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An examination of the scope and competitive weapons components of competitive strategies

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An Examination of the Scope and Competitive Weapons Components of Competitive Strategies

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CHAPTER 1

INTRODUCTION AND PURPOSE OF THE RESEARCH

Previous research in Strategic Management has evolved around the notion of a contingent relationship among environmental variables, competitive strategy and firm performance (Prescott,1985; Dess & Davis, 1984). But evidence of which competitive strategies are more effective under specific environmental contingencies is minimal. This study intends to examine the strategies of firms in environments that can be specifically characterized as heterogeneous, concentrated, mature, and domestic. In the process it will focus on: (1) the performance of firms that compete with a broad or narrow scope; (2) the performance of firms that compete with different types of narrow scope strategies; and (3) the performance of firms with respect to the competitive weapons utilized (cost, differentiation, utility, stuck in the middle), under the specified environmental conditions.

OVERVIEW OF THE PROPOSED RESEARCH

The main purpose of this study is to examine the characteristics of the scope and competitive weapons components of competitive strategies. Scope, identified by Hofer & Schendel (1978) as one of the four components of strategy, is defined by them as "the extent of the organization's present and planned interactions with the environment" (1978,p.25). As such, scope entails a fundamental choice regarding what the organization is and what management wants it to be. In the

Strategic Management literature, scope has been separated into two categories: broad and narrow (focus) (Hofer & Schendel, 1978; Porter, 1980; Abell, 1980). Although very few studies have empirically examined the scope component of strategy (Dess & Davis, 1984; Prescott, 1983; Sandberg, 1985; Chrisman, 1986), the distinction between of broad and narrow scope is useful because there appear to be fundamental differences in the characteristics of firms that employ broadly targeted versus narrowly targeted competitive strategies.

Competitive weapons have been defined as "the primary ways the organization applies its skills and resources to meet organizational needs and create enduring competitive advantages"(Chrisman, Hofer, & Boulton, 1988, p.415). As defined, competitive weapons allow the firm to create competitive advantages, and thus constitute the main thrust in the strategy process.

An understanding of the process by which scope combines with the competitive weapons utilized by firms, and how the specific characteristics of the environment affect that match to yield effective or ineffective organizations is fundamental both for researchers who are trying to understand the workings of organization strategies and for the practitioners who command those organizations. Hence this study is primarily concerned with the differing characteristics of broad and narrow scope firms, the ways in which they vary under various environmental conditions, the competitive weapons they utilize, and, in the case of narrow scope firms, the types of focus strategies in which they engage.

Previous research suggests that various combinations of scope and competitive weapons are effective under different environmental conditions (Dess & Davis, 1984; Sandberg, 1986; Chrisman, 1986). This work is based on the frameworks provided by Porter (1980) and Abell (1980), whose approach allows for the examination of competitive strategies in terms of (1)contingency theory, (2) the scope of firm's interactions with their environments, and (3) the competitive weapons they utilize. Although these frameworks have served to guide research on competitive strategies, researchers such as Sandberg (1986), Chrisman (1986), Wright (1987), Murray (1988), and Hill (1988) have raised objections concerning the classifications presented by both Porter and Abell. Thus some modifications are needed in order to create a classification scheme that allows for an adequate examination of both components of competitive strategies.

The first step in examining the scope and competitive weapons components of competitive strategies is to develop an integrated classification scheme. The scheme is based on the work of Abell and Porter and partially validated and extended by the work of Chrisman (1986), Chrisman, Hofer & Boulton (1988) and Sandberg (1985). This classification scheme will allow an in-depth examination of both dimensions of competitive strategies.

Although this classification scheme allows for the examination of scope and competitive weapons under different environments conditions, for this study a more limited approach will be taken. Only a portion of the classification scheme will be examined at this time. The study will concentrate on examining the characteristics of the scope and

competitive weapons components of firm's competitive strategy, and on the characteristics of different types of narrow scope strategies, in heterogeneous, concentrated, mature, domestic industries.

Taking into account the limitations of the breadth of the study, the second step entails an examination of the following research questions, asked in the context of heterogeneous, concentrated, mature, domestic industries:

1. What is the financial performance of firms that compete with broad scope strategies relative to that of firms that compete with narrow scope strategies?

2. What is the relative performance of firms competing with different competitive weapons?

3. What is the performance of firms that compete with <u>different types</u> of narrow scope strategies when compared with each other and with firms that compete with broad scope strategies?

4. What is the relative performance of firms with respect to both the scope and competitive weapons utilized by the firms?

The first research question requires an examination of firms that compete with broad scope strategies versus firms that compete with narrow scope strategies. Previous studies have been inconclusive in their reports on the relative effectiveness of narrow scope strategies

when compared to broadly defined competitors (Sandberg, 1986; Dess & Davis, 1984; Prescott, 1983). An examination of the first research question will help us ascertain the relative effectiveness of firms that employ broad or narrow scope strategies when examined in heterogeneous, concentrated, mature, domestic environments.

The first research question also deals in an indirect way with the notion of the resilience of narrow scope (focus) strategies in "hostile" environments. Can firms that compete with narrow scope strategies be effective in environments that are less than hospitable? Carroll (1984) argues against the notion that focus strategies are marginal strategies that can survive only in growth environments where there is enough slack for focusing firms to survive in the margins of the market. Still, Clifford & Cavanaugh (1981) have suggested that narrow scope firms should compete in market segments which broad scope firms do not consider attractive. In addition, there is some empirical support for the assumption that narrow scope firms are better able to survive in fragmented industries, where market contestability is lower. Dess & Davis (1984) found effective focusing firms in the fragmented paint industry, for instance. However, focusing firms are expected to thrive in a fragmented industry setting where firms have relatively little market power (Porter 1980, 1985). An important endeavor, then, would be to examine whether focus strategies can be effective in less conducive environments. Determination of the existence of effective firms with narrow scope strategies under concentrated, mature industry conditions (one of the least benevolent environments a firm following such a strategy might encounter) would go a long way toward

establishing the validity of narrow scope strategies under all environmental conditions.

The second research question examines the relative effectiveness of different competitive weapons under the environmental conditions specified. Prior research by Chrisman (1986) and Sandberg (1986) has empirically examined the notion of competitive weapons, whereas the work of Porter (1980), Abell (1980), Wright (1987), Murray (1988), and Chrisman et al (1988) have considered the question from a theoretical standpoint; but there is a lack of research that assesses the relative effectiveness of different competitive weapons under environment conditions such as those specified for this study. Of special interest is the question of the relative effectiveness of utility strategies (i.e., the simultaneous use of cost and differentiation weapons). There is a lack of agreement in the field as to how effective utility weapons will be (Porter, 1980; Chrisman, 1986; Sandberg, 1986; Wright, 1987; Chrisman et al, 1988).

The third research question deals with different types of narrow scope strategies. The relative effectiveness of firms that employ different types of focused strategies and the ways in which they are affected by their competitive weapons and by their environmental conditions are issues yet to be clearly addressed in the literature. Research that has addressed the characteristics of narrow scope firms include (1) studies that have analyzed the characteristics of low share businesses (Hammermesh, Anderson, & Harris, 1978; Woo, 1979), which are not necessarily the same as narrow scope strategies,(2) studies that have examined the characteristics of firms and their niches (Carroll,

1984; Hannan & Freeman, 1977; Romanelli, 1987), and (3) studies that have included narrow scope as part of their examination of strategy types (Buaron, 1981; Dess & Davis, 1984; Prescott, 1983; Chrisman, 1986; Sandberg, 1986). Yet to date no study has examined the characteristics and relative effectiveness of firms following different types of narrow scope strategies. A better understanding of the characteristics of narrow scope firms in environments such as the ones examined should emerge from this study. The fourth research question includes the examination of both the scope and competitive weapons utilized and the relative performance of firms when both components are examined simultaneously.

In short, this study provides the basis for a sound analysis of the scope and competitive weapons components of competitive strategies. Its findings, in tandem with prior examinations of parts of the strategy puzzle, should be helpful in providing an evaluation of the effectiveness of firms utilizing different scope and competitive weapons under specific environmental conditions.

The study examines realized business strategies (Minzberg, 1978), the set of characteristics exhibited by firms that denote their strategic thrust. Although it is also important for researchers to examine the intended strategies of the managers and how they relate to the specific strategic outcomes, given the characteristics of the study and the limitations in terms of the data, the study concentrates on the realized strategies of firms.

The research questions in this study were examined through triangulation. Included in the process was a large scale database, as

well as a series of industry case studies. The fact that different methods arrived at similar conclusions vouches for the validity of the results. The procedure was as follows:

First, the PIMS database (N = 599) was used to test the relationship among scope, competitive weapons and performance in heterogeneous, concentrated, mature, and domestic, environments.

Second, four industry cases concerning the breakfast cereals, aircraft, tires, and household-appliances industries were examined. These industries were all heterogeneous, concentrated, mature, and domestic. Sixty-four firms within those industries were used to examine the relationship among scope, competitive weapons and performance in the specified environments.

The cases were used to validate not only the results of the analysis using the PIMS database, but also the appropriateness of the use of the database itself for this particular type of research. The PIMS database has been criticized on the grounds that the composition of the sample is skewed toward divisions of large corporations (Anderson & Paine,1978). But as the cases considered in this study showed, in concentrated, mature, heterogeneous, and domestic industries, divisions of large corporations constitute a large portion of the firms likely to be found in such environments. Thus the PIMS database is deemed as a valid source from which to examine strategies under those environmental conditions.

The use of two different sources of data for the study also provides for a stronger study through the use of different research methodologies. The use of both a large scale database (PIMS) and

multiple case studies (the medium grain methodology championed by Harrigan, 1980) not only provides two sources of data on which statistical tests can be performed but also increases the validity of the study, by providing independent confirmation of the results. The use of two independent sources of data also increases the explanatory power of the studies and where applicable, helps explain discrepancies between the results of the two samples. The in-depth examination of the phenomena allowed by the case studies, combined with the generalizability provided by the use of a large scale database, yields both a more rigorous test of the theory and a more rigorous fit between conceptualization and measurement.

This study consists of six chapters. Chapter 2 examines the literature on competitive strategies. It covers the research on business strategy, on the environment, and on competitive strategies, scope, and competitive weapons. Chapter 3 presents a classification scheme by which the scope and competitive weapons components of competitive strategies can be examined. This scheme, derived from the literature on strategy, provides the basis for the conceptual framework of the study. In addition Chapter 3 describes the language and terms utilized in the study as well as the specific propositions examined. Chapter 4 describes the methodology utilized in the study. It also covers the procedures utilized in selecting both the PIMS and case studies samples, as well as the methods used to analyze the data. Chapter 5 provides an analysis of the PIMS and case studies data. The chapter presents the results of the tests of the study's hypotheses. Chapter 6 examines the conclusions of the study. In particular, it

reconciles the results of the study with previous research, the methodological issues that can be extracted from the research, the limitations of the research, the directions for further research, and the implications for managers that can be derived from the study. Finally, the appendices provide the descriptions and data on the 4 industries and 64 firms studied in the case sample.

CHAPTER 2

REVIEW OF THE LITERATURE ON COMPETITIVE STRATEGIES

This chapter reviews the literature pertinent to the analysis of the scope and competitive weapons components of competitive strategies. Although the field of strategic management lacks a comprehensive study of either scope or competitive weapons,it does provide a substantial body of literature that relates to the scope component of strategies, the relationship among scope, competitive weapons, and performance, and the influence exerted by various environmental conditions on the effectiveness of competitive strategies. Accordingly, the chapter offers a rationale for the study of both components of competitive strategies. In the process it suggests that different combinations of scope and competitive weapons should have different levels of effectiveness when compared across various environmental conditions; it also points to the need for studies that will ascertain which combinations yield the best results per environmental condition.

The chapter is organized as follows. First, it examines the concept of strategy and reviews research that establishes the validity of the use of scope and competitive weapons as an adequate proxy for competitive strategy. Second, it analyzes the issue of scope, and the extent to which the question of broad versus narrow scope has been examined in the literature. Analysis of the prior research on competitive weapons is included in this section. Third, it examines the environmental contingencies studied in strategy research. Finally, the chapter examines prior research on narrow scope strategies.

THE CONCEPT OF STRATEGY

One of the first examinations of the strategy phenomenon was provided by Drucker (1954). In his book, Drucker asks two questions that are directly related to the notion of strategy: "What is your business?, and What should your business be?". Although he does not address the concept of strategy directly, he points out that firms should concentrate on determining what business they are competing in as well as what businesses they should be competing in. The notion of a clear strategic direction for the firm, is related to value creation for the customer, to the enviroment conditions present and to the resources the organization has available, and are thus directly related to the concept of strategy as a match between the skills and resources of the organization and the environment (Andrews, 1971; Hofer & Schendel, 1978). Chandler (1962) was one of the first to utilize the concept of strategy to define the relationship between the way organizations managed growth and performance. Chandler discusses the concept of strategy as a valid way to examine a firm's conduct. In his study of seventy U.S. corporations, Chandler argues that those firms exhibited reoccurring patterns of strategies, and that when changes in the environment conditions occurred, the companies countered with changes in their strategies. In the process, Chandler provided not only an early definition of strategy, but also the notion of strategic adaptation (i.e. to changes in the environment) thus raising the possibility that different strategies would be effective under different environments.

Ansoff (1965) provided further clarification of the characteristics of strategy. In his Corporate Strategy book Ansoff defines strategy as rules for making decisions under partial ignorance. He identifies three types of decisions: operating, strategic, and administrative. Strategic decisions, according to Ansoff, are those concerned with the product mix that the firms will produce and the markets in which it will sell. Ansoff also addressed the components of strategy. In his view the components of strategy include the growth vector, product and market scope, competitive advantages, and synergy. Ansoff's definition of strategic decisions relates to the match between organization skills and environmental opportunities, and thus outlines the possibility of multiple effective matches between organizations and environments. His notion of components of strategy introduces the examination of scope and competitive advantages to strategic management.

Andrews' (1971) adds to the clarity of the concept of strategy by distinguishing between the formulation of strategy, and its implementation. He argues that the strategy formulation process should take four factors into account: environmental opportunities and threats, organization resources and distinctive competences, the personal values of senior managers, and the firm's non-economic responsibilities to society. Corporate strategies in his view include determination of the businesses in which the firm should compete, and the conversion of distinctive competences into competitive advantages.

The Strategic Management paradigm was further developed by Hofer & Schendel (1978). The importance of their work to the field and to this

study demands an examination of their major assertions. Hofer & Schendel define strategy as "the basic characteristics of the match an organization achieves with the environment" (1978, p.4). The characteristics of that match in turn define the driving force behind the organization. Hofer & Schendel also distinguish between corporate- and business-level strategies. Corporate strategies involve decisions regarding the businesses in which the firm should compete, whereas business-level strategies concern the means by which the firm competes in the specific business or businesses chosen. The distinction between corporate- and business-level strategies is fundamental in strategy research because the dimensions of strategy, and the ways in which they should be defined and analyzed differ radically across the levels of strategy.

Hofer & Schendel also discuss the components of strategy -- namely, (1) scope, the extent of the firms present and planned interactions with the environment; (2) resource deployments, which help the organization achieve its goals; (3) competitive advantage, the unique positions developed by the organization vis a vis competitors, and (4) synergy, the joint effect sought from resource deployment and scope decisions.

Finally, Hofer & Schendel defined the various substrategies utilized at the corporate and business levels respectively: Corporate portfolio strategies, resource procurement strategies and corporate political strategies, on one hand; and competitive strategies, investment strategies, and political strategies, on the other.

Hofer & Schendel's classifications and definitions are important to this study (which concentrates on strategy at the business level) because they help clarify the domain of the research at hand. The scope and competitive weapons components of strategy will have different characteristics at the business and corporate levels inasmuch as these levels are inherently different. Taking those differences into account, the study will concentrate on examining strategy at the business level. Their classifications also help clarify the components of strategy at the business level. Hofer & Schendel have define the components of strategy as scope, resource deployments, competitive advantage, and synergy. Chrisman (1986) and Chrisman, Hofer & Boulton (1988) have argued that Hofer & Schendel's reference to competitive advantage and synergy as components of strategy is inappropriate because these factors are intended outcomes rather that defining features of strategy. The match an organization achieves with the environment through its strategy should be defined by those elements that describe that match, rather than by those elements (competitive advantage, synergy) that define the strategic results of that match. In the context of an organization's strategy, this study defines the components of strategy as the scope of the firm's domain, and the competitive weapons it utilizes.

Finally, the study will include only the competitive strategies of firms. Although Hofer & Schendel talked about political and investment substrategies at the business level,they clearly stated that the competitive substrategies were usually the most important because they determined the basic direction of the firm. The examination of scope

and competitive weapons has to be closely related to the way the firm chooses to compete in their market segment, which is basically defined by the competitive strategy of the firm. Thus the use of the competitive strategies as the demarcation of the domain of the study is appropriate when examining the scope and competitive weapons components of strategy.

Two other works are to an understanding of the fundamental need for an in-depth analysis of competitive strategies -- namely, Porter (1980) and Abell(1980). These authors reconceptualized not only the relationship between the firm and its environment but also the generic strategies that firms can use to compete in markets. Porter examines the question of generic strategies in two steps. First, he addresses the issue of relating the firm to the industry in which it competes. The success of the firm thus depends on its ability to create a defendable position in the industry. In order to establish that position, the company needs to understand the workings of the forces that affect the structure of the industry: suppliers, buyers, rivalry among competitors, potential entrants, and substitutes. Second, Porter states that firms can create and sustain a competitive advantage by means of three generic strategies: cost leadership, differentiation, and focus. The objective to be reached with a cost leadership strategy, in Porter's view, is to become the cost leader in the industry through a series of policies designed to keep costs lower than all other competitors in the industry. A differentiation strategy entails "creating something that is perceived industry-wide to be different" (1980, p. 37). And a focus strategy entails sole

concentration on a specific product line, buyer group, or geographic market within the industry. As Porter further notes these generic strategies resulted from the combination of the nature of the competitive advantage being sought by the firm (e.g. low cost or differentiation), and the competitive scope (broad, narrow) in which this advantage is sought. Finally, Porter acknowledges the existance of various generic industry environments that differ most strongly in terms of implications for competitive strategy along the dimensions of degree of industry concentration, state of industry maturity, and exposure to international competition. Since the ways to gain competitive advantage tend to change from environment to environment, the competitive strategies of firms have different grades of efficacy in different environments. Thus one can assess the scope, and competitive weapons of the specific firm under these various conditions to see how each factor has contributed to competitive advantages. This procedure is consistent with the contingency view of strategy initially enunciated by Hofer (1975).

Abell (1980) addresses the issue of business strategy in the course of defining a business. Three measures enter into this definition: scope, differentiation of the company's offerings across segments, and differentiation of the company's offerings from those of competitors. Scope and differentiation, in turn, can be examined along three dimensions: customer groups served, customer functions served, and technologies utilized. "Customer groups" refers to the division of groups in terms of their identity; whereas "customer functions" refers to the attributes that the customers may perceive as important criteria

in purchasing a product; and "technologies" refers to the way the customer functions are performed. Abell then proposes three generic strategies that deal with the scope component of a firm's competitive strategy: differentiated, undifferentiated, and focused. Differentiated strategies come into play when a business combines a broad scope with differentiation across any dimension. Undifferentiated strategies are those in which the firm combines a broad scope across any or all of the three dimensions with an undifferentiated approach to customer groups, customer functions, or technology. And focus strategies involve both a narrow scope which entails one or a few chosen segments, and differentiation from competitors by carefully catering to the needs of the segment. Finally, after acknowledging that different market structures cause the relative effectiveness of generic strategies to vary, Abell offers prescriptions as to which strategies are likely to be most effective under specific market conditions. In the process, he provides a contingency view of generic strategies.

Three important issues need to be extracted from the above mentioned works. First, the concept of strategy adequately explains the relationship between firm and environment and thus can be of use to analyze the conduct of firms in markets. Second, scope and competitive weapons are valid constructs by which to define the competitive strategies of firms. Third, a contingent examination of competitive strategies is needed to determine the environmental conditions under which various strategies can be effective.

BUSINESS STRATEGY RESEARCH: SCOPE AND COMPETITIVE WEAPONS

One of the first studies examining business strategy and scope, albeit indirectly, was conducted by Buzzel, Gale, & Sultan (1975), who used the PIMS database. In their study of 620 firms in this database, the authors found that a 10 percent increase in market share translated into a 5 percent increase in return on investment (ROI). This research has been criticized for its inference of a causal relationship between market share and the profitability of firms. In the context of the present study however, this research is important because it suggests that the broadest competitors, the ones with the highest market share in the industry, will always outperform firms with a lower market share.

Hammermesh, Anderson, & Harris (1978) found, however, that this was not always so. In their case study of three firms (Burroughs Co., Crown Cork and Seal Co., and Union Camp Co.) they found that a small market share was not necessarily a handicap; that, in fact, it could be a significant competitive advantage allowing firms to compete in ways that were unavailable to larger rivals. The authors state that factors other than market share affected ROI, and that competing in a limited fashion (i.e. without trying for as much market share as possible) was a viable strategic alternative for firms. They also argue that, in order to be effective, most firms should compete in a limited number of segments within the industry and choose those segments carefully. Low market share firms in particular, should be content with being small, with limited growth, and should be very cautious when diversifying.

Woo's (1980) research helps clarify some of the conditions under which firms can effectively compete with a limited market share. In her study of 649 businesses in the PIMS database, Woo found that low market share firms could make adequate returns if they compete in stable markets that are attractive and in which differentiated strategies against high market share competitors can be exploited. Woo's study found that effective low market share companies tend not to seek shelter in markets with only a small number of competitors. In fact, effective low share businesses can also be found in markets with effective high market share businesses. Woo's research thus provides some of the impetus for examining the conditions under which effective broad and narrow scope competitors can be effective. Although low market share is not the same as narrow scope, Woo's finding that low share firms can be effective, suggests that narrow scope firms can be effective as well.

Miller's 1981 study was one of the first attempts to empirically examine the performance and characteristics of both broad scope and narrow scope firms. In his assesment of 96 U.S. retail firms, Miller found three superior performance strategies: national specialty congruent pricers, which focused on specific product lines; local congruent single line pricers, which focused on certain geographic markets; and national single line discounters. Miller's research highlights the importance of the scope component of competitive strategies, inasmuch as he argues that opportunities for growth in the retail industry come mainly from product line breadth, geographic scope, and divisional diversity. Again, this finding adds credence to

the notion that firms competing with a narrow scope can be effective, and that various combinations of scope and competitive weapons can be effective within industries.

Galbraith & Schendel (1983) used an empirically derived classification to study competitive strategies. In their assessment of 1200 consumer and industrial products firms in the PIMS database, the authors found 6 strategy types for consumer product manufacturers and 4 for industrial product manufacturers. Both product group included a "niche" category. But a problem with Galbraith & Schendel's research is that although they included scope as a component of their strategy construct (a construct that encompasses product breadth, breadth of customer type, breadth of customer number), their empirical classification fails to identify strategy types differentiated across the scope dimension. In their classification, therefore, scope is not an important dimension on which to assess strategy. Their study, however, does reaffirm empirically that (1) there are consistent and recurring patterns of strategic behavior of firms, and (2) that different strategy types are associated with different strategic outcomes.

Dess & Davis (1984), in their study of 22 firms in the fragmented paint industry, found that the firms' strategies could be classified using Porter's (1980) generic strategies; and, further that firms following one of these generic strategies (cost, differentiation, focus) outperformed those "stuck in the middle". They also discovered variations in the profitability of firms within the industry that could be related to strategic group membership. Another important result of this research is the finding that Porter's generic strategies paint an

incomplete portrait of the strategic possibilities open to a firm. Using a four factor cluster solution that included a cluster for "stuck in the middle" firms, Dess and Davis found that the highest performing group loaded highly on cost leadership, and differentiation, thus disputing Porter's assertion that a singular strategic orientation leads to higher performance. Although Dess & Davis study provides some empirical validation for the use of generic strategies to analyze the performance of firms, its methodology does not allow the examination of the relative effectiveness of strategies in varying environments. Moreover, since the setting of the study was a fragmented industry, it did not address the question of whether some generic strategies (such as focus strategies) would survive in less congenial environments (such as concentrated industries).

Prescott (1983) uses Porter's generic strategies to study the structure-conduct-performance paradigm. In his study of 1464 firms in the PIMS database using cluster analysis, Prescott presents a set of five generic strategies that he asserted could be interpreted in the context of Porter's (1980) generic strategies. Five generic strategies were extracted: follow the leaders, focus:low cost, differentiation:prestige market, differentiation:market share domination, and differentiation:low product quality. Prescott concluded that those generic strategies could be construed as the prime determinant of firm performance. Although this study does not allow for appropriate comparisons between broad and narrow scope firms, it does provide support for the notion that competitive strategy (and

hence, scope and competitive weapons) is an adequate construct to explain firm performance.

Hambrick's (1983a) study of 164 firms in two types of mature-industrial products industries uses cluster analysis to find 3 high profit clusters whose characteristics can readily be ascribed to Porter's cost leaders, differentiators, and focusers. In addition, Hambrick expounds on the validity of using scope and competitive weapons as the classifying dimensions in competitive strategy classifications. Also important is Hambrick's point that cost position and differentiation are not different ends of the same continuum and that some firms can excel by using a combination of low cost and differentiation. Hambrick concludes that for the focusing firm, the combination of low cost and differentiation was likely to be effective because, given its focused stance, the business is already dedicated in its endeavor.

Sandberg's (1986) study of new venture performance uses both Porter's and Abell's frameworks to provide a more adequate test of theory. Sandberg recognized that Porter's differentiation construct did not include the possibility of differentiating the firm's offerings across segments, whereas Abell's construct bundled different strategies under the label of "undifferentiated". In Sandberg's view, therefore, a combination of both Porter and Abell's frameworks should help differentiate between undifferentiated cost leaders and undifferentiated firms that are stuck in the middle. His use of medium grained research allowed a stronger tie between conceptualization and measurement, but also restricted the size of the sample. Sandberg's

study of 17 new ventures compares with some success, the relative effectiveness of types of broad and narrow scope strategies under various industry structure conditions. Among other findings, the study asserts that for new ventures, industry-wide differentiated strategies outperformed focus strategies, and that in early stages of industry evolution, both broadly defined and differentiated strategies outperform focus strategies. Sandberg's research is thus an important step toward a contingency examination of the relative performance of broad and narrow scope firms. Even though it neither exhaustively examines all scope components in all environmental possibilities nor allows for the examination of the different types of narrow scope strategies, its framework does point to the means by which way that such research should be conducted. And since it concentrates on new ventures, Sandberg's study also raises the question of whether new ventures and existing businesses can have varying performance profiles when compared in terms of scope and competitive weapons in differing environment conditions. This important question needs to be the subject of further research.

Chrisman's (1986) study of the relationship among business strategy, skills, and success utilizes a combination of Porter's and Abell's frameworks as the basis for its business strategy construct. As Chrisman suggests with the aid of these generic strategies frameworks, it is possible to derive a set of mutually exclusive, collectively exhaustive, and internally homogeneous strategies along the dimensions of scope and competitive weapons. Chrisman found that some strategies are indeed more effective in some environments than in

others, and his results overall support the use of business strategy as a useful tool for explaining firm performance. The generalizability of these results, however, is hampered by the size of the sample employed (n = 39).

White (1986) examined the relationship among the generic strategies of cost leadership and differentiation, the internal organization of firms, and firm performance. In his study of the relationship between generic business strategies and organizational structure using 69 firms in the PIMS database, he specifically excluded focusing firms from his sample because,in his view,Porter had failed to identify unique organizational attributes of focusing firms. Thus White was unable to develop theory based hypotheses on the relationships among focus strategies, internal organization, and performance. White found significant differences in the performance of cost and differentiating firms under different organizational arrangements. In the absence of the scope component, White equates the competitive weapon utilized to the strategy of the firm -- a significant weakness of the analysis. But White also provides support for the notion that firms can compete effectively with a competitive weapon that combines low cost and differentiation. In White's study, the firms using the strategies of cost, differentiation, and [cost and differentiation] outperformed those "stuck in the middle" with no clear competitive weapon.

Wright (1987) offers four conceptual refinements to Porter's assertions about scope and competitive weapons. First,he raises some questions about the relationship between size of the firm and the

possible effectiveness of generic strategies. Wright postulates that bigger firms, with greater access to resources, should compete primarily on the basis of cost leadership and differentiation strategies, whereas smaller firms should compete in terms of focus. This position has yet to be tested in the literature. Second, Wright asserts (as did Hambrick, Sandberg, Dess & Davis, and Chrisman), that it was possible for firms to compete effectively on the basis of both cost and differentiation. Third, Wright maintains that effective long term performance following the adoption of focus strategies should be expected only when the market size is limited and the competing firms are small. These limitations, in Wright's view, would hold true for both cost and differentiation focus. Finally, he states that both cost leadership and differentiation assume higher profitability with higher market share whereas focus assumed higher profitability with lower market share. Firms "stuck in the middle" would have lower profitability with medium market share. Although Wright's propositions need to be tested empirically, they do help sharpen the picture about the capabilities of various types of strategies.

Murray (1988) and Hill (1988) likewise support the use of generic strategies, and of the scope and competitive weapons components to represent them. As Murray notes, the generic strategy concept is an aid to researchers who are trying to discriminate between the strategies of high performing and low performing firms in the industry. Hill, in turn advocates the use of scope and competitive weapons as a construct to examine competitive strategies. He also discusses the possibility of a competitive weapon that combines cost and

differentiation. Hill states two reasons for which the combination it may occur: differentiation may be a way for firms to achieve low cost, and some firms put simultaneous emphasis on cost and differentiation.

In terms of this dissertation, the research pieces previously presented points to four important areas. First, the use of scope and competitive weapons as the dimensions underlying competitive strategies is valid and appropriate for research. Second, there is a need to integrate previous frameworks that examine competitive strategy into a classification scheme whose categories are mutually exclusive, collectively exhaustive, stable, and homogeneous. Third, as both narrow and broad scope firms are capable of being high performers, it is important that researchers determine the conditions under which narrow and broad scope firms will be effective. And, fourth, the possibility exists that firms can be effective with a competitive weapon that is the combines of cost leadership and differentiation.

CONTINGENCY RESEARCH AND COMPETITIVE STRATEGIES

Hofer's (1975) article on contingency theory suggests that the effectiveness of business strategies is contingent on the environmental situation in question. It is thus important to determine effective strategies on the basis of environmental situation, instead of assuming that one strategy or set of strategies will be effective across all conditions. In proposing 54 contingency variables that can affect the relative effectiveness of generic strategies, he assigns the greatest importance to stage of product life cycle (PLC). In doing so, he paved

the way for such studies as Harrigan (1980), Anderson and Zethimal (1984), and Thietart and Vivas (1984), all of which use the stages of the industry life cycle as their main environmental contingency. Hofer also proposes as important contingencies the nature of buyer needs and the degree of product differentiation. In the context of the present study, Hofer's article is important because it moves the field away from the universalist and nominalist views of strategy (which hold that the effectiveness and characteristics of each strategy are totally unique) toward a view whose objective is to determine strategies that will be effective given the industry conditions and the contingencies the faced by the firm.

As Porter (1980) points out, the relative effectiveness of generic strategies changes under different environmental conditions. The basis for Porter's argument is the notion that some environments allow certain strategies to be more effective -- and this is of course the basic contingency argument. In particular, Porter postulates that firms utilizing focus strategies should thrive in fragmented industries, which have low entry barriers.

Porter's research provides the impetus for Harrigan's (1980) research on declining industries. Harrigan set out to determine the characteristics that would make strategies effective in declining industries, an environment that Porter had specified as an important one to examine. Harrigan found that even in declining industries (and contrary to popular wisdom), there were various strategic alternatives available to firms. Firms could decide to increase their investment level, hold their investment level, shrink selectively, milk their

investment, or divest. But the choice of endgame varies because firms have different strengths and because of different industry structural traits.

Instead of using the industry as the unit of analysis, Abell (1980) concentrates on the relationship between generic strategies and market configurations. He postulates that, in pioneering a market, firms should utilize a narrow definition when there is little elasticity of demand with respect to marketing and when costs are insensitive to volume. Conversely, they should use a broad definition when demand is elastic and costs are sensitive to volume. And when entering a growth market, a firm should use a broad definition aimed at systems purchasing or a focused or differentiated approach aimed at improving customer satisfaction. Abell also asserts that in mature markets, a narrowly defined differentiated strategy may be appropriate. He further notes that a narrow product line in the early or middle stages of the PLC tends to be less profitable than a broad line, and that broad scope may be more appropriate in capital intensive business. In short, Abell recognizes the contingency nature of generic strategies when he asserts that generic strategies vary in effectiveness under different market configurations.

Hambrick (1983a) points out that "various strategies-- all legitimate according to Porter and Miles and Snow - do not lead to equal success within the industry. . . . Some are more successful than others depending on the environment" (1983a, p. 215). Although Hambrick's industrial types are not configured to conform to existing types (i.e. disciplined capital goods makers, aggressive makers of

complex capital goods), Hambrick found that the generic strategies of the firms in his high-profit clusters were different for each industry.

The stage of PLC was used as the environment contingency in Anderson & Zethimal's (1984) study. The authors, upon examining 1234 industrial products businesses in the PIMS database, found that certain strategic variables were associated with superior performance at each stage of the PLC. More specifically, they discovered that relative product breadth, a scope dimension, was greater in maturity than in previous stages of the PLC and that it decreased considerably during the decline stage. The implication of this finding is that a relationship does indeed exist between the scope of the competitive strategies of firms and the environmental contingency in question, in this case, the stage of PLC. Anderson & Zethimal also found that the determinants of ROI during the growth stage were different from the determinants of ROI during maturity: At the growth stage, superior ROI was linked to lower levels of investment, product R&D expenses, sales force expenses, and product customization, and to higher levels of productivity, value added, product quality, and market share; by contrast, in the maturity stage higher ROI was related to higher efficiency, higher market share, and the ability to differentiate products through quality, whereas lower market share was related to relative compensation and development. This finding corroborates the notion that the combinations of scope and competitive weapons that lead to higher performance varies across different environments.

Thietart and Vivas (1984) found significant differences in performance for consumer and industrial products among stages of industry

evolution. In their study of 1100 businesses in the PIMS database (217 in the growth stage, 315 in the maturity stage, and 569 in the decline stage), they discovered that success strategies appeared to be contingent upon both the business and characteristics of the industry, and that the strategies were influenced by the life cycle stage and goal orientation of the firm. Thietart and Vivas argue that no unique success strategy was associated with each stage: "In fact the different set of strategic actions called for in a particular life cycle stage may contradict each other depending on the performance criterion used -- market share or cash flow" (1984, p. 1421). Thus their study confirms the notion that the stage of industry evolution is a valid contingency variable on which to examine the effectiveness of various strategies.

In a more complete test of the contingency nature of generic strategies, Prescott (1983) uses Porter's generic strategies and generic environment frameworks to test propositions regarding the performance of firms. Prescott found that (1) firms using a focus:low cost strategy outperformed all others in both declining and stable/non-fragmented industries; (2) firms using differentiation:market share domination strategies outperformed all others in global exporting, global importing, and mature environments; (3) firms using follow-the-leaders strategies outperformed all others in fragmented and emerging industries. In short, Prescott's research reaffirms the notion that the effectiveness of generic strategies will vary with industry conditions.

Sandberg (1986) also included stage of industry evolution in his analysis of the performance of new ventures. He found significant relationships among generic strategies, stage of industry evolution, and performance. Industry wide differentiated strategies outperformed focus strategies overall, and differentiated strategies and broadly defined strategies outperformed focus strategies in early stages of industry evolution. He also concluded that focus strategies appeared to be more appropriate than broad scope strategies in later stages of product evolution, but these last results were not statistically significant.

In Chrisman's (1986) study of the relationship among strategy, skills, and success in eight industries using three stages of product market evolution (shakeout, maturity, and decline), focus firms were found to be higher performers only in declining industries and when using a utility (cost + differentiation) competitive weapon. The firms using both a utility competitive weapon (mass market utility, segmented utility) and a mass market cost approach outperformed all others in mature markets, whereas segmented benefit (differentiation) and mass market cost strategies worked best in industries at the shakeout stage.

Murray's (1988) provides specific propositions regarding a continency examination of generic strategies. In his view the viability of generic strategies is contingent upon the fulfillment of structural preconditions in the markets. According to the author, focus strategies are successful only when the markets are heterogeneous; cost leadership strategies are effective only when high transaction costs exist; and product differentiation strategies are

effective only when buyers value product attributes other than price when making purchase decisions. To date the question of whether those conditions are truly necessary fore effectiveness of generic strategies has not been tested.

The examination of the research on the environment as a contingency to strategy suggests that, although a firm's performance is related to the generic strategies it uses, this relationship is moderated by the conditions and structure of the industry in which the firm competes.

NARROW SCOPE RESEARCH

The question of narrow scope is intertwined in the literature with the question of niches. Early researchers asserted that the only way firms with a narrow scope could be effective was to have the protection of benevolent niches within the industry. According to Gluck (1980) for example, a firm in the process of planning its strategic battlefield, could best gain advantage (even when not the market leader) through selective concentration in a specific market niche. But the problem with this strategy, as Gluck points out, is that one or more competitors might try to replicate it if the firm gained any conspicuous success. Clifford & Cavanaugh (1981) offer support for the notion of niches. In their survey of 60 American Business Conference member firms, the authors found that small firms did not go head to head against bigger competitors but, instead sought niches that were too small for big competitors. That is, because small companies do not have the resources to resist large entrenched competitors, they either

seek niches that are too small to interest larger competitors or they dedicate their efforts to serving their customers better than anybody else. Garda (1981), likewise argues that narrow scope firms need the protection of niches. In Garda's view, however, few firms are successful with a niche strategy. The reasons are as follows: first, firms still consider volume to be the most important factor for profitable growth. Second, they can not bring themselves to concentrate on those few markets in which they could develop a competitive advantage. And, third, as most industrial firms do not know how to segment the market to their advantage, they end up dividing it into too many or too few segments, thus failing to realize a competitive advantage.

The views of these researchers are important to the present study inasmuch as they argue that firms can compete with a narrow scope only with the protection of niches; and that even when firms have this protection, it is difficult for them to maintain a competitive advantage. Their research therefore raises questions about the viability and sustainability of narrow scope strategies.

Although the conventional wisdom is that such protection is needed, Hammermesh et al. (1978) and Woo & Cooper (1981) specifically argue against that position. With a sample of three firms that competed against broad scope competitors without the protection of niches, Hammermesh et al. found that there were factors other than market share -- such as careful segmentation of the markets, efficient use of R&D, and pervasive chief executives influence -- that affect ROI. Woo & Cooper (1981) also specifically address the question of

niches. In examining the strategies of effective low share businesses for 649 businesses in the PIMS database, the authors found that effective low share businesses tend to compete in stable rather than protected environments. These markets were characterized by very slow market growth rates and frequent product changes. This finding challenges the assumption that low share firms can compete effectively only in growth markets and that special environment protection is needed if low share firms are to survive.

This finding is supported by Woo, Willard & Cooper (1986), who assert that new and small firms need not compete in sheltered niches, and that under special conditions (such as structural changes in the industry), exceptional opportunities exist for new and small firms to challenge large and established firms directly. In the view of these authors, "firms with the right combination of corporate resources and industry opportunity may be able to develop strategies of direct competition that would lead to continuous and enviable success" (1986, p. 1259).

A different view of narrow scope and the concept of niches is taken by proponents of the population ecology perspective, who begin by redefining the concept in a manner more appropriate to their theories. In Freeman & Boeker's (1984) reexamination of Strategic Management from the population ecology perspective, the authors state that the niche implies a "distinct combination of resources and ranges of those resources that can be tolerated by organizations"(p. 81). Whereas previous writers (e.g., Woo & Cooper) talk about niches as special protected environments, the population ecologists refer to niches as

the position of all firms within a given population, the implication is that all firms within the population occupy niches.

This view is further examined by Freeman & Hannan (1983) who propose that theories of niche width -- which they define as the "population tolerance for different levels of resources, its ability to resist competitors, and its response to other factors that inhibit growth" (p. 1119) -- can be used to explain the distribution of specialists (narrow scope firms) and generalists (broad scope firms). Freeman & Hannan also state that the grain of the environment -- which they define as the degree of turbulence present -- would affect the performance relationship between specialist and generalist firms. In other words, the authors advocate a contingency study (entailing different environment grains) of the scope component of strategy (specialist/generalist), performed without the aid of competitive weapons, and without addressing the question of "protected" niches and the relation to narrow scope strategies. Moreover, Hannan and Freeman (1982) suggest that under highly certain environmental conditions, specialists will outperform generalists because of their ability to cater to specific market conditions, whereas under uncertainty conditions generalists outcompete specialists because the strategy can operate across a wider range of market conditions.

In a study of the specialist strategy for four highly concentrated industries (newspaper publishing, brewing, music recording, and book publishing), Carrol (1984) rejects the notion that specialism (focus) is a viable alternative only under fragmentation. He also states that specialists and generalists firms are interrelated in an industry.

That is, the success of generalist firms creates the conditions under which successful specialist firms can emerge. Since generalist firms compete by means of universal appeal to all customers, they avoid making appeals to specific customers, thus leaving those markets open for specialist firms. According to Carroll then, both strategies -- generalism and specialism-- should appear in all industry conditions.

Romanelli (1987) whose analysis of 170 firms in the minicomputer industry follows in the footsteps of Carroll's research, found that specialist firms had better survival rates than generalist firms in that industry. Included in her framework are the dimensions of market penetration (conservative/aggressive) and market breadth (generalist/specialist). In examining firms as they passed through various stages of the minicomputer industry, she found that within each environment there are a number of different approaches firms can utilize to exploit resources.

Two different approaches to the question of narrow scope competition have been presented in this review. Proponents of the first approach (Hammermesh et al. [1978], Woo and Cooper [1981], Garda [1981], Clifford and Cavanaugh [1981]) argue whether narrow scope requires the protection of niches -- a perspective that tends to be aligned with the accepted view in Strategic Management (Hofer & Schendel, 1978). Proponents of the second approach (Carroll [1984], Hannan & Freeman [1983], Freeman & Hannan [1982], Romanelli [1987]), examine the question of narrow scope (specialism) from the population ecology perspective, to shed some light on the validity of narrow scope strategies. In addition, studies such those of as Woo & Cooper (1981)

and Carroll (1984) are starting to dispel the notion that protected niches and fragmented industries are needed by narrow scope firms if they are to compete effectively. Indeed they suggest the need for comprehensive studies that compare the performance of narrow scope firms, with that of broad scope firms, within and across specific environments. Table 1 presents a list of the literature reviewed in this section.

Table 1

Overview and Classification of Relevant Literature

The Concept of Strategy
Drucker (1954)
Chandler (1962)
Hofer & Schendel (1978)
Andrews (1965)
Ansoff (1965)
Chrisman (1986)
Porter (1980)
Abell (1980)

Contingency Research
Hofer (1975)
Harrigan (1980)
Porter (1980)
Abell (1980)
Hambrick (1983)
Anderson & Zethimal (1984)
Prescott (1983)
Sandberg (1986)
Chrisman (1986)
Murray (1988)

Business Strategy Research
Buzzel, Gale, Sultan (1975)
Hammermesh, Anderson, Harris (1978)
Woo (1980)
Harrigan (1980)
Miller (1981)
Galbraith & Schendel (1983)
Dess and Davis (1984)
Prescott (1983)
Hambrick (1983)
Sandberg (1986)
Chrisman (1986)
White (1986)
Wright (1987)
Murray (1988)
Hill (1988)

Research on Narrow Scope and Niche
Gluck (1980)
Clifford & Cavanaugh(1981)
Garda (1981)
Hammermesh et al (1978)
Woo & Cooper (1981)
Woo, Willard & Cooper (1986)
Freeman & Boeker (1984)
Freeman & Hannan (1983)
Hannan & Freeman (1982)
Carroll (1984)
Romanelli (1987)

CHAPTER 3

A CLASSIFICATION SCHEME FOR ANALYZING THE SCOPE AND COMPETITIVE WEAPONS COMPONENTS OF COMPETITIVE STRATEGIES

This chapter concentrates on the development of a classification scheme in which contingency hypotheses regarding the scope and competitive weapons components of competitive strategies can be operationalized and tested. By means of two existing generic strategy frameworks, we shall examine aspects of the scope and competitive weapons issue needed in an integrated classification scheme (Porter, 1980; Abell, 1980). The previous theoretical work by Chrisman, Hofer, & Boulton (1988) provides a rationale for integrating Porter's and Abell's frameworks. These frameworks will be drawn upon as needed in the course of strengthening our theoretical classification scheme.

Before any specification of a classification can be offered, the constructs and language that serve as the basis for this study must be clarified. Hence, the chapter starts by clarifying the basic issues pertaining to strategy and the language used in defining the constructs. Subsequently, it proposes an integrated classification scheme with which to examine the components of competitive strategies. And, finally, on the basis of the comprehensive classification system provided, it specifies the research hypotheses to be tested.

CONSTRUCT IDENTIFICATION AND LANGUAGE

For a clear sense of the boundaries covered by this research, we need a comprehensive definition of strategy. In this context, then, strategy will be defined as "the basic characteristics of the match the organization achieves with its environment" (Hofer & Schendel, 1978,p.4). This view of strategy as a match between organization and environment is most appropriate for studying the components of competitive strategy because it underlines the very nature of the contingency phenomenon. The match between organization and environment will adopt different effective forms according to the impact of the variables that moderate the match.

Strategic business units (SBUs) constitute the units of analysis for this research (Hofer & Schendel, 1978,p. 55). Of the three business level substrategies discussed by Hofer & Schendel, competitive strategies are the most important to an examination of SBUs. Hofer & Schendel have stated that "the purpose of competitive strategies is to specify how the business will relate to the market in which it competes, to the various suppliers from which it secures resources, and to its various competitors" (Hofer & Schendel 1978,p. 159). Accordingly, competitive strategies involve all strategy components except investment intensity. Since competitive strategies determine the basic direction of the firm, according to Hofer & Schendel, their examination should precede the that of all other substrategies because of the understanding they yield about the basic drivers of a given firm. The present

study thus intends to examine competitive strategies in terms of their components.

Moreover, as previously noted, it is almost universally agreed that scope and competitive weapons are components of competitive strategy (Ansoff, 1965; Uyeterhoeven et al, 1974; Hofer & Schendel, 1978; Porter, 1980; Abell, 1980; Chrisman et al, 1988). Inasmuch as this study focuses on realized business level strategy, it analyzes scope in terms of the product/market domain of a particular business and competitive weapons in terms of the basis for advantage by which the firms competes. Thus for the purposes of this study, scope will be defined, following Hofer & Schendel (1978,) as "the extent of the firm's present and planned interactions with the environment" (1978,p. 25). Competitive weapons will be defined herein as "the primary ways [in which] the organization applies its skills and resources to meet environmental needs". (Chrisman, Hofer, & Boulton, 1988)

THE COMPONENTS OF COMPETITIVE STRATEGIES: TWO GENERIC STRATEGIES FRAMEWORKS

Generic strategies frameworks are frequently used to analyze competitive strategies, thus allowing for the examination of the components of strategies (Porter, 1980; Abell, 1980). The following section discusses what these two frameworks bring to the examination of scope and competitive weapons, and provides a rationale for their combination.

Porter's generic strategies framework is organized along two dimensions: the strategic target (scope), which can encompass an entire industry or may consist of particular segments only; and the basis for strategic advantage (competitive weapons), which can take the form of a low cost position, or the uniqueness of the product perceived by the customer. Porter uses the combination of strategic advantage and strategic target to generate three generic strategies: two industry wide or broad scope strategies -- differentiation and low cost -- and one narrow scope strategy for particular segments only, which he calls a focus strategy. He also identified a strategyless category termed "stuck in the middle". Later, in his 1985 book, Porter identified two types of focus strategies: cost focus and differentiation focus.

As noted in chapter two, Abell's (1980) generic strategies framework emerges from the question of how to define a business. Abell examines business definition in terms of two dimensions: scope and differentiation. Scope refers to the degree of market breadth, whereas, differentiation refers to both differentiation of the firm's offerings from those of competitors and differentiation of the firm's offerings across market segments. Abell further states that scope and differentiation should be viewed along three dimensions: customer groups served, customer functions served, and technologies utilized. In this context, the author discusses customer groups as defining groups in terms of the types of customers served, customer functions as the functions the products or services perform for the customer, and technology

as the means by which a particular function may be performed for a customer. Using this notation, Abell identifies three generic strategies -- undifferentiated, differentiated and focus -- which can be applied to each of the three dimensions. Undifferentiated strategies, in Abell's view, are those in which the company combines a broad scope across any or all of the three dimensions with an undifferentiated approach to customer groups, customer functions, or technology segments. Differentiated strategies are employed when the company combines broad scope with differentiation in any or all of the three dimensions. And a focused strategy entails a "narrow scope involving only one or a few chosen segments, and differentiation from competitors through careful tailoring of the offerings of the specific needs of the segment" (1980,p. 174).

It is important to note that Porter's view of differentiation, which he deems to be differentiation of the firm's products from the products of competitors, varies from that of Abell, which entails both "the differentiation of the company's offerings from those of competitors and the differentiation of the company's offerings, one from another, across segments" (1980,p. 17).

These two generic strategies frameworks, though helpful in in contributing to the research on scope and strategy, have been criticized on several counts. For example Abell's framework fails to adequately address the competitive weapons of firms. That is, although Abell discusses two types of differentiation, his framework basically concentrates on the differentiation of the

firm's offerings across market segments. Furthermore, although he distinguishes between firms that compete through differentiation and those that do not, his framework does not allow one to determine readily whether the firm is following a low cost undifferentiated strategy or whether it simply lacks a clear competitive weapon (Sandberg, 1986).

Another flaw -- one that affects both Porter's and Abell's frameworks -- is their lack of taxa for firms competing with a combination of low cost and differentiation weapons (Hambrick, 1983; Wright, 1987; Sandberg, 1986; Chrisman, 1986). The research by Chrisman, Sandberg, White, and Hambrick validates the notion that firms can compete with both competitive weapons simultaneously. Porter's and Abell's frameworks are also negelect to consider the multifaceted characteristics of the differentiation issue; that is each examines a different aspect of differentiation, but none examines both types of differentiation. Moreover Chrisman et al. (1988) have faulted both frameworks on the basis of taxonomic problems. In particular, they argue that the frameworks lack internal homogeneity because they are built on just two of the three basic components of strategy.

In short, as Sandberg has written, a classification scheme intended for the study of competitive strategies should integrate both Porter's and Abell's frameworks. Indeed, both frameworks provide the impetus for a more developed classification scheme. Such a classification scheme would be arranged along the dimensions of scope, which could be broad or narrow, and

competitive weapons, which could be low cost, differentiation, utility (low cost + differentiation), or stuck in the middle (involving an absence of clearly defined competitive weapons), it would also include the issue of segmentation (broad scope segmented or broad scope unsegmented). The framework used in the present study is consistent with prior work by Sandberg (1986), Chrisman (1986), and Chrisman et al. (1988), and will be expanded upon in the following section.

INTRODUCTION TO THE CLASSIFICATION SCHEME

Prior to the development of a classification scheme for analyzing competitive strategies, the strategy construct we are trying to examine must be placed in the context of a model that establishes its relationship with the environment and the performance of the firm. Figure 1 presents such a model. The model utilized here is consistent with the Structure-Conduct-Perfomance model first advocated by industrial organization economists and incorporated into the mainstream of Strategic Management research (Chandler, 1962). The most salient characteristic of this model is that the performance of the firm is affected by its competitive strategy, its skills and resources, and the environment in which it competes. The model states that both the environment, on one hand, and the organizational skills and resources, on the other, will or should determine the strategic choices available to the firm, and that those strategic choices are going to be the prime determinants of performance of

the firm. Organizational skills will affect choices of strategy and the selection of the environments more appropriate for those strategies to succeed. The environment will affect the type of strategy necessary to succeed, but also the organizational skills that are necessary to compete in the particular environment.

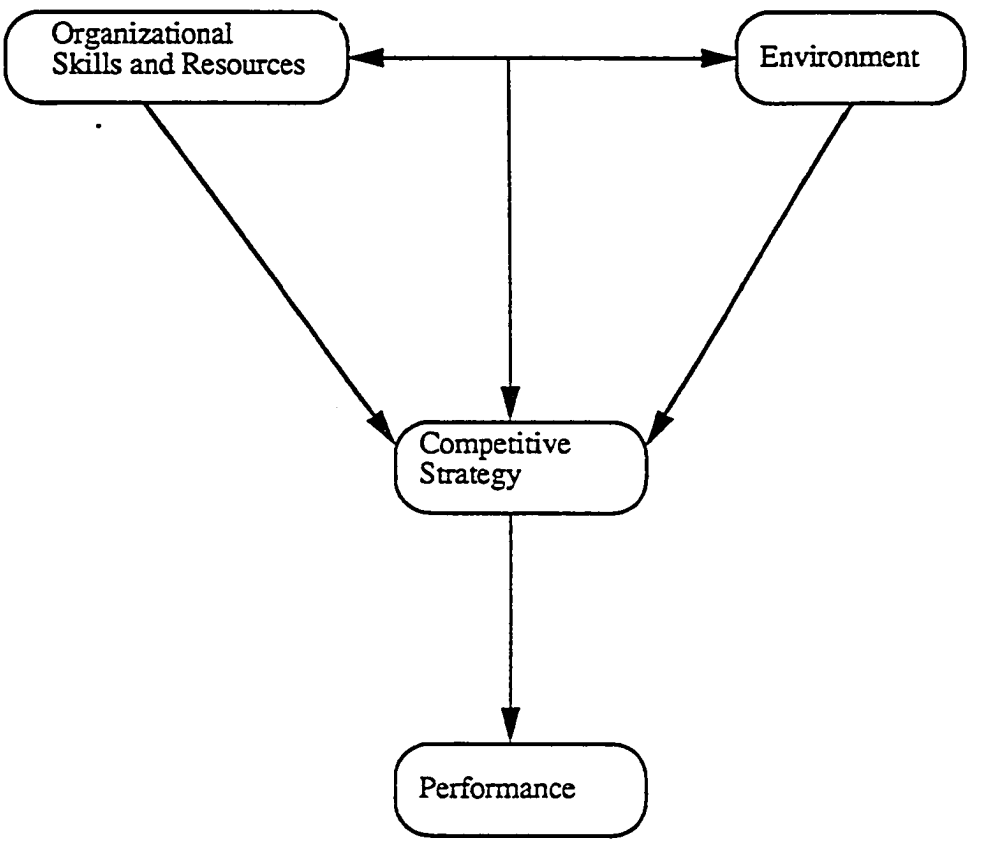
Following Andrews (1971), White & Hammermesh (1981) have argued that it is through strategy that the firm interprets its environment. But they also maintain that strategy is influenced by environment conditions, not dictated by them; and that other variables such as manager preferences and values, as well as expectations of environmental change can also affect the choice of strategy. Prescott (1983) views the process as an interactive one in which the competitive environment constrains the set of options open to a firm, even though the competitive behavior of firms is not completely determined by the environment. Chrisman (1986), in turn, has argued, with the help of a more comprehensive model, that the resources, skills, and distinctive competences that the firm possesses also affects choices of competitive strategies. In short, the effectiveness of a firm's competitive strategy is influenced by its resources and skills as well as by the environment in which it is competing. Within such a model, an important consideration is the match between competitive strategy and the environmental condition in which it would be more effective.

Although it is necessary to recognize the influence that organizational skills and resources wield on choices of strategy,

this study concentrates on the examination of the relationship among environment, competitive strategies, and performance. As noted in chapter 2 scope and competitive weapons are the prime components of competitive strategies, the components of which should be analyzed if one is to understand how such strategies work. Thus our classification scheme is designed to include not only the components of scope and competitive weapons, but also the characteristics of the industry and the environment. This is not designed, however, to deal with the issue of segment differentiation because this component is not as well designed or accepted in the literature, and appears to represent more of an interaction between scope and competitive weapons rather than an independent component into itself Accordingly, the following sections provide construct identification for scope, competitive weapons, and the environmental characteristics.

Figure 1

The Relationship Between Competitive Strategy and Performace.



SCOPE

With the help of certain prior definitions supplied in the literature Hofer & Schendel (1978), Abell (1980), scope will be defined in this study as the extent of the organization's interactions with the environment. Moreover, firms will be deemed to have a broad scope strategy when they serve most major market segments within the industry, and to have a narrow scope strategy when they serve a limited number of market segments within the industry (Chrisman, Hofer, & Boulton, 1988).

Since the use of "differentiation" to denote differences both across segments and between competitors is confusing and detracts from the clarity of the language (Chrisman, 1986), the term "segmented" will be utilized to denote differentiation across segments. Consistent with the integration of Abell's and Porter's frameworks, broad scope firms will be deemed to follow unsegmented strategies when there is no differentiation in the offerings across market segments, and to follow segmented strategies when they differentiate their offerings across market segments.

An important undertaking of this study is to provide a classification scheme that allows for an adequate examination of the characteristics of firms that compete with a narrow scope. The need for clarification of the characteristics of firms that compete with a narrow scope has been observed by White (1986), who asserted that the lack of a clear set of attributes of narrow scope strategies prevented the development of prescriptions concerning the nature of the internal characteristics of focusing

firms. The following section will provide a rationale for the classification of firms that utilize narrow scope strategies.

NARROW SCOPE STRATEGIES

Both Abell and Porter have specified the ways in which focus strategies can be classified and the areas in which narrow scope firms can focus. Abell states that firms can focus on specific customer groups, customer functions, and technology. Porter (1980) notes that firms may focus on a specific buyer group, a segment of the product line, or in a geographic market. The primary need is for a classification scheme that is both parsimonious and exhaustive -- that is, sufficiently parsimonious to be useful for testing and research, while at the same time encompassing all the possible ways in which a firm can focus.

Hofer & Schendel (1978) have provided directions for developing a classification of types of narrow scope. They suggest "scope would be defined in terms of product and market segments" (Hofer and Schendel, 1978,p. 26). Therefore, firms could be said to have a narrow scope with respect to either products or markets. It is also entirely possible for firms to have a narrow scope in both products and markets. For the purposes of this study, then, narrow scope firms will be deemed to have a narrow scope either in products, in markets, or in both products and markets. To determine whether this classification scheme is both parsimonious and exhaustive, we must compare it with both Porter's and Abell's dimensions of focus, since these two classification

systems are the most frequently used. If we compare Abell's classification to Hofer and Schendel's dichotomy of product and markets focus, the case could be made that customer functions and technology represent aspects of a focus on products. In fact Hofer & Schendel themselves have stated that the "technologies that give rise to business" should be considered part of a product scope (Hofer & Schendel, 1978, p. 26). Likewise, customer groups could easily be thought to represent an emphasis on markets. Furthermore, while Abell's three dimensional framework is conceptually appealing, it does greatly increase the number of scope taxa in the classification of strategies in comparison to Hofer & Schendel's two dimensions (up to 8, as opposed to 3, if we take into account all dimensions). Therefore, given the fact the no one has shown empirically that Abell's three dimensions are vastly superior to the two dimensional view, the present study will use the traditional product market approach in the interests of parsimony.

Porter's classification of types of focus strategies is essentially the same as Hofer and Schendel's. Porter describes three ways in which firms can focus: by emphasizing a specific buyer group, a geographic market, or a segment of the product line. However, these three possibilities can be collapsed into two by noting that an emphasis on a specific buyer group or geographic area represents a focus on segments of the market while an emphasis on segments of the product line clearly reflect an emphasis on products.

Thus the classification scheme provided in this study provides taxa that are internally homogeneous, collectively exhaustive, and stable -- all the qualities of good classifications according to Chrisman et al. (1988). The classification system is internally homogeneous because the members of each group are more similar to each other than to the members of the other group. It is collectively exhaustive because every type of narrow scope strategy is represented. And it is stable because it is not likely to be affected by empirical tests using new samples. In this scheme firms will be classified as having a narrow scope in terms of a) products with respect to segments of the product lines or in the technologies and customer functions surrounding such products b) markets with respect to specific customer or geographic segments, or c) in both products and markets.

Table 2 presents presents the organization of the scope components in this classification scheme.

Table 2

Competitive Strategies Classification Scheme.

	Dimensions	Types
Scope	Broad	Segmented
		Unsegmented
	Narrow	Product
		Markets
		Products/Markets
Competitive Weapons	Cost	
	Differentiation	
	Utility	
	Stuck in the Middle	

COMPETITIVE WEAPONS

Using the definition provided by Chrisman et al. (1988), we will refer to competitive weapons as "the primary ways the organization applies its skills and resources to meet environmental needs and create enduring competitive advantages". Four competitive weapons, addressed previously in the work of Sandberg (1986) and Chrisman (1986) and derived from Porter (1980) and Abell (1980), will be included in the classification scheme: cost, differentiation, utility (cost + differentiation), and stuck in the middle. The following definitions draw heavily

on Chrisman (1986), Sandberg (1986), Porter (1980), Abell (1980), Wright (1987), and Chrisman et al. (1988).

Cost weapons are defined in terms of the use of cost/pricing attributes as the primary sources of competitive advantage.

Differentiation is defined as the use of uniqueness and non cost/pricing attributes as the primary sources of competitive advantage.

Utility is defined as the use of both cost/price and differentiation attributes as the sources of competitive advantage.

Stuck in the middle is defined as the absence of clearly assignable attributes of cost or differentiation in the firm's competitive strategy. That is, "stuck in the middle" firms lack a clearly defined competitive weapon.

ENVIRONMENT AND STRUCTURAL INDUSTRY CHARACTERISTICS

Hofer (1975) highlights the need for contingency research on strategy. In the process, he establishes the characteristics of the industry and environment as the primary contingency. However, only to a limited extent has research on competitive strategy included examination of environmental factors, mainly because of measurement difficulties, and the limited samples that strategy researchers usually operate with. As mentioned in chapter 2, several researchers have followed Hofer's example by examining the environment in which the firm competes as the primary contingency. Such research includes research by Prescott (1983), who examines

scope issues by means of an extended environment construct but whose conclusions are clouded by classification problems. More specifically, because Prescott's study fails to identify an overall low cost strategy or a differentiated focus strategy, the generic strategies yielded by his cluster analysis are not exhaustive. Dess and Davis (1984) have examined competitive strategies and scope, but their study is limited to a fragmented industry, and thus does not yield insights about how strategies would fare under different environmental conditions. Sandberg (1986) uses a more extended construct to examine the environment, but his conclusions are limited by sample characteristics. First, his study concentrates only on new ventures, which may or may nor have similar competitive behaviors as established businesses in varying environments. Second, the size of his sample did not allow him to find significant relationships under all dimensions of his environmental construct.

Porter (1980) has proposed a tridimensional framework to examine the environment. This framework contains the dimensions of stage of industry life cycle (ILC), degree of concentration of the industry, and geographic scope of the industry. For our classification scheme the degree of industry heterogeneity will be included as well. Sandberg (1986) has proposed the degree of industry heterogeneity as an important dimension in strategy content research. Industry homogeneity, in Sandberg's view, entails perfect substitutability of rival products. Industry heterogeneity entails differences that cause buyers to prefer one

firm's products over the products of another at the same price level. The degree of industry heterogeneity is thus of importance for this study because it alters the map of strategic possibilities. In the strictest sense, there would be no basis for differentiation in perfectly homogeneous industries, and as a consequence, the use of differentiation or utility weapons would be infeasible. As Wright (1987) notes, the characteristics of the industry may limit the possibility of effective differentiation or focus strategies (e.g., commodity industries). Hence different degrees of industry heterogeneity will probably result in varying maps of effective scope/competitive weapons combinations.

The use of a multidimensional construct to assess the environment is important for several reasons. Prior to the appearance of Porter's framework, Leontiades (1981) wrote that a substantial problem in strategy research was the sole use of the product life cycle (PLC) as the main proxy for environmental constructs. He also warned against the use of PLC as the sole environmental construct and noted the difficulties stemming from the existence of multiple PLC functions that do not follow the usual sigmoid shape. Another problem arising from the unidimensionality of the PLC is that the PLC curve does not take into account other dimensions such as degree of concentration of the industry. Still, the use of the concept of industry evolution in combination with other industry measures (such as degree of concentration) is a valid and useful way to examine the environment.

Our classification scheme entails four environmental dimensions: stage of industry life cycle or evolution, degree of industry heterogeneity, degree of concentration of the industry, and the amount of exposure to international competition. Five distinct stages of industry evolution -- market development, growth, shakeout, maturity, and decline -- will be used in the classification framework.

In our examination of the scope component of strategy, the use of a fragmented versus concentrated industry design will allow us to assess the effectiveness of firms with different scope emphases under different industry conditions. For the purposes of the present study, industries will be divided according to degree of concentration into fragmented industries defined by Porter (1980) as those populated by a large number of small and medium sized firms; and concentrated industries in which the largest few firms contribute high percentages of industry output (Scherer, 1980).

In addition, and as noted above, environments may be classified according to the degree of industry heterogeneity. Homogeneous industries exist when there is perfect substitutability of rival products in the industry (Scherer, 1980). Heterogeneous industries exist when there are differences that lead buyers to choose one product over the another at the same price (Scherer, 1980). Consistent with Sandberg (1986), the heterogeneous industries in our classification include partially differentiated and fully differentiated industry environments.

Finally, industries will be classified according to degree of international exposure. Domestic industries are those where the firms in the industry restrict their scope of competition to the home market; multinational industries are those where the scope of competition of firms in the industry encompasses many home markets, but the strategic positions of competitors in major geographic or national markets are not fundamentally affected by the fact that the firms compete in different countries; and global industries (Porter, 1980), are those where the strategic positions of competitors in major geographic or national markets are fundamentally affected by their overall global positions.

Table 3 presents the organization of the environmental conditions in the classification scheme.

Table 3
A Classification Scheme for the Environment.

Degree of Industry Concentration	Fragmented	Concentrated	
Degree of Industry Heterogeneity	Homogeneous	Heterogeneous	
Stage of Industry Life Cycle	Introduction Growth Shakeout	Maturity	Decline
Degree of International Competition	Multinational	Domestic	Global

OPERATIONAL DOMAIN OF THE STUDY

A thorough contingency examination of scope and competitive weapons ideally calls for an examination of all environment conditions presented in the classification system; but reality dictates a restricted framework of analysis. Nevertheless, such a framework must allow for meaningful explanations of the phenomena at hand. Furthermore, while many researchers have simultaneously studied firms in a variety of industry environments, one of the advantages of concentrating on a particular type of environment is that the researcher can be more confident about generalizing his or her findings to other firms in the same industries as well as in other industries with similar characteristics.

Thus, in this study we have reduced the number of environmental conditions to be examined. Accordingly, this study concentrates on heterogeneous, mature, concentrated, domestic industries. Since one of the principal aims of the study is to study scope, and especially to examine the behavior of firms that compete with a narrow scope, industries with those four characteristics would theoretically be one of the least attractive for a firm following a narrow scope strategy. Indeed, as Porter (1980) has noted firms competing with a narrow scope would stand a better chance when competing in a fragmented environment. This position is shared by Wright (1987). Following this reasoning, we can conclude that a concentrated environment is not the most hospitable environment for a firm competing with a narrow scope.

Determination of the existence of effective narrow scope firms under one of the least hospitable conditions possible would serve as a test of the viability of narrow scope strategies in different environments.

Second, and as noted above, since this study aims not only to provide a better understanding of scope but also to concentrate on the different types of narrow scope strategies, the examination of types of broad scope strategies (segmented and unsegmented) was eliminated from the operational domain. Neither broad or narrow scope strategies were not broken down according to the presence, absence, or degree of segment differentiation. However, future studies should endeavor to do so as many firms do attempt to differentiate their products or services across markets (Abell, 1980).

Third, the study examines the competitive weapons utilized by firms. Research in strategic management has consistently found that firms with clearly delineated competitive weapons outperform those without. It is important to assess whether the same holds true in concentrated, mature, heterogeneous, domestic industries. The first aspect of our examination of competitive weapons involves the determination of the relative effectiveness of the competitive weapons utilized by the firms in environments such as the ones studied. The second aspect entails an analysis of the ways in which the combination of specific competitive weapons and scopes of the firms affects their financial performance. Comparisons of specific competitive weapons were drawn in order to

assess the relative strength of firms following broad and narrow scope strategies.

Table 4 presents the operational domain of the study.

Table 4

Operational Domain

Industry Characteristics	- Heterogeneous - Mature - Concentrated - Domestic
Scope	- Broad - Narrow
Types of Narrow Scope	- Products only - Markets only - Products and Markets
Competitive Weapons	- Cost - Differentiation - Utility - Stuck in the Middle

SPECIFICATION OF STUDY HYPOTHESES

One of the main problems in examining hypotheses in terms of the environmental construct, is that most prior research examines either just one environment dimension or looks at each dimension separately. This study accounts for all four environment dimensions simultaneously, albeit only one possibility for each. When examining prior studies for support of our hypotheses, the end result was contradictory and/or weak input to the questions posed. Further, the literature provides no prior examination of specific types of narrow scope strategies, their relations to firms following broad scope strategies, and to the different

competitive weapons. Therefore the study deals mainly with exploratory hypotheses.

H1 - Firms that compete with broad scope will outperform firms that compete with a narrow scope.

If contingency theory holds, we know that different strategies will yield different levels of performance among firms. However, the direction of these differences is harder to assess on the basis of previous research. Research in this area has concentrated on the performance of broad or narrow scope firms using just one area of the environment construct; so out of the contending results, an integrated way to examine the phenomena will be provided in the present study.

Porter (1980, 1985) has argued that in concentrated industries firms following broad scope strategies should perform better than firms following narrow scope strategies. In this view, narrow scope firms are effective in fragmented industries, where the relative market power of competitors is lower. In concentrated industries, where competitors would have more market power, focusing firms would eventually be crowded out. Nevertheless Dess & Davis (1984), in their study of firms in a fragmented industry (the paint industry) found that firms following broad low cost and differentiated strategies were the better performers. To confuse matters further, Prescott (1983) found that focus:low cost firms outperformed firms with broad

scope strategies in stable non-fragmented, and declining environments, while differentiation market share domination firms were the better performers in mature, global importing, and global exporting environments.

Other research and theory concerning stages of the industry life cycle (ILC) provides equally contradictory results. Abell (1980) has written that a narrowly defined differentiated strategy may be effective in mature and declining markets. And Sandberg's (1986) findings indicate that focus strategies are more effective than broad scope strategies in late stage environments. In his direct comparison of focused and broad scope firms in late stages of ILC, the evidence, though not statistically significant, points to the notion that in late stages of industry evolution, focused firms outperform broad scope firms. In his testing for fit, Sandberg found that successful combinations of scope and environment included broad scope and early stages of industry evolution, as well as narrow scope and late stages. But Sandberg examined new ventures in particular, and in this instance the argument could be made that existing firms have taken the major segments of the market and all that is left for new firms is the smaller niches.

Thus, when the prior evidence is examined and we add the fact that no study has looked at these four environmental conditions simultaneously, it becomes clear (even though the evidence is not overwhelming) that broad and narrow scope firms should perform differently in environments with conditions such as the ones in

the study -- or more specifically, that given how difficult competition should be for narrow scope firms in environments that are mature and concentrated, broad scope firms should tend to outperform narrow scope firms within these environment. In short, the effects of competing in a broad number of market segments in the industry should be stronger than the effects of specializing in particular segments.

Our second set of hypotheses deals with narrow scope firms.

H2 a) Firms with a narrow scope in both products and markets will outperform firms with a narrow scope in products and firms with a narrow scope in markets.

H2 b) Firms with a narrow scope in products will outperform those with a narrow scope in markets

Very little prior research has been done regarding types of narrow scope strategies. However, it could be argued that firms with a narrow scope in both products and markets should be better performers because narrow scope in both dimensions permits a higher degree of specialization; which in turn allows the firms to target their customers more effectively. Indeed, as Carroll (1984) has argued, extreme specialism, concentrating on a specific number of product and market segments may be the best strategy for most firms.

Firms with a narrow scope in products may be better performers than firms with a narrow scope in markets in these types of environments because product advantages such as patents, production systems, and technological advances may be more easily defendable than market advantages in concentrated, mature industries.

Our third set of hypotheses deals with an analysis of the competitive weapons utilized by firms.

H3 a) Firms with clearly defined competitive weapons (cost, differentiation, and utility) will outperform stuck in the middle firms.

H3 b) Firms utilizing utility weapons will outperform firms using all other weapons.

H3 c) Firms utilizing differentiated weapons will outperform firms using cost weapons.

These hypotheses bring into the analysis the notion that firms with clearly delineated competitive weapons should outperform those firms without (i.e., those that Porter calls "stuck in the middle" firms). Support for this notion comes from Porter himself who states that firms with clear competitive weapons will earn above average returns in industry, whereas those "stuck in the middle" will not. This notion is also supported by Dess and Davis (1984), who found that in the paint industry, firms

with clear competitive strategies outperformed those firms without. These results are likewise confirmed by Sandberg (1985) and Chrisman (1986), who found that firms with clear competitive weapons performed better that those with a shortage or absence of clear competitive strategies.

Abell (1980) has postulated that in mature environments, differentiated strategies lead to higher performance. Under conditions of maturity and heterogeneity, competitive advantages can be obtained in the industry primarily through differentiation. This is also supported by Sandberg, whose research suggests that in late stage and heterogeneous environments, differentiation provides an advantage. However, Chrisman (1986), Sandberg(1986), and Hambrick (1983a) also found that firms with multiple competitive weapons were better performers than firms with only one competitive weapon. Hence our hypothesis pertaining utility strategies: by wielding more than one competitive weapon the firm should be able to extract greater advantages within the industry, and thus should experience higher performance.

Our fourth set of hypotheses concerns the performance of firms with respect to both the scope and the competitive weapons utilized.

For broad scope firms:

H4 a) Firms with a broad scope and competitive weapons of cost, differentiation, or utility will outperform broad and

narrow scope firms with stuck in the middle weapons.

H4 b) Firms with a broad scope and utility weapons will outperform both firms with a broad scope and cost or differentiated weapons, and firms with a narrow scope and cost or differentiated weapons.

H4 c) Firms with a broad scope and differentiated weapons will outperform broad and narrow scope firms with cost weapons.

For narrow scope firms:

H4 d) Firms with a narrow scope and competitive weapons of cost, differentiation, or utility will outperform firms with a narrow scope and stuck in the middle weapons.

H4 e) Firms with a narrow scope and utility weapons will outperform firms with a narrow scope and cost or differentiated weapons.

H4 f) Firms with a narrow scope and differentiated weapons will outperform firms with narrow scope and cost weapons.

This set of hypotheses follows logically from the first three sets. Hence we can conclude that the combination of broad scope and utility strategies should provide the highest performance among firms, and that the presence of such competitive weapons as cost, differentiation, or utility with any type of scope should yield a performance superior to that of stuck in the middle firms.

CHAPTER 4

METHODOLOGY, DESIGN, AND MEASUREMENT

The primary concern of this research is to test the model of business strategy with respect to scope and competitive weapons, environmental contingencies, and performance. The study consists of two parts. The first part uses the PIMS database to examine the relationships among scope, competitive weapons and performance. The second part examines 64 firms, through case studies of 4 industries, to test the model as it pertains to scope, competitive weapons, and performance. The following sections examine the research design, sample and variable selection, and data gathering and analysis techniques used in this study.

RESEARCH DESIGN

The unit of analysis for this study will be the individual firm. As Sandberg (1986) has suggested, research in strategic management has traveled primarily along two routes: the use of case studies and the use of database surveys. Serious shortcomings arise from the use of either alone. Case studies lack generalizability but allow researchers to capture the nuances of strategy in specific situations. Data based on surveys, on the other hand, provide sample sizes large enough for generalizable results but lack the ability to capture the nuances of strategy. A combination of the two approaches was utilized by Harrigan (1980), Sandberg (1986), and Chrisman (1986) in business strategy research. This medium-grained research combines multiple case studies

and allows for the testing of propositions. It also alleviates some of the shortcomings of case studies and database surveys.

The research design for this study takes these notions one step further. Through the use of large scale databases and medium grained research within the same study, the benefits of each method are achieved with few of the drawbacks. A large scale database increases confidence in the generalizability of the results whereas the multiple cases increase their explanatory power. The possibility of statistical tests for both samples allows for more rigorous testing of theory. And the consistency between the results of the two types of databases increases not only the reliability of the results but also supports the validity of the constructs and measures utilized.

The research design for this study consists of two parts. The first entails a large scale database, PIMS, to test the relationship between competitive strategies and performance in concentrated, heterogeneous, mature, domestic environments. From the PIMS database, 599 manufacturing firms were selected as competing in environments with those characteristics. The second part of the study entails the development of four cases on manufacturing industries that fulfilled the four environmental conditions set for the study.

The four cases provide specific details of the firms in the industry, and allow a comparison of the financial performance of the firms relative to the strategies followed. The industries were examined over a five year period (1982-1986), but the analysis of individual firms was cross sectional inasmuch as the performance and

competitive strategies variables for each firm were averaged over the five year period.

SAMPLE SELECTION

In this study only those industries that possess the desired environmental characteristics were chosen. An important issue was the use of consistent criteria to classify the firms in the two samples. The fact that the PIMS data was self reported by the firms ensures the reliability of the criteria utilized to classify the firms in that sample.

The criteria for choosing industries that are concentrated, mature, heterogeneous, and domestic were as follows:

1. Industries were considered to be concentrated if they had a 4 firm concentration ratio (as determined by the US Census of Manufacturers) of 60 percent or more -- This threshold is consistent with strategy theory (Porter, 1980; Harrigan, 1980; Prescott, 1983), and was used for both samples.

2. Mature industries in the case studies sample are those with positive real growth rates of no more than 1 percent over GNP growth rates and that are also more than ten years old. This classification is consistent with the method proposed by Hofer & Schendel (1978) to determine the stages of industry life cycle. Data on the growth in value of product shipments per industry at the four digit SIC code level (from the US Census of Manufacturers) was utilized to assess industry maturity.

To select mature industries utilizing the PIMS data we relied firm's reports of stage of industry life cycle. Those firms that reported their industries in the maturity stage were selected for the study.

3. Regarding heterogeneous industries, the separation between heterogeneous and homogeneous industries in the literature is not very clear. Scherer (1980) relates the concept of heterogeneity of an industry to the degree of product differentiation. The more differentiated the products in the industry are, the more heterogeneous the industry is. Comanor and Wilson (1967) suggest a tie in between the amount of product differentiation and the advertising intensity in industries. They further argue that advertising is both a cause and an effect of product differentiation. When industries have high levels of advertising it means that the product is differentiable, and a high level of advertising is an important determinant of the possible level of differentiation of existing firms vis a' vis entrants. This view is shared by Shepherd (1972), Porter (1979), and Ravenscraft (1983) and is the accepted view in industrial organization economics. In order to determine whether an industry is heterogeneous (a denomination will include both partially and fully heterogeneous industries), this study utilizes Comanor and Wilson's (1967) cut-off point 1.5 percent or more advertising expenditures to sales for determining heterogeneous consumer products industries. For both samples, industries with advertising to sales ratios of 1.5 percent or more were considered to be heterogeneous.

4. Firms competing in domestic industries restrict their scope of competition primarily to the home market. To operationalize the construct of domestic industries, the literature utilizes the concepts of global and multinational industries. By default those concepts provide a way to operationalize the concept of domestic industries. For instance, Cvar (1984) has stated that a necessary condition for the existence of a global industry is the presence of a significant level of cross borders product flow. In Cvar's view, 50 percent of the total value of product shipments going across borders constitutes a necessary condition for a global industry. Prescott (1983) in turn, describes a global importing environment, in which imports represent more than 30 percent of total sales in the industry, and a global exporting environment, in which exports represent more than 30 percent of total sales in the industry. Inverting this line of reasoning, for both samples we defined a domestic industry as one in which the total of exports and imports represent less than 30 percent of total sales in the industry. Regarding the case studies, publications IA275 and EA675 of the Bureau of the Census provided data for exports and imports per year at the four digit SIC code level. For the PIMS sample, firms reported the percentage of imports and exports in their particular industries.

DATA GATHERING

Two sources of data were utilized in this study: The PIMS database, and an independent sample gathered with the help of case studies of the breakfast cereals industry, the aircraft industry, the tire industry, and the household appliances industry. The following

section examines each of these databases as well as the procedures utilized to gather the data.

THE PIMS DATABASE

The PIMS database is a large scale database with information about participating firms on more than 200 variables. The project was originally developed by General Electric, which transferred it to the Strategic Planning Institute. The project is funded by participating firms as well as usage fees on the database.

PIMS data is particularly appropriate for the study of business level strategies because the data are reported for strategic business units (SBUs). The database was developed with the purpose of answering four questions:

1. What is the normal rate of return on investment for a given type of business under given market and industry conditions?
2. What factors explain the differences in rates of return for various businesses?
3. How will profitability be affected by changes in strategy?
4. How will profitability be affected by changes in industry conditions? (Prescott, 1983).

As such, this database is particularly appropriate for the questions in the study.

Information was gathered from participating firms in standardized data forms. The data include descriptions of business, products; and customers; information on competition, industry, and markets; balance sheet information; and assumptions about future sales prices and costs.

The financial data for each firm was multiplied by a scaling factor, to disguise the identity of the firms. Since most financial information is reported as ratios, as long as there is consistency in the scaling factors, the scaling does not affect the results. Although the databases contain yearly information on firms, they are cross sectional in nature because all the yearly information is not included. The databases report only beginning, ending, and average data for the period. The program does possess a longitudinal database, SPI-Year, but the limited number of firms in this database along with technical problems precluded its use in this study. The database utilized for the study was SPI4. The SPI4 database possesses information on 2718 firms over four years, ending in 1984. After selecting firms that competed in concentrated, heterogeneous, mature, and domestic environments, and excluding non manufacturing firms, the study had a final sample of 599 firms, which represent 21.5 percent of the firms in the database. The study used averaged data, mostly ratios when possible, for the four year period. Average ratios allow for the control of variation in the variables that are not permanent (Prescott, 1983).

There are limitations inherent in the use of the database. one such limitation pertains to the characteristics of the participants in the program -- participants that tend to be divisions of large corporations. Woo (1979) has argued that divisions of large corporations have access to and the support of broader resources than do single businesses. On the other hand, Woo adds, those divisions are often penalized because of their role in the organization. Penalties

take the form of lower intracompany prices, broader product lines that would be appropriate, and costing practices that benefit other divisions. Divisions of large corporations have problems and benefits that elude single business, and should be taken into account for the effects they may have on results. Prescott (1983) has stated that participant firms in the database are probably among the most sophisticated in their industries and tend to be more dominant, with an average return on investment of 21 percent.

A second limitation of this database concerns the validation of its results. According to Ramanujan & Venkantraman (1984) most PIMS research has been validated by results from other PIMS research -- which is not surprising, in their view, because the results come from the same database. It is imperative, they argue, that models be tested on databases other than the ones used to generate them. This argument makes the use of an alternative database particularly appropriate to test the relationship among scope, competitive weapons and performance. The multiple cases database provides a basis for comparing the characteristics of the firms in it to the characteristics of firms in PIMS, and allows for the validation of results through the testing of the hypotheses on an independent database. In short, the use of the multiple databases should result in a much stronger study.

A third limitation pertains to the quality of the data itself. Anderson & Paine (1978) have argued that manipulation of the data by PIMS introduces problems regarding its generalizability. PIMS data tends to be audited, cleaned, and divested of extreme values. After checking for reporting errors, extreme outlying values are compressed

to 2.75 standard deviations of the mean. This database has also been criticized for the stringent criteria utilized to determine which companies are suitable for research; firms undergoing periods of instability are excluded from the sample (Marshall & Buzzell, 1990). Overall, however, even critics such as Anderson & Paine(1978) admit that, "given the overwhelming superiority of the PIMS data to other sources in quantity, number of measured variables, timeliness, conscientious attempts to minimize potential sources of input error through the collection of valid data, and the qualitative nature of our science . . . criticism [of the reliability and accuracy of the data] is unwarranted" (p. 606).

The fourth limitation of the database deals with its cross sectional nature and the pooling of data within it. As Woo has argued, although the cross sectional nature of the database restricts the types of analysis possible, it does not restrict the analysis of the areas of competitive strategy research that require cross sectional examination. Accordingly, the database is more than adequate for explaining the questions posed in this study. Prescott (1983), however, raises questions about the indiscriminate pooling of data in the database. In Prescott's view, the problem is that the pooling of the data assumes homogeneity in the relationships of variables in all situations. By selecting only manufacturing firms in environments that are concentrated, mature, heterogeneous, and domestic, this study redresses that problem. That is, by selecting firms that compete under the same conditions, the study ensures that the characteristics of these firms will be similar.

THE CASE STUDIES DATABASE

The first step in creating the case studies database was to select industries adequate for the study. Industries were considered adequate if they fulfilled the stated criteria for concentrated, domestic, mature, and heterogeneous industries. The industry cases provided a synopsis of the situation of the firms in each industry, accompanied by data about the individual companies. Utilized in the development of these cases were published data, such as annual reports, 10k reports, and trade magazines. As earlier noted, four industry case studies were developed: the breakfast cereals industry, the aircraft industry, the household appliances industry, and the tire industry. One problem with retrospective reports is the possibility of inaccurate and/or biased data. By using multiple sources for the data, this study alleviates that problem by providing independent confirmation of the information received.

Another possible problem with case studies is the possibility of bias in coding the data. That problem can be redressed through reliance on objective data. In this instance, the case studies relied on information reported by the firms. Moreover, for development of the scope and competitive weapons variables, the study relied on information reported by the firms to various sources for the strategic conduct variables. The information in the cases was further reviewed and confirmed by three experts familiar with the theory of strategic management and with the works of Porter and Abell. In the context of strategic conduct, the case studies stressed variables that were consistent with the PIMS variables. Their use -- and that of the PIMS

variables -- is validated by prior strategy research. The use of published objective data for the cases removes some of the problems with the use of subjective data in case studies; indeed it significantly improves the quality of the case studies data. Test were undertaken to ensure that across industry comparisons were valid. In order to test the homogeneity hypothesis, Z scores were created for each variable and differences were tested across industries. Analysis of variance showed that there were no significant differences for the variables across industries. Thus, the aggregation of data from the four industries in the database can be considered reliable.

VARIABLES, MEASUREMENT ISSUES, AND DATA ANALYSIS TECHNIQUES

The following section examines the procedures utilized to select the variables for this study, as well as the measurement and data analysis techniques utilized in both databases.

The first issue of importance is selection of the performance variables. For both databases, objective measures of performance were utilized. For the PIMS study, return on investment was utilized as the performance variable. Reece and Cool (1978) have stated that return on investment represents one of the most useful measures of a division's performance. It also provides a way to make systematic comparisons with prior PIMS studies that have utilized ROI as the dependent measure (Prescott, 1983; Woo, 1979). Although other studies have used market share as the measure of performance (Miller, Gardner, & Wilson, 1988; Robinson & Fornell, 1985), this performance measure in a study that examines scope is particularly inappropriate because it can to confound

the results. Broad scope firms, because they compete in all market segments in the industry, should be expected to have higher market shares than narrow scope firms, which restrict themselves to segments of the market. Absolute measures, such as sales or profits, would also confound the analysis -- and for the same reasons. Firms that compete in all market segments of the industry are likely to post higher sales revenues than firms that restrict themselves to limited market segments; at the same time, the relative profitability of narrow scope firms may be higher. For the case studies, in the absence of return on investment data for the divisions, return on assets data was utilized as the measure of performance. Indeed, return on identifiable assets for the division allows for the examination of the performance of the segment of the company competing in the industry under study.

The following sections examine variable selection, measurement, and analysis of the scope and competitive weapons variables.

VARIABLES AND MEASUREMENT OF SCOPE

In the PIMS database, scope is self reported by firms. And the firms in this study were classified as being broad or narrow in scope according to those self reports. The firms reported breadth of scope along two dimensions: relative scope in products, and relative scope in markets. In the PIMS database these dimensions were operationalized as follows: relative breadth of products pertains to the estimated breadth of the product lines of the business, as compared with the weighted average of the product lines of the three largest competitors in the industry. And relative breadth of markets (relative customer

type) pertains to the estimated breadth of the business served market, relative to the weighted average of the three largest competitors in the industry (PIMS manual, 1987; Robinson & Fornell, 1985).

Firms had three alternatives for each breadth variable: (1) less than competitors, (2) same as competitors, and (3) more than competitors. They were considered to have a narrow scope when the breadth of either products or markets was less than that of competitors, and to have a broad scope when the breadth of product or markets was either the same or broader than that of the leading competitors in the industry. Scheffe comparisons showed that there were significant differences in performance for both products and markets, between groups (1) and (3) and (1) and (2), but not between groups (2) and (3) -- an outcome that vouches for the validity of the groupings.

In order to determine the scope of the firms for the study, the firms were classified as having a broad scope when they reported that they competed with a broad scope in both products and markets; as having a narrow scope in products when they reported that they competed with a narrow scope in product and a broad scope in markets; as having a narrow scope in markets when they reported that they competed with a narrow scope in markets and a broad scope in products; and as having a narrow scope in products and markets when they reported that they competed with a narrow scope in both products and markets.

For the case studies, the procedures used to determine scope were as follows. From published information, the major market segments in each industry were determined. For each firm, the segments in which

they competed in terms of products and markets were also determined. After the segments were identified for each firm, the size as a percentage of industry sales of the segments each firm competed in (in terms of products and markets) were determined. To determine whether firms were broad or narrow in each dimension, the study utilized natural breaks in the data. Only one firm in the 64 firm sample competed in market segments that represented between 40 and 60 percent of industry sales. No firm in the sample competed in product segments that represented between 40 and 60 percent of industry sales. The distribution of the data suggests that firms deliberately choose to compete in product/market segments that represent more than 60 percent or less than 40 percent of industry sales. Those natural breaks thus seem the most appropriate way of classifying firms in terms of broad or narrow scope. Firms competing in product or market segments that represented 60 percent or more of industry sales were classified as competing with a broad scope, whereas firms competing in either product or market segments representing 40 percent or less of industry sales were classified as competing with a narrow scope.

These results are consistent with the outcome of a survey done among 14 experts (12 of whom responded) in competitive strategies who were questioned by mail. Specifically, they were asked to determine the classification points associated with firms competing with either a broad or narrow scope. In determining the types of scope with which firms were competing with, the procedures were the same as those utilized for the PIMS database.

Analysis of variance and post hoc comparisons were utilized for both samples. First, broad scope firms were compared to all narrow scope firms. Second, broad scope firms were compared with specific types of narrow scope strategies. And third, narrow scope firms were compared with each other.

VARIABLES AND MEASUREMENT FOR COMPETITIVE WEAPONS

The classification scheme for this study indicates that a firm can utilize four different competitive weapons: low cost, differentiation, utility, and, stuck in the middle. Low cost firms use low cost attributes as the main source of competitive advantage; differentiating firms use uniqueness as their main source of competitive advantage; utility firms used both low cost and uniqueness as sources of competitive advantage; and stuck in the middle firms did not include clearly assignable attributes of cost or differentiation in the firms strategy. Regarding determination of the competitive weapons, however, the research design (which relied on realized strategies) lacked a way to determine the strategic intentions of the firms. For this reason and because the study used realized strategies, the competitive weapons of the firms were determined through the use of strategic conduct variables that allowed for determination of the strategies utilized by the firms. The methods utilized to determine competitive weapons are consistent with research by Woo (1979), Hambrick (1983a & b), and Prescott (1983), who used similar procedures to assess competitive strategies. Table 5 presents the theoretical distribution of the strategic conduct variables in terms of each

competitive weapon. The distribution is based on the relative strength of cost, differentiation, and asset utilization variables. This distribution is consistent with Hambrick (1983b), who argued that the dimensions underlying the strategic-advantage component of Porter's framework were cost efficiency, asset parsimony, and differentiation. Using this typology, we find that firms that were cost oriented would have low values on the cost variables, low values on the differentiation variables, and high values on the asset utilization variables. Those firms with low costs, befitting their strategy, would not spend highly on differentiation, and would extract cost through capacity utilization. The firms that were differentiation oriented would have high cost values, high differentiation, and low asset utilization. Firms with a utility strategy would have low cost values, high differentiation, and low asset utilization. Low asset utilization and high expenditures in differentiation would be consistent with a strategy of providing uniqueness. Finally, stuck in the middle firms would have high cost values, low differentiation, and low asset utilization. This distribution provides a way to arrange the competitive weapons variables in the study. The following section outlines the procedures employed to determine the competitive weapons utilized by the firms in each sample.

DETERMINATION OF COMPETITIVE WEAPONS

Table 6 presents the variables and definitions of the strategic conduct variables for the PIMS samples, and Table 7 presents the variables and definitions for firms in the case studies sample. The

strategic conduct variables utilized in this study are consistent with previous sets of variables utilized by Woo (1979), Prescott (1983), and Hambrick (1983) in their competitive strategies research. The variables in the case studies sample represent a restricted set of the variables in the PIMS sample, thus corresponding to the purpose of the study.

For both samples, variables with intercorrelations higher than .40 were eliminated to reduce the possibility of multicollinearity. This cutpoint is consistent with that determined in previous strategy research (Prescott, 1983; Woo, 1979). Moreover, as Farrar & Glauber (1967) have argued, in order to avoid multicollinearity problems in regression, intercorrelations between the variables utilized in research should be lower than the multiple R squared between independent and dependent variables. For the effects of this study, since multiple R squared between the variables was .45, the use of the .40 cut off is more conservative and ensures a lack of multicollinearity in the data. The highly correlated variables kept in the sample were those with greater theoretical relevance and lower intercorrelations with other variables in the study. Regression analysis was performed on both samples to determine the amount of variance explained by the strategic conduct variables. In order to maintain the richness of these variables, the study utilized both significant and non-significant variables from the regression procedures in order to develop the clusters. This procedures is consistent with the cluster methodology used by both Woo (1981) and Prescott (1983).

Table 5
Theoretical Characteristics of Competitive Weapons

Low Cost

Low Values on Cost Variables
- Receivables/Sales
- Inventory/Sales
- Cost of Goods Sold/Sales
- Manufacturing Costs/Sales
- Labor Expenses/Sales

Low Values on Differentiation Variables
- Product Quality
- Marketing Expenses/Sales
- R&D/Sales
- Relative Price

High Values on Asset-Utilization Variables
- Employee Productivity
- Capacity Utilization
- Investment Intensity

Differentiation

High Values on Cost Variables
- Receivables/Sales
- Inventory/Sales
- Cost of Goods Sold/Sales
- Manufacturing Costs/Sales
- Labor Expenses/Sales

High Values on Differentiation Variables
- Product Quality
- Marketing Expenses/Sales
- R&D/Sales
- Relative Price

Low Values on Asset-Utilization Variables
- Employee Productivity
- Capacity Utilization
- Investment Intensity

Utility (Cost + Differentiation)

Low Values on Cost Variables
- Receivables/Sales
- Inventory/Sales
- Cost of Goods Sold/Sales
- Manufacturing Costs/Sales
- Labor Expenses/Sales

High Values on Differentiation Variables
- Product Quality
- Marketing Expenses/Sales
- R&D/Sales
- Relative Price

High Values on Asset-Utilization Variables
- Employee Productivity
- Capacity Utilization
- Investment Intensity

Stuck in the Middle

High Values on Cost Variables
- Receivables/Sales
- Inventory/Sales
- Cost of Goods Sold/Sales
- Manufacturing Costs/Sales
- Labor Expenses/Sales

Low Values on Differentiation Variables
- Product Quality
- Marketing Expenses/Sales
- R&D/Sales
- Relative Price

Low Values on Asset-Utilization Variables
- Employee Productivity
- Capacity Utilization
- Investment Intensity

Table 6
Variables and Definitions for Firms in the PIMS Sample.

Receivables/Sales	-	Average net receivables/Net sales
Inventory/Sales	-	Total Inventory/Net Sales
Investment Intensity	-	Average investment-Book value/Value added
Capacity Utilization	-	Ratings on capacity utilization
Employee Productivity	-	Value added/Net sales/Sales per employee
Relative Compensation	-	Average of relative hourly wages and relative salary levels
Relative Product Quality	-	Ratings on quality attributes
Relative Price	-	Ratings on price as related to competitors
Relative Costs	-	Ratings on costs as related to competitors
Manufacturing Expenses/Revenue	-	Manufacturing expenses/Revenues
Advertising Expenses/Sales	-	Advertising expenses/Sales
Research & Development Expenses/Sales	-	Research and Development Expenses/Sales
Relative Market Share	-	Ratings on market share
Relative Image	-	Ratings on image attributes
Relative Service	-	Ratings on service attributes
Revenue per Employee	-	Total revenues/total employees
Relative Product Breadth	-	Ratings on product breadth
Relative Market Breadth	-	Ratings on market breadth
Relative Number of Customers	-	Ratings on number of customers
Relative Size of Customers	-	Ratings on size of customers
Price Cost Gap	-	Selling price/cost growth
Stage of ILC	-	Ratings on stage of products life cycle
Number of imports	-	Ratings on imports in the industry
Number of exports	-	Ratings on exports in the industry

(table continues)

Table 6 cont'd.

Price differences	-	Ratings on price differences in the industry
Concentration Ratios	-	Four firm concentration ratio
Order of Market entry	-	Ratings on order of entry in market
Type of Business	-	Ratings on type of firm business
Number of Competitors	-	Ratings on number of competitors
Industry Long Term Growth	-	Ratings on industry long term growth
Frequency of Product Changes	-	Ratings on frequency of product changes
Customized Products	-	Ratings on the presence of customized Products
Return on Investment	-	Net Income/Average investment

Table 7
Variables and Definitions for Variables in the Case Studies Sample.

Receivables/Sales	-	Total receivables/Total sales
Inventory/Sales	-	Total inventory/Total sales
Research & Development Expenses/Sales	-	Research and development expenses over sales
Capital Expenses/Sales	-	Total capital expenses/Sales
Cost of Goods Sold/Sales	-	Total cost of goods sold/Sales
Advertising Expenses/ Sales	-	Total advertising expenditures/Sales
Labor Expenses/Sales	-	Total labor expenses/Sales
Revenue/ Employees	-	Total revenue/Number of employees

Note: all data were averaged over the 1982-86 period.

This study likewise used the technique of cluster analysis to determine the competitive weapons utilized by firms. Cluster analysis allowed for the grouping of firms so that the degree of association between members of the same clusters was high and that between members of different clusters was low. The reader should note that we did not

include the scope dimensions in the cluster analysis because the number of variables used to determine scope was much smaller than the number of variables used to determine competitive weapons. Had we used the scope variables along with the competitive weapons, the large number of competitive weapons variables would have washed out the impact of the scope variables in the cluster analysis.

Two criteria were used to assess the appropriateness of the resulting clusters from a theoretical standpoint: first, clusters were selected on the basis of whether they maximized the distance between cluster centers; secondly, the clusters were tested to see whether changes from one cluster solution to another caused increases in total squared error. And, to assess the quality of the clusters, the study utilized a discriminant procedure involving a holdout sample. After the firms had been classified, this discriminant procedure was run on a random sample of 75 percent of the cases. The discriminant functions generated were utilized so as to classify the remaining 25 percent of the sample and to assess the quality of the classifications. High classification rates from the discriminant procedure would vouch for the validity of the cluster procedures and suggests that the cluster classifications were not sample specific. Finally, after the clusters, had been determined, analysis of variance and post hoc comparisons were done for all variables across cluster membership. The object was to locate the significant differences for each variable across clusters, and to compare those differences with the theoretical differences expected for variables across clusters.

To test the hypotheses, the study performed analysis of variance -- first to compare the performance of the competitive weapons clusters and, second to account for the scope of the firms. Table 8 presents a summary of the methods and analyses utilized for both samples.

Table 8

Methods and Analysis for the PIMS and Case Studies Samples

	PIMS Sample	Case Studies Sample
Sample size	599	64
Performance Measure	Return on Investment	Return on Assets (Division)
Scope	Self Reported (on a Scale of 1-3	Gathered from public Information
Competitive Weapons	21 variables	11 variables
	Variables and procedures similar to those utilized by Woo (1981) and Prescott (1983). Variables with intercorrelations higher than .40 eliminated from the sample.	
Determination of Competitive Weapons	Regression Analysis Cluster Analysis Discriminant Analysis (25% Holdout Sample)	Regression Analysis Cluster Analysis Discriminant Analysis
Analysis	Analysis of variance	Analysis of variance

CHAPTER 5

ANALYSIS AND RESULTS

This chapter presents the results of the analysis of the PIMS and case studies databases. As noted, a sample of PIMS business units was used to examine the relationship among scope, competitive weapons, and performance. The chapter also reports the analysis of a database compiled through in-depth case studies of four manufacturing industries. The second stage of the analysis, which encompassed the case studies, was conducted in order to validate the use of PIMS as an adequate instrument to test hypotheses under the environment characteristics presented by the research design, by providing an alternative data base in which to test the hypotheses.

The chapter is be organized as follows. The first part of the chapter examines the analysis of the PIMS data. This section presents the procedures utilized to select the PIMS sample and variables, as well as the characteristics of the sample. It also presents the results of our hypotheses regarding scope, competitive weapons, and performance for the PIMS sample. The second part of the chapter presents the procedures used to select the case studies variables, along with the results of the hypotheses regarding scope, competitive weapons, and performance for the case studies sample.

THE SAMPLES

The main source of data for the study was the Profit Impact of Market Strategies (PIMS) database. The PIMS database is a rich source of self-reported data for a large cross section of business in both the U.S. and throughout the world. The PIMS databases contain information about more than 200 companies operating in excess of 2700 businesses.

There are various databases within the PIMS repertoire. The one utilized for this study was the SPI4 database, which contains SBUs information on more than 2700 SBUs, of which 95 percent are manufacturing firms. The breadth of the database and overall quality of the data allowed for a high degree of reliability in the analysis. From the sample, the most recent values of the variables for each of the companies were utilized. As of 1990, the most recent values of the variables are of the year 1984.

Several criticisms have been voiced about the use of PIMS in research. Two major limitations are the unreliability of cross sectional data and the pooling of data from different industries for research purposes (see Chapter 4 of this study and Prescott, 1983 p. 120 for more detailed discussions). In the absence of longitudinal data; this problem will always be present; but to the extent that there is consistency in the results between the two samples used in this study, or differences to which explanations can be attached, the problem is somewhat alleviated. The most damaging criticism of PIMS is that it lacks representativeness. Firms in the PIMS database tend to be divisions of large corporations, that are dominant in their businesses, and have a higher ROI and market share than the average firm (Prescott,

1983), thus tending to bias the data and to compromise the generalizability of the results.

Although these criticisms are accurate, what is important is how they affect this particular study. Hence, they must be analyzed in the context of the study. The study calls for firms that compete in industries that are concentrated, mature, heterogeneous, and domestic. An analysis of the case studies shows that the firms in these industries show traits similar to those firms in the PIMS database. Seventy five percent of the firms in these environments were divisions of large corporations, and most were the dominant divisions within the corporations with sales averaging almost 70 percent of firm sales. The performance and market shares of the firms in this sample were in line with the PIMS average (average ROI=28.6). Thus, while there are limits to the use of PIMS, the similarity in the characteristics of the firms in the PIMS and case studies samples attests to the fact that the use of the database is valid and that the results should be generalizable to firms that compete in the particular generic environment examined in this study.

THE PIMS SAMPLE

The design of the study calls for firms from industries that are concentrated, heterogeneous, domestic, and mature. From the SPI4 database, and using the procedures outlined in chapter 3, the sample was pared down to firms in these industries. The firms chosen were those competing in industries with four firm concentration ratios of 60 or more (concentrated). In addition their value of exports plus imports

represented less than 30 percent of industry sales (domestic), which were reportedly in the mature stage of industry evolution, and average industry advertising expenses were more than 1.5 percent of total revenue (heterogeneous). To provide consistency with the case studies sample, the study included only manufacturing firms in the sample.

Table 9
Characteristics of the Study and Overall PIMS Samples

	Study Sample		PIMS(total)	
	#	%	#	%
Consumer durables	51	8.5	306	11.3
Consumer non-durables	156	26.0	447	16.4
Capital goods	112	18.8	433	15.9
Raw or semi finished mat	83	13.9	360	13.2
Components for finished p.	101	16.8	623	22.9
Supplies or consumer prod.	96	16.0	376	13.8
Services	0	0.0	81	3.0
Retailing	0	0.0	92	3.4
	599	100	2718	100

After all of these characteristics were selected for, the sample was pared down to 599 firms. Table 9 presents the characteristics of the final sample vis a' vis the overall PIMS sample and the type of business in which the firms competed.

VARIABLES FROM THE PIMS SAMPLE

The variables for the study, as explained in Chapter 3, were chosen for their expected predictive power in explaining the relationship among scope, competitive weapons and performance. For the PIMS sample, the study will include three sets of variables: industry variables, strategic conduct variables, and performance variables.

A fundamental assumption of multivariate statistics is the independence of predictor variables. Given the nature of the database,

there is some degree of intercorrelation between the variables. For statistical reliability, variables with intercorrelations of .40 or more were eliminated (Prescott, 1983; Neter, Wasserman and Kunter, 1985, p. 390). This criterion is consistent with Farrar and Glauber's (1967) rules to detect multicollinearity. These authors argued that, in order to eliminate the threat of collinearity from samples, variables with intercorrelations higher that the multiple R squared from all variables in the sample should be eliminated. In this case since the Multiple R squared from variables in the sample is .445, the use of the .40 cut off point is conservative, and further alliveates the threat of multicollinearity.

Table 10 presents a complete set of the variables utilized. Table 11 presents the intercorrelations among predictor variables. And table 12 presents the means and standard deviations for variables in the sample. The following sections examine all of the variables.

INDUSTRY VARIABLES

The primary function associated with the industry variables was to determine which firms in the PIMS database competed in industries that were mature, concentrated, heterogeneous, and domestic. The industry variables utilized in the study were stage of industry life cycle, number of imports, number of exports, price differences in the industry, industry concentration ratios, advertizing expenses over sales, and industry long term growth.

STRATEGIC CONDUCT VARIABLES.

Fifteen strategic conduct variables were utilized in the study. The use of these conduct variables has been validated through prior use by Woo (1979) and Prescott (1983), both of which utilized a similar set of variables for their PIMS strategy studies. Because of intercorrelations of .40 or more, three variables were eliminated: revenue per employee, relative image, and relative services. In order to avoid reducing the explanatory power of the study, only those variables that caused the high intercorrelations were eliminated. The variables retained in the study more than adequately compensated for the explanatory power of the former variables. Employee productivity and relative compensation compensate for revenue per employee, and by relative product quality compensates for relative image and service .

PERFORMANCE AND OTHER VARIABLES

The main performance variable for this part of the study was return on investment. Return on investment for the SBUs is not only a more than adequate measure of performance (see Chapter 3 for a more detailed explanation), but it also permits comparisons with prior studies involving the same database.

Table 10
List of PIMS Variables Utilized in the Study

Performance Variables
Return on Investment
Predictor Variables
Competitive Weapons Variables
1- Receivables/Sales
2- Inventory/Sales
3- Capacity utilization
4- Employee productivity
5- Relative compensation
6- Relative product quality
7- Relative price
8- Relative direct costs
9- Investment intensity
10- Manufacturing expenses
11- Research and Development/Sales
12- Advertising/Sales
13- Price cost gap

Variables for Scope
14- Relative breadth in products
15- Relative breadth in markets

Variables Eliminated Because of Multicollinearity (Corr $\geq$.40)
16- Revenue/Employees
17- Relative image
18- Relative services

Industry Variables
1- Stage of PLC
2- Number of imports (%)
3- Number of Exports(%)
4- Price differences in industry
5- Industry concentration ratios
6- Industry long-term growth

Table 11
Intercorrelations for Strategic Conduct Variables

1- Receivables/Sales
2- Inventory/Sales
3- Investment intensity
4- Capacity utilization
5- Employee productivity
6- Relative compensation
7- Relative product quality
8- Relative price
9- Relative direct costs
10- Manufacturing expenses
11- Research and development/Sales
12- Marketing/Sales
13- Relative market share
14- Relative image
15- Relative services
16- Revenue/Employee
17- Relative breadth in products
18- Relative breadth in Markets
19- Relative number of customers
20- Relative size of customers
21- Price cost gap

(Table 11 continues)

Table .Cont.

Intercorrelations for Strategic Conduct Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	-																		
2	.227	-																	
3	.265	.383	-																
4	.065	-.056	.1017	-															
5	-.212	-.153	-.095	-.063	-														
6	-.136	-.051	-.194	.054	.106	-													
7	.0358	-.107	-.115	.121	.038	.168	-												
8	-.348	.019	-.151	-.068	.106	.196	.395	-											
9	.0459	.165	.014	-.09	.066	.101	-.129	.243	-										
10	.0383	.165	-.009	.052	-.248	.029	-.033	-.04	.099	-									
11	.0819	.237	.0115	-.028	-.049	.0798	-.017	-.014	.0072	.179	-								
12	-.015	-.017	-.337	-.248	.236	.042	-.044	.137	.082	.26	.0289	-							
13	-.085	-.127	-.177	.058	.124	.236	.415	.259	-.173	-.083	-.001	.019	-						
14	-.056	-.154	-.125	.113	.0223	.259	.582	.336	-.175	-.022	-.061	-.059	.429	-					
15	-.126	-.066	-.026	.112	-.020	.186	.419	.134	-.227	.048	.052	-.231	.3463	.546	-				
16	-.194	-.154	.045	-.027	.804	.0634	-.028	.052	.0267	-.433	-.169	.0089	.0302	-.197	-.025	-			
17	-.101	-.075	-.059	.106	.032	.149	.348	.163	-.176	-.067	.0041	-.036	.4402	.4101	.2946	.0214	-		
18	-.083	-.054	-.065	.085	.042	.156	.172	.0868	-.072	-.002	.0637	-.026	.3509	.258	.192	.0167	.0433	-	
19	-.063	-.112	-.094	.094	.0335	.158	.272	.140	-.169	-.063	.0175	-.019	.456	.380	.269	.0095	.544	.563	-
20	-.124	-.124	-.078	.06	.0195	.095	.172	.147	-.133	.034	.021	-.074	.312	.276	.246	-.015	.308	.255	.263
21	-.045	-.003	-.05	-.032	.073	.096	-..3	.0308	-.020	-.077	-.071	.057	.036	.031	-.050	.037	.020	-.046	-.019

	20	21
20	-	
21	-.014	-

Table 12

Means and Standard Deviations for Strategic Conduct Variables

(PIMS Sample)

	Variables	Means	Std
1-	Receivables/Sales	.147	.0817
2-	Inventory/Sales	.195	.1136
3-	Investment Intensity	.248	1.15
4-	Capital Expenses	.7548	.1558
5-	Employee Productivity	41.9	30.92
6-	Relative Compensation	101.02	6.45
7-	Relative Product Quality	.636	2.6
8-	Relative Price	103.32	7.59
9-	Relative Direct Cost	102.05	6.84
10-	Manufacturing Expenses	.2616	.1156
11-	R & D/Sales	.0169	.0194
12-	Advertising/Sales	0.938	.0781
13-	Relative Image	3.45	.917
14-	Relative Service	3.36	.815
15-	Revenue per employee	85.78	73.43
16-	Relative Product Breadth	2.016	.792
17-	Relative Market Breadth	2.018	.591
18-	Price cost gap	-1.143	4.32
	ROI	22.74	23.71

ANALYSIS OF THE PIMS DATA

The following section examines the data from the PIMS database. It is organized as follows: first, the relationship between scope and performance is examined; Second, the procedures used to determine the competitive weapons are analyzed; and third, the relationship among scope, competitive weapons, and performance is assessed.

SCOPE AND PERFORMANCE

The first hypothesis states that there should be significant differences in the performance of broad versus narrow scope firms. This part of the analysis examines the relationship between scope and performance without taking into account the effect of competitive weapons. The results showed significant main effects for both product ($F = 6.62$, $p = .010$) and market ($F = 5.73$, $p = .017$), as well as a significant interaction between product and market scope ($F = 14.86$, $p = .000$). As predicted, firms that compete with a broad scope performed significantly better than firms that compete with a narrow scope, by an average 10.55 ROI points ($F = 28.99$, $P = .000$). Table 13 presents analysis of variance tables and group means for the scope variables.

The highest performing group consisted of firms with a broad scope in both products and markets (n=390) with an average ROI of 26.48, followed by firms with a narrow scope in both products and markets (n = 67, ROI = 18.89), firms with a narrow scope in products (n = 110, ROI = 16.54), and, finally firms with a narrow scope in markets (N = 32, ROI = 7.60). Scheffe tests showed that there were significant differences between broad scope firms and all types of narrow scope firms.

The second set of hypotheses compares the relative performance of different types of narrow scope strategies. Hypothesis H2a states that firms with a narrow scope in both products and markets will outperform those with a narrow scope in products and those with a narrow scope in markets. The results partially support this hypothesis. Firms with a narrow scope in both products and markets did indeed significantly outperform those with a narrow scope in markets, but there were no significant differences between firms with a narrow scope in both products and markets, and firms with a narrow scope in products. Throughout the analysis and for both samples, firms with a narrow scope in products consistently outperformed firms with a narrow scope in markets.

Hypothesis H2b states that firms with a narrow scope in products should significantly outperform those with a narrow scope in markets. The results support this hypothesis.

Other interesting results include the fact that firms consistently broad or consistently narrow (i.e., broad or narrow in both products and markets) outperformed firms that were broad in one dimension and narrow in the other by an average 10.1 ROI points ($t=4.92$ $p=.000$). However, firms that were narrow in both dimensions (products and markets) were not significantly better performers than firms that were narrow on one dimension (products or markets). These findings have significant implications regarding the nature of the narrow scope firms in environments that are concentrated, mature, heterogeneous, and domestic. These implications will be fully explored in chapter 6.

Table 13
Anova and Group Means for Scope and Performance

Source of Variation	SSQ	DF	MSQ	F	p
Main Effects	10218.4	2	5109.2	9.82	.000
Product scope	3443.5	1	3443.5	6.62	.010
Market scope	2979.8	1	2979.8	5.73	.017
2 Way Interactions	7793.1	1	7793.1	14.86	.000
Explained	18011.7	3	6003.2	11.54	.000
Residual	309344.9	595	519.98		
Total	327356.4	598	547.19		

Group Means for Scope Variables

		Market Scope: Narrow	Market Scope: Broad
Product Scope	Narrow	18.89 (n=67)	16.54 (n=110)
	Broad	7.60 (n=32)	26.48 (n=390)

Post Hoc Comparisons Scheffe (0.05)
Significant differences Between Groups:

	Broad	Narrow (P)	Narrow (M)	Narrow (P&M)
Broad	-			
Narrow (P)	*	-		
Narrow (M)	*	*	-	
Narrow (P&M)	*	ns	*	-

DEVELOPMENT OF COMPETITIVE WEAPONS VARIABLES (PIMS SAMPLE)

In developing the competitive weapons variables this study followed a two stage process. First, regressions were run on the predictor variables and performance. The overall regression equation was significant (F =31.69 p =.000). The regression results indicate that the variables utilized in the study explained more than 40 percent of the variance between dependent and independent variables (adj Rsq.= .435). The results confirmed the appropriateness of the use of these variables in identifying strategies. Second, cluster and discriminant

analysis were performed on the variables. The clusters allow for the identification of the competitive weapons utilized by the firms; whereas the discriminant analysis serves to validate the clusters. The competitive weapon of each cluster was named by means of the procedures outlined in chapter 4. The following sections outline the procedures utilized to identify competitive weapons.

COMPETITIVE WEAPONS

The first step in determining competitive weapons was the regression analysis of all predictor variables against performance. Prior studies by Woo (1979) and Prescott (1983) provide a starting point for determining which variables may be important proxies for the competitive weapons utilized by the firms. To reduce the possibility of multicollinearity in the sample, those variables which caused intercorrelations higher than .40 were eliminated from the sample. The remaining variables in the sample still reflect the dimensions of competitive weapons represented by the eliminated variables. The regressions are important both to the determination of the amount of variance explained by the strategic conduct variables and to determination the strength of the relationship between performance and the competitive weapons variables. Table 14 presents betas and significance values for the variables in the regression equations.

Table 14

Regression Analysis Results for Competitive Weapons and Performance (PIMS Sample).

Variables	Beta	Std Err	p
Investment Intensity	-8.89	.788	.0000
Relative Product Quality	.210	.039	.0000
Relative Direct Cost	-.680	.120	.0000
Manufacturing Expenses	.429	.070	.0000
Advertising Expenses/Sales	-.414	.111	.00002
Employee Productivity	.087	.025	.0004
Capital Expenses	.146	.050	.0027
Inventory/Sales	-.187	.076	.0166
Price Cost Gap	.304	.170	.0672
Research and Development	.350	.397	.3788
Relative Compensation	.160	.121	.4367
Receivables/sales	.162	.100	.1057
Relative Price	-.015	.114	.8929
Constant	91.17	17.91	.0000

F = 31.69 p = .0000

Multiple R = .6702

R square = .4459

adj R Sq = .435

Std Error = 17.58

DETERMINATION OF COMPETITIVE WEAPONS

The framework of this study calls for the classification of firms (according to the competitive weapons utilized) into groups that adequately explain the strategic conduct of firms. Toward this end, cluster and discriminant analyses were utilized. The cluster analysis served as the initial identification of the competitive weapons, whereas, the discriminant analysis served as a confirmatory measure of the adequacy of the clusters (Dillon & Goldstein, 1984).

Two criteria are important when utilizing cluster analysis: the clusters must be quantitatively correct, and they must make sense from a theoretical standpoint. The framework outlined in Chapter 4 presents characteristics that satisfy the latter criterion. Moreover, the ability to identify the clusters and to attach the meaning expected of them validates the clusters in terms of theory. At the same time, mathematical procedures allow for the determination of the best cluster solution from a quantitative standpoint.

To determine quantitatively the most correct cluster solution, 2-,3-,4-,and 5-cluster solutions were examined. Two criteria that can be utilized to examine the data quantitatively are the relative distances between cluster centers, and radical changes in the sums of squared errors in the data when the number of clusters is changed (Prescott, 1983; Johnson & Vichern, 1982). After the alternative solutions had been examined, the four cluster solution was seen to have maximized the distance between the cluster centers. Table 15 presents cluster distances for the 4 cluster solutions as well as a comparison with the other alternatives. The 2-,3-, and 5-cluster solutions also

produced significant increases in the sums of squared errors -- a finding that is consistent with the appropriateness of the four cluster solution.

After completing the cluster analysis, the study performed a discriminant analysis on a random sample of 75 percent of the cases. The discriminant functions generated were utilized to classify the remaining holdout sample of 25 percent of the cases. The discriminant analysis procedures resulted in correct classification of 94.3 percent of the holdout cases. This high classification rate seems to suggest an equally high degree of validity in the choice of the four cluster solution. Table 16 presents the results of the classification using discriminant analysis. Univariate F tests and Scheffe post hoc comparisons were run for each variable across cluster membership to determine whether there were significant differences for the variables across clusters and also where those differences lay.

The four cluster solution is also theoretically consistent with the framework presented in chapters 3 and 4. From the clusters, three competitive weapons were identified: low cost, differentiation, utility (cost+differentiation). A fourth cluster of firms that presented an inconsistent strategy was labeled "stuck in the middle".

The following section examines the characteristics of each cluster, and table 17 presents the final cluster means for each variable.

Table 15
Distances Between Cluster Centers (Four Cluster Solution)

	1	2	3	4
1	-			
2	78.31	-		
3	106.77	52.52	-	
4	35.22	72.24	114.35	-

Distance 2cl Sol=44.75
" 3cl Sol=47.76
" 4cl Sol=49.8
" 5cl Sol=48.2

Table 16

Discriminant Analysis Results

(25 percent Random Holdout Sample)

		Predicted Group Membership			
Actual Group	No of Cases	1	2	3	4
1	47	44	1	0	2
		93.6%	2.1%	0%	4.3%
2	13	0	13	0	0
		0%	100%	0.0%	0%
3	3	0	0	3	0
		0%	0.0%	100.0%	0%
4	96	4	2	0	90
		4.2%	2.1%	0%	93.8%

Classification Totals: Correct 150 94.3 percent
Incorrect 9 5.7 percent

Table 17
Cluster Means for Competitive Weapons Variables

Variables

1-	Receivables/Sales	2-	Inventory/Sales
3-	Investment intensity	4-	Ccapital expenses
5-	Employee productivity	6-	Relative compensation
7-	Relative product Quality	8-	Relative price
9-	Relative direct cost	10-	Manufacturing expenses
11-	Research & development/Sales	12-	Advertising/Sales
13-	Price cost gap		

Cluster 1	2	3	4					
Diff	Low C	Util	S in M	Means	F	p	Scheffe .05	
Variables								
1-	16.8	11.9	8.7	14.5	14.7	12.2	.000	3-4 2-4 4-1 3-1 2-1
2-	21.9	18.6	10.5	19.0	19.5	7.9	.000	4-3 2-3 1-3 1-4
3-	32.0	.36	-.55	.24	.24	3.8	.01	4-3 2-3 1-3
4-	82.3	71.8	70.0	73.3	75.4	14.3	.000	1-3 1-2 1-4
5-	35.4	103.4	139.6	31.9	41.8	481.	.000	1-4 3-4 2-4 1-2 1-3 2-3
6-	102.4	100.7	103.8	100.2	101.3	4.4	.004	1-4
7-	23.9	-11.4	23.0	-9.3	.6	197.	.000	2-3 4-3 1-2 1-4
8-	106.5	100.8	112.9	101.6	103.3	29.8	.000	1-2 3-4 2-3 1-4 1-3
9-	101.1	102.3	104.5	102.2	102.5	1.3	.259	
10-	26.5	19.1	16.4	27.3	26.1	9.4	.000	1-3 1-2 4-3 2-4
11-	1.7	1.5	.6	1.7	1.6	1.6	.172	
12-	13.6	8.7	14.54	8.86	9.38	10.11	.000	1-4 1-2 4-3 2-3
13-	-1.25	.3348	-.536	-1.30	-1.14	2.54	.05	4-2 1-2

Cluster #1: Differentiation

The businesses in cluster #1 follow a differentiation strategy, characterized by high product quality and high price. These firms have significantly higher relative product quality and relative price than firms classified as having a low cost strategy. Although relative compensation for the firms in this group is well above average -- indeed, significantly higher than firms classified as having a stuck in the middle weapon -- employee productivity in these firms is significantly lower than all the other groups, consistent with a strategy in which firms attempt to differentiate their products. Cost indicators such as receivables, inventory expenses, manufacturing expenses, capital expenses, and research and development expenses are all significantly higher than those of firms classified as low cost; in fact, they are above the average calculated for the whole sample. (relative direct costs are average, however.) The gap between prices and costs for firms in this group is the highest in the sample, thus further indicating a differentiation strategy. A total of 160 firms were classified as competing through differentiation.

Cluster #2: Low Cost

The businesses in cluster #2 follow a low cost strategy, characterized by the relatively low quality and low price of their products. The relative price and relative product quality of the firms in this group are significantly lower than those of all the other groups. Employee productivity is well above average and significantly higher than that of firms competing with differentiation or stuck in the

middle weapons, whereas relative compensation is well below average and significantly lower than that of stuck in the middle firms. All of these characteristics are consistent with a low cost strategy. Cost indicators such as receivables, inventory, and manufacturing expenses are well below average -- significantly lower than those of firms that compete through differentiation or a stuck in the middle weapons. Relative directs cost are also below average. Moreover, the firms in this group exhibit the lowest price cost gap of any group in the sample; the fact that it is significantly lower than stuck in the middle or differentiating firms indicates a strategy of competing with a low price. A total of 41 firms were classified as following a low cost strategy.

Cluster #3: Cost + Differentiation (Utility)

The firms in this group scored high on the differentiation variables and low on the cost variables, yielding a strategy of competing through both low cost and differentiation. These firms scored high in relative product quality and relative price -- significantly higher than firms classified as stuck in the middle or low cost. They require significantly higher prices for their products and exhibit higher employee productivity than any other group. They also provide the highest compensation for employees -- significantly higher than stuck in the middle firms. The firms in this group had high relative direct costs (as is consistent with producing a differentiated product), but they also scored significantly below the average in cost indicators such as receivables, inventory,and manufacturing expenses. They are

below average in their capital expenses, investment intensity, and research and development expenses; they also have the highest percentage of advertising expenses over sales in the sample -- well above the industry average and significantly higher than low cost and stuck in the middle firms. A total of 19 firms were classified as having a utility (cost + differentiation) strategy.

Cluster #4: Stuck in the middle firms

The firms in this group do not have clear competitive weapons. Moreover, there is no consistency to their strategy. Their prices are below average, as was the quality of their products. Both prices and quality are significantly lower than those of firms with differentiation or utility weapons, whereas their relative direct costs are equivalent to the sample average. The firms in this group exhibit the second largest gap between prices and costs in the sample. These firms also have the lowest employee productivity of any group in the sample, below average compensation, and below average capital expenses (significantly lower than those of differentiating firms). They have average receivables, inventory, and investment intensity, above average R & D expenditures and below average advertising expenses. They do not distinguish themselves in terms of either low cost, or differentiation. There is no consistency in the strategies of these firms. They could also be characterized as average. A total of 379 firms were classified as stuck in the middle.

COMPETITIVE WEAPONS AND PERFORMANCE

Table 18 presents an analysis of variance for competitive weapons and performance. The results show significant differences in the performance of firms across competitive weapons (F=15.15, P=.000). Firms with a utility weapon outperformed all others in the sample; with an ROI of 42.34 percent, they nearly doubled the average ROI for the overall sample (ROI=22.80). Firms with a differentiation weapon followed, with an average ROI of 29.82 percent. Differentiating firms were the second largest group of firms in the sample (N=160). Low cost firms had an average ROI of 26.34 percent. And finally, stuck in the middle firms were the lowest performers, with an average ROI of 18.44 percent.

The third set of hypotheses deals with the comparison of the competitive weapons utilized by the firms. The first in this set of hypotheses, H3a, states that firms with competitive weapons of low cost, differentiation, or utility will outperform firms with stuck in the middle weapons. The results support this hypothesis: all three groups significantly outperformed stuck in the middle firms. Scheffe post hoc comparisons revealed significant differences between firms using low cost, differentiation, and utility weapons, and firms with stuck in the middle weapons. Hypothesis H3b states that firms utilizing utility weapons will outperform firms utilizing all other types of weapons. The results support this hypothesis as well, inasmuch as the utility firms significantly outperformed the firms using low cost, differentiation, or stuck in the middle weapons. Hypothesis H3c states that firms utilizing differentiation weapons should outperform firms utilizing low cost weapons. This hypothesis was not supported: Although there were

differences in the expected direction in the performance of firms using differentiation and low cost weapons, those differences were not significant.

Table 18
Analysis of Variance Between Competitive Weapons and Performance (PIMS Sample)

S. of Variation	SSQ	DF	MSQ	F	p
Competitive W.	23242	3	7747.42	15.15	.0000
Residual	304114.14	595	511.11		
Total	327356.4	598	547.41		

Group Means

	Competitive Weapons			
	Diff	Low C	Util	S in M
Means	29.82	26.34	42.34	18.44
n	(160)	(41)	(19)	(379)

Overall Mean= 22.80
n = 599

Post Hoc Comparisons: Scheffe (0.05)
Significant Differences Between Groups:

	Diff	Low C	Util	S in M
Diff	-			
Low C		-		
Util	*	*	-	
S in M	*	*	*	-

The results indicate that, whereas utility firms are the best performers and stuck in the middle firms are the worst, firms competing through either a low cost strategy or a differentiation strategy can expect to be above average performers in this type of industry, and either low cost, differentiation, or both can yield competitive advantages to firms.

SCOPE AND COMPETITIVE WEAPONS

Table 19 presents an analysis of variance among scope, competitive weapons, and performance. The ANOVA results indicate that both scope and competitive weapons had significant main effects, but there was no significant interaction between the two. For that reason, individual cell comparisons can not be assessed on the basis of the anova results. Hence, individual T-Tests were utilized for the particular cell comparisons.

Hypothesis H4a stated that firms with a broad scope and a competitive weapon of low cost, differentiation, or utility will outperform firms with broad or narrow scope and stuck in the middle weapons. The results support both parts of the hypothesis. Firms with broad scope and a weapon of low cost, differentiation, or utility significantly outperformed firms with broad scope and stuck in the middle weapons ($t=4.93$ $p=.000$), and firms with a broad scope and a weapon of low cost, differentiation, or utility significantly outperformed firms with narrow scope and stuck in the middle weapons ($t=5.05$ $p=.000$).

Hypothesis H4b compared firms having a broad scope and a utility weapon, with firms having a broad or narrow scope and a cost or differentiation weapon. According to the results, firms with a utility strategy and a broad scope outperformed all other firms. They had an average ROI of 46.79 percent, which was 10.32 points above the closest group -- firms with a broad scope and a low cost strategy. The results supported both parts of hypothesis H4b. Firms with a broad scope and utility strategies significantly outperformed firms with a broad scope and a cost or differentiation weapon ($t=2.04$ $p=.043$), and firms with a broad scope and a utility strategy significantly outperformed those firms with a narrow scope and a cost or differentiation weapon ($t=3.97$ $p=.000$).

Hypothesis H4c compared firms having a broad scope and a differentiated weapon with firms having a broad or narrow scope and a cost weapon. The first part of the hypothesis was not supported. There were no significant differences between the performance of firms with a broad scope and a differentiation weapon and that of firms with a broad scope and a cost weapon ($t=-.83$ $p=.405$). However significant differences did emerge between the performance of broad scope firms with a differentation weapon and that of narrow scope firms with a cost weapon ($t=3.77$ $p=.000$). Performance of firms with a broad scope and a differentiation strategy was significantly higher than that of firms with a narrow scope and a cost strategy -- thus again confirming the power of broad scope in market settings such as the one utilized for this study.

Hypothesis H4d compared the performance of firms having a narrow scope and a weapon of differentiation, cost, or utility with that of firms with a narrow scope and a stuck in the middle weapon. The results did not support the hypothesis (t=1.17 p=2.44): although firms with a narrow scope and a utility weapon outperformed narrow scope, stuck in the middle firms at the .10 level (t=1.79 p=.076), and firms with a narrow scope and a differentiated weapon outperformed stuck in the middle firms with a narrow scope at the .10 level (t=1.68 p=.09), there were no significant differences between the performance of firms with narrow scope and a low cost weapon and firms with a narrow scope and a stuck in the middle weapons (t=-1.13 .26). Overall, firms with a narrow scope in markets and a stuck in the middle weapon were the lowest performers in the sample, with an average ROI of 5.07 percent.

Hypothesis H4e compared firms with a narrow scope and a utility weapon, to firms with a narrow scope and a cost or differentiation weapon. The hypothesis was not supported inasmuch as there were no significant differences between the performance of narrow scope utility firms and that of narrow scope cost or differentiation firms (t=1.25 p=.217). Moreover, although firms with a narrow scope and a utility weapon outperformed firms with a narrow scope and a cost weapon at the .10 level (t=1.7 p=.082), there were no significant differences between the performance of narrow scope firms with a utility weapon and narrow scope firms with a differentiation weapon (t=1.08 p=.26).

Finally, there was some support for hypothesis H4f, which stated that narrow scope firms with a differentiation weapon would outperform

narrow scope firms with a low cost weapon. The hypothesis was supported at the .10 level (t=1.88 p=.067).

We turn now to final comments regarding narrow scope firms. For narrow scope firms, other than those with a utility strategy, all types of narrow scope firms performed better with a differentiation strategy. Among those firms with a differentiation strategy, there were no significant differences in performance resulting from different narrow scope strategies. Within the sample there were no firms with a utility strategy and either a narrow scope in both products and markets or a narrow scope in markets, and there were no firms with a narrow scope in both products and markets and a low cost strategy. It would be interesting to determine whether firms attempted to compete in those groups and failed or whether they just shied away from those categories. Either way the results suggest that these categories represent niches that narrow scope firms neither seek nor thrive in. Finally, firms with a narrow breadth in markets, which were the poorest performers of all the narrow scope firms, showed significantly better performance when they competed with a differentiation strategy, rather than with a low cost or stuck in the middle strategy.

Table 19
Anovas Between Scope, Performance, and Competitive Weapons.
(PIMS Sample)

	Group Means			
	Diff	LowC	Utility	Stuck in M
Scope				
Narrow (P&M)	21.88	0	0	17.95
n=	(16)	(0)	(0)	(51)
Narrow (p)	20.78	11.91	31.76	15.66
n=	(12)	(12)	(5)	(81)
Narrow (M)	20.39	-3.7	0	5.07
n=	(7)	(3)	(0)	(22)
Broad	32.24	36.47	46.79	20.86
n=	(125)	(26)	(14)	(225)

Analysis of Variance

Source of Variation	SSQ	DF	MSQ	F	p
Main effects	36594.27	6	6098.13	12.4	.0000
Scope	13352.07	3	4450.07	9.11	.0000
Competitive Weapons	10582.08	3	6194.34	12.68	.0000
Two way interactions	4589.92	6	764.98	1.56	.155
Explained	41184.19	12	3432.16	7.02	.0000
Residual	286172.2	586	488.34		
Total	327356.40	598	547.41		

Table 20
Results of Study Hypotheses (PIMS Sample)

		Support
H1	Firms that compete with a broad scope will outperform firms that compete with a narrow scope.	*
H2a	Firms with a narrow scope in both products and markets will outperform firms with a narrow scope in products.	NS
	Firms with a narrow scope in both products and markets will outperform firms with a narrow scope in markets.	*
H2b	Firms with a narrow scope in products will will outperform firms with a narrow scope in markets.	*
H3a	Firms with clearly defined weapons (cost, differentiation, utility) will outperform firms using stuck in the middle weapons	*
H3b	Firms utilizing utility weapons will outperform firms using all other strategies.	*
H3c	Firms utilizing differentiated weapons will outperform firms using cost weapons.	NS
H4a	Firms with broad scope and competitive weapons of cost, differentiation, or utility will outperform firms with a broad scope and stuck in the middle weapons.	*
	Firms with a broad scope and competitive weapons of cost, differentiation, or utility will outperform firms with a narrow scope and stuck in the middle weapons.	*
H4b	Firms with a broad scope and utility weapons will outperform firms with a broad scope and cost or differentiation weapons.	*
	Firms with a broad scope and utility weapons will outperform firms with a narrow scope and cost or differentiation weapons.	*

(table continues)

(Table 20, cont'd)

H4c	Firms with a broad scope and differentiated weapons will outperform firms with a broad scope and cost weapons.	NS
	Firms with a broad scope and differentiated weapons will outperform firms with a narrow scope and cost weapons.	*
H4d	Firms with a narrow scope and competitive weapons of cost, differentiation, or utility will outperform firms with a narrow scope and stuck in the middle weapons.	NS
H4e	Firms with a narrow scope and utility weapons will outperform firms with a narrow scope and cost or differentiated weapons.	NS
H4f	Firms with a narrow scope and differentiated weapons will outperform firms with a narrow scope and cost weapons.	*

* = Supported
NS = Nonsupported.

ANALYSIS AND RESULTS OF THE CASE STUDIES SAMPLE

This section presents the results of the analysis for the case studies sample. It is organized as follows: first, the case studies sample and the variables utilized are examined. Then, the relationship between scope and performance is discussed. Finally, the determination of the competitive weapons is reviewed, and the relationship among scope, competitive weapons and performance is assessed.

THE CASE STUDIES SAMPLE.

Chosen were four industries that conform to the criteria for sample selection -- specifically, industries that are heterogeneous, mature, concentrated, and domestic. In order to meet these criteria, the industries had to have 4 firm concentration ratios of 60 percent or more, a value of imports plus exports representing less than 30 percent of industry sales, average growth rates for the 1982-1986 period of no more than 1 percent over GNP, and values of advertising as a percentage of total revenue averaging at least 1.5 percent per industry for the same period. Four industries were chosen: the aircraft industry, the breakfast cereals industry, the tire industry, and the household appliances industry. The data for all firms were averaged for the period to provide consistency with the PIMS data. The total sample of 64 firms was divided as follows: 14 firms from the breakfast cereals industry, 18 firms from the aircraft industry, 17 firms from the tire industry, and 15 firms from the household appliances industry. Performance data was only available for 61 firms. After all the variables within industries were normalized, analysis of variance showed

that there were no significant differences for the variables across industries, thus allowing for confidence when aggregating the data.

CASE STUDY VARIABLES

The variables in the case studies represent a restricted set of the variables used in the PIMS part of the study. For adequate comparisons, the variables of the two samples must be congruent. However, only a limited number of variables could be obtained in the case sample. The variables in the case sample were developed from different sources: the scope variables were developed using the procedures outlined in Chapter 4; and the performance and strategic conduct variables were developed from the Compustat tapes, with the aid of published information, annual reports, and 10k SEC filings. Table 21 presents the list of variables used in the case studies. Table 22 presents intercorrelations for the strategic conduct variables, as well as means and standard deviations for all of the variables. So that the assumptions of independence imbedded in multivariate statistics could be maintained, variables causing intercorrelations higher than .40 were eliminated from the study. For example, administrative expenses over sales was eliminated from the sample because of intercorrelations higher than .40 with cost of goods sold (-.79).

The performance variable utilized for this part of the study was return on identifiable assets for the division. Defined in this way, return on assets allows for the examination of the performance of the segment of the firm in the industry of interest.

Table 21

Variables in the Case Studies Sample

1-Product Scope

2-Market Scope

3-Return on Identifiable Assets

4-Percent of Total Sales in the Segment

5-Receivables/Sales

6-Inventory/Sales

7-Cost of Goods sold/Sales

8-Advertising/Sales

9-Research and Development/Sales

10-Capital Expenses/Sales

11-Labor Expenses/Sales

12-Administrative expenses/Sales

13-Revenues/Employees

Table 22
Intercorrelations, Means, and Standard Deviations
Among Strategic Conduct Variables(Case Studies)

Variables

1- Receivables/Sales
2- Inventory/Sales
3- Cost of Goods Sold/Sales
4- Advertising/Sales
5- Research and Development/Sales
6- Capital expenses/Sales
7- Labor Expenses/Sales
8- Administrative expenses/Sales
9- Revenue/employee

	1	2	3	4	5	6	7	8	9
1	-								
2	-.069	-							
3	-.308	.0673	-						
4	.2693	.1079	-.211	-					
5	-.249	.0026	-.092	.1315	-				
6	-.014	.218	-.036	.1679	.3436	-			
7	.1081	-.309	.1651	-.275	-.259	-.286	-		
8	.1645	.1689	-.794	.2373	.2022	.1411	-.144	-	
9	-.211	-.054	.0173	-.191	-.024	-.259	-.157	-.121	-

Variables	Mean	S. Dev.
Receivables/Sales	.1445	.0711
Inventory/Sales	.1639	.0809
Cost of Goods Sold/Sales	.7225	.1119
Advertising/Sales	.0455	.0457
Research and Development/Sales	.0289	.0314
Capital Expenses/Sales	.1383	.664
Labor Expenses/Sales	.2646	.964
Administrative Expenses/Sales	.1756	.0794
Revenue/Employees	117.6	60.41
Product Scope	48.81	30.99
Market Scope	54.22	29.48

ANALYSIS OF THE CASE STUDIES DATA

The following section examines the case studies data. It is organized as follows. The first part provides an examination of the means by which scope was determined for the case study data. The second part examines the relationship between scope and performance. And the third part assesses the classification of firms according to competitive weapons, and the relationship among scope, competitive weapons, and performance.

DETERMINATION OF SCOPE

As outlined in Chapters 3 and 4, scope was determined by examining the segments of the industry in which the firms compete. The four industries were categorized in terms of their percentage of sales in each major product and market segment. The firms were then classified in terms of the product or market segments in which they competed. Firms competing in segments that represented more that 60 percent of industry sales were considered to have a broad scope. Firms that competed in segments that represented less than 40 percent of industry sales in terms of either products or markets was classified as having a narrow scope in that dimension. These classification points were consistent with natural breaks in the data. Only one firm in the 64 firm sample fell outside the classification points and could not to be classified as either broad or narrow on one dimension. Table 23 presents the frequencies for both product and market scope. This method was utilized to create a classification of firms having either broad or narrow scope.

Table 23
Frequencies for Product and Market Scope

Product Scope		Market Scope	
Scale Midpoint	Count	Scale Midpoint	Count
0-3	1	0-5	0
4-8	0	6-10	3
9-13	8	11-15	0
14-18	3	16-20	0
19-23	8	21-25	3
24-28	1	26-30	18
29-33	9	31-35	3
34-38	4	36-40	5
39-43	1	41-45	0
44-48	0	46-50	0
49-53	0	51-55	1
54-58	0	56-60	0
59-63	1	61-65	10
64-68	3	66-70	1
69-73	7	71-75	5
74-78	2	76-80	1
79-83	5	81-85	0
84-88	5	86-90	7
89-93	0	91-95	3
94-98	1	96-100	6
99-100	5		

SCOPE AND PERFORMANCE

For the case studies, the scope variables were classified using categorical data. The relation was examined using analysis of variance. Table 24 presents this analysis.

Table 24
Analysis of Variance and Group Means for Scope and Performance
(Case Studies Sample)

		Group Means Market Scope	
		Broad	Narrow
Product Scope	Broad	15.03 (26)	2.03 (3)
	Narrow	30.88 (6)	10.34 (26)

Analysis of Variance

Source of Variation	SSQ	DF	MSQ	F	p
Main Effects	2409.4	2	1204.73	5.30	.008
Product Scope	1314.93	1	1314.93	5.71	.019
Market Scope	2405	1	2405	10.59	.005
Two way interactions	97.15	1	97.13	.429	.515
Explained	2506	3	835.59	3.68	.017
Residual	12936.28	57	226.95		
Total	15443.078	60	257.38		

In contrast to the PIMS analysis, even though the results of the case studies analisis revealed significant differences between broad and narrow scope firms in the sample, the direction of the differences varied in this case. Overall, narrow scope firms outperformed broad scope firms. Although, as hypothesized, firms with a broad scope outperformed firms with a narrow scope in products and markets (5 RIA points, t =1.91, p =0.062), and firms with a broad scope outperformed firms with a narrow scope in markets (Mann-Whitney [M-W] p =.09), firms with a narrow scope in products significantly outperformed broad scope firms (t =-3.71 p=.004). The main difference between these results and those from the PIMS sample is that firms with a narrow scope in products outperformed all others in the sample. This difference can be explained in terms of both the sample and the time frame utilized. All six firms

in the narrow scope in products group were firms in the aircraft industry concentrated on the military sales segment, and the results may have been skewed by the Reagan military buildup along with economic recession. When eliminating the aircraft industry, however, we find the pattern of the results to be the same as that for the PIMS sample.

The second set of hypotheses compares types of narrow scope firms. Hypothesis 2a states that firms with a narrow scope in both products and markets will outperform both firms with a narrow scope in products and firms with a narrow scope in markets. The first part of the hypothesis was not supported, inasmuch as firms with a narrow scope in products significantly outperformed firms with a narrow scope in both products and markets (M-W p=.004), But the second part of that hypothesis was supported at the .10 level, given that the firms with a narrow scope in both products and markets outperformed firms with a narrow scope in markets (M-W p=.08). Again, it is important to keep in mind the special characteristics of firms with a narrow scope in products within this particular sample. Hypothesis H2b was supported as firms with a narrow scope in products significantly outperformed firms with a narrow scope in markets (M-W p=.04).

PROCEDURES TO DEVELOP COMPETITIVE WEAPONS VARIABLES

As with the PIMS data, the competitive weapons variables in the study had been previously utilized before in strategy content research (Woo, 1979, Prescott,1983, Lawless and Finch, 1989). For consistency across industries, the variables were standarized by creating Z scores for each variable within the industries. The variables were then

aggregated across industries. Analysis of variance showed that there were no significant differences between variables across industries. Regression analysis was utilized to examine the relationship between competitive weapons and performance. Table 25 presents the regression analysis results, which indicate that the variables utilized explain more than 95 percent of the variance in the performance of the firms.

Table 25
Regression Analysis for Competitive Weapons Variables.
(Case Studies variables)

Variables	B	SeB	T	SignT
Revenue/employee	-.34	.162	-2.103	.0801
Receivables/Sales	1.38	.319	4.33	.0049
Inventory/Sales	-2.35	.530	-4.43	.0044
Research and D/Sales	-1.70	.702	-2.42	.0519
Capital Expenses/Sales	2.01	.935	2.150	.0751
Cost of goods S/S	-.089	-.299	-.701	.514
Advertising/Sales	-.116	-.42	-1.03	.3475
Labor Expenses/Sales	.056	.167	.379	.703
Constant	-.2353	.176	-1.312	.2345

F=27.24 p=.0005

Multiple R	=.9768
R Square	=.9578
Adj r Sq	=.9220
Std error	=.3466

DEVELOPMENT OF COMPETITIVE WEAPONS VARIABLES

Cluster analysis and discriminant analysis were used to isolate the competitive weapons utilized by firms. In addition 2-,3-,4-,and 5-cluster solutions were examined. The 4-cluster solution maximized the distance between cluster centers, and changes to 3- or 5- cluster solutions produced significant increases in errors sums of squares. The discriminant procedure correctly classified 85.79 percent of the cases, thus further attesting to the high reliability of the 4-cluster

solution. Because of the small size of the case studies sample and the missing data for some variables, a holdout sample was not utilized. Table 26 presents the cluster classifications, and the subsequent section examines the characteristics of each cluster.

Table 26
Variables and Cluster Classifications
(Case Studies Sample)

Variables

1-	Receivables/Sales	2-	Inventory/Sales
3-	Cost of Goods Sold/Sales	4-	Advertising/Sales
5-	Research and Development/Sales	6-	Capital expenses/Sales
7-	Labor Expenses/Sales	8	Revenue/employee

Cluster Variable#	1 Diff	2 Util	3 S in	4 M Low	C	F	p	SNK(0.05)
1-	-.573	1.17	.668	-.387		20.24	.000	3-4 2-1 4-2
2-	-.172	-.42	1.47	.134		3.14	.03	2-3
3-	.3526	-.76	-.28	.250		5.20	.003	4-2 1-2
4-	1.583	.576	.142	-.56		17.33	.000	2-4 1-4 1-3 1-2
5-	.66	-.35	2.02	-.150		6.41	.001	2-3 1-2 1-4 3-4 1-3
6-	1.077	.283	3.32	-.311		33.77	.000	1-4 1-2 1-3 3-4 2-3
7-	.5438	.214	-.25	-0.70		3.94	.02	4-3 1-3 2-3
8-	-.237	-.016	-.07	.104		.721	.539	
n	8	15	2	37				

Cluster #1: Differentiated Weapon

The firms following a differentiated strategy (n=8) were characterized by the high cost of goods sold -- significantly different than those of utility firms, high advertising over sales -- higher than all other groups, high research and and develpoment expenses over sales -- significantly higher than low cost and utility firms, and high capital and labor expenses -- significantly higher than all other groups. All of these factors were consistent with a strategy in which a firm wants to differentiate its products. In addition, the low revenues per employee yielded a strategy in which the most important dimension was not productivity but the production of a differentiated product.

Cluster #2: Low Cost Weapon

The firms in this group (n=37) scored below average on cost variables such as receivables, cost of goods sold, labor expenses, and capital expenses. Their costs were significantly lower than those of differentiating firms, and they scored below average on differentiation variables such as advertising and R&D. Indeed, those scores were significantly lower than those of differentiating and utility firms. Yet the firms in this group also exhibited above average revenues per employee.

Cluster #3: Utility (Cost + Differentiation) Weapon

As was consistent with a strategy of competing through both low cost and differentiation, the firms in this group (n=15) scored high on

the differentiation variables and low on the cost variables. They were above average in their advertising and labor expenses, which were significantly higher than those of stuck in the middle and low cost firms; but they were below average in cost of good sold (significantly lower than those of differentiating firms), below average in receivables and inventory (significanlty lower than those of stuck in the middle firms), below average in capital expenses (significantly lower than those of stuck in the middle and differentiating firms), and below average in revenue per employee.

Cluster #4: Stuck in the Middle Firms.

The firms in this group (n=2) did not follow a consistent strategy. They scored high on cost variables such as receivables and inventory, but they also exhibited below average employee productivity, and average advertising and R & D expenditures.

COMPETITIVE WEAPONS AND PERFORMANCE

Table 27 presents an analysis of variance and group means for the competitive weapons in the case studies sample. Hypothesis 3a was supported inasmuch as firms with competitive weapons of cost, differentiation, or utility outperformed firms with stuck in the middle weapons. Hypothesis H3b was also supported given that firms with utility (cost+differentiation) weapons (ROA= 24.68) significantly outperformed all others -- an outcome consistent with the results from the PIMS sample. Firms with a low cost strategy averaged a 13.6 ROA, and significantly outperformed stuck in the middle firms. Firms that

competed through differentiation averaged a 10.01 ROA, which was significantly higher than stuck in the middle firms. Stuck in the middle firms were the poorest performers in the sample, with a -30.20 ROA. Finally, hypothesis H3c was not supported, as there were no significant differences in the performance of firms with a cost or differentiation weapon.

Table 27
Analysis of Variance and Group Means for Competitive Weapons

		Group Means		
	Diff	Utility	S in M	Low Cost
ROA	10.01	24.68	-30.20	13.6
N	(7)	(15)	(2)	(36)

Group RIA=14.16
n =60

Analysis of Variance

Source of Variation	SSQ	DF	MSQ	F	p
Main Effects(C W)	5759.23	3	1919.74	11.27	.000
Residual	9541.69	56	170.38		
Total	15300.92	59	259.33		

Multiple R Sq =.376
Multiple R =.614

Post Hoc Comparisons - Scheffe (0.05)
F=11.27 p= .000
Significant Differences Between Groups:

	Diff	Utility	S in M	Low Cost
Diff	-			
Utility	*	-		
S in Middle	*	*	-	
Low Cost		*	*	-

SCOPE, COMPETITIVE WEAPONS, AND PERFORMANCE

Table 28 presents the results of the analysis of variance among scope, competitive weapons, and performance for the case studies sample. The results show significant main effects pertaining to both scope and competitive weapons for the firms in this sample. As with the PIMS sample, the case studies sample revealed no significant interactions between scope and competitive weapons; thus the individual comparisons were made with T-tests, and non parametric Mann-Whitney tests.

Hypothesis H4a states that firms with a broad scope and a competitive weapon of low cost, differentiation or utility will outperform both broad and narrow stuck in the middle firms. But this part of the hypothesis could not be tested because there were no broad stuck in the middle firms in this sample. Broad firms with weapons of low cost, differentiation, or utility did, however, outperform narrow scope stuck in the middle firms at the .10 level (M-W p=.06).

Hypothesis H4b was supported inasmuch as firms with a broad scope and a utility weapon outperformed firms with a broad scope and a cost or differentiation weapon (t=2.71 p=.01), and firms with a broad scope and a utility weapon outperformed firms with a narrow scope and a cost or differentiation weapon (t=3.50 p=.002).

Hypothesis H4c was not supported given that there were no significant differences either between broad scope firms with a low cost or differentiation weapon (t=-1.18 p=.252), or between broad scope firms with a differentiation weapon and narrow scope firms with a low cost weapon ((t=-.080 p=.433).

Hypothesis H4d received some support inasmuch as firms with a narrow scope and a weapon of low cost, differentiation, or utility outperformed narrow scope stuck in the middle firms at the .10 level (M-W p=.07). Hypothesis H4e was supported inasmuch as firms with a narrow scope and utility weapons significantly outperformed firms with a narrow scope and a cost or differentiation weapon (t=2.87 p=.008). Finally, hypothesis H4f was not supported given that there were no significant differences between firms with a narrow scope and a differentiation weapon and firms with a narrow scope and low cost weapons (M-W p=.528).

Overall, the results indicate that a utility competitive weapon was the most important determinant of high performance for this sample. Firms with a utility strategy outperformed all others by an average 6.04 ROA points.

Table 28
Analysis of Variance for Scope, Competitive Weapons, and Performance
(Case Studies Sample)

Group Means

		Competitive Weapons			
		Diff	Utility	S in M.	Low Cost
Scope	Broad	8.32	29.53	0	14.41
		(5)	(3)	(0)	(18)
	Narrow (P)	0	33.62	0	17.20
		(0)	(5)	(0)	(1)
	Narrow (M)	0	-2.90	0	0
		(0)	(4)	(0)	(0)
	Narrow (P&M)	14.25	21.64	-30.20	11.40
		(2)	(5)	(2)	(17)

Analysis of Variance

Source of Variation	SSQ	DF	MSQ	F	p
Main Effects	7246.53	6	1207.75	7.54	.000
Scope	1232.56	3	410.85	2.566	.03
Competitive W	4890.85	3	1630.28	10.18	.000
Two way Interaction	171.91	3	57.33	.358	.784
Explained	7418.53	9	824.28	5.14	.000
Residual	7846.14	49	160.12		

Table 29
Results of Study Hypotheses (Case Studies Sample)

		Support
H1	Firms that compete with a broad scope will outperform firms that compete with a narrow scope	NS
H2a	Firms with a narrow scope in both products and market will outperform firms with a narrow scope in products.	NS
	Firms with a narrow scope in both products and markets will outperform firms with a narrow scope in markets.	*
H2b	Firms with a narrow scope in products will will outperform firms with a narrow scope in markets.	*
H3a	Firms with clearly defined weapons (cost, differentiation, utility) will outperform firms stuck in the middle weapons	*
H3b	Firms utilizing utility weapons will outperform firms using all other strategies.	*
H3c	Firms utilizing differentiated weapons will outperform firms using cost weapons.	NS
H4a	Firms with broad scope and competitive weapons of cost, differentiation, or utility will outperform firms with a broad scope and stuck in the middle weapons.	NA
	Firms with a broad scope and competitive weapons of cost, differentiation, or utility will outperform firms with a narrow scope and stuck in the middle weapons.	*
H4b	Firms with a broad scope and utility weapons will outperform firms with a broad scope and cost or differentiation weapons.	*
	Firms with a broad scope and utility weapons will outperform firms with a narrow scope and cost or differentiation weapons.	*

(table continues)

Table 29 Cont.

H4c	Firms with a broad scope and differentiated weapons will outperform firms with a broad scope and cost weapons.	NS
	Firms with a broad scope and differentiated weapons will outperform firms with a narrow scope and cost weapons.	NS
H4d	Firms with a narrow scope and competitive weapons of cost, differentiation, or utility will outperform firms with a narrow scope and stuck in the middle weapons.	*
H4e	Firms with a narrow scope and utility weapons will outperform firms with a narrow scope and cost or differentiated weapons.	*
H4f	Firms with a narrow scope and differentiated weapons will outperform firms with a narrow scope and cost weapons.	NS

* - Supported
NS - Non-supported.
NA - Not available.

CHAPTER 6

CONCLUSIONS

This final chapter presents the conclusions of the study examining the relationship among scope, competitive weapons, and performance. The chapter is organized as follows: First, it discusses the results of the study and compares them to extant theory. Second, the chapter discusses methodological issues raised by the research, as well as the directions for future research. Finally, the chapter discusses the implications for business practice of this research.

RESEARCH FINDINGS AND RECONCILIATION WITH THEORY

The first set of findings deals with the comparison of broad and narrow scope firms. Throughout the PIMS analysis, firms with a broad scope (ROI=26.48) outperformed firms with a narrow scope (ROI=15.92). These results were to be expected given the characteristics of the study. In environments that are concentrated and mature, competition in the major market segments of the industry was expected to provide returns superior to those related to competition in a limited number of market segments (Prescott, 1983). In the latter markets, the market power provided by a broad scope has a higher bearing on performance than does the possible efficiency benefits provided by specialism (Carroll, 1984). However, it is also clear from the results that firms with a narrow scope can compete effectively even under less hospitable environmental characteristics, and that under special conditions, such

as competition with a utility weapon, narrow scope firms can expect to perform as well as broad scope firms.

With respect to broad and narrow scope firms, these results become more important when examined in the context of previous theory and research. Even in research such as Dess and Davis' (1984) and Woo's (1979), there is an apparent lack of empirical support for the relative effectiveness of narrow scope strategies. Woo's research examines "low market share firms" without taking into account different environments and without actually addressing the scope issue. Dess and Davis's analysis of competitive strategies and their empirically derived classification (which includes focusing firms) only addresses fragmented environments. The results of this study are important insofar as they show the possibility of effective narrow scope firms in environments that are mature and concentrated -- environments that would otherwise be among the least hospitable to competition by a narrow scope firm. These results are consistent with Carroll's (1984) argument that "specialist" firms should appear in all environments because they are a complement to generalist firms. They are also consistent with Prescott's (1983) research as it pertains to firms in mature industries, whereby differentiated market share dominating firms outperformed focus low cost firms in mature industries. There are major differences, however, between Prescott's research and the present study. Prescott found that in non-fragmented environments, focusing firms outperformed all other firms in the sample. This difference is primarily derived from the way in which the environment was examined. This study analyzed the environment as a multidimensional construct,

thereby allowing the examination of the firms under conditions of concentration and maturity at the same time. For the purposes of this study, concentration and maturity are two aspects of one environment construct. In Prescott's research, by contrast, these two dimensions were labeled as different environments, thus producing different results for mature and non-fragmented environments.

Though not significant, the results of the case studies sample with respect to broad and narrow scope firms were in the same direction, and, to some extent, corroborated the PIMS results: broad scope firms (ROA=15.03), outperformed firms with a narrow scope, (ROA=13.14). Differences between the results of the PIMS and case study samples serve to illuminate the need for multiple databases and multiple methods for gathering data on which to test the hypotheses. In the case studies sample, firms with a narrow scope in products outperformed broad scope firms. In the absence of other ways to test the hypotheses, this result could have been taken to mean that firms that compete with a narrow scope in products would be the better performers in the environments in question. However, the discrepancy between the results of the two samples prompted further investigation. This investigation showed that all the firms classified as having a narrow scope in products were firms in the aircraft industry that were competing in the military segment and had benefited from the military buildup in the early 1980's, at the beginning of the Reagan years. Further analysis revealed that, when the military aircraft segment was eliminated from the sample, the case studies results paralleled those of the PIMS analysis. The results also indicate that, thanks to the

Reagan buildup, the military segment entered a period of renewed growth. The implication is that other strategies may work more effectively in different stages of industry evolution.

A second issue of importance that emerged from the results pertains to consistency. The results show that firms that are consistently broad or consistently narrow (i.e. are broad or narrow in both dimensions) outperform firms that are broad in one dimension and narrow in another by an average 10.1 ROI points. These results are consistent with Carroll's analysis of narrow scope from the population ecology perspective. Carroll has argued that specialists and generalists will be better performers over time, and that those in between, which are not clear what they want to do, will fade. This argument is reinforced by the lack of intermediate scope firms in the case studies samples: either such firms have selected themselves out of those segments, or firms competing in those segments have failed.

The results are also consistent with Woo's (1979) notion of selective focus. Woo argues that, in order to be effective, focusing firms must be selective and discriminating in their choice of the right things to do, depending on the nature of product market environments. In concentrated, mature environments, firms have to make a decision regarding competition within either a broad array of product/market segments or specific product/market segments. As Hannan & Freeman (1989) have argued, "there is a trade-off between tolerance of widely varying conditions and capacity for high performance in particular segments" (p. 105). Over time, they further argue, specialism will increase survival rates. It is sensible to conclude that consistency

in scope is an important determinant of high performance in environments that are concentrated and mature.

The second issue of importance regarding types of narrow scope firms, is that, under environmental conditions such as those discussed in this study, firms with a narrow scope in products and markets or a narrow scope in products alone will significantly outperform those firms with a narrow scope in markets.

Firms with a narrow scope in both products and markets may be better performers because their degree of specialization allows them to target customers more effectively. Conversely, firms with a narrow scope in products might do better than firms with a narrow scope in markets because they are better able to defend competitive advantages against broad competitors in terms of particular products. Around such products, these firms can build defenses (e.g. specialized production systems, and patents) which are harder to build around particular types of customers.

Another issue of importance is that of competitive weapons. At this point, the similarity of the results for both samples is of paramount importance -- a fact that vouches for the validity of the theoretical constructs and procedures utilized. For both samples, firms classified as having clear strategies outperformed those firms classified as stuck in the middle. These results are consistent with prior empirical research (Chrisman, 1986; Dess & Davis, 1984), and with strategic management theory (Porter, 1980, 1985; Hofer & Schendel, 1978; Abell, 1980). Two of the basic tenets of strategic management are that the strategies of firms make a difference in performance, and

that firms with clear, consistent, and well executed strategies will perform better than those firms without such strategies.

The present study showed that firms with a utility strategy outperformed all others in both samples. This result is consistent with Chrisman's (1986) finding that utility strategies were more effective in the maturity and decline stages of industry evolution and less effective in the shakeout stage. The possibility of a strategy whereby firms could derive competitive advantages through both low cost and differentiation, has been raised theoretically by Wright (1987), Murray (1988), and Hill (1988), and shown empirically by Hambrick (1983a,b), Chrisman (1986), White (1986), and Sandberg (1986). Of particular interest, then, is the fact that, in the kind of markets examined by this study, firms with a utility strategy outperform all others. This finding contradicts Porter's (1985) assertions about the exclusive nature of strategies. Porter argued that, in order to execute strategies effectively, a firm would be better served by competing through either low cost or differentiation, but not through both. As the results indicate, in environments such as those under study, firms can derive competitive advantages by competing through low cost, differentiation, or both.

The reason for the success of utility strategies may be related to the fact that the environment specified in the study was mature and concentrated. Mature markets may allow the firms that have survived the shakeout stage to develop both cost and differentiation weapons, and to derive competitive advantages in both over time. Concentrated markets may provide leading firms with protection that allows them to

compete effectively in both low cost and differentiation. In an attempt to understand the characteristics of utility strategies, we must ask whether those firms evolved into their utility strategy after starting as either low cost or differentiated competitors, or whether they set out to be utility firms from the start. The answer would contribute to an assessment of the influence of environmental characteristics on the effectiveness of strategies. The fact that utility strategies are effective in environments such as the one in this study does not mean that they can be effective in all environments. In fact, it is unlikely that utility firms would outperform all others in growth and shakeout markets (Chrisman, 1986). Under those conditions, firms would probably not have enough time and resources to develop expertise in both low cost and differentiation.

These results are also consistent with Hill's (1988) assertion that the "simultaneous pursuit of differentiation and low cost strategies is most likely to be consistent with superior performance in mature industries where all experience curve economies have been exhausted and several firms have achieved a low cost position" (p. 411). According to Murray (1988), furthermore, since research has found the firms that compete through either low cost or differentiation outperform firms that are stuck in the middle, the combination of low cost and differentiation should result in even better performance.

The difficulties inherent in attaining competitive advantages in both low cost and differentiation are highlighted by the limited number of utility firms in the sample. Only 19 (3.3 percent) of those firms in the PIMS sample and 15 (19.1 percent) of those in the case studies

sample were classified as having a utility strategy. In addition, there were no firms with a narrow scope in both products and markets or a narrow scope in markets that competed with a utility strategy. Apparently, the risks involved in attempting a utility strategy are higher. While it is correct to say that firms can attain superior returns through an utility strategy, such a strategy is harder to accomplish: only a limited number of firms attain this objective, whereas the other firms end up as stuck in the middle. The results also indicate the benefits of competing through either a low cost or differentiation strategy. Indeed, both low cost firms and differentiating firms significantly outperformed stuck in the middle firms.

The identification of scope and competitive weapons in this study generally supports the classification developed by Chrisman, Hofer & Boulton (1988). Chrisman et al argue that advances in the field of strategic management require careful consideration of the fundamentals of classification, and that precision is needed in the development of theories and models. This study supports that notion by strengthening the links between conceptualization and measurement in strategy research, and between taxonomical research and empirical testing.

This study also examined both competitive weapons and scope in regard to performance. Significant main effects for both scope and competitive weapons point to the fact that a broad scope and a utility weapon are the prime determinants of superior performance in these environments. Firms with a broad scope and a utility strategy outperformed all others in the sample. This result, which is

consistent for both samples, helps to establish broad scope and utility as a valid strategic alternatives for firms.

Other than with a utility strategy, the results of this study indicate that all types of narrow scope firms are better performers with differentiated weapons. This finding is consistent with the notion that focus strategies should relay on uniqueness. According to Dess & Davis (1984), the characteristics that both managers and experts attach to focus strategies (e.g., new product development, and the maintenance of high inventory levels) clearly fall within the domain of differentiating firms. Defining the characteristics that focus strategies should have has always been a problem in strategy research. For example, White (1986) specifically excludes focus strategies from his analysis of the relationship among strategy, structure and performance because no unique organizational requirements can be postulated for focus strategies. The results of the present study likewise indicate that it may be harder for focus firms to compete with a low cost strategy in environments that are both concentrated and mature. In these environments such firms would more effectively compete by developing unique features in their products. This conclusion contradicts Prescott's finding that, in stable, non-fragmented environments, focus low cost firms were the best performers in the sample, whereas in mature markets, focus low cost firms significantly underperformed broad differentiated firms (the firms he calls differentiated market share domination). These differences may be attributable to two factors: First, Prescott treats non fragmented and mature environments as different environments,

whereas this study treats them as two dimensions of one environmental construct. Second, and this study examines three types of narrow scope strategies, whereas Prescott's analysis considers only focus low cost firms.

An added contribution of this study is that it helps define what a narrow scope (focus) strategy is (One of the problems present in the literature is the lack of clarity involved in measuring what constitutes a narrow scope strategy). Woo's seminal analysis of low market share firms, basically a counter argument to previous PIMS studies that proclaimed the merits of high market share, has been used to associate low market share with focus, despite the fact that the two are fundamentally different. Low market share does not mean that the firm is a narrow scope competitor. It could simply be a poor broad scope competitor. By the same token, focus firms do not need to have low market share. A firm can concentrate in a limited number of product/market segments in the industry, and still have a relatively high market share. The use in the case studies of the segments of the industry the firms compete in as the basis to define scope, is intrinsically related to the notion that a narrow scope strategy entails a choice by the firm of competing in specific product/market segments. An interesting result of the analysis is the lack of firms in the case sample that competed in an intermediate number of segments. All except one of the firms in the sample competed in segments that represented more than 60 percent of sales in the industry, or in segments that represented less than 40 percent of industry sales. This tends to confirm the notions of scope as choice by the firm, and of

selective focus. Firms in the sample made the decision to either compete in most of the markets or in a selective number of market segments. The results confirm the notion of classifying firms as either broad or narrow scope, and address Chrisman et al (1988) concerns about whether it is necessary to add a medium scope taxon to the strategy classification scheme. According to this results, that intermediate taxon may not be necessary.

METHODOLOGICAL ISSUES FROM THE RESEARCH

Four important methodological issues are raised by the design of this study: the use of both large database and case study samples, the multidimensional approach at measuring strategy and environmental constructs, the aid the study provides in testing existing theory, and the method it provides for measuring the scope of organizations. The following section examines each of those issues.

An important debate in strategic management research concerns the merits of large scale databases versus those of case studies (Sandberg, 1986). Proponents of large scale databases center their arguments on the generalizability of the results. That is, such results under the right conditions, can be generalized to similar types of firms and populations of firms. Conversely, proponents of case studies center their arguments on the explanatory power and the understanding of the underlying phenomena afforded by case studies. Harrigan (1983) proposed a compromise between the two types of research. Medium grained research, which is the use of multiple cases and statistical tests, provides an adequate balance between the two. Granted, medium

grained research is a valid methodology and important alternative for researchers to consider, but the methodology utilized in this study improves even more on the reliability and validity of the results. The use of both a large scale database and multiple case studies allows for the benefits of both types of research, but very few of the drawbacks. The large scale database accounts for in the generalizability of the results, and the utilization of multiple cases permits a better understanding of the phenomena.

The benefits that accrue from using both methods in this research are exemplified by the seemingly dissimilar results between the two samples regarding firms with a narrow scope in products. In the absence of the PIMS database, the study might have concluded that firms with a narrow scope in products performed better in the environment analyzed. The discrepancy between the results of the two methods prompted a further investigation of the two samples. This investigation showed that, for the case studies, all the firms classified as having a narrow scope in products were firms in the aircraft industry that had concentrated on military sales and had benefited from the significant increases in military spending during the first years of the Reagan administration. If the aircraft industry is eliminated from the sample, however, the pattern of performance for scope would be the same for the two samples, thus supporting the hypothesis that firms competing with a broad scope are the best performers in these environments. Thus it is apparent that specific knowledge about the industries in the case studies greatly aids the interpretation of the results.

Although it is difficult indeed to develop two sets of data, and to match the variables in the two sets, there are obvious benefits associated with the use of independent samples with different characteristics to test strategy hypotheses. The same conclusion is reached by Marshall & Buzzell(1990), who compared the PIMS database and the FTC line of business data. They concluded that, although both databases provided reliable data, there were problems in each that researchers should recognize, and by using both samples, the problems of each individually would be redressed. In short, the use of dual samples alleviates problems present in the samples and provides more reliable results.

A second methodological issue raised by the present study concerns the use of multidimensional constructs to measure both strategy and environment. Questions on strategy must be properly framed if the effects of intervening variables are to be accounted for, especially in terms of an industry's structural conditions. Hence, strategy researchers must understand not only that strategy must be examined under different environmental conditions, but also that environmental and strategy constructs are multidimensional in nature. When examining environments, researchers must not only concentrate on the stage of the product life cycle, but also on other dimensions of the environment, such as degree of industry concentration, degree of industry heterogeneity, and type of industry. Furthermore, they should also use research methods that allow for the capture of various dimensions simultaneously -- that is, for an examination of the relationship between strategy and performance under different environmental

conditions. The averaging of data across different industry environments can problematic if it hides key findings, as in the case of the military aircraft industry segment of this research. At this stage of development, the aim of strategy research should be to isolate particular circumstances (especially those relating to industry environments), and to analyze the workings of strategy under those circumstances. To that effect, Murray (1988) has stated that "it is important to build models linking external factors with appropriate internal responses" (p. 399) in order to help managers cope with the intensity of competition in markets and to assist them in becoming more attuned with the strategic implications of different environments. This consideration is especially important in the strategy field because, as Freeman & Boeker (1984), have argued "strategies are inherently multivariate and the observation of strategic phenomena requires a large number of observations" (p. 77). Thus strategic issues should be conceptualized in a way that is relevant to classes or populations of firms. In other words, strategists should study large numbers of firms in specific markets. Particular environments, as McKelvey (1982) has argued, should produce more homogeneous populations and allow more confidence when measuring within group similarities and between group differences important to strategy. Research needs to limit its examination to single industries or industries with very similar characteristics and to look intensively at the differences in strategy and performance of the firms within them.

This problem becomes more acute in light of contingency theory. Although it has become less of a problem in recent times, previous

researchers in the field have been prone to offer prescriptions that were supposed to work under all conditions, for phenomena the theory would recognize as being inherently contingent upon the circumstances and characteristics under which they occur. From a methodological standpoint, researchers should concentrate on providing and using research designs that allow for the examination of effective behavior under specific sets of conditions. Methodologies such as the combination of cluster analysis and analysis of variance allow researchers to take into account the multidimensional nature of constructs such as strategy, while at the same time permitting the testing and measuring of differences between groups.

The third methodological issue raised by the present study concerns its potential for testing extant theory. The study allows for the examination of new evidence, especially that relating to different types of narrow scope strategies; it also provides a way of linking taxonomical theory (Abell, 1980; Chrisman, Hofer, & Boulton, 1988; Porter, 1980, 1985; Wright, 1987) with empirical testing. Furthermore, it allows for the confirmation of theoretical traits, such as utility strategies, identified in previous research (Hambrick, 1983;Sandberg, 1986;Chrisman, 1986: Wright, 1987). In particular, its results support the notion that firms can derive competitive advantages through both low cost and differentiation.

Finally, the study provides a methodology for assessing the scope component of strategies. In the past, one of the major problems involved in determining what constituted narrow scope in firms was the lack of an adequate methodology for discovering when firms were

competing with narrow scope. Classifying firms in terms of the product/markets in which they compete (relative to the whole industry), provides a systematic method for assessing scope. This is also relevant to practice as the various segments identified are consistent with those recognized in the industries. Further research should be undertaken to assess the explanatory power of the scope measure under different conditions. The presence of a self reported measure from the PIMS database as well as the consistency between the results for the two samples, vouches for the validity of the scope measure and classification system utilized under conditions such those specified in the study.

LIMITATIONS OF THE STUDY

Five important limitations are inherent in the research design of this study: the use of cross-sectional research to examine the phenomena, the use of realized competitive strategies, the limitations presented by the environmental context utilized, the problems present with the use of the PIMS database, and the presence of self-selection for both samples. The following section addresses each limitation in detail.

The first limitation concerns the use of a cross-sectional research design. A longitudinal study would have been able to capture changes in both environments and strategy over time, but the characteristics of the PIMS SPI4 database, along with missing data in the case studies, precluded the use of longitudinal research in the study. As Woo (1979) has commented, cross-sectional research provides

only a static view of strategy and performance. Yet, the present research design does allow for an adequate examination of scope, competitive weapons, and performance; and it is particularly effective in analyzing areas (such as types of narrow scope strategies) for which there is a dearth of previous empirical research.

The second limitation of the study is pertains to the use of realized strategies, which preclude capture of the original intent of the strategist. Anderson & Paine (1984) have argued that a research design that does not include the goals of the firms (i.e., what the firms were trying to achieve when performance was measured), can lead to erroneous and simplistic conclusions. The absence of information regarding the strategic intentions of the firms is especially significant when firms with low performance are examined. Presumably, these firms did not set out to become low performers; but the study lacks a way to connect their original intention and reality. Intention is particularly important to an examination of competitive weapons. Scope is a less important consideration in this connection because it is highly unlikely that a firm would set out to be a narrow producer and end up as a broad scope competitor.

With respect to competitive weapons, the gap between intentions and reality is not supremely important to an examination of low cost or differentiated firms. It is unlikely that firms would set out to be differentiated and ended up as low cost producers, or viceversa. However, this gap does become more of a problem when analyzing stuck in the middle or utility firms. The original intentions of these two groups is an extremely important consideration. Did they set out to

execute other strategies and ended up as stuck in the middle or utility firms or was it their original intention to compete in those ways?

In terms of competitive weapons, a related limitation concerns the use of differentiation to denote uniqueness. The problem is that firms may have a different basis for differentiation, such as quality, research and development, or marketing. In the present study differentiation was weighted heavily on quality. As the research design did not allow for the classification of firms according to the type of differentiation; further research should examine the different ways in which firms differentiate on the basis of environment, and in relation to scope and performance.

A third limitation is associated with the environmental construct utilized. The conclusions of this research are applicable only to manufacturing firms in environments that are concentrated, mature, heterogeneous, and domestic. No conclusions can be derived from the research for other types of firms or other environment contexts. That issue, as well should be the purview of further research.

A fourth limitation concerns the use of the PIMS database. The businesses within the database are more dominant in their markets and more sophisticated than the universe of firms (Anderson & Paine, 1978). But this problem is alleviated by the use of the case studies, which revealed that the firms in environments such as the one utilized in the research had characteristics similar to those of firms in the PIMS sample. In this instance, the use of two different samples works to increase the confidence in the results.

A fifth and final limitation of the study is the presence of self-selection in both samples. First, as the study examined only surviving firms, it sheds no light about the relationship among scope, competitive weapons, and performance among failed companies, and the relationship between failure and the environment in which the firms competed. It is possible, that the factors that determine success are different than the factors that determine failure (Chrisman, 1986). Evidence was found, however, of the variance in the performance of the surviving firms in the sample. Second, the firms in both samples selected themselves into these samples in the sense that, the firms in the PIMS sample wanted to be included in the study, and those in case studies were firms that wanted to make their information public. The possible source of bias, then, is that the firms in the sample are relatively large publicly-held survivors. In other words, failed firms private firms, very small firms, and firms that do not make their information readily available are therefore not adequately represented in the sample -- an omission that becomes problematic if narrow scope firms are more likely to be smaller privately held firms or more likely to have failed. Indeed, the inclusion of such firms could alter the relationship among broad scope, narrow scope, and performance.

DIRECTIONS FOR FUTURE RESEARCH

There are specific paths to which this research leads in terms of future theoretical development and empirical testing. One such path pertains to the relationship among scope, competitive weapons, and performance under other environmental conditions. Another concerns

determining of what makes the difference between successful and unsuccessful focus firms. Yet another concerns the relationship between different competitive strategies and environments over time. This section also examines such issues as the ways in which utility strategies emerge, the conditions under which firms competing with intermediate scopes would be effective, and determination of the performance patterns among different types of differentiating firms. Finally, the section raises questions about whether the order of entry into the market can affect the relationship among scope, competitive weapons, and performance.

The first implication for future research lies in the determination of the relationship among scope, competitive weapons, and performance for other types of businesses and under different environment conditions. The next step, it follows, should be to examine the relationship among scope competitive weapons and performance under other environmental conditions and to compare those patterns with those found in this study for manufacturing firms in concentrated, mature, heterogeneous, domestic environments. Of special interest should be the examination of growth oriented, concentrated or fragmented environments. What are the relationships between scope and competitive weapons for those environments? Porter (1980) has argued that, in order to overcome fragmentation, firms should specialize in particular product types or segments, specialize in particular types of customers or types of orders, or focus on particular geographic segments. He also maintains that seeking domination is a potential problem in fragmented environments because the firm exposes itself to

inefficiencies and a lack of product differentiation. Following Porter's arguments, it may well be that narrow scope is a more appropriate strategy in fragmented markets, and that firms should broaden their scope as markets mature and become more concentrated. These results have important implications for new businesses in the same environments -- implications that could determine the appropriateness of particular strategies.

It is also important to determine the effectiveness of utility strategies in these environments, and whether there are stuck in the middle firms under the same conditions. It is possible that those two strategies are related to time elapsed in the markets, and thus would be more likely to be found in mature markets. Those notions are also related to the study of the relationship between competitive strategies and environments over time. Longitudinal research, though difficult with respect to data collection, should provide insights on how environments and strategies evolve over time, and how they affect each other.

Also of special importance is the determination of the relationship among scope, competitive weapons, and performance in service industries. Porter (1980) has argued that service industries tend to be fragmented. This research should have important implications for the economy of the United States, which in recent years has increased its reliance on the service sector. An added issue for future research should be the examination of the measurement of scope for service firms. Do we need to determine new ways to measure scope, and new ways of measuring "product" for service firms?

Future research should also examine what makes the difference between success and failure of narrow scope firms under particular environments. How effective can narrow scope firms be under each environmental condition? The present study has explored the relative merits of different types of scope, but further research is needed. Porter's argument regarding fragmented industries points to the possibility that narrow scope firms will be highly successful in fragmented environments.

Two other questions of importance for future research concern determination of how utility strategies emerge, and how different types of differentiated strategies affect the relationship between scope and performance. Can utility strategies be effective in all environments? And how do they emerge? Are they the result of a priori decisions by the firm to compete as both a low cost and a differentiating firm, or are they the result of evolution from low cost or differentiation strategies? In research designed to examine the emergence of utility strategies, methodologies that tie the strategic intentions of the firms and the actual outcomes would be of primary importance.

Further attention should also be placed on the different types of differentiation that a firm can utilize. The research design in this case should not only incorporate the different ways in which firms differentiate but also examine the relationship among scope, performance, and various types of differentiation under several environmental conditions. Such an analysis would indeed provide a more complete picture of the differentiation strategies firms might as well

as the resources needed to compete eefectively in specific environments.

Although the present study shows a clear dichotomy between narrow and broad scope, it would be interesting to determine not only the relative effectiveness of broad and narrow scope firms under other conditions of the environment, but also whether there can be effective intermediate scope firms and under which conditions of the environment they would be effective. Such research would serve to round out our understanding of the scope component of competitive strategies and its relationship to the performance of firms under different environments.

A final question for further research is whether there is a relationship among the order of entry of firms to the market, competitive strategies, and performance. Prior studies have examined the relationship between order of market entry and market share of firms (Miller, Gardner, & Wilson, 1988; Robinson & Fornell, 1986; Lillien & Yoon, 1990), but there have been few studies that have examined the relationship between order of entry to the industry and financial performance of firms. This issue is now more important given the results of the present study. Could the order of entry in the industry affect the future performance of narrow scope firms?. It may well be that by entering early into the industry, narrow scope firms can increase their long term performance. Similarly, does the time of entry in the market affect the relative effectiveness of utility weapons? Firms with utility weapons that enter early in the market may indeed have time to develop advantages in terms of both cost and differentiation, whereas those that enter late may not. Further

research should also examine the relationship among order of market entry, scope, competitive weapons, and performance under other conditions of the environment. The relationship between entry and competitive strategies in fragmented and growth environments, for example, may be different from the relationship between those factors in concentrated and mature environments. The research by Lillien & Yoon (1990) does in fact suggest that the growth and mature stages differ in terms of the pattern for success in early entry.

IMPLICATIONS FOR MANAGERIAL PRACTICE

This section presents the implications for managerial practice of the study of competitive strategies of firms in environments that are concentrated, mature, heterogeneous and domestic. It examines those implications in terms of scope, and competitive weapons.

In terms of scope, it appears that broad scope competition (i.e., competing, in most of the major product/markets segments of the industry) may be the best route toward success. Even those firms that are stuck in the middle in terms of competitive weapons, can expect to do as well as the average firm in the industry, if they compete with a broad scope.

The second issue relating to scope is one of issue of consistency. There are benefits to be gained by being consistent in scope. Firms that are either broad or narrow in both products and markets do significantly better in environments such as the one examined by this research than firms that are broad in one dimension and narrow in another. Moreover, firms with a narrow scope in both products and

markets or in products alone perform significantly better than firms with a narrow scope only in markets. One reason is that product niches -- which allow for the building of mobility or entry barriers such as patents, specialized production systems, and brand recognition -- may be easier to protect than market niches in concentrated and mature environments.

In terms of competitive weapons, there are two important implications for managers: first, in the environments under study here, utility strategies, when implemented, can translate into superior performance. However, higher risks may be involved in attempting a utility strategy: as the results of this study indicate, a very limited number of firms are able to successfully utilize utility weapons. Managers may thus want to weigh the extra benefits associated with utility weapons against the higher risks of failure involved.

Second, clarity in the definition of strategies can translate into superior performance. Utility, low cost, or differentiating strategies should yield performance better than that of stuck in the middle firms. Moreover, as there are no differences between the performance of low cost firms and that of differentiating firms, both weapons should provide returns higher than those of stuck in the middle firms. The choice between one weapon or the other should be made by taking into account the distinctive competences of the firms in question. Either choice, when well executed, should provide above average returns.

APPENDIX A

THE BREAKFAST CEREALS INDUSTRY

This industry case examines the strategies and performance of firms in the breakfast cereals industry (SIC code 2043), between 1982 and 1986. Since the objective of this dissertation is to examine the relationship among scope, competitive weapons and performance, the examination of the breakfast cereal industry will center around those issues. The time period provides consistency in the comparisons and aggregation of the industries to be examined in the study.

The examination of the breakfast cereals industry is organized as follows: first, an overview and historical perspective of the industry will be provided, followed by an examination of the product and market segments in the industry, the competitive environment and finally an examination of the strategies and performance of each competitor in the industry.

OVERVIEW AND HISTORICAL PERSPECTIVE

The breakfast cereals industry (SIC Code 2043) includes both hot and ready to eat (RTE) breakfast cereals. The industry has been around since the 1890's with very little variations in the fundamentals of the product. Kellogg's and Post trace their history as health oriented food companies to the end of the 19th century. The other big manufacturer in the industry, General Mills, entered the breakfast cereals industry in the 1940's, with a new way of manufacturing cereals, by extrusion, developed by their R & D labs. Quaker Oats,

the market leader in the more traditional hot cereals market also traces its beginnings to the early 20th century.

In the early 1940's hot cereals represented 56 percent of all breakfast cereals sales, vs. 44 percent for RTE cereals (see Table 30). Those numbers more than reversed in the two decades that followed, with hot cereals representing on the average 15 percent of sales vs. 85 percent for RTE cereals. The most important factors in enacting those changes were the convenience of use and the easy satisfaction of nutritional requirements that RTE cereals provided. This, coupled with changes in the structure of the American family dictated the change from the harder to prepare hot cereals to the easy to use RTE.

Industry sales for the 1982-86 period averaged $4.5 billion a year, of which RTE cereal sales were $4 billion and hot cereals $500 million. Although the growth category in the industry had long been presweetened cereals, first introduced in the 1940's, in the seventies and eighties the growth market was the Natural/Health oriented cereals, targeted to adults 25 to 49, which have shown a preference toward high fiver and granola cereals. In the same period the decline in sales of hot cereals stopped due to technological changes that have simplified the burdensome chore of preparing hot cereals. The introduction of the microwave breathed new life into that segment of the industry.

Mayor competitors in the breakfast cereals industry include Kellogg's with 40 percent of industry sales in RTE cereals, General Mills (23% of RTE, 14 Percent of Hot), Quaker Oats (65 % of Hot, 8% of RTE), Nabisco (4% of RTE, 11 Percent of Hot), and Ralston Purina (5.5% of RTE).

The major product segments in the industry are: Presweetened products, which constitute 35 percent of the market, unsweetened/High protein fortified products, which constitute 18 percent of industry sales, oats and rice based RTE cereals, which constitute 10 percent of industry sales, bran and wheat germ products, which constitute 16 percent of industry sales, natural/granola products, which constitute 9 percent of industry sales, and hot cereals, which constitute 12 percent of industry sales. The major market segments in the industry are: Children oriented cereals, which constitute 40 percent of the market, all family cereals, which constitute 26 percent of industry sales, health oriented cereals, which constitute 24 percent of industry sales, and generics/private label/institutional sales, which constitute 10 percent of industry sales. Tables 31 and 32 present product and market segments for the industry, respectively.

MARKET STRUCTURE

The breakfast cereals industry has one of the highest 4 firm concentration ratios for 4 level SIC code firms, with an average of 90 percent for the 1982-86 period. The presence of such a high concentration ratio, which has basically stayed the same since the early sixties, combined with other perceived barriers to entry, such as an exaggerated product proliferation, prompted the Federal Trade Commission to bring an antitrust suit against the four biggest manufacturers in the industry: Kellogg, General Mills, General Foods, and Quaker Oats. In 1981 the courts decided that the firms had not committed any wrongdoing.

The very nature of the structure of the market conspired to bring the charges about. With such a high percentage of industry sales, the big four could exert power over retailers to gain shelf space and crowd out competitors. Furthermore, not only could the firms demand more shelf space, but they could make sure they got the shelf space: Middle of the aisle at eye level, making it more unlikely that customers would acquaint themselves with the products of other less known competitors.

The tremendous proliferation of products in the industry was also an important consideration in the case. This product proliferation acted as a barrier to entry by allowing the leading producers to cover all niches in the market. For the 1982-86 period there were over 90 different brands in the industry, with Kellogg's Corn Flakes the market leader with 6.8 percent of the market, in terms of pounds sold (General Mills' Cherrios was the dollar sales leader with 4.7 percent of all dollar sales), while the #10 brand, General Mills' Honey Nut Cherrios had a 2.8 percent pound market share.

The combination of concentration and brand proliferation in the industry translated into barriers to entry in the industry, Those barriers made it harder to acquire significant market share to compete against the big eight cereal firms. Although its was not easy to enter the industry, competition with even a limited market share could be extremely profitable in the industry. A popular rule of thumb in the 1970's was that 1/10th of one percent in market share in the industry translated roughly to one million in operating profits for the firm per year.

The Breakfast Cereals industry is a mature one. Growth in the industry did not significantly outpace GNP in real terms for the 1982-86 period. The industry grew at an inflation adjusted rate of 3.3 percent annually for the 1982-86 period (US Industrial Outlook 1989. p. 39-13). The natural cereal boom of the seventies breathed new life into the industry, but this abnormal growth has receded leaving a period of limited but stable growth.

In terms of the international vs domestic perspective, the industry clearly falls within the cutoff points previously established in the study for a domestic industry (Value of exports +imports $\leq$ 30 percent of industry sales). The value of exports plus imports in the breakfast cereal industry represented 1.1 percent of total sales in the industry, which certainly allows for its classification as a domestic industry.

In terms of heterogeneity, for the 1982-86 period, the industry averaged advertising to sales ratios of over 5.5 percent, well over the 3.8 percent average of all consumer foods producers.

Other variables that can be used to asses the degree of heterogeneity in the industry include the number of brand names in the industry and the magnitude of pricing differences. The chapter previously examined the issue of brand proliferation. The presence of over 90 brands, manufacturers with different products and technologies,and products aimed at different target markets also provide support for the notion that the industry is heterogeneous.

The existence of pricing variances, their magnitude, and the degree of competition in the industry, are also important variables

when determining if the industry is heterogeneous. The main proof of the existence of competition in the industry is the heavy advertising expenditures of competitors in the industry. In terms of pricing, although firms in the industry have followed Kellogg's directives in terms of price leadership, an examination of products in the industry shows sizable price differences. Attesting to that is the fact that although Kellogg's Corn Flakes is the #1 brand in the industry in terms of pounds sold, it is only the #3 brand in term of dollar sales, behind Cherrios and Frosted Flakes. The comparison of the top ten brands in terms of pound and dollar sales yields different maps of brands. The market leaders in terms of dollars are not the same market leaders in terms of volume sold. Those differences could only be attributed to differences in prices in the industry. The preponderance of evidence then points to the notion of the Breakfast Cereal industry being heterogeneous.

PRODUCTS AND MARKETS

Given the diversity of products and markets in the industry, the number of firms that compete in all product segments is limited. Competition in the industry tends to concentrate on the largest segments in the industry.

The products in the industry vary between RTE and hot cereals. RTE cereals are mainly made from corn, wheat, and rice, or in the case of natural cereals from bran, granola or wheat germ.

Changes in the technology utilized yields different products from the same raw materials. Corn based products can be milled and toasted,

extruded, puffed or sweetened and the combinations will yield different Breakfast Cereals products. The apparent brand proliferation in the industry is a function of this. A simple change in the technology or mix of ingredients utilized yields products with different flavors and texture, which can be marketed as entirely different products.

Presweetened products outsell all others in the industry, with 35 percent of all sales. Presweetened products are mainly targeted at children. Recently, manufacturers seem to be caught in a bind because of parental concerns about nutrition and advertisements of presweetened cereals aimed at children. Around 1985 manufacturers began targeting presweetened cereal to adults, specially young adults that had grown up consuming presweetened cereals, with advertising highlighting the childhood feelings and memories that presweetened cereals would bring.

Unsweetened, highly fortified, high protein products constitute 18 percent of the market. Unsweetened cereals are made from a variety of products and raw materials, and targeted to action oriented teenagers and young adults. The emphasis is put on the nutritional content of the products (e.g. 100 percent of the daily requirements vitamins and minerals). The introduction of nutritional cereals goes back to the 1950's, and have been used by the industry as a marketing tool: only those cereals that are advertised based on nutritional contents are fortified, even though making all cereals fortified would easy for the manufacturers.

Bran and wheat germ products constitute 18 percent of the market. Their appearing in the market predates the natural cereals boom of the 1970's. Bran based products are usually combined with fruits and the

nutritional value is also highlighted. Oats and rice based RTE cereals constitute 10 percent of the market, and it is one of the categories that is growing faster in the industry.

Natural cereals and granola based products constitute 9 percent of industry sales. Although granola breakfast cereals were introduced in the early 1900's, the explosion in consumption of granola is related to the increase in health awareness by consumers. Consequently, granola cererals are primarily distributed through organic food stores. At the end of the 1982-1986 period, the lines were crisscrossing, with new combinations of bran, granola, and other cereals, with fruits and nuts, which brought a richer variety to natural breakfast cereals.

The oldest Breakfast Cereals are hot cereals. Hot cereals constitute 12 percent of the breakfast cereal market. These cereals are made from on oats or wheat, which are consumed nationwide, or hominy grits, which are consumed regionally. The microwave has breathed new life into the hot cereal market by reducing the time needed to prepare hot cereals, allowing them to fit within the spectrum of modern American life. New combinations with fruits and nuts have also surfaced, as competition in these segments begins to heat up. Table 33 examines the different products in the markets and the size of the markets. Table 34 presents per capita RTE cereals consumption by different age groups. The most important segment of the breakfast cereal market is the children market. Although not expected to grow as fast as the adult and over 50 markets (see table 35), children under 17 on the average consumed 39.2 pounds of breakfast cereal per year, 40 percent of industry sales. An important area of the segment is the

licensed presweetened cereals. Licensed presweetened cereals constitute 10 percent of industry sales, and with natural cereals were the growing segments of the market in the 82-86 period. Licensed presweetened cereals associate the cereal with cartoons, video games, and other forms of entertainment to which children feel attached. The attachment is supposedly transmitted to the cereal increasing product sales. The combination of licensed presweetened cereals with advertising, and their high sugar content and low nutritional value have prompted protests from groups like Action for Children Television (ACT), which have attacked licensed presweetened cereals as nutritionally lacking and oversold, and have cast the specter of regulation in the industry.

The all family segment constitutes 26 percent of industry sales and is constituted basically by highly fortified and nutritionally safe cereals. The appeal from the Health oriented segment has to some extent translated to the all family segment, resulting in all family cereals being advertised for their health benefits from 1985 and on.

The health oriented segment went on from being a California fad of the 1960's to sales encompassing 24 percent of the market. New cereal introductions have mainly concentrated on this segment and in the children segment since the mid 1980's, and new flavors and raw materials combinations have fueled the growth, attempting to make the products not only good for health reasons, but also better in flavor and taste.

Finally, private label, generics and institutional sales represent 10 percent of industry sales. After going as high as 15 percent of

industry sales during the inflationary early 80's, which made buyers more price conscious, private label and generic sales have stabilized at around 10 percent of the market, and still provide an alternative for the price conscious buyer. Table 32 provides an examination of the market segments in the breakfast cereals industry.

COMPETITIVE ENVIRONMENT

The competitive environment of the industry in 1982 was different than the competitive environment at the end of 1986. The early years of the period were affected by the high inflation rates that had an important bearing on the fortunes of the firms in the industry. The presence of high inflation made clients more price sensitive and more likely to purchase generic cereals, as a result generic brands went on to acquire almost 15 percent of industry sales. The later part of the period, when the recession was over, saw the share of generic cereals reduced to around 10 percent. The influx of generic cereals is of such importance that is credited with the reduction of around 5 percent market share of market leader Kellogg from 43 percent in 1978 to around 38 percent in 1982.

An important feature of the early period was the advent in force of presweetened licensed cereals aimed at children. With the laisse-fare attitude of the Reagan Administration's FCC toward the tie in between advertising and products for children, cereal makers

exploited the use of licensed presweetened cereals that were tied to games, toys, or cartoons, which tended to created an immediate rapport for the cereals because the children were already familiar with the toys or games. The licensed presweetened cereals went on to claim 10 percent of the market, but also brought problems. The life span of the cereal was related to the amount of interest in the toy or cartoon. As soon as interest waned, so did the interest in the cereal. Thus licensed presweetened were cereals with a shorter life span, higher advertising and licensing costs, and with the inherent costs of retooling and changing that arose from cereals with shorter life spans.

The competitive environment was also affected by changes in the demographics of the consumers. While the under 13 customer segment, which constitutes the biggest chunk of Breakfast cereals consumers was constantly declining, the 19 to 49 segment was increasing. This changes brought a shift in emphasis of the manufacturers from the kid segment to the adult/young adult segments. This shift was fueled by a reduction in the inflation rate and a "return" to differentiation through advertising. The advertising to sales ratios of the major producers went back to the pre inflation levels.

Although the industry as a whole grew for the 1982-1986 at the pace of the overall economy, growth within the different segments of the industry was not equal, with the children segment lagging in growth, while the health and all family segments paced the growth of the industry.

Because the industry serves a multitude of small buyers, buyer power in the industry is very limited. Notwithstanding the high

concentration rate of the industry, there is a high degree of rivalry in the industry, witnessed by the encroachment of generic cereals in the early part of the period and the forceful response of firms in the industry. The high advertising to sales ratios in the industry also serve as a reminder of the degree of rivalry in the industry.

Although different technologies are used in the industry, technology is not a source of differentiation in the industry because all competitors have access to and the capacity to manufacture the different products in the industry. The basis of competition differs by segments in the industry. While in the children segment the basis for competition depends on flavor, taste, and the ability to associate the products with people or toys easily identifiable by children, in the adult segment the important characteristic is nutrition and ease of preparation. In the health segment the health benefits of consuming the product, low cholesterol, low sodium, regularity, are the ones touted.

Entry in the industry is restricted by the amount of advertising needed to build a following, and the amount of shelf space available in supermarkets, which is not much. Those two variables combine to make the cost of entry extremely high.

COMPETITORS

Competition in the breakfast cereal industry revolves around the biggest 8 makers in the industry, which control over 97 percent of industry sales. These large producers tend to fill most of the

product/market segments in the industry, while the rest of the firms in the industry mostly concentrate on specific market segments.

These differences also translate to differences in strategies. While the big 8 (with the exception of Ralston Purina) relay mostly on differentiation of their products through advertising, the rest of the firms in the industry rely on exploiting specific niches or in low cost generic or private label sales.

Through the early part of the 1982-1986 period, the producers of generics saw their fortunes rise with the high inflation that gripped the period. The later part of the period saw a return of interest in branded products and a declining interest in generics.

Even within the big 8 and their strong emphasis on advertising, there are differences in terms of strategy and in terms of the product/Market segments emphasized. The following section, which highlights the characteristics of each firm in the industry, will clarify some of those differences.

Kellogg

The market share and price leader in the industry, Kellogg was the preeminent full line supplier of breakfast cereals in the US with an average market share of 39 percent between 1982 and 1986. The firm also averaged a 33.7 percent return on equity, and a 27.23 percent return on investment, one of the best performance in the industry for the period. Although Kellogg has ventured outside the Breakfast

Cereals industry (Mrs Smith and Salada foods), domestic sales of RTE cereals represented over 60 percent of Kellogg's operating profits.

One of the keys to Kellogg's business strategy is its commitment to advertising. During the inflationary times that deeply affected branded cereals, Kellogg doubled its advertising budget, and the market share erosion caused by generics was finally contained. During the 1982-1986 period Kellogg's advertising to sales ratios have been as high as 15 percent with an average of around 10 percent.

In addition to advertising, Kellogg puts tremendous emphasis on manufacturing and factory automation. The biggest push in the company at the end of the period was toward acquiring technological leadership to allow the firm to control costs and produce quality products, which go hand in hand with the firm's two main objectives of leadership in advertising and emphasis on quality value added products. The company strategy calls for producing high quality products at the lowest cost possible. Consistent with these objectives the firm has outspent its rivals in both advertising and R & D. (1.1 percent of sales to General Mills 0.7 percent). Consistent with their strategy of technological leadership, in 1987 Kellogg opened the world's most technologically advanced breakfast cereals factory. The new factory is totally automated, and would allow the firm to better control costs and at the same time produce a better quality product.

Being the largest producer in the industry, Kellogg competes in most product/market segments in the industry. Two exceptions to this rule are the licensed presweetened cereals and hot cereals. In licensed presweetened cereals, after dabbling with a cereal called

C3PO, the company decided that it did not want to contend with the higher costs and shorter shelf life associated with licensed presweetened cereals. In hot cereals, the firm did not have the historical attachment to the segment that General Mills and Quaker Oats have, thus the firm has failed to cash on the rebirth of the segment during the 1982-86 period. The company competes in product segments that represent 88 percent of industry sales and in market segments that represent 90 percent of industry sales.

Kellogg competes in product/market segments representing almost 80 percent of sales in the industry, has 4 of the top ten cereals in the industry, and is widely recognized as the pricing leader in the industry. Tables 36 and 37 provide financial data for Kellogg, while Tables 38 and 39 provide market share data for the company.

General Mills

For General Mills, second in terms of market share in the industry with an average 22 percent in the 1982-1986 period, the secret of getting good returns is to position the company to compete in the right market segments. Although more diversified than Kellogg, its consumer foods division, home of the Big G Breakfast Cereals division, represents 66 percent of firm's sales and 75 percent of operating profits. The company has the leading cereal in the market in terms of dollar sales, Cherrios.

The company's goal is to be first or second in all the market segments it competes in. The business strategy of the company calls

for General Mills to be a marketing company whose basic aim is to satisfy customer needs: produce products that consumers view as better than their competitors offerings. The firm has spent heavily in advertising, with an average advertising to sales ratio of about 6.4 percent. Perhaps due to its emphasis on advertising and promotion, General Mills has a high cost structure: Overhead represents around 28 percent of sales, one of the highest ratios in the industry.

The company sees itself as an innovator in the industry, and for a long time the company designed and built most of its machinery, venturing into designing and manufacturing even missile guidance systems. In the breakfast cereal industry the company pioneered the use of extrusion to make cereals and the use of product extensions to prolong the life cycle of products, and was among the first firms to enter the health segment of the industry. An example of GM's innovativeness is its experience in the hot cereals segment. For years the company had floundered between the children and geriatric segments without a clear direction. With the rebirth of the hot cereals segment the company took charge and repackaged their cereal as Total and targeted it to the health and all family segments of the industry, enabling the company to capture sizable market share in the segment in only two years.

Financially, the company has averaged a 15.46 percent return on equity, 18.5 percent below industry averages, a 11.04 percent return on investment, 21.9 percent below industry averages, and a 6 percent return on assets, 32.1 percent below industry averages. Its 20+ percent market share average puts it solidly in 2nd place in the industry

behind Kellogg. The company has two of the top ten cereals in the industry, competes in market segments that represent 90 percent of industry sales and product segments that represent 100 percent of industry sales, one of the broadest of firms in the industry. The company also has a 14 percent market share in hot cereals, behind the leader Quaker Oats. Tables 36 and 37 presents financial data for General Mills. Table 40 presents market share data.

Quaker Oats Co

From their 19th century beginnings as a oats manufacturer, Quaker Oats has diversified into a company that manufactures and sells both Hot and RTE cereals. The main emphasis still is on the Hot Cereals, were the company holds a commanding market share lead, with around 60 percent of the market. Their RTE cereals averaged an 8.5 market share for the 1982-1986 period.

The company's strategy is based on its strong marketing orientation. In the company's view the best way to create value is to have strong franchises with leading market shares. The company aims to win by using strong marketing techniques. Within the company and the industry this marketing orientation is widely recognized. It has been said that even employees on the loading docks of the company recognize that the prime driver behind the company is marketing. Company's advertising expenditures, however, constituted only 5.2 percent of sales, slightly below the average in the industry. The company also believes in differentiating itself from competitors by developing new

products. Developing new products also creates partnerships with consumers and creates brand loyalty.

Although Quaker is a diversified manufacturer, the US grocery product group provides 66 percent of the firm's operating income and 58 percent of sales.

The company's early involvement with the hot cereals segment has meant that the segment has become one of the most profitable and growth oriented segments in the company. But the company has also a sizable presence in RTE cereals. The company produces puffed wheat and rice products and their main licensed presweetened cereal is the number one licensed presweetened with an average 2.9 percent dollar market share and is the ninth best cereal seller overall. The company is also the number one granola breakfast bars producer in the industry,with 43 percent of the market and, has a sizable health food business with 100 percent natural cereal.

Table 41 presents market share data on Quaker RTE cereals.

Overall the company competes in product segments which represent 100 percent of industry sales. and in market segments which represent 90 percent of industry sales.

The company's performance has been around industry averages with a 19.42 percent return on equity, 1.9 percent above industry averages, a 15.34 percent average return on investment, 8.4 percent above industry averages, and a 8.5 percent return on assets, 3.8 percent below industry averages for the 1982-1986 period. Tables 36 and 37 present financial data for Quaker.

General Foods

Founded in 1880, General Foods' Post division is one of the oldest breakfast cereals makers. General Foods is one the most diversified of all cereal makers, but the company's packaged foods division accounted for 42 percent of the company's sales and 60 percent of operating profits.

For a long time the Post division was number two in the market, but in recent years the division has lost some of its luster, and seen its market share erode to an average of 14 percent for the 1982-1986 period.

The company competes strongly in all segments of the industry except the generic and hot cereals segments, but in trying to compete strongly in all segments, the company has failed to become a leader in any. In the past their approach for competing in the cereal industry has been to promote the Post name, which is recognized as one of the most venerable names in the industry, but in doing so the company departed from the norm in the industry of promoting the characteristics of the products. The firm has not been responsive to changes in the market, and during the 1982-1986 period shifted its strategy from margin protection to volume building. In 1985 the company was acquired by Philip Morris, long recognized as a marketing leader in the tobacco industry, which is expected to bring changes to the strategy of the firm.

General Foods it known for having a large organization. Its overhead was an astounding 32 percent, by far the highest of the industry.

The firm averaged a 17.17 return on equity, 6.9 percent below industry averages, a 14.05 return on investment, .7 percent below industry averages, and a 6.8 percent return on assets, 23.1 percent below industry averages for the 1982-1986 period. Tables 36 and 37 present financial data for General Foods.

In Raisin Bran, Post has the number two bran cereal and the number 7 cereal in sales overall. Table 42 presents a complete list of Post's RTE cereals.

The company competes in product segments that represent 88 percent of industry sales, and in market segments that represent 90 percent of industry sales.

Ralston Purina

Better known for its pet food business, Ralston Purina has a sizable presence in the breakfast cereals market. The company's Chex family of cereals is a good seller in the industry, but its is generic and private label sales that best characterizes Ralston's strategy in the industry. During the inflation of the early eighties, the firm was the primary beneficiary of the boom in generic cereals. This emphasis on generics is complemented by the firm's low cost operations. Its overhead is only 12.9 percent of sales, by far the lowest among the big cereal makers. This an integral part of the company's business

strategy which calls for keeping overhead costs and bureaucratic interference low. The company believes it will prosper in competitive environments in which it operates by being a better managed company. To its generic sales, the company adds a healthy private label business that makes the firm one of the most important private label producers in the industry. Consumer and Pet foods represented 67 percent of company sales and 79 percent of operating income

The company's market share hovered around 6 percent for the 1982-1986, with its Chex cereal the #5 cereal in the industry, while the firm's Donkey Kong in the #2 licensed presweetened cereal. Ralston's advertising to sales ratio was around 8 percent for the period, but that includes its heavily advertised pet foods division. Table 43 presents Ralston's RTE cereals.

Ralston competes in product segments which represent 78 percent of industry sales. And in market segments which represent 100 percent of industry sales.

Ralston has performed better than the average of the industry, with a 21.64 average return on equity, 13.7 percent above industry averages, a 13.6 percent average return on investment, 3.1 percent below industry averages, and a 9.4 percent return on assets 6.33 percent above industry averages. Tables 36 and 37 present financial data for Ralston Purina.

Nabisco

An extremely conservative company, Nabisco has only one product in RTE, Shredded Wheat, with a 3.3 percent market share, and one hot cereal, Cream of Wheat, with 9 percent market share, and Mix an' Eat hot cereals. Even with this limited presence in cereals, cereals represented 12 percent of Nabisco's operating profits. The company spends around $35 million a year in advertising.

The company's strategy calls for maintaining a low cost supplier status in the industry, and for strong merchandising and marketing activities.

In 1985 the company was acquired by R.J. Reynolds, and while in the past the company has refrained from tampering with its Shredded Wheat, new varieties of the product began to appear after 1985, a sign of RJR marketing influence and its strategy of creating brand extensions.

Financially, the company averaged a 18.7 return on equity, 1.7 percent below industry averages, a 13.7 percent return on equity, 3.1 percent below industry averages, and a 8.4 percent return on assets, 8.4 percent below industry averages, for the period. Tables 36 and 37 present financial data for Nabisco.

Nabisco products are geared toward the high nutrition and hot cereal product segments. The company competes in product segments that represent 30 percent of industry sales, and in market segments that represent 26 percent of industry sales.

Curtice Burns Foods

Curtice Burns Foods is an integrated producer of private label cereals and regional brand names. The company has a very strong presence in institutional sales, generic, and private label sales, challenging segment leader Ralston Purina.

In the early eighties, the company acquired the assets of the National Oats Co., giving the company a presence in the hot cereals market.

The company's strategy calls for the development of strong regional brands. Even though the company has a strong presence in generics, the company also has an important branded products segment. The company also concentrates on low per capita food categories, where the overall sales are lower, but the potential for being the market leader is higher, and where margins are higher.

A diversified food manufacturer, cereals represent 7 percent of company sales. Financially, the company averaged a 17.2 percent return on equity, 9.6 percent below industry averages, a 5.6 percent return on investment, 62.19 percent below industry averages, and a 3.4 percent return on assets, 72.8 percent below industry averages. Tables 36 and 37 present C.B. Foods financial data.

Curtice Burns Foods competes in product segments that represent 75 percent of industry sales. And in market segments which represent 76 percent of industry sales.

Grist Mills Co

Grist is a generic name which has been used in the past to signify firms that would mill wheat under contract from producers. As its name denotes, the firm' main business lies on the manufacture of cereals for private label/generic/institutional sales.

The company's only branded products are granola bars, introduced in late 1986, and it spends almost no money in advertising and promotion, relying for shelf space on the good will of the companies for which it manufactures private label products.

The company manufactures natural cereal, granola bars, and grain basic ingredients used in breakfast cereal manufacture. The company has been a good performer in the industry with a average 32 percent return on equity, 68 percent above industry averages, a 13.3 percent return on investment foe the 1982-1986 period, above industry averages, 6.7 percent below industry averages, and a 5.6 percent return on assets, 36.6 percent below industry averages. Tables 7 and 14 present financial data for Grist.

The company competes in the granola and Generic/ Institutional sales/ Private label segments in the industry. The company competes in product segments that represent 9 percent of industry sales, and in market segments that represent 10 percent of industry sales.

CPC Int

CPC International is a diversified food manufacturer, whose presence in the breakfast cereal market is mainly in terms of product ingredients and raw materials for other companies and for its presence in the hot cereals market. The company manufactures Maizena, a corn based hot cereal product with a 3 percent market share in the hot cereal segment, and Argo, an edible corn starch. Consumer foods represent 61 percent of the company's sales, and 78 percent of the company's operating income. The company's annual reports stress the need for high levels of investment in advertising to attain leading market positions. The company's strategy calls for finding the most profitable and efficient techniques to process the corn kernel into highly marketable key components. The company's business strategy calls for the company being innovative and aggressive in competing in different markets, and to increase new product development and market segmentation.

The company's performance was below the industry averages, with a 15.76 return on equity, 16.9 percent below industry averages, 10.3 percent return on investment, 22.9 percent below industry averages, and a 6.8 percent return on assets, 23.1 percent below industry averages, for the 1982-1986 period. Other financial data is presented in table 36.

The company competes in hot cereals. The company competes in product segments that represent 12 percent of industry sales, and in market segments that represent 26 percent of industry sales.

General Nutrition Corporation

General Nutrition Corp. has concentrated on being a producer and distributor of products for the health enhancement market. The company's strategy calls for it being the leading provider of products, services, and information in the self care and personal health enhancement markets. The company manufactures and distributes products for the health enhancement market, and branded products and supplies for private label producers of both food and other health enhancement products.

Historically, one of the main problems of the company has been the under utilization of capacity, brought about by the constraint of selling through its own stores. That problem has been alleviated somewhat by private label sales.

Food and beverages represent 20 percent of company sales. The main cereals the company manufactures are bran, enriched,and granola cereals.

Financially, the company has lagged the industry averages, with a 9.84 return on equity, 48.9 percent below industry averages, a 9.9 return on investment, 30 percent below industry averages, and a 6.38 percent return on assets, 27.8 percent below industry averages, for the 1982-1986 period.

The company competes in market segments that represent 24 percent of market sales, and in product markets that represent 35 percent of industry sales.

New Generation Foods

New Generation Foods is a manufacturer of high protein whole wheat products, which the company sells under its own brand names. New Generation's products are mainly oriented toward health conscious adults. The company is small when compared with others in the industry, and systematically lost money during the 1982-1986 period, with sales averaging $20 million and loses averaging $2.5 million for the period

During the 1982-1986 period the company had the worst performance in the industry, with a -49.18 percent return on equity and a -82.92 percent return on investment and a -60.6 return on assets. Tables 36 and 37 present financial for NGF.

New Generation competes in high protein/enriched products. The company competes in product segments that represent 18 percent of industry sales, and in market segments (health oriented) that represent 24 percent of industry sales.

Carnation

A diversified manufacturer acquired in 1985 by Nestle, Carnation competes in the breakfast cereals industry through its breakfast granola products. The company's breakfast granola bars are second in sales in the industry, behind market leader Quaker Oats.

The company's strategy calls for aggressively marketing and maintaining market leadership in its existing products and developing new ones for todays fast paced lifestyles. The company places extreme emphasis on new product development and marketing, historically being a high advertiser in their other market segments, but within the industry the company is regarded as a weak advertiser. Their granola products are targeted at young and mid age adults, which they highlight in their advertising.

The company's financial performance has been around industry averages, with an average 17.06 return on equity, 6.1 percent below industry averages, a 15.35 percent return on investment, 8.4 percent above industry averages, and a 11.2 percent return on equity, 26.6 percent above industry averages, for the years for which data is available (After 1985 returns unavailable due to Nestle acquisition). Tables 36 and 37 present financial data for Carnation

The company competes in the granola product segment. The company competes in product segments that represent 9 percent of industry sales and market segments that represent 24 percent of industry sales.

American Home Products

American Home Products entered the breakfast cereal market through its acquisition of the Uhlmann Co., a hot cereal manufacturer. American Home competes with two brands in the breakfast cereal market, Maypo and Wheatena, which historically have been good sellers in the industry, and are well known due to heavy advertising in the past.

The company's strategy emphasizes productivity improvements and cost reductions. The company is continually expanding and modernizing facilities to assure that sales growth is supported by the most efficient processing of quality products. The company's strategy also calls for aggressively marketing its products under tight cost controls. The company aggressively markets high quality well established lines that offer stability and a strong growth potential

For the 1982-1986 period, food product sales averaged around 1.5 billion in sales and 200 million in operating profits. Food products represented 33 percent of the company's sales and 19 percent of its operating profits.

Tables 36 and 37 present financial performance for A.H.P. The company averaged a 31.52 percent return on equity, 65.3 percent above the industry average, a 31.6 percent return on investment, 123 percent above the industry average, and a 20.4 percent return on assets, 130.7 percent above the industry average, well above industry averages.

The company competes in the hot cereals product segment, which represents 12 percent of industry sales, and in market segments that represent 26 percent of industry sales.

International Multifoods

International Multifoods is a diversified food processor. The company's operations include US Basic Foods, US Consumer Foods, US Food Services, and international operations, especially in Canada and Latin America. US consumer foods represent 25 percent of the company's sales and 22 percent of its operating income.

In the breakfast cereals industry, the company produces Kretschmer's wheat germ and Sun Country granola products, which include breakfast cereals and granola breakfast bars.

The company's corporate strategy calls for it being a focused organization that plays the game in limited fronts. The corporation plans on developing leading market positions in its areas of business, divesting low growth businesses while adding growth businesses.

The strategy of the company in the breakfast cereal industry called for concentrating on small regional brands, which the company could turn into potential national brands. The problem with this strategy is that the company's small regional brands never generated enough sales to justify the marketing expenditures necessary to turn them into nationally successful brands. Analysts at the time stated that the company's brands had no staying power in the industry other than price. In late 1986 the company announced the sale of its consumer foods brands, including breakfast cereals.

Financially, the company averaged a return on equity of 13.6 percent, 28.5 percent below the average of the industry, a return on investment of 8.16 percent, 42.2 percent below the industry average,

and a return on assets of 5.18 percent, 41.46 percent the industry average. Tables 36 and 37 present financial data for IMC.

The company competes only in wheat germ and granola products. This translates into product segments that represent 16 percent of industry sales and market segments that represent 26 percent of industry sales.

Table 30

Product Shipments of Cereal Breakfast Foods.

(In Millions)

Industry	1982	1983	1984	1985	1986
Total	3111.5	3398.2	4379.0	4821.0	5342.1
RTE	2775.8	33032.1	3452.5	3906.5	4316.4
Hot Cereals	330.9	360.1	410.7	464.7	496.1
Unspecified Items	5.5	6.0	6.9	7.8	8.5

Source: US Industry Outlook, 1988.

Table 31

Assignable Product Segments in the Industry.

	(%)
Presweetened Products	35
Unsweetened/High Protein Fortified	18
Oats and Rice	10
Bran and Wheat germ	16
Natural/ Granola	9
Hot Cereals	12
	100

Table 32

Assignable Market Segments in the Industry.

	(%)
Children	40
All Family	26
Health Oriented	24
Generics/Private Label/Institutional Sales	10
	100

Table 33

Ratios for Firms in the Breakfast Cereals Industry

	Rec/ S %	Inv/ S %	Cog/ S %	Ad/ S %	Rd/ S %	Cap/ S %	Lr/ S %	Am/ S %	Rev Emp
Amer H P	15.1	12.6	36.6	9.0	4.2	3.8	21.5	35.8	109.5
Curt. B F	8.8	19.3	79.2	2.4	-	3.1	17.8	14.3	115.3
Carnation	10.3	13.2	70.5	1.9	.5	3.8	15.3	21.1	-
CPC Int	12.7	13.7	66	5.1	1	7.5	16.9	19.5	126
G. Mills	4.6	7.5	54.7	6.4	.63	5.4	19.5	33.1	81.4
Gen Nut. C.	2.4	16.4	61.9	6.2	-	5.6	-	29.3	46.36
Grist	9.9	8.0	70.3	-	-	18.1	-	16.9	138
Int Mult C.	8.4	13.0	83.8	2.2	.2	2.7	-	12.1	197.5
Kellogg	6.5	7.9	49.4	10.6	1.2	8.4	18.9	25.7	220.26
Gen Foods	8.7	11.4	61.2	3.8	1.3	6.9	18.1	31.9	172.6
Nabisco	8.5	13.2	61.2	3.8	.75	4.4	15.3	21.1	-
New Gen F.	.2	10.8	46.1	-	2.95	19.7	-	-	46.3
Quaker	14.6	11.3	56.1	5.2	.95	3.87	-	29.4	184.7
Rals P.	8.7	11.5	55.1	8.0	.66	3.6	-	22.5	98.9
Means	8.5	13.2	62.3	5.5					

Rec/S - Recievables over Sales
Inv/S - Inventory over Sales
Cog/S - Cost of Goods over Sales
Ad/S - Advertising expenditures over Sales
Rd/S - Research and Development expenditures over Sales
Cap/S - Capital expenditures over Sales
Lr/S - Labor expenditures over Sales
Am/S - Administrative expenditures over Sales
Rev/E - Revenue / Employee

Table 34

Pounds Per Capita RTE Cereal Consumptions by Age Group.

Age	Pounds
<6	11.5
6-11	14.3
12-17	13.4
18-24	7.0
25-34	5.6
35-49	5.8
50-64	7.7
65+	11.3

Table 35

RTE Cereal Consumption Per Age Group

Age	1984	1983	1982
<13	31	31.5	31.5
13-18	13.9	13.9	13.8
19-49	28.9	28.1	28.0
50+	26.2	26.5	26.7

Table 36
Financial Data for Breakfast Cereal Manufacturers.

Grist Mills Co.

Year	N.Sales (M)	N. Income (M)	ROS (%)	ROE (%)	ROI (%)	ROA (%)
86	22.743	1.05	5	9	6	5
85	23.04	.70	3	34	17	7
84	12.65	.31	3	53	17	5
83	6.60	.(3)	(4.5)			
82	4.16	.16	3.98			
X	8.64	.447	2.69	32	13.3	5.6

Five Year Trends.

	%		%
Sales Gr.	NC	Return on A	3.9
Inc Gr.	NC	Return on E	8.1
Cash F Gr.	NC	Dividend P	.0
Asset Gr.	NC	Max Sus Gr.	8.1

General Mills.

Year	N.Sales (M)	N. Income (M)	ROS (%)	ROE (%)	ROI (%)	ROA (%)
86	4586.00	183.50	4	27	16	9
85	4285.25	(72.90)	(2)	(7)	(5)	(3)
84	5600.80	233.40	6	19	15	8
83	5550.80	245.00	4.4	20	14.7	8
82	5312.00	225.10	4.3	18.3	14.5	8
X	5057.08	162.84	3.4	15.46	11.04	6

Five Year Trends.

	%		%
Sales Gr.	(2.7)	Return on A	6.7
Inc Gr.	NC	Return on E	16.9
Cash F Gr.	(2.2)	Dividend P	56.3
Asset Gr.	(5.4)	Max Sus Gr.	7.4

Table 36 Cont.

Quaker Oats Co.

Year	N.Sales (M)	N. Income (M)	ROS (%)	ROE (%)	ROI (%)	ROA (%)
86	3670.70	179.65	4.7	21.2	18	9
85	3520.10	156.60	4.4	20.3	16	8.6
84	3344.00	138.70	4.1	19.8	14	8.5
83	2611.30	56.80	4.6	18.1	14.3	8.1
82	2711.90	43.50	4.4	17.7	14.4	8.2
X	3171.60	115.04	4.4	19.4	15.3	8.5

Five Year Trends.

	%		%
Sales Gr.	8.2	Return on A	7.3
Inc Gr.	15.4	Return on E	17.4
Cash F Gr.	10.6	Dividend P	35
Asset Gr.	7.6	Max Sus Gr.	11.3

CPC Industries.

Year	N.Sales (M)	N. Income (M)	ROS (%)	ROE (%)	ROI (%)	ROA (%)
86	4584.00	210.20	4.8	24.8	12	6.6
85	4350.50	142.50	3.4	10.5	8	5
84	4373.00	193.00	4.4	14.7	11	7.5
83	4011.00	136.50	3.4	10.4	8.3	5.6
82	4092.20	232.50	5.7	18.4	15.4	9.5
X	4245.00	184.64	4.3	15.8	10.9	6.8

Five Year Trends.

	%		%
Sales Gr.	1.2	Return on A	6.8
Inc Gr.	(3.1)	Return on E	15.2
Cash F Gr.	2.8	Dividend P	54.3
Asset Gr.	8.1	Max Sus Gr.	7.0

Table 36 Cont.
Curtice Burns Foods.

Year	N.Sales (M)	N. Income (M)	ROS (%)	ROE (%)	ROI (%)	ROA (%)
86	607.64	7.90	1.3	12.1	4	2.7
85	636.29	10.22	1.6	17.2	6	3.7
84	611.95	9.96	1.6	19.3	7	3.9
83	519.11	8.12	1.6	18.2	5.1	3.3
82	486.62	7.20	1.5	18.3	4.7	3.4
X	572.31	8.68	1.5	17.2	5.36	3.4

Five Year Trends.

	%		%
Sales Gr.	8.4	Return on A	3.2
Inc Gr.	8.1	Return on E	15.7
Cash F Gr.	11.7	Dividend P	31.7
Asset Gr.	8.1	Max Sus Gr.	10.7

Kellogg

Year	N.Sales (M).	N. Income (M)	ROS (%)	ROE (%)	ROI (%)	ROA (%)
86	3340.70	310.90	9.5	40.3	27	16.7
85	2930.00	281.10	9.6	48.0	26	16.6
84	2602.40	250.50	9.6	27.2	29	16
83	2381.10	242.70	10.2	26.1	13.8	17.6
82	2367.10	227.80	9.6	26.9	10.5	17.7
X	2724.26	264.20	9.7	33.7	21.26	16.9

Five Year Trends.

	%		%
Sales Gr.	7.6	Return on A	16.0
Inc Gr.	8.5	Return on E	32.2
Cash F Gr.	9.3	Dividend P	46.5
Asset Gr.	10.3	Max Sus Gr.	17.2

Table 36Cont

General Nutrition Corp.

Year	N.Sales (M)	N. Income (M)	ROS (%)	ROE (%)	ROI (%)	ROA (%)
86	370.39	(15.52)	(4)	(16)	(14)	(9)
85	390.34	11.03	3	10	9	6
84	379.91	24.93	6.6	21.5	8.7	13.8
83	355.21	24.87	7	22.4	20.1	14.9
82	319.77	10.33	3.2	11.3	25.7	7
X	362.13	11.13	3.2	9.84	9.9	6.38

Five Year Trends.

	%		%
Sales Gr.	1.5	Return on A	6.40
Inc Gr.	NC	Return on E	10.8
Cash F Gr.	(19.4)	Dividend P	36.1
Asset Gr.	4.0	Max Sus Gr.	6.92

Carnation

Year	N.Sales (M)	N. Income (M)	ROS (%)	ROE (%)	ROI (%)	ROA (%)
86						
85						
84	2564.16	149.45	5.8	18.0	11.5	
83	2469.82	142.71	5.7	18.0	15.5	11.4
82	3382.27	190.56	5.6	17.6	15.2	10.7
X	2802.40	160.90	5.7	17.86	15.35	11.2

Five Year Trends.

	%		%
Sales Gr.	NC	Return on A	10.8
Inc Gr.	NC	Return on E	17.0
Cash F Gr.	NC	Dividend P	39.7
Asset Gr.	NC	Max Sus Gr.	10.2

Table 36 Cont.
New Generation Foods.

Year	N.Sales (M)	N. Income (M)	ROS (%)	ROE (%)	ROI (%)	ROA (%)
86	2.97	(1.75)	(58.8)	(39.2)	(94)	(65)
85	1.53	(3.49)	(228.1)	(29.8)	(138)	(97)
84	2.09	(2.37)	(113.6)	(72)	(72)	(51)
83	1.73	(2.28)	(131.2)	(40.2)	(35.8)	(32.3)
82	2.93	(1.89)	(64.7)	(64.7)	(74.8)	(57.6)
X	2.05	(2.35)	(118.2)	(49.8)	(82.92)	(60.6)

Five Year Trends.

	%		%
Sales Gr.	(7.2)	Return on A	(54.7)
Inc Gr.	NC	Return on E	*****
Cash F Gr.	NC	Dividend P	.0
Asset Gr.	(3.5)	Max Sus Gr.	*****

General Foods

Year	N.Sales (M)	N. Income (M)	ROS (%)	ROE (%)	ROI (%)	ROA (%)
86						
85	6673.19	138.87	2	21.3	14.1	7
84	9022.39	324.90	4	17.6	13.7	6.3
83	8599.74	317.10	4	16.1	13.5	6.9
82	8256.42	288.52		16.1	14.9	6.9
X	8137.94	267.18	3.3	17.7	14.05	6.8

Five Year Trends.

	%		%
Sales Gr.	.4	Return on A	4.4
Inc Gr.	(4.4)	Return on E	8.0
Cash F Gr.	1.7	Dividend P	57.2
Asset Gr.	19.2	Max Sus Gr.	3.4

Table 36 Cont.

Nabisco

Year	N.Sales (M)	N. Income (M)	ROS (%)	ROE (%)	ROI (%)	ROA (%)
86						
85						
84	6253.00	309.00	4.9	19.1	13.9	9.2
83	5985.00	323.00	5.3	18.0	14.7	8.4
82	5871.00	315.00	5.4	19.1	12.7	7.6
X	6036.33	315.66	5.2	18.7	13.7	8.4

Five Year Trends.

	%		%
Sales Gr.	2.4	Return on A	8.4
Inc Gr.	4.8	Return on E	18.0
Cash F Gr.	7.0	Dividend P	45.2
Asset Gr.	2.6	Max Sus Gr.	10.1

Ralston Purina

Year	N.Sales (M)	N. Income (M)	ROS (%)	ROE (%)	ROI (%)	ROA (%)
86	5514.60	412.40	4.8	27.4	10.3	7.7
85	5863.90	256.40	4.4	26.7	14	11
84	4980.10	242.70	4.9	23.1	20	11.8
83	4872.40	256.50	5.3	23.2	18	12.1
82	4802.60	69.00	1.9	7.8	6	4.2
X	5206.72	247.30	4.3	21.64	13.6	9.4

Five Year Trends.

	%		%
Sales Gr.	2.6	Return on A	9.1
Inc Gr.	25.2	Return on E	21.8
Cash F Gr.	11.0	Dividend P	35.1
Asset Gr.	11.5	Max Sus Gr.	14.2

Table 36 Cont.

American Home Products.

Year	N.Sales (M)	N. Income (M)	ROS (%)	ROE (%)	ROI (%)	ROA (%)
86	4926.51	778.82	16	33	33	19
85	4684.74	717.68	15	31	31	21
84	4485.47	682.08	15	33	33	22
83	4856.50	627.23	8	30.6	30.6	20.3
82	4842.09	560.10	9.5	30	30.3	19.7
X	4750.04	673.16	12.7	31.5	31.6	20.4

Five Year Trends.

	%		%
Sales Gr.	2.6	Return on A	20.1
Inc Gr.	9.2	Return on E	31.4
Cash F Gr.	9.2	Dividend P	60.0
Asset Gr.	8.7	Max Sus Gr.	12.6

International Multifoods Corp.

Year	N.Sales (M)	N. Income (M)	ROS (%)	ROE (%)	ROI (%)	ROA (%)
86	1403.04	51.54		5.5	4.8	2.8
85	1355.37	24.93		11	7.9	4.02
84	1211.15	21.7		9.7	6.7	4.3
83	1067.16	32.95		15.1	10.4	7.6
82	1118.24	35.49		16	11	7.2
X	1230.98	33.18		13.6	8.16	5.18

Five Year Trends.

	%		%
Sales Gr.	5.0	Return on A	6.3
Inc Gr.	2.1	Return on E	14.0
Cash F Gr.	(5.1)	Dividend P	41.9
Asset Gr.	7.3	Max Sus Gr.	8.1

Industry Averages	2955.44	169.33	4.55	15.4	7.19	3.6

Table 37

Performance of Firms In Breakfast Cereals Ind and Comparison with Industry Averages.

	ROE %	Comp w Ind %	ROI %	Comp w Ind %	ROA %	Comp w Ind %
Grist	32	68.1	13.3	(6.1)	5.5	(36.65)
General Mills	15.4	(18.7)	11.0	(21.9)	6	(32.12)
Quaker Oats	19.4	1.94	15.3	8.4	8.5	(3.8)
Cpc Int	15.8	(16.9)	10.9	(22.9)	6.8	(23.9)
Curtice B Foods	17.2	(9.6)	5.3	(62.1)	3.4	(72.8)
Kellogg	33.7	77.8	21.6	52.6	16.9	91.1
Gen N Corp	9.8	(48.9)	9.9	(30.3)	6.38	(27.82)
Carnation	17.8	(6.1)	15.3	8.4	11.2	26.2
General Foods	17.7	(6.9)	14.1	0.7	6.8	(23.6)
Nabisco	18.7	(1.7)	13.7	(3.1)	8.4	(4.9)
Ralston P	21.6	13.7	13.6	(3.8)	9.4	6.33
Am Home P.	31.5	65.6	31.6	123.32	20.4	130.7
Int Multifoods	13.6	(28.5)	8.16	(42.2)	5.18	(41.4)
Means	19.03		14.15		8.84	

Table 38
Top Ten Cereals (1984)

Brand	Pounds	Dollars
Corn Flakes(K)	6.8	4.7
Frosted Flakes(K)	5.6	5.2
Cheerios (GM)	5.2	5.5
Raisin Bran (K)	4.5	4.0
Chex(RP)	4.3	4.6
Shreded Wheat (N)	4.0	3.3
Rice Krispies (K)	3.5	3.8
Raisin Bran (GF)	2.7	2.1
Cap'n Crunch (Q)	2.7	3.2
Honey-Nut Cheerios(GM)	2.6	2.9
Total	41.9	39.3

Table 39
Kellogg RET Cereals. Market Shares(1984).

Brand	Pounds	Dollars
Frosted Flakes	5.6	5.2
Corn Flakes	6.8	4.7
Raisin Bran	4.5	4.0
Rice Krispies	3.5	3.8
Fruit loops	2.3	2.9
Special K	1.9	2.5
Bran Products	3.1	2.3
Frosted Mini Wheats	1.9	1.9
Apple Jacks	1.0	1.5
Sugar Smacks	1.2	1.3
Sugar Pops	1.1	1.2
Product 19	.9	1.1
Nutri grain	1.2	1.1
Crispex	.5	.5
Nut and Honey	.5	.6
Marshmallow Krispies	.4	.6
Cocoa Crispies	.6	.8
Frosted Rice	.4	.4
Fruitful Bran	.7	.6
C-3PO	.5	.6
Apple Raisin Crisp	.5	.6
Raisin Squares	.3	.3
Most	.2	.3
Raisins Rye and Rice	.1	.1
Others	.8	1.4
Total	40.5	40.3

Table 40
General Mills RTE Cereals. Market Share(1984).

Brand	Pounds	Dollars
Cheerios	5.2	5.5
Honey Nut Cheerios	2.6	2.9
Total	2.1	2.8
Lucky Charms	1.7	2.1
Trix	1.5	1.9
Wheaties	2.0	1.4
Golden Grahams	1.3	1.3
Crispy Wheats an Raisins	1.0	1.1
Licenced Products	.7	1.0
Monsters	.5	.8
Cinnamon Toast Crunch	.6	.7
Cocoa Puffs	.6	.7
Buc Wheats	.3	.4
Others	.6	.5
Total	20.7	23.1

Table 41
Quaker Oats RTE Cereals. Market Share(1984).

Brand	Pounds	Dollars
Cap'n Crunch	2.7	3.2
Life	2.4	2.2
100% Natural	1.5	1.4
Halfsies	.2	.3
Corn Brand	.6	.6
Others	.9	.9
	8.3	8.6

Table 42
General Foods RTE Cereals. Market Share.(1984)

Brand	Pounds	Dollars
Post Raisin Bran	2.7	2.1
Grape Nuts	2.2	1.5
Super Sugar Crisps	1.4	1.4
Honeycombs	1.1	1.3
Post Fruit and Fibre	1.3	1.4
Pebbles	1.1	1.3
Smurfs	.5	.6
Toasties	1.0	.8
Alpha Bits	.7	.8
Bran Flakes	.8	.8
Honey Nut Raisin Bran	.2	.2
Raisin Grape Nuts	.4	.4
Fortified Oat Flakes	.5	.4
Post Hearty Granola	.1	.1
Others	.3	.2
Totals	14.3	13.3

Table 43
Ralston Purina RTE Cereals. Market Share.(1984)

Brand	Pounds	Dollars
Chex	4.3	4.6
Domkey Kong	.6	.6
Cookie Crisp	.4	.7
Others	.6	.4
Totals	5.9	6.0

Table 44

Breakfast Cereal/Food Products Segment Data(1986).

	Seg Sales	% T	Seg O.Ic	% T	Seg Dep	% T	Seg C Ex	% T	Seg Ass.	% T
Am H P	1469.0	33	207	19	17.9	23	28.5	20	472.5	22
Curt B F	607	100	22.1	100	13.4	100	14.5	100	288	100
RjR-N	9236	58	820	31	376	62	344	35	9826	63
Gen N C	342.5	100	14.7	100	16.5	100	18.5	100	166.9	100
Grist	22.48	100	.68	100	1.37	100	1.62	100	21.28	100
Int Mul	350.3	25	13.8	22	4.8	34	5	21	137.2	24
PM/Gen F	9664	38	22	17	167	33	395	59	8629	53
Q Oats	2134	58	258	66	44.4	54	92.3	63	917	50
Kellogg	3340.69	100	647	100	92.7	100	329	100	2084	100
Gen Mills	3449	66	368	75	78.9	62	159	46	1211	61
New Gen F	2.9	100	(1.5)	100	.31	100	.15	100	2.7	100
Ral Pur	3694	67	521	79	87.3	66	119	72	1525	41
Carnation										
Cpc Int	2272	61	346	78	62.8	38	158	44	1806	51

Table 45

Competitors and Product Segments. Breakfast Cereals (1982-1986)

	Presweet.	Unsweet. High P	Oats & Rice	Bran Wheat	Natural Granola	Hot Cer.	Total
	35	18	10	16	9	12	
Kelloggs	*	*	*	*	*		88
Gen Mills	*	*	*	*	*	*	100
Quacker O	*	*	*	*	*	*	100
Gen Foods	*	*	*	*	*		88
Ralston P	*	*		*	*		78
Nabisco		*				*	30
Curtice B F	*	*	*			*	75
Grist					*		9
Cpc Int						*	12
General N C			*	*	*		35
New Gen F		*					18
Carnation					*		9
American H P						*	12
Int Mult.				*			16

Table 46

Competitors and Market Segments. Breakfast Cereals (1982-1986)

	Children	All Family	Health Oriented	Generics P. Label	Total
	40	- -26	24	10	
Kelloggs	*	*	*		90
Gen Mills	*	*	*		90
Quaker O	*	*	*		90
Gen Foods	*	*	*		90
Ralston P	*	*	*	*	100
Nabisco		*			26
Curtice B F	*	*		*	76
Grist			*	*	34
Cpc Int		*			26
General N C			*		24
New Gen F			*		24
Carnation			*		24
American H P		*			26
Int Mult		*			26

APPENDIX B

THE AIRCRAFT INDUSTRY

This case examines the strategies and performance of firms in the aircraft industry between 1982 and 1986. This examination centers around the strategic issues of scope, competitive weapons and performance. The time period utilized provides consistency in the comparison and aggregation of the industries utilized in the study.

The case study of the aircraft industry will provide: an overview and historical perspective of the industry, followed by the examination of the market structure and characteristics of competition, the product and market segments, and finally the examination of strategies and performance of major competitors in the industry.

OVERVIEW AND HISTORICAL PERSPECTIVE

The aircraft industry (SIC 3721), includes both light and heavy transports in the military and civilian markets. Although the roots of the industry can be traced to the beginning of the century, the big push in the aircraft industry can be traced to World War II, where new discoveries in both production methods and R & D fueled the growth of the industry.

The industry is very special in that it combines the characteristics of heavy industry manufacturing and high technology research. During the 1982-1986 period nearly 20 percent of industry sales was spent on research and development, while capital

expenditures represented over 10 percent of revenue. The aircraft industry can be characterized and both capital intensive and labor intensive.

Historically, the industry has shown lower than average margins and wide fluctuation in profits from year to year. The industry averaged a net profit margin of 3.3 percent for the period vs. a 5 percent profit margin for all industries. Usually the industry's fortunes are tied to the fortunes of the overall economy. When the economy does well, the industry does well.

One of the main reasons for poor margins in the industry is the power of buyers. Both the military and commercial aviation segments have to contend with a limited number of buyers (The military, commercial airlines, Fortune 500 firms), that place large orders and demand steep concessions and discounts. The general aviation segment is generally affected by the economy because general aviation aircraft and business jets have been viewed as a luxury that can be easily dispensed with in times of financial turmoil.

The 1982-1986 period was characterized by consolidation in the industry, especially in the general aviation and commercial aircraft segments. While at the beginning of the period most of the firms in the general aviation segment of the industry were independent producers, by the end of the period most companies had merged with larger corporations or left the industry. In commercial aircraft, Lockheed, one of the major producers, decided to leave the segment to concentrate on military sales. Sales in the military segment were

aided by the Reagan era military buildup, which poured millions of dollars into the segment.

Industry sales for the 1982-1986 period averaged $26 billion. The military segment represented the highest growth segment in the industry, with a 4.2 percent average annual real growth for the period. The general aviation segment, by contrast, declined. Average yearly sales during the 1982-1986 period were reduced around to 50 percent of the sales in 1980. For example, in 1986 the industry sold 2200 planes, only 12.3 percent of the 17,800 planes sold in 1978, the best year ever in the industry. The commercial aircraft segment rebounded from lackluster sales in the 82-84 period and by 1986 the segment was posting sales only slightly lower than its best year ever ($9.7b. vs. $9.6b.).

Boeing was the market leader in the commercial aviation segment for the 1982-1986 period, McDonnell Douglas, was the leader in military sales, and Cessna was the leader in general aviation aircraft sales.

The major markets segments in the industry were: military aircraft, with 63.4 percent of industry sales, commercial aircraft, with 30.15 percent of industry sales, and general aviation aircraft, with 6.43 percent of industry sales. The major segments in terms of products are: Small airframes, with 36.6 percent of industry sales, large frame aircraft, with 32.6 percent of industry sales, aircraft electronics, avionics, remodeling and maintenance, with 29.36 percent of industry sales, and helicopters, with 1.5 percent of industry sales.

MARKET STRUCTURE

The aircraft industry had an average 4 firm concentration ratio of 66 percent for the 1982-1986 period. That ratio is likely to increase due to consolidation in the industry. For example, Lockheed left the commercial aircraft segment to concentrate in military sales. By 1986, in the general aviation segment a large number of independent producers had become parts of larger corporations and the outlook in the future was for that process to continue.

Contributing to the high concentration ratio was the existence of high barriers to entry in the industry. High investments in capital and research were needed to compete in the industry. Examined by segments, the requirements for successful entry in the industry vary. In the military segment entrants had to contend with powerful lobbies. The top 25 firms in the industry controlled over 60 percent of sales in the segment. In the commercial aircraft segment, entrants had to contend with heavy start up costs of up to $3 billion to develop a new aircraft, and both the commercial aircraft and general aviation segments had to contend with a market full of used aircraft. Concentration was also aided by the powerful barriers to exit in the industry, the most important being the nature of specialized technology and machinery in the industry, which translated into heavy write off costs when attempting to leave the industry.

The aircraft industry for the 1982-1986 period was mature. Growth in the industry did not outpace the GNP in real terms for the

1982-1986 period. The increases in military spending, which increased at a higher rate than the GNP were countered by lackluster sales in the commercial aircraft and general aviation segments. Taken as a whole the industry experienced limited growth, averaging 3.1 percent per annum in 1982 dollars.

The industry fell within the cutoff points established for a domestic industry (value of exports + imports $\leq$ 30 percent of industry sales). In the case of the aircraft industry, value of exports + imports represented 28.25 percent of sales in the industry for the 1982-1986 period. Although the commercial aircraft segment is one of the primary exporters in the US, it is important to note that the biggest segment in the industry is the military sales (63.4 percent of industry sales), and exports of military aircraft were less that 8 percent of sales. Thus, although in quantity the industry is a large exporter, in terms of percentage of total sales it can be classified as a domestic industry.

The aircraft industry can be classified as heterogeneous. The industry averaged an advertising to sales ratio of 1.6 percent for the 1982-1986 period, higher than the 1.5 percent cutoff point. It is also necessary to consider the vast amount of Research and Development expenses in the industry, which average approximately 20 percent of sales. Other variables that allow the classification of the industry as heterogeneous were the number of brand names and different technologies present in the industry and the sizable price differences between products in the industry. Not only are there sizable price differences, but firms in the industry compete with non price factors

such as financing, offset packages in which maintenance is given free for specified periods of time, and performance guarantees for the aircraft, especially in the area of fuel consumption.

An important variable in the industry was the presence of powerful buyers. For the military segment it was the Department of Defense. In the commercial aircraft segment there was a limited number of commercial airlines that can place orders at any given time, which meant extensive leeway in contract terms, while the primary customers of business jets were Fortune 500 corporations. The limited number of buyers for all segments means that they were in a position to dictate conditions to the makers.

The industry was also characterized by being both labor and capital intensive. Heavy investments in labor and capital were necessary to be effective in the industry, together with sizable R & D investments. These conditions restricted both the number of possible entrants and the number of firms that can exit the industry.

Finally, the industry had a marketing environment permeated by politics. In the military segment lobbying from the right people can make the difference between a project that makes it and one that does not, while in the commercial aircraft segment, the presence of heavy international competition made for a heavy involvement in politics.

PRODUCT AND MARKET SEGMENTS

Given the diversity of products and market segments, the number of firms that competeD in all segments was limited. But the move in the industry was toward firms that compete in a large number of segments. Consolidation during the period meant that a large number of competitors left segments, while others were acquired or merged with bigger firms. The exception was the military segment mostly due to companies being flush with cash during the Reagan military build up.

The technology in the industry varied from segment to segment. the general aviation segment concentrated solely on the basics for flying while the military segment was concerned with developing the latest in avionics and combat hardware. The industry used a lot of subcontracting. Airframe makers relied on subcontractors for the engines, electronics, and the navigational equipment.

The military segment constituted 63.4 percent of industry sales. During the 1982-1986 period it was aided by the military build up. Table 47 presents the top 7 military aircraft makers. This group includes makers of fighters and attack planes, bombers, trainers, and large transports. During the first two years of the Reagan build up, in 1982 and 1983, spending on military aircraft increased by 18 percent and 12 percent respectively. During the 1982-85 period, military procurement authorizations doubled, and finally declined 4.5 percent in 1986. The military segment is heavily concentrated and dependent on politics and lobbying. The top 25 contractors control 60

percent of military spending. In the aircraft industry, only 10 firms control the bulk of military aircraft sales.

The commercial aircraft segment of the industry represented 30.15 percent of industry sales. The segment includes makers of commercial airliners of 100 to 400+ seats. There is a very limited number of makers of commercial airliners in the world, with numbers one and three, Boeing and McDonnell-Douglas, being US producers. Lockheed, which specialized in wide body planes with its L1011 line, decided to exit the industry in 1981 and delivered its last plane in 1985. During the 1982-1986 period the industry was hit by a glut of new widebodies and used airliners. Two other factors affecting the industry were the relative stability in oil prices and deregulation. With relatively stable oil prices, new more costly fuel efficient aircraft became less cost effective.

The US constitutes half the world's market of commercial aircraft, and with deregulation affecting the profits of the major airlines, the incentive to buy new equipment was lost. The segment was also affected by all major commercial airframes makers starting new airliner programs. With development costs of over $3 billion for a new airliner, and sales of 400 units necessary to break even, profits for the aircraft makers were further depressed.

The segment suffered the entry of one major player, Airbus, a consortium backed by European governments. Airbus came from nowhere to become #2 in the industry behind Boeing, with a 35 percent market share in the segment. By 1986 Airbus was making inroads in the hottest segment in the industry, the 150 seat plane market, with its

A320, probably the most technologically advanced plane ever built. Table 48 Presents a breakdown of sales of large commercial aircraft for the years 1985 and 86.

The general aviation segment constituted 6.43 percent of industry sales. This segment suffered a severe decline during the 1982-1986 period, with sales averaging between 10 and 20 percent of 1978 sales, the segment's best year. The general aviation segment includes business jets, commuters, turboprops, and multi and single engine planes. The business jet area of the segment is the most profitable one. In recent times it has been hit by a glut of used aircraft that has affected sales of new units. Sales of new aircraft have been hurt also by a lack of significant technological advances in new business jets. Business jets generally cost between $3 and $14 million and primary customers are Fortune 500 firms and foreign governments. Commuter Aircraft includes planes of between twenty and fifty seats, usually turboprops. The number of makers of commuter aircraft in North America has been dramatically reduced. By 1986, only two makers remained: De Havilland of Canada, acquired by Boeing in 1981, and Fairchild Ind. The segment has gone to makers from other countries, specially South Korea and Brazil.

Turboprops, multi and single engine planes, have been the most affected in the segment by declining sales. Sales of these aircraft remained depressed during the period. The segment also suffered from increased insurance costs, brought about by litigation against airplane makers, which drove up the price of aircraft and depressed an already slow market. A problem with the segment as a whole was that

there were no significant technological advantages the would warrant trade ups from customers, or that would discourage customers from buying cheaper used aircraft from that glutted market.

In terms of products, the major segments in the industry were: The large airframes segment, which manufactures large airframes for both military and civilian use. Large airframes constituted 32.6 percent of industry sales. Small airframes makers, which include both general aviation aircraft and small military aircraft constituted 36.6 percent of industry sales. This separation in terms of large airframes and small airframes in terms of segments of the industry is important because there are important differences in terms of process and technology between the making of large and small airframes. With very few exceptions firms that manufacture large airframes do not manufacture small aircraft and vice versa. Aircraft avionics, electronics, remodeling and maintenance, constituted 29.36 percent of industry sales. This segment includes reconstruction, refurbishing and modification of aircraft, maintenance, and manufacture of advanced navigational, electronic equipment and parts. Finally, Helicopter sales for both the military and civilian markets constituted 1.5 percent of sales in the industry. Table 49 presents segments for the aircraft industry in terms of products and markets.

THE COMPETITIVE ENVIRONMENT

While the general aviation segment showed that it is extremely sensitive to inflation, and by 1986 had yet to recuperate, the military segment weathered the early eighties inflationary period through a massive influx of government spending, which leveled off by 1986. The commercial aircraft segment was affected by inflation and other factors during the early part of the eighties. One of those factors was their estimates of the price of oil. During the seventies, the commercial aircraft manufacturers estimated that the most important consideration during the eighties would be fuel consumptions and the price of oil, and committed themselves to building more expensive fuel efficient aircraft. With fuel prices leveling of and stabilizing in the early eighties, the demand for fuel efficient aircraft was lessened and the expected cost trade-offs of fuel efficient aircraft did not materialize. Deregulation and a glut of used aircraft also conspired to keep the market soft. However by 1986, sales in the segment were nearing record highs. For most of the segments, excluding the military, the early 80's meant higher price sensitivity by consumers, a move away from the new aircraft market and toward used aircraft, which was fueled by the absence of technological breakthroughs in aircraft design.

The high degree of rivalry in the industry during the period was in part prompted by the slow growth and the high degree of buyer power in the industry. Rivalry was lower in the military segment because of its growth during the period. But even in the military segment,

rivalry manifested itself through competition for specific systems and wrestling parts of projects from competitors. Through lobbying and alleging non performance from project managers, firms were able to take away aircraft programs from one another.

Rivalry in the commercial aircraft segment was fueled by the entrance of Airbus, which had the backing of several European governments. Although one of the reasons entry is so difficult in the industry is that buyers need to be reassured that the makers will be in business during the life of an airliner jet (25+ years), Airbus was able to soothe those fears because of their government backing and because the experience of the Concorde showed that European manufacturers and governments were willing to support even a losing aircraft program. Airbus came from nowhere to capture over 35 percent of the market for commercial airliners, and at the same time significantly increased rivalry in the segment.

Rivalry in the general aviation segment was fueled by the fact that sales did not pick up after inflation receded in the 83-86 period. This continuous decline in sales led to tremendous competition and price cutting, and finally to consolidation in the industry.

Differentiation in products took different aspects in different segments, but the common denominator for differentiation in the industry was technology. Within the military segment, the ability to come up with new technologies was the prime source of differentiation. This was followed by an ability to execute projects on time and under

budget. Technology developed for the military to some extent trickles down to the commercial and general aviation segments.

For the commercial aircraft segment, the prime source of differentiation was the long term ability of aircraft to perform. Investment in an aircraft means that the equipment has to perform over a long period of time. That is why once the market got soft in the early eighties, on top of discounts, the main way manufacturers attempted to hold customers was through maintenance and performance guarantees.

Although the industry as a whole spent fairly heavily in advertising (1.6 percent of sales), the nature of the industry begot advertising through unusual ways. A big part of the spending in the industry went into lobbying and cultivating long term relationships with aircraft buyers. It is not unusual to have three years in between the time a company is contacted for a sale and when the order is placed. This lag time is even longer in the military, so the cultivating of relationships was of prime importance to acquiring an edge over competitors.

There were three important reasons for high degrees of rivalry in the industry: The high costs of entry in the industry, the R & D investments of up to three to 5 billion for a new airliner or fighter jet, and the high cost of exit, because the technology and machinery in the industry were not transferable. The combination of these three factors meant that periods of economic downturn were going to be accompanied by an increase in industry rivalry.

In the commercial aircraft segment, high buyer power was reflected among other things, by the ability of the airlines to demand the type of engine, avionics and navigational equipment to go with the airframe their order.

The requirements for success varied from segment to segment in the industry. While in the military segment the ability to successfully lobby for and maintain funding authorizations was essential, the ability to develop new technologies for warfare was also of tremendous importance. In the commercial aircraft segment, the ability to develop stable aircraft programs was very important. Acquiring a commercial jetliner is a long term commitment, so long term stability of the manufacturer is going to be important. Other important considerations were the ability of the aircraft to provide a cost/ fuel consumption balance that is appropriate for the times, and the ability to provide equipment with the number of seats wanted by the customer. For example, the ability of Airbus to provide equipment in the 150 seat range, which other competitors could not offer at the time, was an important determinant of Airbus' success.

In the general aviation segment, the basic requirements for success included the ability to successfully market business jets, which were the biggest seller in the industry, which meant that a strong marketing network was necessary to succeed in the segment. During the 1982-1986 period an important consideration was also the ability to cut costs so that the companies could maintain operations during the lean years.

COMPETITORS

Competition in the aircraft industry varied from segment to segment. In the military segment, the top 25 manufacturers control over 60 percent of sales, but even within the segment the nature of competition varied , and this translated to differences in strategy. While in the attack aircraft and fighter jets segment the important competitive advantage came from technology and the possibilities of use in combat, in the large military transport segment cost considerations become more important. Within that segment Lockheed emerged as the dominant producer even though it left the commercial aircraft segment. During the beginning of the 1982-1986 period the largess of the Reagan administration acted to reduce competition in the segment. But by the end of the period with adjustments to the military budget, competition was in full force, with manufacturers trying to take away aircraft programs from each other.

In the commercial aircraft segment, competition increased because although Lockheed left the segment, a more aggressive competitor, Airbus, took its place. With only two US competitors in the segment, the primary rivalry was between Boeing, which brands itself as the full line producer in the industry, and McDonnell-Douglas, which concentrated in large widebodies and small(up to 120 seats) jetliners.

In the general aviation segment, competition was active between full line producers of general aviation aircraft (Cessna), and makers that concentrate in either business jets (Gulfstream, Learjet), or turboprops, multi and single engine aircraft (Piper). Sources of

differentiation in the segment included maintenance costs, fuel consumption, financing arrangements, and to some extent technology. Advertising expenditures as a percentage of sales were higher for this segment than for any other in the industry, even though the segment did not recuperate from inflation in the early eighties.

The following section examines characteristics, strategies, and performance of firms in the aircraft industry for the 1982-1986 period.

Boeing

The pricing and market share leader in the aircraft industry, Boeing was the preeminent full line manufacturer of commercial aircraft in the US. The company manufactures commercial aircraft, commuters, military aircraft, space equipment and computer equipment. Over 90 percent of the company sales and over 95 percent of its operating profits come from its civilian and military sales.

In 1981 Boeing added to its line by acquiring De Havilland from the Canadian Government. De Havilland makes commuter aircraft in the 30 to 50 seat range.

Boeing sees itself as the full line producer in the commercial aircraft business. The strategy of the firm calls for providing customers with a whole array of choices in airliners, from 100 seats to 400 seats.

As late as 1981, Boeing controlled up to 70 percent of the commercial aircraft segment, but in the 1982-1986 period the company saw its market share reduced to between 55 to 60 percent, because of

the added competition of Airbus. The company also committed a strategic mistake by investing up to $3 billion, more than the company's net worth, in a new family of fuel efficient aircraft, the 757 and 767, that had a higher cost than other airliners. With fuel costs stable during the period, the emphasis in airlines shifting to capital costs. Furthermore, the market was awash with used 727's. In consequence, the company sales suffered during the period. The 180 seat 757 and the 200 seat 767 also left the company without a product in the competitive 150 seat market, leaving that niche to Airbus with their hot A320. By the end of the 1982-1986 period, 757 and 767 sales had picked up and and the company had rolled out a replacement for the 727, the 737-400. The company's 150 seater, the 7j7, was expected to be rolled out in 1993.

The company is known as a sales oriented company. The company has an aggressive sales force, which works well for a company with a limited number of customers and with an average order of $35 million.

The company also provides a superior product in terms of technology. Customers have always contended, however, that the products are not dramatically superior to the competition, only a few points better. The company is committed to enhancing the performance and capabilities of its products to meet varied and changing airline requirements. Near term activities are focusing on product improvement programs which mean improved operational capacities, improve reliability, enhance maintainability within current airplane facilities. Developing derivatives of the current product line is a vital part of the company's strategy. (Boeing 10K Report, 1986)

Boeing is also known to compete on price. The company is also tremendously cost conscious. After going on a cost cutting spree in the beginning of the 1982-1986 period, the company contended it could make a profit by selling a mere 48 planes a year.

In the military segment the company manufactures the EA6, and the Air Force One aircraft used by the President of the United States. Through the company is looking for new contracts in the military its military business is not expected to increase.

The company's quality image was affected in 1985 and 1986, because of complaints of poor workmanship in aircraft, especially from Japanese customers like Japan Airlines. Errors were found in a number of aircraft.

The largest producer in the industry, the company competes in most market segments in the industry. The exception is the general aviation segment. Although the company manufactures commuter aircraft, it does not manufacture business jets or multi and single engine aircraft, consistent with the separation in the industry between makers of large and small airplanes. The company competes in market segments that represent over 93.6 percent of sales in the industry and product segments that represent 70.8 percent of industry sales. Table 47 presents market share data for Boeing. Table 50 presents financial data for Boeing.

McDonnell Douglas

McDonnell Douglas is the leading manufacturer of combat and military aircraft in the free world. The company competes in four main market segments: commercial airliners, military aircraft, information systems and missile and space technology. The company derives 75 percent for its sales and 89 percent of its operating profits from military and commercial aircraft. The military segment represents 47 percent of the sales and 79 percent of the company's operating profits while the commercial aircraft segment represents 27 percent of company's sales but only 20 percent of its operating profits.

The company sees itself as a producer of high quality, low cost products that respond to customer needs in a world of rapidly changing competition. The company plays up its excellence in technology and engineering. But the company experienced quality problems with both its military and commercial aircraft and during the 1982-1986 period faced chronic problems with its product lines.

In the commercial aircraft segment the company's strategy is to build a strong presence in the market for long range jetliners and short to medium range aircraft, and to balance the commercial side of the business with the leading position in military transports.

In fact military transports have allowed the company to survive. Between 1967, the time it was acquired, and 1986, the commercial aircraft segment had only showed a profit 5 times, mostly at the end

of the 1982-1986 period due to the success of its medium range 120 seater MD-80, a derivative of its DC-9 airplane. The MD-11, a derivative of its DC-10 has not fared that well.

The company's innovations come mostly from derivations of its oldest aircraft. The MD-80 was a hit mostly because of its lower price tag. Although it had higher maintenance costs, the company was able to market the MD-80 because of it lower price, and because of the conditions the company was willing to offer its customers. By the end of 1986 the company was holding conversations with Airbus about a joint program. The company recognizes it is in a tough strategic situation with a larger competitor with a full product line. The company averaged a 15 percent market share. Table 47 presents sales of commercial aircraft by MD in 1985-86.

The company racked up profits in its military sales for the 1982-1986 period, with sales increasing at a yearly average of 16 percent for the 1982-1986 period. The company has a 15 percent market share in the military aircraft segment a sizable number given the sheer volume of this market.

The company also manufactures the C-17 transport and KC-10 aerial tankers, the F-18, F/A-18, FT100, F-15, A-12 fighters, the AV-8B marine plane and T-45 jet trainer, and the Apache Helicopters.

The company faced quality problems with the F-18 fighter and the Apache Helicopters which cost the company 75 millions in 1985.

The company averaged 11.3 percent return on investment, below the industry average, and return on identifiable assets 5.44 percent for the military segments and 3.66 percent for the commercial aircraft

segments. The company competes in market segments that represents 92 percent of sales in the industry and in product segments that represents 70.7 percent of industry sales. Table 51 presents financial data for McDonnell Douglas.

Grumman Corporation

The Grumman Corp is the nation ninth largest defense contractor. The company makes and modifies military aircraft, manufactures electrical systems, aerospace systems, and its special vehicle division manufactures buses and vehicle for the postal services.

Grumman aircraft operations represents 72 percent of company sales, but only 57 percent of its operating income. The company's emphasis is on technologically superior aircraft. The company has catered to those that think that electronic superiority is the key to air superiority. The company's strategy calls for the manufacture of high performance, high technology products at a low cost.

The emphasis on electronics shows in the products. The company's aircraft have twice the electronic content by weight than other companies. Over the years the company has transformed itself from a maker of aircraft to a maker of electronic systems some of which have wings.

The company manufactures 4 major tactical aircraft for the Navy: the F-14 Tomcat fighter, the E-2C electronic surveillance aircraft, the EA-6B prowler, and the A-6 attack aircraft. The company also did modification work in the F-111 jammer aircraft. The company

also does aircraft modification work and electronic and avionics for other aircraft makers, such as Boeing, for which the company manufactures electronics and avionics for the 757 and 767 aircraft.

Grumman has a 4.3 market share in the military aircraft segments. The company's performance has been above the average in the industry, with a 19.4 percent average ROE and a 13 percent average ROI in the 1982-1986 period. The company's aircraft division also had a return in identifiable assets of 7.72 percent for the 1982-1986 period.

The company competes its product segments that represent 65.9 percent of industry sales and on market segments that represent 63.4 percent of industry sales. Table 53 presents financial data for Grumman Corp.

Lockheed Corporation

The Lockheed Corporation manufactures aeronautical systems, information systems, missiles and space and marine systems. The company is the fourth largest military aircraft contractor in the country with a 8.8 percent market share.

The company derives 43 percent of sales and 60 percent of its operating profits from its aircraft sales. The company exited the commercial aircraft segment in 1981, when it stopped manufacturing its problem riddled L-1011 widebody.

The company is the foremost manufacturer of military cargo planes, the C-5B and the Hercules C-130. The company also manufactures the F-15E, the ATE, and F-117A fighters.

One of the reason the company gave for leaving the airliner segment, was to commit to the military aircraft segment and missiles and space, and electronics. The company has a reputation for cost effective, technologically advanced aircraft. The company has been an above average performer for the industry. Return on equity averaged 31.92 percent, return on investment averaged 19.56 percent and return on assets 9.02 percent, all well above the average of the industry. Return of identifiable assets for the aircraft division averaged 19.4 percent for the 1982-1986 period. Table 54 shows financial information for Lockheed.

The company competes in market segments that represent 63.40 percent of industry sales and product segments that represent 69.2 percent of industry sales.

Rockwell International

Rockwell International is a major manufacturer of aircraft and aircraft avionics and electronic systems. The company competes in aerospace, aircraft manufacturing, automotive products, electronics and general manufacturing. The company was the second largest military aircraft manufacturer in the industry with an 11.17 percent of the market share. The company aircraft division produced 45 percent of company sales for the 1982-1986 period, 26 percent from the manufacture of military aircraft and 19 percent from aircraft avionics and electronics.

The company puts emphasis on basic research and its application for business. The company does not see itself competing in the low end of the market. Executives have stated that the company has the expertise and experience to compete in the high end of the aircraft market. The company sees itself manufacturing high quality products.

The company manufactures the B-1B bombers, and the OV-10 modification programs for the military.

In 1982 the company sold its Sableliner business jet line to the Sableliner Corp., getting out the business jet segment of the industry.

Financially, the company averaged a 18.26 percent return on equity, 16.04 percent return on investment and 7.74 percent return on assets, all above the averages in the industry, and the company has a return on identifiable assets for the aircraft division of 39.9 percent. Tables 51, 56 show financial performance for Rockwell.

The company competes in market segments that represent 63.4 percent of industry sales and product segments that represent 61.96 percent of industry sales.

Northop Corporation

The Northop Corporation manufactures aircraft, electronics and provides services for other corporations. The company is the world's foremost manufacturer of airborne electronic countermeasures and airborne jamming equipment.

Before the 1982-1986 period and the Reagan military buildup, the company was a laggard performer within the aircraft manufacturing industry. With their contract to build the B-1 Stealth bomber, a bomber with radically new technology, the company more than doubled their revenues to 5.6 billion in 1986. More than half of this revenue comes from the Stealth bomber.

The company's main experience is in the manufacture of small jet fighters. The company manufactures the F-5, an unsophisticated figter, up to 40 percent of the F/A-18 under subcontract from McDonnell Douglas, and the T-38 trainer. The last big aircraft the company made was the B-49 after WW II.

The company's reputation for innovation comes for its subcontracting work, specially on electronic jamming equipment. The company also manufactures the sensor systems for the F-14 Tomcats built by Grumman.

Financially aircraft systems represented 75 percent of the company's sales but only 35 percent of operating income for the 1982-1986 period. The company averaged a 14 percent return on equity, 13.26 return on investment and 5.78 percent return on assets, all below industry averages. Tables 51, 57 present financial data for Northop Corp.

The company competes in product segments that represent 97.5 percent of industry sales and market segments that represent 63.40 percent of industry sales.

General Dynamics and Cessna

General Dynamics, a defense contractor,acquired Cessna Aircraft Corp. a general aviation manufacturer, in 1985 for 594 million dollars, 30 dollars a share. The following analysis provides data for General Dynamics and Cessna up to 1985.

The General Dynamics Corporation is a major defense contractor. The company manufactures military aircraft, submarines, land systems including tanks, general aviation aircraft, and material services and resources.

The company was the third largest military aircraft manufacturer in the United States for the 1982-1986 period with a 10.3 percent market share. Military aircraft represented 57 percent of company sales for the 1982-1986 period and 58 percent of profits. The company manufactures the F-16 fighter (120 a year [81-85], 180 a year after 1985). The company also won the contract to manufacture the A-12 attack aircraft.

The company has faced complaints about the quality of its military aircraft, and the company faces a government investigation for fraudulent billing on defense contract.

Financially, the company averaged a 25.05 percent ROE, a 24.55 return on investment and a 7.44 return on assets, all above industry averages. The military aircraft division averaged a 9.56 percent return on identifiable assets for the 1982-1986 period. General Dynamics for 1982-85 competed in market segments that represent 63.40

percent of industry sales and product segments that represent 65.9 percent of industry sales.

Cessna Aircraft Corporation is the world largest General Aviation Manufacture. The company manufactures business jets, turboprops, multi and single engine aircraft. The business jets segment represents more than 60 percent of industry dales for the 1982-85 period.

The company's emphasis is on research and development and a new product development. During the 1982-1986 period, the company averaged 6.6 percent of sales in research and development. Sales for the company decreased from 1.6 billion in 1981 to 534 millions by 1983.

The strategy of the company to cope with the downturn was to rely on leasing and financial loans for its buyers.

Financially, the company averaged a 2.75 percent return on equity and 1.45 return on assets for the 1982-84 period, well below industry averages.

Cessna competed in markets segment representing 6.34 percent of industry sales and product segments representing 36.6 percent of industry sales.

Raytheon and Beechcraft

Raytheon is the ninth largest military aircraft contractor in the country, with a 5.56 market share. The company manufactures general aviation aircraft (Beechcraft), appliances, military aircraft, energy services and other products.

Within the military, the company manufactures aircraft avionics and electronics, and is a major player in the field.

Aircraft sales represented 12 percent of company sales, 2 percent of operating profits. The company major revenues come from electronics, which represent 59 percent of company sales and 8.8 percent of its profits.

The company's general aviation subsidiary Beechcraft is a major manufacturer of business jets, turboprops, multi engine and single engine planes with its King Air and Beechcraft lines.

The company's strength lies in its strong distribution system and its large customer base. During the 1982-1986 period the company put increased emphasis on research and development, relying on the strengths of its corporate parent.

Financially, the company averaged an 18.3 percent return on equity, 17.58 return on investment and 9.7 percent return on assets for the 1982-1986 period. All above the averages of the industry. Tables 51, 59 presents financial data for Raytheon.

The company competes in product segments that represent 65.96 percent of sales in the industry. The company competes in market segments that represent 63.4 percent of sales in the industry.

Fairchild Industries

Fairchild Ind. is a diversified corporation that competes in commercial and military aircraft, airline maintenance, aircraft electronics, avionics and parts, electronic industrial products and with interest in communications. General aviation aircraft, avionics and electronics and aircraft maintenance represented 42.97 percent of company sales (General aircraft 25.84 percent, aircraft parts and maintenance 17.13 percent).

The company manufactures military aircraft, the T-46A trainer and the A-10 tunderbolt attack aircraft. Military aircraft represents 49 percent of the company profits.

The company also manufactures commuter turboprops aircraft and provides part electronics and aircraft maintenance for other makers. In 1985, the company entered in joint agreement to develop a new commuter aircraft, the SF-300 with Saab-Scania, but plans for its 35 seat commuter aircraft were scrapped because of cost overruns with both its SF-300 and the T-46A trainer.

Fairchild faced tremendous cost problems during the period and they reflected on the profits of the firm. The company averages negative returns on investment for the 1982-1986 period and average of 1.95 percent return on revenue and 2.07 percent return on assets, by

far the worst performance in the industry. Tables 51 and 60 presents financial information about Fairchild.

Fairchild competes in market segments that represent 69.76 percent industry sales and product segments that represent 65.96 percent industry sales.

E-Systems

E-Systems is the preeminent manufacturer of electronic warfare systems. The company began in 1964 as a spin-off of the LTV Corporation and in that short period has become a stellar performer in the defense industry. The company largest business segments involve the design development and production of electronic systems. The company also manufactures aircraft guidance systems, communications systems and aircraft maintenance systems. More than 90 percent of sales come from sales to the military. The company has attempted to broaden its civilian sales especially in communication equipment but they have not been effective.

The company is the prime contractor of the special air mission maintenance fleet program, which includes presidential aircraft and the doomsday aircraft communication systems.

Historically, the company has had problems with marketing and high volume production. The company also has been historically weak on cost controls and management systems.

The company's emphasis is on planned growth. The company's 1986 annual report shows that their strategy calls for focused expansion in

terms of marketing and technology, to the point of total corporate concentration of resources on particular segments.

The company has been an efficient user of resources. The company has remarkably low debt, and has the highest return on assets of the industry with a 16.84 percent average for the 1982-1986 period. The company also averaged a 20.3 percent return on equity for the period, above the average in the industry and 5.8 percent return on revenues. Tables 51 and 61 present financial data for E-Systems.

The company competes in market segments that represents 63.46 percent of industry sales and in product segments that represents 61.9 percent of sales for the industry.

Gulfstream

Gulfstream Aerospace was formed in 1978 with the merger of American Jet Corporation, Grumman Aircraft Business Jet Division, and Rockwell International General Aviation Division.

The company has been a stellar performer in the general aviation segment, mainly because of its strength in business jets sales. The company's Gulfstream line maintained its sales during the worst of the 1982-1986 period and by the end of the period, sales were picking up. The company attributes its success in the depressed general aviation segment to being single minded about its corporate aircraft business. The company is not known for selling the cheapest corporate aircraft but for selling aircraft that are near the top of the market. The company is known for its willingness to do decor and modification work (up to 1 million on top of the cost of the aircraft), and for the quality, value, high cruising speeds, intercontinental range, and sophisticated avionics of its aircraft.

The company manufactures Gulfstream business jets and also has a line of cheaper commander propjets.

The company was acquired by Chrysler Corp. in 1985 so financial information is only available through 1984. During the 1982-1984 period, the company was by far the best performer in the general aviation segment with an average 26.4 percent return on equity and a 8.5 percent average return on assets, both above the average of the industry. Table 51 presents financial information for Gulfstream.

The company competes in market segments that represent 6.43 percent of industry sales and on product segments that represent 36.6 percent of sales of the industry.

Gates Learjet Corporation

The Gates Learjet Corporation manufactures one of the most popular lines of business jets, the Learjet which during the 1982-1986 period was the number two seller in the industry with a 14 percent market share.

The company suffered during the market decline of the 1982-1986 period. To boost sales the company reverted to price cutting, slashing prices up to 16 percent off the regular price of the airplanes.

The company produces two main aircraft, the Learjet 35, which sells for $2.9 million and the Lear 55, which sells for $4.7 million, both less than 2/3 of the price of comparative Gulfstreams. The company's cost cutting efforts during the 1982-1986 period were affected by the company's low production rates. The company produced an average of less than two aircraft a month during the 1982-1986 period.

During the period the company invested around 1 percent of its sales in research and development, mostly in the development of the Lear fan, an advanced turboprop aircraft the company was developing with the Avanty Corp. The company abandoned this venture in 1985 after taking a 40 million write off on the venture.

The company had a lackluster performance during the period. The company averaged a 1.5 percent return on equity. Table 51 presents financial data for Gates Learjet Corporation.

The company competes in product segments that represent 36.6 percent of sales in the industry and in market segments that represent 6.43 percent of industry sales.

LTV

The LTV Corporation is a diversified producer of steel, missiles and space technology, aircraft and energy related products. The company filed for Chapter 11 Bankruptcy because of losses in its steel divisions.

In aerospace the company is one of the oldest and largest producers of fighter systems. The company manufactures the A-7D Corsair II attack aircraft for the Air National Guard, but the company is primarily a subcontractor for both military and commercial aircraft. The company produces parts of the Boeing and McDonnell Douglas Aircraft and for the C-5B and C-17 military transport aircraft. The company manufactures frames parts, aircraft avionics, and electronics.

Financially, the aircraft division had returns on identifiable assets of 31.44 percent for the 1982-1986 period and return on revenue of 9.86 percent both above industry averages. Return on equity and investment for the whole corporation were not calculated because company lost money the whole period due to loses in the steel division. Table 62 presents financial data for LTV. The company competes in product segments that represented 97.5 percent of industry sales, and in market segements that represented 93.4 percent of industry sales.

Kaman Corporation

The Kaman Corporation is a diversified manufacturer of aerospace products. The company is organized in two divisions: diversified technologies and distribution. The diversified technologies division includes applications of basic research including computer software, electromagnetics, optics and lasers. In aerospace the company is the prime contractors for the SH lamp helicopter, manufactures mission and flight systems components for commercial and defense aircraft, and is a prime subcontractor of parts for airframes, especially fixed wings problems.

The company has stated that its strategy is to provide quality systems components and studies that are on time and on budget. The company considers its advantages lie in investing in technological leadership. It tries to achieve this by recruiting top people, being the best at what they do, being fiscally conservative, emphasizing steady over spectacular innovation and providing upgraded facilities and communication systems.

Financially, the company averaged a 14.7 percent return on equity, 10.78 percent return on investments and 6.64 percent return on assets, with the return on equity and return on investment slightly below industry averages and a return on assets slightly above industry averages. Table 51 presents financial information for Kaman.

Kaman competes in product segments that represent 30.8 percent of industry sales, and in market segments that represent 63.4 percent of industry sales.

United Technologies

United Technologies is a diversified manufacturer of building systems (Carrer, Skorsky), Power systems (Pratt and Whitney Engines), Aerospace and Defense (Sikorsky helicopters and Flight Controls) and automotive products. In 1986 aerospace systems represented 18 percent of company sales.

The company's flight systems division manufactures commercial and military helicopters, mechanical systems for aircraft, components for airframes, jet engines and flight controls, environmental controls for aircraft, command and control systems for aircraft, and military aircraft radar and computers.

The company manufactures the VH-60 Blackhawk and SH-60B Seahawk helicopters. The company has recently won contracts for pressure control equipments for the A-330 and A-340 airliners.

Financially, the company averaged a 13.3 percent return on equity, 8.76 percent return on investment and 4.8 percent return on assets, all below industry averages.

The company competes in product segments that represent 77.4 percent of industry sales and market segments that represent 63.4 percent of industry sales.

Teledyne and Curtiss Wright

Curtiss Wright and Teledyne are diversified manufacturers. Teledyne controls 53.3 percent of Curtess Wright 45 percent directly and 8.3 percent through its subsidiary the Argonaut Group. Teledyne is a diversified manufacturing of aerospace products, microwave products, consumer products, speciality products and insurance and finance.

In the aerospace industry, Teledyne manufactures airframes for the AH-64A attack helicopter, subcontracts airframe parts for the F/A-18 and F-5 fighter jets, controlled explosive devices for aircraft ejection, and continental piston engines.

During the 1982-1986 period, the company decided to overhaul its defense systems. The company decided to work on improved machine tool operations, increased investment on research and development and increased computer facilities.

Aerospace sales represented 30.42 percent of Teledyne sales and operating profits for aerospace represented 39.12 percent of operating profits. Financially, Teledyne averaged 24.5 percent return on equity, 16.04 percent return on investment and 13.0 percent return on assets, all above the average of the industry.

The company competes in market segments that represent 100 percent of sales for the industry, and in product segments that represent 77.4 percent of industry sales.

Curtiss Wright Aviation is a diversified manufacturer of aerospace products, industrial products, flow control and marine

equipment. Aerospace sales represents 57.7 percent of sales and 60.12 percent of operating profits.

In its aerospace division, the company is a prime manufacturer of actuation and control equipment for commercial and defense aircraft.

The company manufactures flight control and actuation systems for Boeing's 737, 757 and 747, and for the F-16, F-14D, F-18A and C-5B military aircraft.

Financially, the company averaged a 12 percent return on equity, 9 percent return on investment and 8 percent return on assets, all below industry averages.

The company competes in product segments that represent 77.4 percent of industry sales and in market segments that represent 100 percent of industry sales.

Piper Aircraft

Piper Aircraft Corp. is a manufacturer of General Aviation aircraft. Since 1977, the company had been a part of the Bangor Punta Corporation. In 1984, the company was acquired by the Lear Siegler Corporation.

Piper Corporation is a major producer of general aviation Aircraft. The company sells 25.83 percent of all general aviation aircraft. The company sold 17 percent of all turboprops, 25.8 percent of all single engine planes, and 41.5 percent of all twin engines aircraft.

The company has positioned itself as the aircraft company for entry level aircraft, targeting students and others that are likely to acquire aircraft. It is known in the industry as a manufacturer of inexpensive, low quality aircraft, that appeals to first time buyers.

During the 1982-1986 period, the company profits declined by 20 percent and consolidated plants and equipments to reduce costs. This was necessary due to the drop in sales. From 1982 to 1983 the number of planes sold decline from 1843 to 661 and sales revenue from $179 to $137 millions. On top of the depression, aircraft sales suffered from product liability costs, that added an average 60,000 to the cost of the aircraft.

Financially, the Piper division lost an average of $30.6 million for the 1982-83 years for which data were available. The Bangor Punta Corporation Aircraft averaged a 1.66 percent return on revenue and 1.71 percent return on assets for the 1982-83 period. Tables 51 and 65 present the financial information about Piper. The company competes in product segments that represent 36.6 percent of industry sales, and in market segments that represent 6.4 percent of industry sales.

Table 47.
Top Military Aircraft Sellers(1986).

Company	Aircraft Sales $Billions	Aircraft Sales as a Percent of Overall Sales.
McDonnel-Douglas	5.3	48
Rockwell	3.7	25
General Dynamics	3.2	30
Lockheed	2.4	43
Grumman	2.1	64.4
Boeing	1.6	36
Northrop	0.1	50

Table 48

Sales of Large Comercial Transports (1985-86).

Company	Model	1985 # Sold	Total $Billions	1986 # Sold	Total $Billions
Boeing	747	42		83	
	737	282		216	
	757	45		13	
	767	21		23	
Totals		390	14.9	341	19.2
McDonnell-D	DC-10	3		5	
	MD-80	114		109	
Totals		117	2.8	114	3.2
Airbus	A320	39		146	
	A300	24		7	
	A310	29		17	
Totals		92	3.6	170	6

Table 49.

Product and Market Segments in the Industry.

Market Segments

	1982-1986 Average (%)
Military Aircraft	63.4
Commercial Aircraft	30.2
General Aviation	6.4

Product Segments

	1982-1986 Average (%)
Small Transports	36.6
Large Transports	32.6
Helicopters	1.5
Aircraft Avionics	29.3
Electronics, and Maintenance	

Table 50

Boeing Corp. Segment Data (1986).

($M)

	Commercial A.				Military A.			
	Seg	%T	%S	%A	Seg	%T	%S	%A
Sales	9832	60	-	266	4882	30	-	214
Operating Prof	411.0	50	4	11	367	45	8	16
Assets	3691	54	38	-	2285	34	47	-
Capital S.	332	43	3	9	356	46	7	16
Depre.	200	54	2	5	136	37	3	6
Cash Flow	611	51	6	17	503	42	10	22

Table 51
Financials for Aircraft Manufacturers.

Boeing

Year	N Sales (M)	N Inc (M)	ROE %	ROI %	ROA %	ROR %	RIA CA%	RIA M%	RIA Ca+M%
86	16341	667.5	13.8	13.1	6.0	4			
85	13636	566	13	12.9	6.1				
84	10354	787	21.3	19.8	9.3				
83	11129	355	11.7	10.6	4.8				
82	9035	292	10.4	9.3	3.8				
X	12099	533.4	14.1	13.7	6.1		11.1	16.1	13.0

Five Year Trends.

	(%)		(%)
Sales	11.2	Roa	6.2
Income G	13.7	ROE	14.7
Cash Flow G	10.8	Dividiend P	28.2
Asset G	9.1	Max Sust. G	10.5

McDonnell Douglas

Year	N Sales (M)	N Inc (M)	ROE %	ROI %	ROA %	ROR %	RIA CA%	RIA M%	RIA Ca+M%
86	12660	277.5	9.8	7.7	3.5				
85	11477	347.7	13.1	10.7	4.8				
84	9662.5	325.3	13.9	13.6	5.3				
83	8111.2	247.9	13.3	12.9	5.7				
82	7331.2	214.7	11.8	11.4	4.6				
X	9848.4	288.2	12.4	11.3	4.7		3.66	5.4	4.9

Five Year Trends.

	(%)		(%)
Sales	12.8	Roa	4.6
Income G	11.7	ROE	12.1
Cash Flow G	16.8	Dividiend P	22.7
Asset G	14.0	Max Sust. G	9.3

Grumman Corporation

Year	N Sales (M)	N Inc (M)	ROE %	ROI %	ROA %	ROR %	RIA M%
86	3440.1	78.69	10.9	6.6	4.0		
85	3048.5	81.53	13.5	8.9	5.1		
84	2557.8	108.41	19.9	13.1	7.5		
83	2220.1	110.7	24.5	19.5	10.2		
82	2003.2	32.60	28.2	16.9	9.0		
X	2653.96	82.43	19.4	13	7.16		7.22

Five Year Trends.

		(%)		(%)
Sales		13.2	Roa	5.3
Income G		31.0	ROE	14.8
Cash Flow G		22.0	Dividiend P	32.2
Asset G	14.3	14.0	Max Sust. G	10.1

Table 51 Cont.

Lockheed

Year	N Sales (M)	N Inc (M)	ROE %	ROI %	ROA %	ROR %	RIA M%
86	10273	408	21.9	13.1	6.9		
85	9375	401	26.5	25.9	9.6		
84	8113.3	344	29.9	24.5	10.9		
83	6490.2	262	31.8	18.3	9.3		
82	5613	207.3	49.5	16	8.4		
X	7972.8	324.4	31.9	19.5	9.1		19.4

Five Year Trends.

	(%)		(%)
Sales	16.2	Roa	6.4
Income G	nc	ROE	22.7
Cash Flow G	23.9	Dividiend P	10.5
Asset G	21.8	Max Sust. G	20.3

Rockwell International

Year	N Sales (M)	N Inc (M)	ROE %	ROI %	ROA %	ROR %	RIA A%
86	12295.6	611.2	19.3	16.1	7.9		
85	11337.5	595.3	20.2	16.6	8.1		
84	93322.7	496.5	19.7	16.1	8.5		
83	8097.8	381.9	16.5	15.2	7.4		
82	7395.3	331.6	15.8	14.2	6.8		
X	9689.7	484.7	18.2	16.1	7.74		39.9

Five Year Trends.

	(%)		(%)
Sales	12.8	Roa	7.6
Income G	17.7	ROE	18.1
Cash Flow G	22.1	Dividiend P	30.5
Asset G	11.1	Max Sust. G	12.6

Northrop Corporation

Year	N Sales (M)	N Inc (M)	ROE %	ROI %	ROA %	ROR %	RIA M%
86	5608.3	41.2	4.6	4.6	1.5		
85	5056.5	214	23.8	23.7	9.2		
84	3687.8	166	23	23.7	9.2		
83	3260.6	100	17.5	17.1	6.3		
82	2472	5.4	1.1	1.1	0.4		
X	4017.05	105.32	14	13.2	5.78		4.83

Table 51 Cont.

General Dynamics

Year	N Sales (M)	N Inc (M)	ROE %	ROI %	ROA %	ROR %	RIA M%
85	8152.77	383.3	27.9	27.3	8.4		
84	7839.0	381.7	35.9	35.4	12.6		
83	7146.27	286.6	22.7	22.4	10.1		
82	6154.49	132.8	13.7	13.1	6.1		
X	7323.13	296.88	25.1	24.5	7.44		9.56

Five Year Trends.

	(%)		(%)
Sales	11.3	Roa	6.3
Income G	nc	ROE	17.5
Cash Flow G	3.7	Dividiend P	20.8
Asset G	15.3	Max Sust. G	13.9

Cessna

Year	N Sales (M)	N Inc (M)	ROE %	ROI %	ROA %	ROR %	RIA A%
84	801	(51)	0.3		0.1		
83	524.3	(18.4)	-		-		
82	831.5	60.52	5.2		2.8		
X			2.75		1.45		

Raytheon Corporation

Year	N Sales (M)	N Inc (M)	ROE %	ROI %	ROA %	ROR %	RIA M%
86	7307.92	393.2	20.1	19.6	11.1		
85	6408.5	375.9	17.5	18.8	10.9		
84	5995.	243.2	17.2	16.5	9.4		
83	5937.2	300.14	15.9	15.5	8.0		
82	5513.35	318.76	18.6	17.9	9.1		
X	6232.5	326.24	18.3	17.5	9.7		1.26

Five Year Trends.

	(%)		(%)
Sales	5.2	Roa	9.2
Income G	3.6	ROE	17.8
Cash Flow G	4.7	Dividiend P	37.2
Asset G	0.5	Max Sust. G	11.2

Table 51 Cont.

Fairchild Industries

Year	N Sales (M)	N Inc (M)	ROE %	ROI %	ROA %	ROR %	RIA M%
86	643.29	7.9	-		1.2	1.2	
85	855.9	(167.1)	-	-	-		
84	989.5	1.38	-	-	0.1	0.2	
83	891.59	28.4	11.8		3.1	3.2	
82	1093.26	35.28	15.2		3.9	3.2	
X			**		2.07	1.95	

** - Deficit

Five Year Trends.

	(%)		(%)
Sales	(11.8	Roa	(1.0)
Income G	nc	ROE	(4.7)
Cash Flow G	nc	Dividiend P	-
Asset G	(9.1)	Max Sust. G	(9.7)

E-Systems

Year	N Sales (M)	N Inc (M)	ROE %	ROI %	ROA %	ROR %	RIA M%
86	1135.1	61.55	17.7		13.9		
85	926.7	47.98	14.5		13.1		
84	879.3	61.10	23.3		20.6		
83	826.81	55.24	25.7		21.36		
82	754.38	35.77	20.4		15.77		
X	892.43	51.71	20.3		16.4		

Five Year Trends.

	(%)		(%)
Sales	14.9	ROR	5.79
Eps	28.4	ROE	19.9

Gulfstream

Year	N Sales (M)	N Inc (M)	ROE %	ROI %	ROA %	ROR %	RIA M%
86							
85							
84	598.63	26.47				4.43	
83	576.32	53.14				9.22	
82	575.47	43				7.74	
X	583.46	40.87				7.04	

Five Year Trends.

	(%)		(%)
Sales	-	Roa	8.5
Income G	-	ROE	26.4
Cash Flow G	-	Dividiend P	15.1
Asset G	-	Max Sust. G	22.4

Table 51 Cont.

Gates Learjet

Year	N Sales (M)	N Inc (M)	ROE %	ROI %	ROA %	ROR %	RIA M%
86			def		def	def	
85			def		def	def	
84			def		def	def	
83			0.4		0.2	0.1	
82			12.2		4.6	2.7	
X	583.46	40.87				7.04	

Five Year Trends.

	(%)		(%)
Sales	(8.4)	% Sales in Air Seg	8.5
Eps	def	ROE	1.5

LTV Corporation. (Aircraft Segment)

Year	N Sales (M)	N Inc (M)	ROE %	ROI %	ROA %	ROR %	RIA A%
86	1083.2	95.3				8.7	32.4
85	978.5	119.6				12.2	44.6
84	526.3	45.8				8.7	17.34
83							
82							
X	826.6	86.9				9.86	31.4

United Technologies.

Year	N Sales (M)	N Inc (M)	ROE %	ROI %	ROA %	ROR %	RIA M%
86	15699.7	72.7	1.3	0.8	0.4		(14.9)
85	14991.6	312.72	16.5	11	6		5
84	16331	645	17.7	11.8	6.5		12.3
83	14699.2	509.17	15.7	10.7	5.8		
82	13557.2	533.2	15.3	9.5	5.3		
X	15043.8	414.65	13.3	8.76	4.8		.78

Five Year Trends.

	(%)		(%)
Sales	3.2	ROA	4.5
Inc G	(26.1)	ROE	12.9
Cash F G	(2.0)	Dividend P	35.4
Assets G	8.6	Max S G	8.3

Table 51 Cont.

Kaman

Year	N Sales (M)	N Inc (M)	ROE %	ROI %	ROA %	ROR %	RIA M%
86	587.6	20.25	14.8	9.5	6.4		
85	556.4	19.11	15.9	13.1	8.5		
84	537.97	17.15	16.5	12.5	7		
83	475.38	12.81	14.1	10.3	5.9		
82	416.48	9.24	11.9	8.3	5.5		
X	514.69	15.71	14.7	10.7	6.6		

Five Year Trends.

	(%)		(%)
Sales	7.6	Roa	6.6
Income G	20.5	ROE	14.6
Cash Flow G	19.8	Dividiend P	23.4
Asset G	13.1	Max Sust. G	11.2

Teledyne

Year	N Sales (M)	N Inc (M)	ROE %	ROI %	ROA %	ROR %	RIA M%
86	3241.4	283.4	14.6	10.8	8.7		
85	3256.8	546.4	34.6	24.3	19.8		
84	3494.2	574.3	49.5	25.8	20.6		
83	2979.0	304.6	11.5	9.5	7.9		
82	2863.8	260.8	12.5	9.8	8		
X	3166.96	384.8	24.5	16.1	13		

Five Year Trends.

	(%)		(%)
Sales	1.6	ROA	12.8
Inc G	.3	ROE	21.6
Cash F G	1.3	Dividend P	0
Assets G	(2.9)	Max S G	21.6

Table 51 Cont.

Curtiss-Wright

Year	N Sales (M)	N Inc (M)	ROE %	ROI %	ROA %	ROR %	RIA M%
86	166.4	22.7	12	9	8		
85	159.9	(42.3)					
84	144	1.8					
83							
82							
X	156.9						

Five Year Trends.

	(%)
Sales	4.6
Income G	346.7

Piper(Bangor Punta Corporation)

Year	N Sales (M)	N Inc (M)	ROE %	ROI %	ROA %	ROR %	RIA M%
86							
85							
84	547.7	(1.8)			(.3)	(3.2)	
83	622.3	20.7			3.75	3.32	
82	585	9.45			1.71	1.65	

Table 52

McDonnell-Douglas. Segment Data (1986).
($M)

	Combat A.		Transport A.	
	Seg	% of Total	Seg	% of Total
Sales	6033.6	48	3455.1	27
Operating Prof	405.2	79	104.7	20
Depre.	121.7	37	48.9	15
Cap Exp.	338.5	50	162.1	24
Assets	7477	55	2853	21

Table 53

Grumman Corporation. Segment Data (1986).
($M)

	Avionics	
	Seg	% of Total
Sales	2835.26	72
Operating Prof	92.91	57
Depre.	59.73	74
Cap Exp.	125.57	64
Assets	1286.6	64

Table 54

Lockheed Corporation. Segment Data (1986).
($M)

	Aeronautical systems	
	Seg	% of Total
Sales	4389	43
Operating Prof	455	60
Depre.	90	33
Cap Exp.	196	42
Assets	2346	41

Table 55

Average Ratios for Aircraft Companies and Comparison with Industry Averages.

Company	R/S (%)	In/S (%)	CG/S (%)	Rd/S (%)	Ad/S (%)	Ca/S (%)	Lr/S (%)	Am/S (%)	Rev/ Emp
Boeing	7.3	19	85	4.6	-	3.3	27.8	8.6	145.13
Fairchild	14.7	23.3	73.1	1.7	-	2.1	-	18.2	37.5
Gen Dy	21.9	4.3	82.4	3.0	-	4.02	33.2	6.4	91.2
Grumman	16.8	16.8	89.5	2.3	-	5.5	-	12	103.7
Kamman	18.6	16.2	72.4	4.8	3.4	1.5	-	19.2	128.5
Lockheed	15.1	10.7	90.1	4.8	-	6	35.4	-	128.4
MDD	11.6	20	79.5	4.0	-	4.8	32.8	14.2	136.13
Northrop	11.1	9.6	84.1	6.7	-	8.5	45.6	11.2	134.7
Ltv	10.6	15.7	89.4	.3	.75	3.3	-	5.8	139.7
Rockwell	13.9	10.6	76.1	3.3	-	5.3	43	11.4	102.5
Raytheon	10.8	12.8	76.7	3.5	-	5.3	32.8	13.2	103.9
Teledyne	11.9	6.5	75.1	2.6	-	3	-	13.2	97.7
CurtissW	19.8	15.2	63.8	2.2	-	8.6	31.5	23.7	83.3
Cessna	11.1	30.1	90.1	7	.7	1.4	-	18.7	86.2
Gates L	10.7	31.1	79.4	2.4	1.1	14.9	-	20.4	90
United T	13	21.6	71.6	6.1	-	5	29.4	20	88.4
Gulfstre	7.2	49.2	72.4	-	4	3.1	-	10.7	-
E-Systems	19.9	9.9	79.7	-	-	4.4	-	8.2	91.6
Means	15.6			16.0			78.1		3.1

R/S - Recievables over sales
In/S - Inventory over sales
Cg/S - Cost of Goods sold over sales
Rd/S - Research and Development expenses over sales
Ad/S - Advertizing Expenses over sales
Ca/S - Capital expenditures over sales
Lr/S - Labor Expenses over sales
Am/S - Administrative expenses over sales
Rev/Emp- Revenues/employees

Table 56

Rockwell International. Segemtn Data (1986).
($M)

	Aeronautical systems	
	Seg	% of Total
Sales	5545	45
Operating Prof	571.1	47
Depre.	116.8	23
Cap Exp.	101.2	20
Assets	1431	-

Table 57

Northrop Corporation. Segment Data (1986).
($M)

	Aircraft systems	
	Seg	% of Total
Sales	4233.79	75
Operating Prof	66	35
Depre.	164.6	77
Cap Exp.	243.5	70
Assets	1808.7	73

Table 58

General Dynamics and Cessna. Segment Data (1986).
($M)

	Government A.		Cessna	
	Seg	% of Total	Seg	% of Total
Sales	499.69	56	539	6
Operating Prof	478.4	209	(486)	(212)
Depre.	125.6	48	14.3	6
Cap Exp.	278.3	68	14.4	4
Assets	1786.3	46	423.8	11

Table 59

Raytheon. Segment Data (1986).
($M)

	Aircraft Div. Seg	% of Total
Sales	868	12
Operating Prof	11	2
Depre.	47	20
Cap Exp.	45	13
Assets	910	26

Table 60

Fairchild. Segment Data (1986).
($M)

	Sales	% of total
General Aviation	221.18	25.84
Aircraft Avionics	146.59	17.13

Table 61

E-Systems. Segment Data (1986).
($M)

	Aircraft Avionics Seg	% of T
Sales	1135	90+
Net Inc	61.4	90+

Table 62

LTV Corporation. Segment Data (1986).
($M)

	Aircraft Segment Seg	% of T
Sales	1083.2	14.89
Net Inc	95.3	-
Assets	293.5	5.3

Table 63

United Technologies. Segment Data (1986).
($M)

	Flight Systems	
	Seg	% of T
Sales	2843.58	18
Oper Inc	(288.39)	(161)
Depre.	80.94	19
Cap Exp	133.57	17
Assets	1691.46	18

Table 64

Teledyne and Curtiss Wright. Segment Data (1982-1986).
($M)

	Teledyne		Curtiss-Wright	
	Seg	% of T	Seg	% of T
Sales	1432.93	30.42	98.1	57.4
Oper Inc	117.36	39.32	19.1	60.12
Depre.	35.1	32.02	5	53.76
Cap Exp.	55.5	48.02	13.7	68.5
Assets	337.9	12.17	86.9	57.47
Cap Exp	133.57	17		
Assets	1691.46	18		

Table 65

Piper Corporation. Segment Data (1986).
($M)

	Seg	% of T
Sales	197.6	34.68
Oper Inc	(30.6)	(159.3)
Depre.	9.2	31.4
Cap Exp	8.9	29.2
Assets	161.7	30.2
RIA	(18.92)	

Table 66
Competitors and Product Segments.
Aircraft Industry. 1982-1986.

	Small Trans. 36.6	Large Trans. 32.6	Helicop. 1.5	Aircraft Avionics 29.3	Total
Boeing	*	*	*		70.8
McDon.D.	*	*	*		70.8
Grumman	*			*	65.9
Lockheed	*	*			69.2
Northrop	*	*		*	95.7
Gen Dyn.	*			*	65.9
Cessna	*				36.6
Raytheon	*			*	65.9
Beechcraft	*				36.6
Fairchild	*			*	65.9
E-Systems		*		*	61.9
Gulfstream	*				36.6
Gates L.	*				36.6
LTV	*	*		*	97.5
Kaman	*		*	*	77.4
UT	*		*	*	77.4
Teledyne	*		*	*	77.4
Curtiss W.				*	29.3
Piper	*				36.6

Table 67
Competitors and Market Segments.
Aircraft Industry. 1982-1986.

	Military Aircraft 63.4	Commercial Aircraft 30.2	General Aviation 6.4	Total
Boeing	*	*		93.6
McDon.D.	*	*		93.6
Grumman	*			63.4
Lockheed	*			63.4
Northrop	*			63.4
GenDyn.	*			63.4
Cessna			*	6.4
Raytheon	*			63.4
Beechcraft			*	6.4
Fairchild	*		*	69.8
E-Systems	*			63.4
Gulfstream			*	6.4
Gates L.			*	6.4
LTV	*	*		93.6
Kaman	*			63.4
UT	*	*		93.6
Teledyne	*	*	*	100
Curtiss W.	*	*	*	100
Piper			*	6.4

APPENDIX C

THE TIRE INDUSTRY

This case examines the strategies and performance of firms in the tire industry between 1982 and 1986. The five year period studied is consistent with the other cases. The case study provides a historical perspective of the industry, followed by an examination of the structure of the industry, the product and market segments, the competitive environment, and the strategies and performance of firms in the industry.

OVERVIEW AND HISTORICAL PERSPECTIVE

The tire industry (Sic 3011) includes truck, bus, passenger car, industrial, farm equipment, aircraft, and motorcycle tires. The beginnings of the industry can be traced to the automobile and the industrial revolution. The growth in numbers and in importance of the automobile for transportation, meant a similar growth in the tire industry.

From the end of WWII through the 1960's, the industry was a very stable one, with relatively little changes in products and production methods (the only major change being the introduction of synthetic rubber). Since the 1970's, however, the industry has been affected by technological changes, international competition and accelerated capital mobility that have caused structural changes in the industry. (Jeszeck,1986).

The two major changes in the industry were the introduction of radial tires and the intensifying of international competition. International competition changed the structure of the US tire industry. Although the US traditionally has been the world's largest tire market, with 44 percent of world sales, it has also been a tough market to crack because of the need of an extensive dealer network and because of severe price competition. Imports began to make inroads in the 1970's, going from 1 percent of sales to around 16 percent, and become an important force in the market.

The second important source of change in the industry was the introduction of radial tires. Radials went from no market before the 1960's to being "de rigeur" original equipment tires and the biggest segment of the US tire market. Radial tires also provided an opening for foreign competition in the US market because the Japanese and European markets had adopted radials before the US and possessed the production capacity and knowledge of radials US firms did not have.

The presence of high competition meant low profits for the industry; average profit margins ranged from 2.5 to 3 percent from tire operations for firms in the industry as compared with a 5 percent average profit margin for all industries. Low margins in the industry were due mainly to intense competition and reliance on petroleum. Oil prices affected the industry both directly and indirectly.

The 1982-86 period was characterized by consolidation in the industry. Two of the major producers in the industry faced the threat of takeovers during the period and a number of firms scrambled to

integrate in order to produce better margins and eliminate the threat of corporate raiders.

Sales in the industry averaged $ 12 billion, with an average annual growth between 1982-86 of 3.2 percent. Growth in the industry came mainly from the radial tire segment, which grew steadily during the period.

The average contribution to sales of each major market segment in the industry during the 1982-86 period were: Original equipment tires, 25 percent of industry sales, replacement tires 36 percent, private label sales 26 percent, and direct distribution 13 percent. The major product segments in the industry were Passenger tires (radials 39.9 percent of industry sales, non radials 17.9 percent), Truck and bus tires 12.5 percent, tractor and implement tires 1.7 percent, retreads 15 percent, and speciality (motorcycle, off-road, aircraft,and industrial tires) 13 percent of industry sales.

INDUSTRY STRUCTURE

The tire industry had an average 4 firm concentration ratio of 69 percent during the 82-86 period. Consolidation in the industry, especially among the major tire makers is likely to boost that ratio even higher in the near future. Contributing to the high concentration ratio were the high barriers to entry in the industry, due to the amount of capital necessary to compete, both in terms of production capacity and a dealer network. With the increase in demand in radial tires, enormous amounts of expenditures in research and development were necessary to keep up with the newest innovations in

radial tires. High barriers to exit also contributed to high concentration in the industry. The nature of specialized technology and machinery, translated into high write offs for firms that attempted to leave the industry.

The tire industry is mature, with growth for the period averaging 3.2 percent. At the beginning of the 1982-86 period the industry was affected by lackluster sales of new automobiles and an increase of imports from Japan and Europe which came with foreign tires. The industry fell within the cutoff points established in the study for a domestic industry. Even with sizable increases in sales of imports since the 1970's (from less than 1 percent to 16 percent), the value of exports + imports as a percentage of total sales in the industry averaged 19.4 percent for the 1982-86 period, well below the 30 percent cutoff point. The tire industry can also be classified as heterogeneous. The industry averaged a 1.54 percent advertising to sales ratio for the period, above the 1.5 percent cutoff point, and averaged research and development expenditures as a percentage of sales of 1.64 percent. Most of the R&D expenditures were directed at the radial segment, the hottest growth segment in the industry. The industry can also be construed as heterogeneous because of the sizable price differences between products in the industry.

Segments of the industry are characterized by the presence of powerful buyers. The OE segment, which represents 27 percent of industry sales, had only three major buyers, Ford, GM, and Chrysler, during the 1982-86 period. With the advent of Japanese transplants,

this number can be expected to increase in the future. Table 68 presents products and market segments in the industry.

THE COMPETITIVE ENVIRONMENT

The industry was affected at the beginning of the period by the recession in the US, the increases in the price of oil, and the slowdown of the auto industry. Recession and the problems in the auto industry affected sales in the industry, especially in the OE segment, and caused customers to become more price sensitive. The price of oil affected the industry directly because oil is a major component of tires, thus causing major cost increases, and indirectly because of the shock it caused to the US economy. The high degree of rivalry during the period was caused by the slow growth in most segments of the industry, and the high growth in the radial segment. Firms competed strongly in the diminishing non radial segment, while at the same time attempting to acquire a sizable presence in the radial segment.

Differentiation of products in the industry is mostly done through new technology. Products in the industry are mostly differentiated through the introduction of technological advances. The industry has high costs of entry because of the high degree of technology and the amount of machinery necessary to produce tires at an adequate scale, and the dealer network necessary for survival. Those are also the most important requirements for success in the industry. The specialized nature of the machinery also constitutes an

important barrier to exit. The machinery in the tire industry can be used for little else.

COMPETITORS

The four major competitors in the industry are: Goodyear, Firestone, Bridgestone, and General Tire Corp. The primary characteristic of the main competitors in the industry is that they compete in the original equipment segment of the industry, which traditionally has been one of the most stable and profitable ones. The appearance of Bridgestone in the big four, also signifies the new competition in the industry from foreign manufacturers. The foreign competitors entered the market mainly on the strength of the quality of their radial tires, have gone on to gain a sizable piece of the US tire market.

Goodyear is the biggest tire maker in the US and a powerful force in the market. Goodyear competes in all product and market segments in the industry, except retreads. Goodyear had an important hand in developing the direct distribution segment of the market, as a way to counter the competition of foreign firms. Although the quality of its radial tires was suspect at the beginning the company has been able to improve its quality and its top of the line Eagles compete with Pirelly of Italy and Michelin of France for the high end of the market. The company also is an important force in the private label segment of the market, with its Kelly-Springfield group, which mainly manufactures tires for retailers such as Sears and K-Mart.

Firestone has competed strongly in the direct distribution segment of the industry. Major producers in the industry saw direct distribution as a way to counter the downturn in the industry and to improve margins. Firestone competes also in all market segments in the industry and in all product segments except retreads.

Bridgestone is one of the most powerful foreign competitors in the US. The company has been able to crack the original equipment niche of the market, thereby establishing itself as a power in the industry. Bridgestone started competing in the US mainly through its radials, but the company competes in all product and market segments in the industry except direct distribution of tires and retreads.

General Tire Corp, although sell original equipment tires, is the weakest company of the group. A division of Gulf and Western Corp. , General Corp has attempted to compete as a broad line producer. The company has substantial problem trying to maintain its original equipment business, and the attempt at being a broad line producer has hurt the company because it has not been able to develop an identity with the consumers. General Tire competes in all product and market segments except direct distribution and retreads.

Other important competitors include Bandag, who is the world largest retread tires company. Bandag concentrates in retread tires and has been extremely successful company at that. Makers such as Cooper and Armstrong tires concentrate on the replacement market. The quality of replacement tires is usually below that of original equipment tires. Cooper and Armstrong are also important players in the private label market. Private label manufactures make tires for

other companies to sell under their names. Usual clients of private label tires include Department stores, major oil companies for their gas stations, and tire wholesalers. Other important private label manufacturers include Mohawk, Standard Products, TBC, and Jepson. Finally, a host of competitors in the industry manufacture speciality tires. Speciality tires include aircraft, motorcycle, off road, competition, and recreational equipment tires. Makers of speciality tires include Carlisle, Arkansas Best Corp, Banner Industries, which is an important manufacturer of aircraft tires, and McCreary Corp.

Tables 69 and 70 present the competitors in the industry and the products and market segments in which they compete, table 71 presents segment performance data for all competitors, and table 72 presents selected ratios for firms in the industry.

Table 68

Product and Market Segments in the Tire Industry (1982-86)

Product Segments in the Industry

Segment	% of Ind. Sales
Passenger Tires	
Radials	39.9
Non Radials	17.9
Truck and Bus Tires	12.5
Tractor and Implement	1.7
Retreads	15
Speciality (Industrial, Motorcycle, Aircraft, Off-road)	13
	100

Market Segments in the Industry

Segment	% of Ind. Sales
Original Equipment	25
Replacement Tires	36
Private Label	26
Direct Distribution	13
	100

Table 69

Competitors and Product Segments

Tire Industry (1982-86)

Firm	Rad.	Non Rad	Truck & Bus	Farm & Imp	Retr.	Speci.	Tot
	39.9	17.9	12.5	1.7	15.0	13	
Ark. Best				*			1.7
Armtek(Armstrong)	*	*	*	*		*	85.0
Alliance	*	*	*				70.3
Bandag					*		15.0
Banner						*	13.0
Carlisle						*	13.0
Cooper	*	*	*				70.3
Firestone	*	*	*	*		*	85.0
Goodrich	*	*	*	*			70.3
Goodyear	*	*	*	*		*	85.0
Jepson	*						39.9
Mohawk	*	*	*				70.3
McCreary			*			*	25.5
St Prod			*				12.5
TBC			*				12.5
Bridgestone	*	*	*	*		*	85.0
General Corp	*	*	*	*		*	85.0

Table 70

Competitors and Market Segments

Tire Industry (1982-82)

Firm	Orig. Eq.	Replac.	Private L	Direc. Dist.	Total
	25	36	26	13	
Ark. Best		*			36
Armtek(Armstrong)		*	*		62
Alliance			*		26
Bandag		*			36
Banner		*			36
Carlisle		*			36
Cooper		*	*		62
Firestone	*	*	*	*	100
Goodrich		*	*	*	84
Goodyear	*	*	*	*	100
Jepson			*		26
Mohawk			*		26
McCreary		*			36
St Prod			*		26
TBC			*		26
Bridgestone	*	*	*		87
General Corp	*	*	*		87

Table 71

Performance and Segment Data for Tire Industry (1982-86)

Firm	Segment Performance		Sales as	Overall Performance	
	ROA	ROR	% of total	ROI	ROE
Ark. Best	17.6	10.1	7	8.5	15.9
Armtek(Armstrong)	4.8	2.9	100	.83	(.6)
Alliance	(2.9)	(2.8)	100	(22.8)	(44.7)
Bandag	29.5	23.2	100	27.1	28.7
Banner	25.9	16.9	64	4.3	9.3
Carlisle	18.2	7.8	34	11.1	10.3
Cooper	12.2	7.3	100	9.8	12.5
Firestone	2.8	1.8	100	1.3	1.6
Goodrich	9.8	4.8	74	(6.9)	(.94)
Goodyear	8.4	4.9	86	6.3	8.3
Jepson					45.9
Mohawk	8.3	4.3	100	12.3	15.1
McCreary	27.4	13.4	13.8	9.3	11.4
St Prod	22.9	12.3	16	20.6	24.5
TBC	8.7	2.4	100	11.6	11.7
Bridgestone	2.1	1.8			
General Corp	11.5	7.06	64.5	5.0	6.1

Table 72

Selected Ratios for firms in the Tire Industry(1982-86)

Firm	Rect / S	Inv / S	Cog / S	Xad / S	Xrd / S	Capx / S	Xlr / S	Sga / S	Rev Emp
Ark. Best	7.3	5.1	90.7			9.3			80.9
Armtek	14.3	17.3	77.4		1.9	8.2		14.6	176.3
Alliance	41.3	34.4	81.6		.2		35.5	7.4	58.2
Bandag	27.5	10.1	56.3	1.5	1.9	4.1	15.7	18.1	233.7
Banner	16.4	41.1	72.5			.6		19.8	334.7
Carlisle	15.1	12.6	70.8	.95	1.6	4.5	27.9	15.1	111.9
Cooper	16.5	13.1	83.9		1.4	6.1	28.2	5.8	132.7
Firestone	15.6	13.1	75.1	2.1	1.9	5.9		18.2	68.5
Goodrich	12.7	13.1	71.8	1.1	2	5.2	30.4	20	113.4
Goodyear	13.5	13.7	75.5	2.1	2.9	8.1	26.9	14.7	77.03
Jepson	18.5	21.1	73.2	1.2		2		16.4	
Mohawk									
McCreary	16.6	17.1	65.8			2.7		24.1	167.7
St Prod	15.3	8.5	83.1		1.1	3.5		4.9	102
TBC	16.1	9.2	94.8			.7		2.1	208.2
Bridgestone									
General Corp	17.1	9.6	73.4	1.6	2.2	3.5		16.4	70.1

APPENDIX D

THE HOUSEHOLD APPLIANCES INDUSTRY

This case examines the strategies and performance of firms in the household appliances industry (SIC codes 3631, 3632, 3633, and 3634). Unlike the other cases, this case includes four SIC codes due to the impossibility of separating them. Given their particular characteristics, they are considered one industry. The 1970-86 period was a very fluid period in the industry, but at one time or another most firms in the industry have competed in a majority of the segments of the industry. Further, from a technological standpoint, there are no significant differences between the technologies employed in various SIC code segments of the household appliances industry. Thus it makes sense from a research standpoint to consider them as part of one industry.

As in the other cases, the examination will concentrated on the issues of scope and competitive weapons, and the 1982-86 period studied is consistent in the aggregation with the other cases. The case provides an overview and historical perspective of the industry, followed by an examination of the structure of the industry, the product and market segments, and finally strategies and performance of firms in the industry.

OVERVIEW AND HISTORICAL PERSPECTIVE

For the household appliances industry, the 1982-86 period was important because it sealed the consolidation of the industry. While during the 1960's and early seventies, most players competed in segments of the industry, (eg. Maytag - washers, Whirpool - washers, Ge - refrigerators and small appliances) by the end of the 1970's the firms in the industry had completed steps to compete in most of the product segments in the industry (refrigerators, stoves, washers & dryers, dishwashers, and small appliances). The consolidation of the industry is also demonstrated by the fact that after WW II there were over 250 major appliances manufacturers in the US, but by 1980 that number had been reduced to around 25. The number of dropouts increased steadily because of slow growth, slim margins, and lack of new product innovations other than the microwave oven.

A characteristic of the industry was an emphasis in manufacturing efficiencies. With cutthroat competition in the industry, the emphasis returned to reducing costs and increasing productivity. This trend was excalated by the 1980-83 slump in the industry that had factories running at 60 percent capacity. The productivity increases and corresponding increases in quality, worked to blur distinctions among brands. This was one of the main drivers toward full lines of products, so that advertising economies of scale and brand recognition could be achieved. Another driver toward producing full lines of products was that the appliance

retailers, both the regional mini chains and the independent store owners, preferred to carry a large variety of brands and full product lines. The consolidation of the industry was also interesting because firms such as American Motors, GM, Ford, Westinghouse, and United Technologies left the industry. The industry was left with 4 full line producers; GE, Whirpool, White Consolidated, and Raytheon, and a host of speciality producers. Sales f major appliances were broken down as follows: Refrigerators 16 percent, dryers, 10 percent, microwave ovens 14 percent, dishwashers 8 percent, gas ranges 5 percent, freezers 5 percent, electric ranges 7 percent, room air conditioners 10 percent, washers 14 percent, and other 11 percent. Table 73 presents market share for major producers by segment of the industry.

Historically, foreign trade has not been significant in the appliance industry. Before 1970 imports and exports represented less than 5 percent of industry sales. In 1970 imports and exports started to increase and for the 1982-86 period they represented an average 19 percent of industry sales (imports 13 percent, exports 6 percent).

Sales in the industry averaged $11 billion dollars for the 1982-86 period and the industry grew at an average 2.6 percent annual rate for the period.

The major market segments in the industry as an average for the 1982-86 period were: New homes, 27 percent of industry sales, department stores anddiscount stores 26 percent, appliance retailers 19 percent, and private label sales 28 percent. The major product

segments for the 1982-86 period were: Washers, dryers, and, dishwashers 22.8 percent of industry sales, Refrigerators, freezers, and cooling equipment 26.6 percent, Kitchen ranges and ovens 30.9 percent, and small kitchen appliances 19.6 percent. Table 2 presents product and markets segments for the industry.

INDUSTRY STRUCTURE

The household appliances industry is highly concentrated. The four SIC codes that comprise the industry (3631, 3632, 3633, 3634) average a 67 percent 4 firm concentration ratio (lowest = 52, Highest =89). Consolidation in the industry is likely to make this number even higher. This consolidation also suggests that in the near future the distinctions between these SIC code will disappear. This consolidation has also meant an increase in barriers to enter the industry, and a renewed importance of economies of scale and productivity.

The household appliances industry is mature. The industry was severely affected by the recession at the beginning of the eighties. When the economy began to pick up, so did the industry. In assessing the growth of the industry the relationship between new housing starts and appliance sales is important. New housing starts account for over 25 percent of appliances sales, so when the housing market began to pick up in the mid eighties, so did the appliances industry.

As noted before, the number of imports and exports are beginning to become a factor in the industry. Foreign firms such as

Electrolux and Phillips have become important players in the industry. Factors affecting exports and imports were the strength of the US dollar, and the economic recovery, which increased imports by as much as 70 percent.

The household appliances industry can be considered as heterogeneous. The industry averaged an advertising to sales ratio of 4.09 percent and research and development expenditures over sales of 2.51 percent for the period, well above the cutoff points established for the study. Other variables that point toward heterogeneity in the industry are the different technologies utilized by firms in the industry and pricing differences between products (by as much as $100 dollars for similar products). For example, Maytag, with its reputation for reliability prices its products well above what other firms in the industry charge.

THE COMPETITIVE ENVIRONMENT

The industry is characterized by the presence of powerful buyers. The housing segment commands over 25 percent of industry sales. The Department stores is also comprised of powerful buyers. This segment represents over 15 percent of industry sales and saw a reduction in the number of national department stores that carry household appliances from four to two during the 1982-86 period, increasing the buying power of those that stayed.

During the period the competitive environment has been characterized by tremendous consolidation. The most important characteristic was the exit of numerous firms from the industry, and

the drive by major producers toward integrated full product lines. The days in which major appliance producers could survive manufacturing a single product disappeared in the 1982-86 period. Competition from other firms and economies of scale in distribution and advertising also fueled the drive toward full product lines.

Those factors, aided by slow growth in the industry also fueled the high degree of rivalry in the industry. The natural cycle of the industry also worked to increase rivalry. Once most Americans owned major appliances, new business in the industry came from new housing starts, because major appliance only need to be replaced every 10 to 15 years on the average, thus the slow growth in the industry. One segment that showed above average growth was the dishwashers segment, because of lack of saturation of the segment. Most old houses were built without one, so there was room to grow in both new housing starts and old houses. The dishwasher segment, with its above average growth, thus became one of the most important areas of competition in the industry.

Differentiation of new products in the industry is done by both advertising and new technologies. An important source of differentiation in the industry is the ability to produce technology laden products. Differentiation is also achieved through advertising, which is mainly directed at pointing out the technological differences between products or the reliability of the products. GE is the pricing and technological leader in the industry. It is the pricing leader mainly because it is the leader in the housing segment. GE's power as the leader in the industry is

shown by its ability to influence the the colors of products in the industry. When GE slightly altered the colors of its products in 1983, all other firms had to follow, or risked losing sales in the housing segment.

The industry had high barriers to entry, mainly in terms of technology, economies of scale, and access to distribution channels. Technology was important both in terms of productivity and costs, which made it hard for new entrants to compete, but also in terms of the amount of technological features present in the products. Economies of scale in terms of production translate into cost advantages for existing competitors. Access to distribution channels was also important, because with the number of existing brands vying for space, distributors need special justification to add a new one.

COMPETITORS

In terms of competitors, the most important characteristic of the industry is the reduction of the number of firms in the industry in the last 40 years. Since WWII, the number of household appliances manufacturers in the US has been reduced from 230 to around 25. As a result the industry has become highly concentrated. The top four manufacturers in the industry, GE, Whirpool, White Consolidated, and Maytag/Magic Chef account for over 61 percent of sales in the $15.7 billion industry. The industry shakeout split the industry into two groups: A group of full line manufacturers, whose primary interest is competing in all market

segments and product lines in the industry, and a handful of speciality retailers that thrive by competing in particular segments of the market.

The four main competitors in the industry, General Electric, Whirpool, White Consolidated, and Maytag/Magic Chef spent the 1982-86 period in consolidation and cost reductions. The consolidation was done by making sure that the companies competed in all the market segments in the industry. GE for example entered the microwave business because its lack of microwave products put it in a disadvantaged position vis a vis other competitors in the industry. Maytag, an important manufacturer of washers and dryers, acquired Magic Chef because of its strengths in the ranges and refrigerators product segments. All the companies in the industry took considerable cost reduction steps in order to be competitive in the industry.

General Electric is the industry leader in the dishwashers, refrigerators and electric ranges segments of the industry. The company is especially powerful in the New Homes segment of the industry. The company spent heavily on manufacturing efficiency. product quality, and cost cutting (Over $1 billion for the 1982-86 period). The company is also the leader in the industry's ploy to offer all products at all price points in all places. The traditional strength of the company has been in medium priced models, but during the period the company also added on high-end and stripped down low price models.

Whirpool is the market leader in washers and dryers. The company sells half its products under its own brand name and half under Sears Kenmore brand. Determined to hang on to its edge in productivity in the industry, Whirpool spent $148 million in the period to overhaul its washer and dryer factory, and to design a new washer with 1/3rd less parts and that weighted 16 percent less. As a result of its cost cutting, Whirpool reduced its inventory of finished goods by 16 percent and was able to negotiate new labor contracts. Although competing in most product/market segments in the industry, the company's strategy calls for appealing to status conscious buyers. The company is counting on its premium priced line to solidify its reputation among affluent consumers. Whirpool competes in all product/market segments in the industry except new homes and small appliances.

White Consolidated is the industry cost cutter. Its cost cutting tactics and union busting ways have earned the company the moniker "bloody" White. The company has become an industry powerhouse mainly through cost cutting and acquisitions. Usually, within a year of an acquisition the company turns around the red ink. Even though White has some of the oldest plants in the industry, it has avoided big capital spending, concentrating mainly in streamlining operations, and slashing labor and overhead costs. White Consolidated, although offering a wide array of products, aims mostly at offering the lowest cost products in the industry. White competes in all product/market segments in the industry except private label sales and small appliances.

Maytag is the industry high-end manufacturer. The company charges a premium price for its products, has insulated itself from price wars and has maintained margins twice the industry average. This strategy has been highly successful, with over 60 percent of the company's sales being repeat customers. During the period, the company went from a specialized washer and dryer manufacturer, with its acquisitions of Jenn Air, Hardwick, and Magic Chef, doubling the company's sales to an average $1.3 billion a year. The company competes in all product/market segments in the industry except private label sales.

Other makers in the industry include Raytheon, whose $550 million a year appliance subsidiary manufactures the Amana, Speed Queen, and Caloric brands of refrigerators, ranges and washers, microwave manufacturers such as General Microwave, and Litton, and small appliances manufacturers such as National Presto, Newell, Premark, Robenson, Rival and Black and Decker. Tables 75 and 76 presents competitors and product and market segements in the industry, table 77 presents segment performance data for all competitors, and table 78 presents relevant ratios for competitors in the industry.

Table 73

Market Shares By Products and Major Appliances Manufacturers (1982-86)

Refrigerators	Market Sh%
GE/Hotpoint	30
Whirpool	26
White Consolidated	21
Admiral	13
Washers	
Whirpool	52
Ge/Hotpoint	14
Maytag	15
White Consolidated	10
Dishwashers	
Ge/Hotpoint	39
Whirpool	18
Electric Dryers	
Whirpool	54
GE/Hotpoint	14
Maytag	12
White Con	10

Electric Ranges	Market Sh%
GE/Hotpoint	29
White Con.	14
Whirpool	15
Roper	12
Gas Ranges	
Magic Chef(Whir)	23
Tappan	25
Caloric	17
Roper	14
Microwaves	
Sanyo	22
Sharp	15
Quasar	13
Samsung	11
Goldstar	9

Table 74

Product and Market Segments in the Industry (1982-86)

Product Segments	% of Ind. Sales
Washers/Dryers/Dishwashers	22.8
Refrigerators and Cooling Eq.	26.6
Kitchen Ranges and Ovens	30.9
Small Kitchen Appliances	19.6

Market Segments	% of Ind. Sales
New Homes	27
Department Stores/Discounts St.	26
Appliance Retailers	19
Private Label	28

Table 75

Competitors and Product Segments

Household Appliances Industry (1982-86)

	W/D/D	Ref& Cool.	Ranges & Ovens	Small Appli.	Total
Chicago P	*				22.8
General Micro.			*		30.9
Litton			*		30.9
Maytag	*	*	*	*	100
National P				*	19.6
Newell				*	19.6
Premark				*	19.6
Preway				*	19.6
Rangaire		*			26.6
Robenson				*	19.6
Rival				*	19.6
Whirpool	*	*	*		80.4
White Con	*	*	*		80.4
GE	*	*	*	*	100
Black & D				*	19.6
Raytheon	*	*	*		80.4

Table 76

Competitors and Market Segments

Household Appliances Industry (1982-86)

	New Homes	Dept St/ Disc. St	Applia Ret	Priv Label	Total
Chicago P		*			26
General Micro.		*			26
Litton		*			26
Maytag	*	*	*		72
National P.		*		*	54
Newell		*			26
Premark		*			26
Preway		*			26
Rangaire		*			26
Robenson		*			26
Rival		*			26
Whirpool		*	*	*	73
White Con	*	*	*		72
GE	*	*	*	*	100
Black & D		*			26
Raytheon		*	*	*	73

Table 77

Performance and Segment data

Household Appliances Industry.(1982-86)

	Segment Performance		Sales as	Overall Performance	
	ROA	ROR	% of tot	ROI	ROE
Chicago P	16.4	51.4	100	8.03	11.3
General Micro.	6.9	9.6	100	6.7	9.9
Litton	5.7	1.3	6	9.2	17.6
Maytag	31.8	15.4	100	23.5	25.7
National P	8.2	16.4	100	9.7	10.1
Newell	13.2	10.7	100	9.5	14.6
Premark	6.2	5.5	2.2	(1.9)	(4.6)
Preway	(.9)	(1.6)	55	(17.9)	(26.3)
Rangaire	.7	.6	33	4.9	6.8
Robenson	.1	.2	100	(4.3)	(4.9)
Rival	12.5	9.4	100	14.3	14.9
Whirpool	14.6	7.7	100	14.4	15.7
White Con	3.4	2.2	100	6.4	9.2
GE	21.6	12.1	12	15.1	17.1
Black & D	5.9	5.5	100	5.7	7.9
Raytheon	6.7	6.9	12		

Table 78

Relevant Ratios

Household Appliances Industry(1982-86)

	Rect / S	Invt / S	Cog / S	Ad / S	Rd / S	Cap / S	Lr / S	Sga / S	Rev /emp
Chicago P	23.2	10.6	62.4	4.9	4.3			27.4	84.7
General M.	29.2	23.6	50.2	1.2	3.9	21.1		24.4	74.7
Litton	13.9	11.4	75.8		2.5	5.8		13.3	81.8
Maytag	9.1	12.6	64.5	3.3		4.7	23.9	16.6	312.2
National P	35.1	17.4	61.5	12.1		1.7		20.8	113.1
Newell	14.5	23.9	64.3			2.4		22.1	148.1
Premark	15.4	22.7	51.9	1.7	1.3	5.4	28.9	36.8	99.8
Preway	13.9	23.5	80	1.6	.6	10.8		15.3	47.7
Rangaire	14.2	15.9	78.5	.4		6.7		10.6	84.4
Robenson	10.4	33.3	88.3		1.4	2.4		8.1	123.2
Rival	29.2	13.4	62.3	6.9	1.6	2.2		22.8	77.8
Whirpool	67.2	11.3	74.9	1.1	1.7	5.6		12.7	62.8
White Con	11.5	19.3	80.7	2.4	1	3.6		13.4	113.4
GE	2	14.4	70.1	1.4	3.8	8.7	35.2	16.2	119.3
Black & D	26.7	27.8	59.6	9.4	2.2	4.6		32.9	101.9
Raytheon	12	13.8	76.2		4.1	5.3	32.8	13.2	103.2

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