrows are the probabilities (P levels) at which an F-test would reject these restrictions.

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Insert Figures 1 & 2 about here  
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The results of both tests confirm our propositions. First, note that the R-square values of the full models in Figures 1 and 2 are quite high. Furthermore, note that the very low P levels generated by tests for industry effects (arrows pointing to the right) and management skill (arrows pointing to the left) indicate the presence of both industry and management skill effects. As in Schmalensee, the results for industry effects are quite strong--always significant at the .0001 level. The management skill effects, however, are also very strong--again, always significant at the .0001 level.

The results for diversification effects are also interesting. In the sample of multibusiness firms, the high P levels indicate that diversification effects are either not present or not particularly significant. In the sample of single and multibusiness firms, however, the low P levels indicate that

diversification effects are present. Specifically, in these models higher levels of diversification are associated with lower levels of firm performance. This result closely conforms to the findings of Wernerfelt and Montgomery who, as already noted, used a sample which included both single and multibusiness firms.

Table 2 shows the incremental contribution of each effect to the adjusted R-square of the full model for each sample. These values represent the difference between the adjusted R-square of the full model and the adjusted R-square of models with the effect of interest removed. The table illustrates that the incremental contributions to the R-square made by management skill and industry membership are roughly equal, while diversification makes a small contribution to the R-square, but only in the sample of single and multibusiness firms.

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Insert Table 2 about here  
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#### DISCUSSION AND IMPLICATIONS

Like Schmalensee, Wernerfelt and Montgomery, and Hansen and Wernerfelt before us, we find that industry effects are a major influence on firm performance. Similarly, like Wernerfelt and Montgomery, we find that in a sample of single and multibusiness firms, diversification effects are also an influence on firm performance. The major contribution of this study, however, is the introduction of a new variable to assess the importance of management skill effects. This variable, comparative gross margin as a proxy for

management skill, proved to be a very highly significant influence on the level of firm performance. In fact, the results reported here suggest that the management skill effects are as important as industry effects in influencing firm performance.

To the extent that our variable, management skill, reflects the quality of management, these results are very reasonable. Selection of the industries or markets in which to compete is likely to be an important influence on performance, but just as important is the level of skill that management brings to these industries. These results suggest that Prahalad and Bettis (1986) and Kazanjian and Drazin (1987) are correct--movement into new markets will influence performance, but these relationships are likely to be strongly moderated by the level of management skill. This is why we see great variation in the levels of performance enjoyed by both single business and highly diversified firms, even after controlling for industry effects.

Firms enjoying high levels of performance, whether single business firms or highly diversified firms, are much more likely to possess the requisite skills and expertise to be effective in their market or markets. Our analysis suggests that management skill effects are an important influence, and certainly much more influential than diversification effects. As a result, we agree with Ramanujam and Varadarajan (1989) that much of the recent diversification literature has been incremental at best, and that continued traditional diversification research (i.e. research assessing the relationship between diversification strategy and performance) will lead to relatively few new insights.

While management skill has enjoyed a central place in the field of strategic management, it has been difficult to operationalize in the empirical

literature. We feel confident that comparative gross margin taps the presence of management skill. It is also significant that we have been able to establish the importance of this variable using public financial data. This variable may have many additional applications. For example, the strategic groups and governance literatures have typically used public financial data, but have not explicitly incorporated management skill as a variable in studies done to date. One possible application would be to use management skill as a way to distinguish among firms within an industry's strategic groups.

As a result of the study, we feel that future research efforts in strategic management should further examine management skill effects. For example, more research is needed to assess what constitutes management skill, how management skill is acquired, the relationship between management skill and managerial characteristics, what management skills are needed in multibusiness firms, and how a particular repertoire of skills moderates the relationships between industry membership and diversification on the one hand and firm performance on the other. To pursue these new research directions, qualitative and field research methods may prove both necessary and worthwhile adjuncts to data sets such as ours.

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TABLE 1  
Summary Statistics and Correlation Matrix  
for the Sample of Multibusiness Firms (N=268)

<u>Variable</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Minimum</u>	<u>Maximum</u>
ROA	.05063	.05493	-.40905	.20165
INDROA	.04744	.02841	-.06983	.10632
DIV	.80569	.32480	.03567	1.82378
SKILL	.00334	.03652	-.16025	.14104
	<u>ROA</u>	<u>INDROA</u>	<u>DIV</u>	<u>SKILL</u>
ROA	1.00000			
INDROA	.40833	1.00000		
DIV	-.09465	-.13515	1.00000	
SKILL	.34523	-.07687	.02770	1.00000

Summary Statistics and Correlation Matrix  
for the Sample of Single and Multibusiness Firms (N=329)

<u>Variable</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Minimum</u>	<u>Maximum</u>
ROA	.05486	.05680	-.40905	.23542
INDROA	.04881	.02864	-.06983	.10840
DIV	.65631	.42921	.00000	1.82378
SKILL	.00455	.03970	-.16025	.20681
	<u>ROA</u>	<u>INDROA</u>	<u>DIV</u>	<u>SKILL</u>
ROA	1.00000			
INDROA	.46219	1.00000		
DIV	-.17066	-.15601	1.00000	
SKILL	.44226	-.00756	-.03137	1.00000













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