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University of Southern California

To Appear in the Academy of Management Journal, August, 1992

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POWER IN TOP MANAGEMENT TEAMS:
DIMENSIONS, MEASUREMENT, AND VALIDATION

The topic of executive leadership has recently received significant attention by scholars in strategy and organization theory. They have concentrated on such issues as the composition of top management teams, executive succession, managerial styles, board management relations, and fitting executive teams to environments and strategies. However, one important area that has received only limited attention (e.g., Eisenhardt and Bourgeois, 1988) is top managerial power. And as we will see below, this is surprising given the importance of power relationship to strategic choice.

Power is equally central to research on top management teams. In fact, the choice of unit of analysis in research on top managers and the issue of managerial power are two sides of the same coin. That is, adoption of a unit of analysis makes an implicit assumption about the distribution of power among top managers. For example, in organizations where the chief executive wields dominant power, studying only the CEO may provide sufficient information upon which to test propositions. However, in those organizations where power is less polarized, consideration of a coalition of top managers is necessary to fully capture the range of managerial orientations prevailing. Hence, consideration of the distribution of power among top managers seems an essential ingredient for research on top management teams.

In this paper, I focus on the most senior of top management, the dominant coalition (Cyert and March, 1963). Although most large firms have many officers, typically only a smaller subset are most responsible for setting policy (Thompson, 1967). It is this inner circle, or dominant coalition, that is the focus of this paper.

The dominant coalition typically consists of the CEO and several of his or her most senior managers. However, although the CEO is usually the most powerful member of this group, such is not always the case (Mintzberg, 1983). For example, managers with large shareholdings may be more powerful than the CEO. Except in the most extreme cases, management is a shared effort in which a dominant coalition collectively shapes organizational outcomes. The limited empirical evidence comparing explained variance using CEOs versus a wider group of top managers has consistently found that the latter unit of analysis yielded superior results (Hage and Dewar, 1973;Tushman, Virany and Romanelli, 1985; Finkelstein,

1988; Bantel & Jackson, 1989). These findings support the notion that CEOs share power with other senior executives in many firms. Hence, to more fully understand how top managers influence organizational direction, it is important to differentiate among managers in terms of their power.

This paper has three primary purposes: (1) To argue that managerial power is a central element in strategic choice; (2) To conceptualize major power sources in dominant coalitions; and (3) To suggest and validate specific measures of power that are readily available to other researchers. The following section examines power and strategy, illustrating how they interact and hence, why studying managerial power is so important for researchers in strategic management. Next, both a set of top managerial power dimensions and a measurement methodology to aid researchers is presented. Finally, three studies that test the validity of these dimensions are presented.

POWER IN STRATEGIC CHOICE

Power is defined here as the capacity of individual actors to exert their will. This definition is consistent with that of other scholars (Hickson, Lee, Schneck, and Pennings, 1971; MacMillan, 1978; Pfeffer, 1981) and readily lends itself to an analysis of power among top managers in organizations. Although power may be exercised in numerous settings (Pfeffer, 1981), this paper concentrates on its role in strategy making.

The idea that power is central to strategic choice was recognized by Child (1972). He recommended that investigatory study power to understand what strategic choices are made. By so doing, more confident predictions about the impact of managerial orientations on strategy are possible. As Child (1972) has argued, only when power can be adequately measured is increased predictive certainty likely to be achieved.

There is considerable support for this view from other scholars. For example, strategic decisions are unstructured and replete with ambiguities (Mintzberg, Raisinghani, and Theoret, 1976). Hence, they invite the use of power (Mintzberg, 1983), with different executives favoring their preferred choices. In a similar vein, Tushman (1977) has argued that the less programmable the decision (as in strategic decisions), the more nonbureaucratic influences are important. Such a situation is most likely to arise at the upper echelons of an organization (Tushman, 1977), where uncertainty is greatest (Thompson, 1967). Hence, power can be seen to hold a central position in strategy- making.

In addition to the theoretical arguments discussed above, there are a number of

empirical studies of strategic decision-making that have identified power as a central concept. Carter (1971) emphasized the importance of bargaining in the computer equipment company he studied. Pettigrew (1973), in analyzing one firm's choice of a computer system, described how power helped resolve conflicting preferences for competing manufacturers.

Other scholars have emphasized the role of power in strategic decision-making in their work. For example, Murray looked at strategic decision-making in a regulated utility, describing choice as a "negotiated outcome" (1978:960). He argued that strategic change would proceed incrementally when power was dispersed among several actors (Quinn, 1980). In another study, Miles and Cameron (1982) discussed the role of organizational power in strategic adaptation. In a sample of six tobacco firms they found that the power of different functional groups influenced diversification strategy. These studies are supported by a number of other papers emphasizing the role of power in top managerial decision-making (Allison, 1971; Hinings, Hickson, Penings, and Schneck, 1974; Bower and Doz, 1979; Eisenhardt and Bourgeois, 1988).

This brief review of the literature underlines the relevance of power in strategic decision-making. Because of its significance to top managerial actions, it seems critical to explicitly consider the role of power when studying top management teams. In this vein, the following section outlines four key dimensions of top managerial power.

DIMENSIONS OF TOP MANAGERIAL POWER

There have been many attempts to outline measures of power in the literature (e.g., French and Raven, 1959; Emerson, 1962; Shukla, 1977). While understanding of the phenomenon has advanced, previous frameworks were not specifically developed with top managers in mind, reducing their usefulness for our purposes. Additionally, a common shortcoming was a lack of concern for measurement. It becomes difficult to assess the relative merits of a set of power dimensions when there is little indication of its measurement potential.

The approach taken here attempts to overcome these problems by (1) narrowing the focus to power within the dominant coalition alone; (2) recognizing the multidimensional nature of power (March, 1966) by defining four different power dimensions relevant to top managers; and (3) developing a set of objective indicators of power to facilitate empirical measurement.

Power relations in dominant coalitions arise because of the interdependent nature of

managerial work (Thompson, 1967; Hickson et al., 1971). Power accrues to those top managers who (1) can cope with uncertainty (Thompson, 1967) and (2) are uniquely positioned to do so (Crozier, 1964). Hence, as Emerson (1962) has argued, power is a relative concept that can only be understood in a particular context. In this paper, the context is the dominant coalition, and the important sources of uncertainty are those elements of the organization and its environment that most directly affect managerial work.

Given the centrality of managing uncertainty, it follows that the key bases of power for top managers are the ability to cope with internal and external sources of uncertainty. Adopting a stakeholder approach (Freeman, 1984), one can identify major sources of uncertainty and the corresponding power that accrues to the executive who can manage that uncertainty. Key internal sources of uncertainty are (1) other top managers (structural power) and (2) the board of directors (ownership power), and major external sources of uncertainty are (1) the task environment (expert power), and (2) the institutional environment (prestige power). Identifying multiple dimensions of power is consistent with the nature of this complex construct (March, 1966), and addresses a broader range of sources of uncertainty than has been discussed in the literature.

Although much has been written on external sources of uncertainty and their effects on managerial power (e.g., Thompson, 1967; Pfeffer and Salancik, 1978), internal sources of uncertainty have received considerably less attention. However, from the top management team perspective, it is not hard to see how managers create uncertainty by holding conflicting preferences that can confuse strategic direction. Managers who have the ability to reduce this uncertainty by controlling the decision agenda (Kotter, 1982), the alternatives considered (Tushman and Romanelli, 1985), or information flows (Gray and Ariss, 1985) will gain power.

Boards of directors, as representatives of a firm's shareholders, also can create uncertainty for top management teams. Although most boards have limited influence, those with significant outside shareholders have the power to limit managerial discretion (Hambrick and Finklestein, 1987). In fact, there is evidence that firms with large outside shareholders may follow different strategies than firms without such shareholders (Baysinger, Kosnik, and Turk, 1991). Managers who can control board activities and reduce the uncertainty that arises when boards have the power to influence strategy can gain power within the dominant coalition.

The following paragraphs describe the power dimensions.

Structural Power

This is perhaps the most commonly cited type of power, and is based on formal organizational structure and hierarchical authority (Perrow, 1970; Hambrick, 1981; Tushman and Romanelli, 1983; Brass, 1984). Managers who have the legislative right to exert influence are influential. Hence, CEOs have greater structural power over other members of the dominant coalition because of their formal position in the organization. This authority allows the CEO to manage uncertainty by controlling (to a degree) the behavior of his or her subordinates. More generally, although the CEO typically scores highest on this dimension, structural power varies among other top managers. For example, structural power can take the form of "pulling rank" during disputes on strategic direction within the team. Alternatively, this influence can be more indirect, such as when more senior managers are privy to information reaching successively higher levels or have greater control of resources, than lower level top managers. The greater a manager's structural power, the greater his or her control over colleagues' actions.

Ownership Power

Power accrues to managers in their capacity as agents on behalf of shareholders. Hence, ownership power is determined by the strength of a manager's position in the agent-principal relationship. Where a manager falls along this continuum depends on his or her own ownership position as well as his or her links to the founder of the firm. For example, all other things equal, the top manager with significant shareholdings in the organization will be more powerful than the manager without such a base of control (Zald, 1969). In addition, managers who are founders or related to founders may gain power through their often long-term interaction with the board, as they translate their unique positions to implicit control over board members. Hence, managers with ownership power will gain some measure of control over the board of directors. And since most managers tend to be risk-averse, those managers that can reduce the uncertainty emanating from the board of directors will be more powerful.

Expert Power

The ability of top managers to deal with environmental contingencies and contribute to organizational success is an important source of power (Crozier, 1964; Hickson et al., 1971; Hambrick, 1981; Tushman and Romanelli, 1983; Mintzberg, 1983). There are several components of the task environment that can create uncertainty for an organization, such as its customers, suppliers, competitors and the government (Thompson, 1967; Porter, 1980). The more a manager has developed contacts and relationships with elements of the task

environment, the greater his or her ability to cope with contingencies of the task environment and the greater his or her expert power.

Managers with relevant expertise may have significant influence on a particular strategic choice (Yetton and Bottger, 1982) and are often sought out for their advice (Tushman and Scanlan, 1981). However, power tends to accrue best when a manager's expertise is in a critical area for the organization (Hickson, et al., 1971). Criticality, in turn, depends on what elements of the task environment the organization finds most problematic (Kanter, 1977). In addition, the breadth of a manager's experience enhances his or her ability to control these critical contingencies.

Prestige Power

An important source of power is personal prestige or status. The reputation of a manager in the institutional environment and among stakeholders influences others' perceptions of his or her influence (Dalton, Barnes, and Zaleznik, 1968). In addition, an executive's standing in the "managerial elite" sends out powerful messages to other top managers about his or her personal importance (Useem, 1979). Managerial prestige promotes power by facilitating uncertainty absorption from the institutional environment in two ways: informationally and symbolically. Members of the managerial elite tend to be active in institutional governance (Useem, 1979). Such external contacts may provide information of value to the organization, in much the same way as the external communication star (Tushman and Romanelli, 1983) and boundary spanner (Aldrich and Herker, 1977) gain power from contact with individuals outside of the organization. As Galbraith (1973) has argued, information acquisition is an important way to reduce uncertainty. For example, senior managers that serve on external boards may receive timely information on business conditions that they would not otherwise have been privy to without sitting as director.

Prestige also provides power through the image it suggests of a manager with gilt-edged qualifications and powerful friends. A firm~s legitimacy depends in part on the prestige of its managers (D'Aveni, 1990); to the extent that an organization's enhanced legitimacy reduces uncertainty from the institutional environment (Selznick, 1957), prestige will be an important source of power.

Together, these four dimensions define top managerial power. It is important to note, however, that other power dimensions may be relevant as well. For example, power may emanate from a manager's personality. In other cases, the manager with "a hot hand" may gain

power. The four dimensions emphasized here are thought to be the most important organizational sources of top managerial power. To the extent that they under-emphasize social psychological sources of power and the occasionally fluid nature of power, their generalizability will be limited.

The following section discusses methods of measuring power and outlines an approach that emphasizes objective indicators.

THE MEASUREMENT OF TOP MANAGERIAL POWER

Measurement of power has been a major stumbling block in investigations of the phenomenon in the literature (March, 1966; Pfeffer, 1981). One of the major problems has been an over-reliance an perceptual indicators of power and a lack of objectivity in the resulting measures. Power is a sensitive subject for many managers; the word itself is heavily-laden with meaning. Perceptual measures assume that "social actors are knowledgeable about power within their organizations; informants are willing to divulge what they know about power distributions; and such a questioning process will not itself create the phenomenon under study, power" (Pfeffer, 1981:55). In spite of these drawbacks, perceptual measures of power are important for what they tell us about shared judgements among social actors in organizations (Pfeffer, 1981). Perceptual measures have been used in studies of organizational power by Perrow (1970), Hinings, et al. (1974), Pfeffer and Salancik (1974), Hambrick (1981), and Tushman and Romanelli (1983).

In light of the questionable validity of relying solely on perceptual measures of power, it seems; important to develop relevant objective measures of power. Pfeffer (1981) has argued that "representational" indicators of power allow researchers to assess power more objectively. Representational indicators of power consider the position of managers in critical organizational and extra-organizational roles (Pfeffer, 1981). These roles might include formal positions in the organization as well as informal liaisons with other organizations.

Representational indicators have been adopted in a number of studies of power, for example, as a measure for committee representation in universities (Salancik and Pfeffer, 1974; Hills and Mahoney, 1978; Pfeffer and Moore, 1980), to signify representation on advisor panels in National Science Foundation funding (Pfeffer, Salancik, and Leblebici, 1976), and to represent board prestige in human service agencies (Provan, 1980).

Objective indicators of power are valuable because they do not suffer from the same

drawbacks perceptual measures of power do. However, objective indicators tend to be somewhat removed from the source of power; they provide second-hand information. Hence, the best approach might entail using multiple indicators of both an objective and perceptual nature (March, 1966; Provan, 1980; Pfeffer, 1981).

This paper places special emphasis on the development of objective indicators of top managerial power. However, because there have not been many attempts to measure power at the top managerial level, perceptual power is also measured to test for convergent validity. In addition, multiple objective indicators are developed since any one measure of power may not capture the full complexity of the construct.

Structural Power

Structural power is related to the distribution of formal positions within the organization. The greater a manager's structural power, the less his or her dependence on other members of the dominant coalition. A manager's formal position can be captured by examining formal titles and relative compensation. Titles clearly relate to hierarchical authority, while a manager's compensation is a less formal, though precise, statement of his or her standing in the organization.

Three variables are used to create a structural power scale: Percent with higher titles. The percentage of individuals in the dominant coalition with higher official titles than the executive him- or herself. The CEO scores O on this variable, while the least powerful members of the dominant coalition score highest. For example, in a team consisting of CEO, president, executive vice-president, and vice-president, the latter manager would score 0.75. Because firms differ in the hierarchy of titles they use, company annual reports are useful in identifying hierarchical relationships. Variants of this measure have been used in numerous studies (e.g., Perrow, 1970).

Compensation. The total cash compensation (salary, bonus, and miscellaneous benefits) of the executive divided by the compensation of the highest paid manager. (In the case of the top earner in a firm, the pay of the second highest paid manager is taken as the denominator in the ratio to avoid restricting the maximum score to 1.00.) Compensation committees set pay scales both across and within hierarchical levels (Simon, 1957), creating pay differentials that provide information on relative power (Whistler, Meyer, Baum, and Sorensen, 1967). Hence, compensation can be considered an important indicator of formal power (Hambrick and D'Aveni, 1990).

Number of titles. The number of official titles the manager has. This variable typically ranges from 1 to 3, with more official titles indicating greater power (Harrison, Torres, and Kukalis, 1988). For example, Harrison et al. (1988) found that CEOs that also carried the Chairman title were more powerful than CEOs without the additional title.

Ownership Power

The agency relationship that is central to ownership power suggests that shareholdings are relevant indicators. Managerial shareholdings reduce board influence and the accompanying uncertainty that powerful boards can create for dominant coalitions. In addition, familial managerial links with other officers and the board enhance ownership power by bypassing traditional sources of board control. Hence, indicators of ownership power are:

Executive shares. The percentage of a firm's shares owned by the executive, spouse, and dependent children. This is perhaps the most direct means to assess a manager's ownership power, and has often been used in the literature on corporate control (e.g. McEachern, 1975).

Family shares. The percentage of a firm's shares owned by the executive's extended family (e.g. brothers, father, etc.). This variable considers an additional part of ownership structure by focusing on the holdings of a manager's family as a base of support (Finkelstein and Hanbrick, 1989).

Founder or relative. Ownership power may also derive from a manager's personal relation to other powerful managers. Hence, the third indicator is based on two types of such associations: (a) the manager is the founder of the firm, or is related to the founder, and (b) the manager has the same last name as another officer. The variable ranges from O to 2, as follows:

O - both (a) and (b) are not true.

1 - either (a) or (b), but not both, are true.

2 - both (a) and (b) are true.

Of course, having the same name as another officer does not automatically imply a relation. However, in most cases it is possible to positively determine that two officers are related by the information provided in company proxy statements. Even failing this, it does not seem unreasonable to assume that two top managers with identical surnames are related, given the limited number of people that could be considered officers. To the extent that this assumption is false, the measure of ownership power will be slightly overstated in same cases.

In a recent study Kosnik (1987) found that a similar measure was associated with the granting of greenmail by boards of directors[1].

Expert Power

In the context of strategic decision-making, expertise may be defined as the ability to deal with environmental dependencies. one way of assessing such coping capability, and one that is consistent with this paper's concern for objective measures of power, is to examine functional expertise (Pfeffer and Salancik, 1978: Hambrick, 1981; Fligstein, 1987). Top managers with functional experience in a particular area can be said to be expert in that area. Hence, those top managers that can best deal with environmental requirements (and are well situated to cope with critical contingencies) will be those with appropriate functional expertise. In addition, the breadth of managerial assignments over a career increases exposure to environmental actors and enhances the ability to manage the relationships that grow out of such contact.

Three variables are used to measure expert power.

Critical expertise power. There are three steps involved in creating this variable. First, determine the key environmental requirements facing the organization. Adapting Katz and Kahn (1966), Miles and Snow (1978), and Hambrick (1981), four major types of environmental requirements can be specified corresponding to different sources of uncertainty in the task environment: inputs (emphasis on supply conditions), outputs (emphasis on demand conditions), throughputs (emphasis on production processes), and regulatory concerns (emphasis on managing regulatory conditions). Key environmental requirements can be assessed by counting the number of articles cited in Funk & Scott Predicasts[2] that emphasize each of the four categories of environmental requirement. In addition, reviewing archival data an each environment qualitatively can serve as a check on the accuracy of the F&S analysis. There is a great deal of information available an environments and industries to facilitate such a qualitative analysis, including industry trade publications, industry surveys from the business-press and industry analysts, and government-generated industry reports. This method maximizes rigor without losing qualitative richness.

Second, identify all functional areas that managers have direct experience in. And third, assess critical expertise power by matching functional experience with environmental requirements, as follows: inputs--purchasing, personnel, exploration; outputs--sales and marketing, product R&D; throughputs--operations, accounting, process R&D; regulatory

concerns— government service, law (Hambrick, 1981; Miles and Snow, 1978). The actual measure is calculated by summing up the proportion of cites in each environmental requirement for which a manager has corresponding functional experience. For example, if the distribution of cites from the F&S analysis is inputs - .10, outputs - .50, throughputs - .25, and regulatory - .15, then a manager with functional experience in marketing and law would score .65. The maximum range of this variable is from O to 1.

Functional areas. This item is a straight count of the number of different functional areas a manager has experience in. It is a broader measure of experience that does not limit itself to only those functional areas that are deemed important by the Funk & Scott criterion. As such, it recognizes that managers with a broader background may be better able to cope with multiple stakeholders from the task environment.

Positions in firm. The greater the number of different positions a manager has had in the firm, the wider his or her range of interaction with environmental actors. This item recognizes that the variety of assignments managers undertake as they progress in their careers provide valuable data on the firm and its environment. In addition, because different positions often involve different geographic and product-related assignments, the more positions a manager has had the greater the breadth of his or her contacts with elements of the task environment. Given that most managerial jobs involve a boundary-spanning role that promotes interaction with the task environment (Mintzberg, 1973), by the time managers join the dominant coalition they may very well have developed a series of relationships they can tap to help manage environmental interdependencies.

Prestige Power

Prestige power is related to a manager's ability to absorb uncertainty from the institutional environment. The four indicators below emphasize the role of outside directorships and education as key components of prestige.

Corporate boards. The total number of corporate boards of directors the manager sits on. Research on directorships suggests that boards may be used to manage interorganizational dependencies (Pfeffer, 1972; Pennings, 1980) or as a means of establishing and maintaining contact with other important people in the business elite (Allen, 1974; Useem, 1979). The former perspective suggests the informational role of prestige power while the latter argument is consistent with the symbolic aspects of the construct. Top managers enhance their own, and their organizations', legitimacy in the institutional environment by serving on boards. Only

non-affiliated corporate boards are included; hence, being on the board of a firm's subsidiary should not be counted. The greater the number of relationships, the greater the prestige score for an executive.

Non-profit boards. The total number of nonprofit boards the manager sits on. Service to the community is an important aspect of a manager's membership in the elite (Useem, 1979). In addition to the social contact that springs from such memberships, non-profit boards often bring together many influential people in a forum that facilitates information exchange. For a non-profit directorship to be counted, the manager must be part of the top decision-making or consultative arm of the organization; simple membership in non-profit organizations is not sufficient to qualify.

Average board rating. The average Standard & Poor's stock rating for all corporations the manager is an external director of. This variable explicitly considers the financial standing of the firms for which the manager is a member of the board by using the S & P rating of a firm's general financial condition. For example, it is more prestigious to sit on the board of AT&T than it is to be a director of a struggling, relatively unknown firm.

Elite education. Prestige power may also derive from a manager's elite educational background (D'Aveni, 1990). Attendance of certain schools carries with it an aura of significant prominence in the business elite (Dohmhoff, 1967; Clement, 1975). Membership in this elite group connotes considerable prestige in the institutional environment. Because candidates for institutional governance often come from this elite group (Useem, 1979), top managers with elite educational backgrounds may be more influential within the dominant coalition. Hence, a fourth indicator is based an the rated prestige of the schools a manager has attended. The variable, ranging from O to 3, is created as follows[3]:

0 - No formal higher education.

1 - Undergraduate and graduate schools are both non-elite.

2 - Undergraduate or graduate school (but not both) are elite.

3 - Both undergraduate and graduate schools are elite.

A comprehensive list of elite educational institutions can be developed on the basis of work by Useem and Karabel (1986) and a survey in the U.S. News and World Report (1987) . Useem and Karabel (1986), relying on classic work by Coleman (1973), Pierson (1969), and Blau and Margulies (1974-1975), list the most highly ranked institutions for undergraduate education, MBA programs and Law degrees. The U.S. News & World Report

(1987) survey lists the top ten liberal arts colleges. In addition, Brown University, which is part of the Ivy League but was not included by Useem and Karabel, the U.S. Military Academy and the U.S. Naval Academy complete the list of prestigious institutions. Although no such inventory of elite schools can be definitive, this list does appear to have considerable face validity and is similar to those used in previous studies. It is reported in Appendix A.

VALIDITY OF OBJECTIVE POWER MEASURES

This section outlines how the power dimensions were validated. Three studies were conducted. In the first, the four dimensions of power were measured in a sample of 1763 top managers in 102 firms across five years (1978-1982) . The sample consisted of 36 computer, 36 chemical, and 30 natural gas distribution companies drawn from a population of the largest firms in each industry for which data were available on top managerial power for all fiscal years studied. Because expert power is concerned with critical environmental contingencies, examining multiple industries was thought desirable. The three industries were chosen because they represented different contexts for dominant coalitions to manage in. The computer industry was dynamic, offering significant discretion to top managers. The natural gas distribution industry was effectively regulated, constraining managerial initiatives. The chemical industry fell somewhere between these other two industries, with elements of both stability and flexibility present (Hambrick and Finkelstein, 1987). The sample was restricted to large firms because data on top managers of smaller firms is often inaccessible and a relatively homogeneous set of firms were required to ensure comparability. However, the large sample, and the different industries examined, add some external validity.

In the second study, top managers from each of the 102 firms were asked to rate managerial power. A measure of perceptual power was then compared to objective measures in a test of convergent validity.

The third study investigated the predictive validity of the power dimensions by examining the association between top management team members with financial functional backgrounds and firm diversification posture and acquisition activity. Using the data from Study 1, I compared regression coefficients from a series of models, one with the straight proportion of top team members with finance backgrounds as the independent variable, and the others using power-weighted measures of the same proportion. The three studies are described below.

Study 1

Data were gathered for each indicator of power for each member of the dominant coalition of sample firms for every year from 1978 to 1982. Inside board membership was the criterion chosen to identify dominant coalition members. Sitting on the board of directors is an objective, and formal indicator of membership in the inner circle of top managers, the group that has ultimate responsibility for setting policy (Thompson, 1967). As such, it is closely related to Cyert and March's (1963) conceptualization of the dominant coalition. In addition, inside board membership represents an absolute cutoff point between top managers and other managers that is analogous across firms and industries. Those officer who are also directors have access to more information than other managers do. And because there are often constraints on the number of inside board members in a firm, appointment to the board is often a clear indication of a person's membership in the inner circle. The full sample consisted of 1763 dominant coalition members; the average number of managers in a dominant coalition was 3.5.

SEE TABLE ONE ON FOLLOWING PAGE

Table 1
Descriptive Statistics and Correlations of Items Measuring Power[a]

Variables	Means	S.D.	Correlations 1	2	3	4	5	6	7	8	9	10	11	12
1. Percent with higher titles	.31	.25												
2. Compensation	.84	.53	-.64											
3. Number of titles	1.38	.58	-.63	.60										
4. Executive shares	.01	.05	-.20	.21	.12									
5. Family shares	.01	.03	-.09	.05	.06	.54								
6. Founder or relative	.10	.41	-.16	.08	.04	.45	.54							
7. Critical functional experience	.31	.24	-.03	-.08	.03	-.07	-.02	-.08						
8. Functional areas	1.31	.54	-.10	.01	.06	.05	.10	.08	.57					
9. Positions in firm	4.14	2.82	.08	-.05	.08	-.12	.05	-.07	.38	.35				
10. Corporate boards	1.00	1.49	-.34	.33	.32	.08	.02	.03	-.02	.03	.14			
11. Non-Profit boards	.68	1.69	-.14	.13	.17	-.08	-.04	-.09	.06	-.03	.14	.38		
12. Average board rating	1.92	2.48	-.37	.34	.33	.03	.01	-.01	-.01	.05	.16	.61	.39	
13. Elite education	1.32	.82	-.04	.03	.03	.01	.07	.02	.14	.04	.14	.16	.23	.28

a N=1763. Correlations greater than .05 are significant at $p < .05$.

Descriptive statistics for each of the variables making up the power dimensions are reported in Table 1. Data from all five years were pooled together to simplify reporting. Although the significance of the correlation coefficients may be somewhat overstated because of the pooled nature of the data, an analysis of correlation matrices on a year-by-year basis indicated a similar pattern over time. The correlations in Table 1 reveal a pattern that appears to support the measurement methodology presented earlier. However, to evaluate the power dimensions and their measurement more closely, three related criteria were selected. First, how well do items designed to measure a construct converge by loading together as a single factor? Second, how internally consistent are the items that make up each construct? And third, how well do items designed to measure other constructs discriminate by breaking out as different factors (Kerlinger, 1973; Van de Ven and Ferry, 1980). Scales were constructed for each power dimension by adding up the normalized values (after standardizing by industry and year) of each variable making up the scale.

The first criterion was assessed by conducting a principal components factor analysis of all 13 items comprising the four power measures. Factors with eigenvalues greater than one were extracted, and an oblique rotation was used because specific components of power were expected to be interrelated.

As the results in Table 2 indicate, four factors were identified, with loadings (using a conventional cutoff of .40) that were consistent with expectations. Variables loaded onto all four factors in a pattern that was identical to each construct's dimensions[4]. Hence, the first criterion was met.

SEE TABLE TWO ON FOLLOWING PAGE

TABLE 2
ROTATED FACTOR PATTERNS[a]

Variables	Factor One: Structural Power	Factor Two: Ownership Power	Factor Three: Expert Power	Factor Four: Prestige Power
Percent w/ higher titles	-.84	-.06	-.08	-.02
Compen-sation	.86	.00	-.08	.00
Number of titles	.84	-.06	.07	.02
Executive shares	.14	.77	-.06	-.05
Family	-.10	.86	.07	.06
Founder or relative	-.00	.81	-.02	-.03
Critical functional experience	-.03	-.07	.85	-.03
Functional areas	.10	.10	.84	-.12
Positions in firm	-.07	-.06	.65	.24
Corporate boards	.23	.02	-.07	.67
Non-Profit boards	-.09	-.10	-.05	.75
Average board rating	.21	-.01	-.04	.73
Elite education	-.33	.15	.10	.67
Variance explained				
Proportion	.24	.16	.14	.11
Cumulative	.24	.40	.54	.65

[a] N=1763. Bold print highlights the factor loadings with absolute values greater than .40.

TABLE 3
VALIDITY OF OBJECTIVE MEASURES OF POWER[a]

Variables	1	2	3	4	5	6
STRUCTURAL POWER	.83	.87	.75	-.78	.77	+.53
Percent with higher titles						+ .50
Compensation						+ .50
Number of titles						+ .50
OWNERSHIP POWER	.76	.82	.62	-.70	.67	+ .49
Executive shares						+ .54
Family shares						+ .77
Founder or relative						+ .73
EXPERT POWER	.70	.75	.52	-.73	.60	+.34
Critical functional experience						+ .75
Functional areas						+ .66
Positions in firm						+ .51
PRESTIGE POWER	.67	.71	.51	-.72	.60	+.29
Corporate boards						+ .30
Non-Profit boards						+ .48
Average board rating						+ .35
Elite education						+ .48

[a] N=1763. The numbers on the top row refer to the following tests:

1. Cronbach alpha.
2. Average item-scale correlation.
3. Stability: Range of alphas when one different item is dropped successively.
4. Stability: Average from (3).
5. Median correlation test: Median correlation of items in scale minus median correlation of items in scale with all non-scale items.
6. Correlation of item with scale minus largest of the correlations of the item with other scales.

Internal consistency was assessed in several ways in the first four columns of Table 3. First, Cronbach alphas were calculated to obtain reliability estimates for each dimension. Although there are no standard guidelines available on appropriate magnitudes for the coefficient (Van de Ven and Ferry, 1980), in practice an alpha greater than .60 is considered reasonable in organizational research (Van de Ven and Ferry, 1980; Eisenhardt, 1988). Hence, all four power dimensions demonstrated internal consistency. Table 3 also provides data on the average item-scale correlation, and the range of alphas when one different item is dropped successively. The average item-scale correlation were at least .71 and the range of alphas were reasonably consistent after dropping an item, indicating strong support for scale construction. In addition, the average alphas among subscales created after dropping one item successively were only moderately lower than the full-scale alphas. Overall, these tests indicate that the power dimensions were internally consistent.

The third criterion is concerned with discriminant validity, and was assessed in three ways. First, as the factor analysis reported in Table 2 indicates, each of the variables loaded onto only one factor in a pattern that was consistent with predicted structures. Second, as reported in Column 5 of Table 3, the median correlation of each item with other items making up other scales was less than the median correlation of the item with variables making up the scale it forms part of. Although there is no standard guideline for this test, Campbell and Fiske (1959) have suggested that any difference in median correlations is sufficient to established discriminant validity, a benchmark the power dimensions easily surpassed. The third test of discriminant validity requires variables to be more highly correlated with its own scale than with other scales. Table 3 (Column 6) again illustrates that each variable meets this test, with differences in correlations of at least .30 in all cases.

In sum, Study 1 provides strong support for the reliability and validity of the power dimensions[5].

Study 2

The second study asked top managers to evaluate power in their firms. A questionnaire was sent to 499 top managers who held office in sample firms in 1981. The rationale for using a questionnaire is as follows. First, because some of the objective power measures have not been used before, a second source of data was sought. Obtaining perceptual measures from survey data was the only feasible way of achieving this goal, given the size of the sample.

Second, the use of two completely different methods of data collection was thought highly desirable for establishing validity. In keeping with suggestions by numerous scholars for multiple measures of power (March, 1966; Provan, 1980; Pfeffer, 1981), this study addresses itself to such concerns.

Two major problems in obtaining survey data were reconciliation with the time period of the study, and willingness of top managers to respond to a questionnaire on as sensitive a subject as power. As to the first concern, stated simply, how reliable are managers' recollections of events in the past? (The questionnaire was administered in 1986.) To assess this problem, special attention was given to inter-rater reliability. As will be reported below, strong agreement was found among multiple respondents from the same firm. However, the potential difficulty of recalling past events necessitated that the questionnaire address only one specific year, and not all five years that were available from archival sources.

The problem of sensitivity can also be assessed for potential bias. If overall response rates are good, then it can reasonably be concluded that managers were not reluctant to reply to sensitive issues. In a pilot study sent to a total of 75 managers in 16 firms, 40% of the sample responded, a reasonably high response rate in light of the difficulties discussed above.

The survey instrument listed top managers from the respondent's firm. On a seven-point scale, respondents were asked to indicate the amount of influence each of these people generally had in affecting the outcomes of three different types of decisions. They were (1) major resource allocation decisions, (2) decisions on organizational redesign, and (3) decisions relating to acquiring or divesting major business units or entering or exiting major markets. The personal power measure was simply the sum of the scores for each manager among these three decision situations (see Appendix B). This approach to measuring power is consistent with recent work by Hambrick (1981) and Eisenhardt and Bourgeois (1988).

The response rate was 34.5%, quite good given the sensitivity of the questionnaire and the level of manager queried (Norburn and Birley, 1986). Of the 172 respondents, 31 were chief executives and an additional 113 were inside board members in 1981 (twenty-eight respondents were senior managers who did not sit on their boards). More than 60% (104) requested a summary report of survey results, reflecting their interest in the topic, and perhaps the seriousness of their responses. The respondents represented 83 of the 102 firms in the sample, and provided data on 271 inside board members. Nonreponse bias was

evaluated by (1) comparing demographic characteristics (such as tenure in the firm, tenure in the position, functional background, and education) and power scores of respondents and non-respondents, and (2) comparing sales, number of employees, age, and profitability of the 83 firms with survey data with the 19 for which there was no respondent. In both cases there were no statistically significant differences, indicating that there was no nonresponse bias.

TABLE 4

Multi-rater Reliability of Survey Respondents [a]

	n=2	n=3	n=4	n=5
Average of statistic[b]	.80	.80	.78	.98
Range	.4 - 1	.5 - 1	.5 - .9	-
% Significant at 5%	48%	35%	0	0
% Significant at 1%	19%	47%	88%	100%
% Significant (Total)	67%	82%	88%	100%
N[c]	27	17	8	1

[a] n = the number of respondents in a firm.

[b] If n=2, Spearman rank correlation used. If n>2, Kendall coefficient of concordance used.

[c] N = the number of firms with n respondents.

A test of survey validity comes from examining the responses of multiple respondents from the same firm. Of the 102 firms in the sample, there were two or more respondents from the same firm in 53 cases. Perceived power scores from the survey for these 53 cases are examined in Table 4 for multi-rater agreement using either the Spearman rank correlation or the Kendall coefficient of concordance. Both the value of the statistic and its significance are reported. Results show very strong inter-rater agreement irrespective of the number of respondents within a firm. Fully 40 of the 53 multi-rater cases (75%) demonstrated

significant inter-rater reliability at the 5% level or better. Of the nine cases with 4 or 5 respondents in the same firm, the Kendall coefficient of concordance was significant at the 1% level in all but one instance. These tests appear to support the use of the perceived power measure to assess convergent validity.

TABLE 5
Descriptive Statistics and Correlations of Measures of Power[a]

			Correlations			
Variables	Means	s.d.	1	2	3	4
1. Structural Power	0	2.61				
2. Ownership Power	0	2.45	.17***			
3. Expert Power	0	2.24	.05*	-.08**		
4. Prestige Power	0	2.82	.43***	.01	.15***	
5. Perceived Power	14.0	4.77	.72***	.18**	.08	.42***

[a] N=1763, except for correlations of Perceived Power, where N=271.
* $p < .05$
** $p < .01$
*** $p < .001$

Table 5 provides descriptive statistics and correlations for objective and perceptual measures of power. Perceived power was positively correlated with structural, ownership, prestige, and expert power, significantly in three of four cases. Only the correlation with expert power failed to reach significance. The magnitude of correlations indicates that, among the three objective power measures for which significant results were found, differences existed. Structural power was most strongly associated with perceived power, supporting the importance of managers' legitimate power. Interestingly, it was prestige power that demonstrated the next highest correlation, with ownership power exhibiting a weaker (though still significant) association.

Managers with ownership power, though still powerful, may be less involved in the actual management of the firm since perceived power is based on managerial influence in strategic decision-making.

Overall, given that reported correlations were of measures from two different data sources, these results establish convergent validity and provide strong support for three of four objective power measures.

Two additional points are worth making. First, although structural and prestige power were correlated at .43, a stepwise regression demonstrated significant independent effects (on perceived power) for both of these measures (the increment in R^2 was significant at $p<.01$). Hence, this analysis confirmed that structural prestige power were both independently associated with perceived power. And second, significant associations were found even though perceived power exhibited only limited variance (coefficient of variation = 0.34).

Study 3

The purpose of this study is to test the predictive validity of the power dimensions by examining how consideration of power improves the predictability of important strategy variables. Given that the focus of this paper is on top managerial power, the strategic relationship examined was a basic one, and one that has garnered some support in previous work. Specifically, the association between top management team functional backgrounds in finance and firm diversification posture and acquisition activity was studied, with the inclusion of power expected to increase the strength of this relationship. Predictive validity will be established if the association between managerial backgrounds in finance and diversification posture and acquisition activity is stronger when the power of top managers is considered than when it is not. The following paragraphs develop this hypothesis and outline the methodology employed.

There is a great deal of evidence to support the contention that functional backgrounds of top managers are related to a firm's strategy (Dearborn and Simon, 1958; Gupta and Govindarajan, 1984; Snow and Hrebiniak, 1980; Hitt, Ireland, and Palia, 1982; Hitt, Ireland and Stadter, 1982; Hitt and Ireland, 1985; Chaganti and Sambharya, 1987). For example, recent work by Hitt and Tyler (1991) found a relationship between functional backgrounds and strategic acquisition decisions. Much of this work is consistent with the view that the strategic choices top managers make are influenced by their backgrounds and experiences (Hambrick and Mason, 1984).

Functional backgrounds in finance are expected to be associated with diversification posture and acquisition activity for several reasons. They include (l) the tendency of executives from peripheral functions such as finance "to pursue strategies that fit with their relative deficiencies in "hands-on" experience" (Hambrick and Mason, 1984:199), (2) the likelihood that financial executives will attempt to achieve financial synergies, (3) the greater likelihood that top managers with financial backgrounds will be more capable of making a deal and building the capital structure that would facilitate such activity (Hitt and Ireland, 1985), and (4) the belief that the managerial job in diversified firms often resembles that of managing a financial portfolio, something financial executives typically have some expertise in (Berg, 1969; Rumelt, 1974; Salter and Weinhold, 1979; Gupta, 1984). Hence, Song (1982) surveyed 53 chief executives of diversified firms and found that acquisitive diversifiers had more CEOs with backgrounds in finance and law than internal diversifiers. And a more recent study by Smith and White (1987) found that unrelated diversified firms were more likely to select CEOs with functional backgrounds in finance. As a result, the hypothesis that functional backgrounds in finance are associated with diversification posture and acquisition activity appears to be have both theoretical and empirical support.

This hypothesis was tested with the same sample of top managers used in Studies 1 and 2. Top managers' functional backgrounds were examined to ascertain those with dominant experience in finance. Managers who had spent some time in finance but had longer tenures in other areas were not counted to ensure that only managers with a clear financial orientation would be identified. The proportion of the top team with financial functional backgrounds was used as the main independent variable.

Three of the four power dimensions were examined in this study. Because two of three items comprising the expert power scale were based on functional backgrounds, expert power was dropped from the analysis to avoid any confounding effects. All items comprising structural, ownership, and prestige power were measured for each member of the dominant coalition each year. However, rather than standardizing these items to create scales, in this study relative measures of power were used because the logic of the hypothesis required consideration of relative influence among top managers. Hence, managers with financial functional backgrounds were expected to emphasize diversification only if they had the power to do so. And managers had power to the extent that they enjoyed structural, ownership, and prestige power and other top team members did not[6]. Hence, three alternative independent variables, one each for

structural, ownership, and prestige power, were used to form measures of the power-weighted proportion of the top team with financial functional backgrounds.

These variables were created as follows: First, relative power measures were calculated by simply taking the ratio of each manager's score on a particular item and dividing it by the sum of the entire top team's score on the same item. For example, if in a team of five top managers, A served an 5 corporate boards, B had 3 directorships, C and D had 1, and E had none, the relative scores for A through E respectively would be .5, .3, .1, .1, and 0. The three power measures were created by averaging the relative power scores over the items defining each scale. Second, the weighted proportion of financial functional backgrounds was calculated by summing the relative power scores of all those managers within the team with functional backgrounds in finance. This procedure counted all managers with financial backgrounds, but weighted more heavily the more powerful members of the team. For example, if in a team of five top managers two had financial backgrounds, two had marketing backgrounds, and one specialized in operations, the arithmetic (unweighted) proportion of the team with financial backgrounds equaled .40. If the two managers with financial backgrounds had relative structural power scores of .50 and .20 respectively, while the other three managers each scored .10, then the structural-power weighted proportion of the team with financial backgrounds was .70. Operationally, this weighted proportion was expected to be more strongly associated with diversification than the unweighted proportion.

Three dependent variables were used to operationalize firm diversification posture and acquisition activity. First, the number of 4-digit SIC codes were counted for each firm in each year. This data was available from Standard and Poor's Directory of Corporations and Dun and Bradsteet's Million Dollar Directory. A firm's SIC codes describe the types of businesses it competes in, and have been used effectively to measure diversification posture by numerous researchers (e.g., Pitts and Hopkins, 1982; Montgomery, 1982). For example, Montgomery (1982) found that product counts based an SIC codes yielded results that closely paralleled Rumelt's (1974) more intensive approach to assessing diversification. In addition to SIC code data, the actual acquisition activity of sample firms was measured by counting the cost and number of acquisitions made by each firm each year. This data was collected from Mergers and Acquisitions magazine, which records all acquisitions above $1 million dollars.

Although the goal of this analysis was not to explain diversification posture and

acquisition activity, but to compare the predictive effects of unweighted and power-weighted measures of the proportion of the dominant coalition with finance backgrounds, it was thought important to include certain control variables, such as size, profitability, and industry membership. Large firms with excess resources often diversify in an attempt to use up this slack (Chandler, 1962). In addition, because big firms may find it easier to raise additional capital, firm size may be related to diversification activity. Hence, the natural log of sales was included as an independent variable. A second control variable was firm profitability, measured as return on equity. Profitable firms may diversify because they often see marginal returns on additional investment in existing businesses, or alternatively, firms may diversify out of unprofitable businesses (Bass, Cattin, and Wittink, 1977). Regardless of the effect, firm profitability warrants a control. Finally, because three different industries were included in the sample, two binary variables were defined to control for institutional and other industry effects (Hill and Hansen, 1991). Both firm sales and cost of acquisitions were converted to 1983 dollars to control for inflation.

As stated earlier, data were collected on 102 firms for the 1978-1982 time period. With some missing data, the pooled cross-sectional time series sample ranged in size from 490 to 505 firm year observations. However, the pooled design rendered ordinary least squares (OLS) regression estimates biased because of enduring individual-firm characteristics that are not considered in the model, violating assumptions on independence of observations (Hannan and Young, 1977). As a result, a generalized least squares (GLS) regression procedure suggested by Kmenta (1986) was employed that corrected for the effects of autocorrelation using the Cochrane-Orcutt transformation. Four separate models were run for each dependent variable, the first using the unweighted proportion of top team members with finance backgrounds as an independent variable and the next three using the power-weighted proportions. The unstandardized beta coefficients of these four variables were examined to determine if measures of the power-weighted proportion were better predictors of the dependent variables. No R2's were reported because of problems with their interpretation in GLS regressions (Kmenta, 1986)[8].

Table 6
Descriptive Statistics and Correlations of All Variables in Study 3[a]

Variables	Means	s.d.	Correlations									
			1	2	3	4	5	6	7	8	9	10
1. # 4-digit SIC codes	7.75	7.30										
2. Cost of acquisitions (in millions)	13.32	99.22	.21									
3. # of acquisitions	.30	.76	.29	.41								
4. Natural log of sales	6.84	1.39	.44	.15	.22							
5. Return on equity	14.39	13.85	-.10	-.02	.03	-.03						
6. Computer industry	.35	.48	-.16	-.00	.06	-.25	.04					
7. Chemical industry	.35	.48	.45	.08	.11	.20	-.05	-.55				
8. Proportion TMT with finance backgrounds	.17	.20	.23	.07	.02	.17	-.03	-.00	.04			
9. Structural power-weighted proportion TMT with finance backgrounds	.16	.21	.30	.16	.09	.23	-.02	-.02	.07	.93		
10. Ownership power-weighted proportion TMT with finance backgrounds	.15	.21	.30	.12	.05	.23	-.03	-.03	.07	.94	.94	
11. Prestige power-weighted proportion TMT with finance backgrounds	.16	.22	.28	.16	.09	.23	-.02	.01	.07	.88	.91	.88

[a] N=505, except for correlations of # 4-digit SIC codes, where N=490.
Correlations greater than .09 are significant at $p < .05$.

Table 6 provides descriptive statistics on the variables used in **Study 3.** Although caution is warranted in interpreting the correlation matrix because of the pooled nature of the data, the pattern of association is consistent with the hypothesis. The GLS regression analysis reported in Table 7 (a,b,c) for each of the three dependent variables offers a much stronger test. Both the unweighted and the three power-weighted measures of the proportion of the top team with finance backgrounds were positively associated with the number of SIC codes, although the unweighted proportion was only marginally significant. The power-weighted proportions were also significant in predicting the cost of acquisitions (ownership power marginally), while the unweighted proportion was not. Finally, finance backgrounds appeared to be unrelated to the total number of acquisitions made, although the sign of the coefficient was negative for the unweighted proportion and positive for the weighted proportions. In all three sets of regressions, consideration of power yielded stronger results, with clearly significant results in two cases. In contrast, and somewhat surprisingly, the simple proportion of top team members with finance backgrounds was only marginally associated with diversification posture, but not at all with acquisition activity. This weak result may reflect the difficulty relatively unpowerful top managers with financial backgrounds face in trying to achieve financial synergies in highly diversified firms (Hoskisson and Hitt, 1990).

The results also indicate that the three power types examined have roughly equal efforts on diversification posture, but not on acquisition activity. For example, the coefficient for ownership power was only marginally significant, while structural power appeared to be strongly associated with the cost of acquisitions. The relatively weak result for ownership power is consistent with the results of Study 2, where it was speculated that owners may be less involved with the actual management of the firm. Hence, although a stronger statement awaits further research, it does appear that ownership power may not translate into active involvement in strategic decision-making in the same way that structural and prestige power do.

Overall, the results of Study 3 support the contention that top managers are able to influence strategic outcomes to the extent they have power. In addition, this study provides evidence for the predictive validity of the power dimensions developed.

TABLE 7[a]

Results of GLS Regressions of Number of SIC Codes[a]

Variables	1	2	3	4
Intercept	-.53**	-.54***	-.54***	-.55***
	(.16)	(.16)	(.16)	(.16)
Sales	.96***	.96***	.97***	.96***
	(.07)	(.08)	(.08)	(.07)
Return on equity	-.02*	-.02*	-.02*	-.02*
	(.01)	(.01)	(.01)	(.01)
Computer industry	1.82**	2.17***	2.09***	2.06***
	(.61)	(.63)	(.62)	(.60)
Chemical industry	6.64***	6.49***	6.32***	6.37***
	(.71)	(.74)	(.74)	(.71)
Proportion TMT with finance backgrounds	1.90+			
	(.99)			
Structural-power weighted proportion TMT with finance backgrounds		2.58**		
		(.98)		
Ownership-power weighted proportion TMT with finance backgrounds			2.81**	
			(.97)	
Prestige-power weighted proportion TMT with finance backgrounds				2.31**
				(.80)

[a] Standard errors appear in parentheses. N=490.

+ $p < .10$

* $p < .05$

** $p < .01$

*** $p < .001$

TABLE 7b
Results of GLS Regressions of Cost of Acquisitions[a]

Variables	1	2	3	4
Intercept	-11.97* (5.96)	-11.31+ (5.80)	-11.10+ (5.89)	-10.87+ (5.93)
Sales	6.28* (2.44)	4.84* (2.31)	5.71* (2.41)	4.93* (2.29)
Return on equity	-.28 (.27)	-.27 (.26)	-.25 (.26)	-.28 (.27)
Computer industry	1.23 (17.84)	-.54 (17.31)	-2.70 (17.30)	-.45 (16.90)
Chemical industry	36.75+ (20.93)	34.71+ (20.13)	35.19+ (20.84)	34.55+ (19.97)
Proportion TMT with finance backgrounds	21.03 (30.17)			
Structural-power weighted proportion TMT with finance backgrounds		83.54** (29.13)		
Ownership-power weighted proportion TMT with finance backgrounds			49.34+ (28.89)	
Prestige-power weighted proportion TMT with finance backgrounds				62.68* (25.93)

[a] Standard errors appear in parentheses. N=505.
+ $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

TABLE 7c
Results of GLS Regressions of Number of Acquisitions[a]

Variables	1	2	3	4
Intercept	-.11* (.05)	-.11* (.05)	-.11* (.05)	-.11* (.05)
Sales	.06*** (.01)	.06*** (.01)	.06*** (.01)	.06*** (.01)
Return on equity	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)
Computer industry	.30** (.10)	.26** (.10)	.27** (.10)	.27** (.10)
Chemical industry	.24* (.09)	.20* (.10)	.22* (.10)	.20* (.10)
Proportion TMT with finance backgrounds	-.13 (.18)			
Structural-power weighted proportion TMT with finance backgrounds		.01 (.18)		
Ownership-power weighted proportion TMT with finance backgrounds			.00 (.18)	
Prestige-power weighted proportion TMT with finance backgrounds				.00 (.16)

[a] Standard errors appear in parentheses. N=505.
+ $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

DISCUSSION AND CONCLUSIONS

This paper has argued that top managerial power plays a major role in strategic choice. However, while literature in strategic management has generally acknowledged this reality, empirical work has tended to lag because of difficulties in conceptualizing and measuring power in top management teams. Hence, a central goal of this paper was to develop and validate a set of power dimensions and their measurement. Structural, ownership, and prestige power were all strongly supported in three studies designed to test their validity and reliability as research constructs. Expert power received moderate support. Study 1 demonstrated that the four dimensions were unidimensional, internally consistent, and displayed discriminant validity. In Study 2 the objective power measures were correlated with a perceived power measure and found to be positively and significantly related in three of four cases, evidence of convergent validity. Finally, Study 3 provided support for the predictive validity of three of four power measures in a test of the association between top managerial functional backgrounds in finance and firm diversification posture and acquisition activity. Although this is clearly only a first cut, and more work may be needed to refine each of the measures, the four dimensions of top managerial power appear to offer researchers both a framework and a measurement methodology that may greatly facilitate empirical work in this area.

The relationship between managerial characteristics and strategic actions has been the subject of much investigation in recent years (Hambrick, 1989). Much of this work has been based on the straightforward idea that a firm's top managers affect its strategy. The results of this paper clearly suggest that such an upper echelons theory (Hambrick and Mason, 1984) should be extended to encompass the idea that managerial power affects the association between top managers and organizational outcomes. The ability of top managers to affect firm strategy depends to a great extent on whether they have the requisite power to be influential. As Study 3 indicated, managerial characteristics that ignore the distribution of power among top managers are not as predictive as managerial characteristics that are adjusted for power. Although in some ways this is not all that surprising a result, this extension to upper echelons theory has not been investigated before. This finding is important because it confirms anecdotal evidence on the importance of power in top management teams and suggests that a realistics of top managerial

strategy-making must take the distribution of power into account. In as such, it charges other researchers in this area to consider the role of power in their work.

In a related vein, the results of this study suggest that researchers need to consider both the CEO and the rest of the dominant coalition in assessing managerial effect. To limit inquiry to only the CEO is to make an implicit assumption on the distribution of power at the top. Inclusion of power explicitly recognizes that such an assumption is unwarranted; empirical examination of power allows the data to govern the resolution of the issue. Hence, in both a theoretical and empirical sense, consideration of power in studies of top managerial effect may represent a significant contribution to this research stream.

There are several limitations to the approach to measuring power outlined in this paper. First, although the power dimensions are expected to be important in most instances, situational differences may shift the balance of power. For example, a new CEO may begin his or her tenure with a mandate for change, upsetting existing power arrangements. However, it is also likely that the CEO's mandate is somewhat dependent on both structural and ownership power. This suggests a second limitation, namely, that no attempt has been made to identify the factors that affect the relative importance of one type of power over another. For example, it may be that expert power is most salient when the firm is confronted with uncertainty from the task environment, and ownership power is predominant when the board of directors creates uncertainty. On the other hand, some may argue that structural power is typically of central importance because of the legitimate authority it bestows. The results of study_2 and 3 do suggest that differences exist. What accounts for these differences remains an empirical question.

Third, while the conceptualization of power presented in this paper may be relevant in many contexts, the actual measures suggested assume a sample of corporate organizations. It is the ownership power construct that most clearly is context-specific. Non-profit organizations do not issue stock, rendering measures that use shareholdings ineffective. However, the concept of ownership power remains relevant because top managers in non-profit organizations must still work with a board of governors or trustees that may have some influence in decision-making. In addition, the institutional environment may be more important for such organizations, enhancing the importance of prestige power. So, because different types of organizations create different types of contingencies, some adjustment of the

specific measures of power may be required. However, the four power dimensions themselves are likely to be relevant in most organizational settings.

A final limitation concerns the role of political "skill and will" (Mintzberg, 1983). Power has essentially been defined as the capacity to influence strategic choices. The actual exercise of power and the attendant issues that go with such a concern were not addressed. These issues include managerial political acumen and a willingness to use power in hand. Nevertheless, although skill and will are important, managers who have reached the top are typically highly skilled politically (Hannan and Freeman, 1977; March, 1984), reducing the importance of political acumen as a differentiating factor.

This paper can help advance future research in several ways.Perhaps most importantly, the measurement methodology presented can be used in studies of the association between managers and strategies. For example, while many of the original propositions in work by scholars such as Hambrick and Mason (1984), Gupta (1984), and Szilagyi and Schweiger (1984), have already been investigated, few have adopted a top team level of analysis and none have included power in their formulations. Because all of the power dimensions can be measured using archival data sources, it should be possible to incorporate managerial power in studies such as these. In addition, refinements to the measures suggested here will be important in developing this research stream.

The importance of top managerial power to organizations suggests that it may be interesting to examine the distribution of power within teams. For example, some teams may find that power resides in one or two key individuals while other teams exhibit a more dispersed power distribution. There are several interesting questions in this regard: How stable is the distribution of power over time? And what are the consequences of institutionalized power distributions? How does the balance of power change? What is the relationship between the distribution of power and executive succession? It seems clear that there are abundant research opportunities here.

To address questions such as these requires a recognition of the role of power in strategic choice, and a means of incorporating power in subsequent research. This paper has tried to develop objective measures of power that may help accomplish this goal. Scholars of strategy and organization need to address the issue of top managerial power, especially as theoretical formulations that suggest a major role for power in strategy-making are developed and extended.

FOOTNOTES

1. Alternative operationalizations of this variable, such as dummy variables for being a founder or having the same name as another officer, were also considered. The variable was chosen because it provides more information than either of the alternatives, and facilitates construction of scales.

Using the data to be discussed in Study 1, proxy statement information allowed confirmation that 17 of 21 managers (81%) with the same last name as another officer were definitely related. Hence, examining proxy statements appears to be an effective way to verify whether managers with the same last name are of the same family.

2. The Funk & Scott directory lists articles written in the business and trade press in a given year. The directory is organized by industry, and lists the titles of articles arranged by category (e.g. Raw Materials; Demand; Regulations). Assigning each title in each category to one of the four environmental requirements and counting the totals is an efficient way to measure the significance of different environmental contingencies to a firm. This data source was used in a recent paper by O'Reilly and Flatt (1989) to measure the innovativeness of firms.

3. There were several alternative specifications that were also considered, such as the degree of education and dummy variables for attendance of prestigious undergraduate or graduate institutions. The variable was chosen because of the added information it provides and to permit scale constitution.

4. Factor analysis was also performed on each set of variables comprising a power dimension separately. Unidimensionality was established for each dimension since only one factor emerged with an eigervalue greater than 1.0 in each factor analysis (Bagozzi, 1980).

5. The same tests were applied to the sample on a year by year basis to examine the stability of results over time, and to ensure that no bias was introduced by pooling the data over five years. Results from both factor analysis and the set of validity and reliability tests reported in Table 3 were of a similar pattern to those reported above.

6. This argument is very much in line with classic work on power by Emerson (1962) and Blau (1964), both of whom emphasized that power is a zero-sum game.

7. Two additional measures of diversification based on the entropy index were also developed, total diversification and unrelated diversification, defined as Pi ln(1/Pi), where P is the sales attributed to segment i and ln(1/Pi) is the weight for each segment, or the logarithm of the inverse of its sales. Unrelated diversification was defined as diversification across industry groups (2-digit SIC code) and total diversification was defined as diversification across industry groups and arising out of operating in several segments (4 digit SIC code) within an industry (Baysinger and Hoskisson, 1989; Palepu, 1985). These measures rely on line of business data, which was only available for one of the five years of the study (1981) from Trinet. Results of ordinary least squares regressions of these measures were similar to those to be reported for the number of SIC codes, indicating that the findings of this study were robust.

8. Generalized least squares models relax two key assumptions of ordinary least squares modes: the variance for each of the error terms must be equal, and the covariance between the error terms must be zero. When these assumptions are relaxed, it becomes problematic to interpret measures of goodness of fit such as R2 that depend on the variance.

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APPENDIX A
Elite Educational Institutions

Amherst College
Brown University
Carleton College
Columbia University
Cornell University
Dartmouth College
Grinnell College
Harvard University
Haverford College
John Hopkins University
Massachusetts Institute of Technology
New York University
Northwestern University
Oberlin College
Pomona College
Princeton University
Stanford University
Swarthmore College
United States Military Academy
United States Naval Academy
University of California, Berkeley
University of California, Los Angeles
University of Chicago
University of Michigan
University of Pennsylvania
Wellesley College
Wesleyan University
Williams College
Yale University

APPENDIX B

The questionnaire used to assess perceptual power was the following: Below is a list of executives and their titles at (Name of firm) in 1981. Please indicate the amount of influence each of these people generally had in affecting the outcomes of each of the types of decisions listed below. Record your responses in the space provided. If your name is included in the list, be sure to rate yourself. Use this key in responding:

No Influence			Moderate Influence			Total Influence
1	2	3	4	5	6	7

Decision 1: Major resource allocation decisions (e.g., capital expenditures or large promotional outlays).

Decision 2: Organizational redesign (e.g., changing formal structure or selecting and assigning executives).

Decision 3: Acquiring or divesting major business units or entering or exiting major markets.

		Decision 1	Decision 2	Decision 3
(Name of Executive)	(Title)	_____	_____	_____
(Name of Executive)	(Title)	_____	_____	_____
(Name of Executive)	(Title)	_____	_____	_____
(Name of Executive)	(Title)	_____	_____	_____
(Name of Executive)	(Title)	_____	_____	_____