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Power in the Balance:
Corporate Governance in Newly Public United States Companies

by

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ABSTRACT

This study examined the effect of company origin on corporate governance, company performance, and the relationship between the two in newly public United States companies. It investigated "Heritage" companies originating from an Initial Public Offering (IPO) by a business segment of an existing public company, and "Greenfield" companies originating from an IPO by a start-up or formerly private company.

The study employed a triangulated methodological approach. Data on adoption and exercise of various corporate governance best practices were collected, via mail questionnaire, from 151 directors at Heritage and Greenfield companies with a 1993-1997 IPO. Data on company performance were collected from public data sources. The data were subjected to cluster analysis, stepwise discriminant analysis, Chi-square Automatic Interaction Detection (CHAID), and principal components factor analysis. Analysis focused first, on Heritage or Greenfield status as a predictor of likelihood of adopting and exercising corporate governance best practices; and second, on the relationship between corporate governance characteristics and compound annual growth rate in market capitalization. Twenty post-survey interviews were conducted with corporate governance practitioners, executive search professionals, and academicians.

The study found no convincing evidence to support the propositions that Greenfield boards would be more likely than Heritage boards to adopt and exercise corporate governance best practices. Indeed, survey analysis and post-survey interviews both revealed information directly to the contrary, suggesting that a rule of "survival first, governance next" may be the norm among the newly public companies.

The study further found that although performance in newly public companies can be forecast in a marginally reliable way, little apparent relationship exists between corporate governance and Greenfield or Heritage company performance. These results did not provide evidence to support the research propositions, but arguably are consistent with the literature that has failed to demonstrate a clear link between corporate governance and company performance.

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Dedicated to my Friend and Colleague

Kathleen Fitzgerald Connelly
December 26, 1948 – April 19, 1998

"…Tell it all, tell it accurately and tell it fast…"

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CHAPTER ONE
INTRODUCTION

1.1 INTRODUCTION TO THE STUDY

This thesis examines the effect of company origin on corporate governance, company performance, and the relationship between the two in newly public United States companies.

The relationship between corporate governance and company performance has been and continues to be an actively researched business topic for students of strategic management and corporate performance worldwide. An examination of two readily available and widely accessed databases, for example, serves as one indicator of the level of publication activity in the field. The Global Edition of ABI/Inform lists over 2800 citations for "corporate governance" from 1992 forward as of the date of this thesis, and Lexis/Nexis provides over 2300.

To date, the academic research in this area has looked to the key constituent elements of the process of corporate governance in order to elucidate a set of best practices, and has sought to clarify and calibrate a link between those practices and company performance. Among the major areas of inquiry regarding the process of corporate governance and company performance, which are summarized in more detail in Chapter 2 of this thesis, have been the following representative questions:

1) *Players.* Who serves on corporate boards, and how are directors selected? (Hodes, 2000; Biggins, 1999; Mueller, 1996; Westphal and Zajac, 1995; Kinser, 1993; Useem, 1984).
2) *Paradigm.* How are boards structured and operated? (Dalton and Daily, 1998b; Perlman, 1995; Charkham, 1994; Monsen and Downs, 1965). What are the roles of directors vis a vis those of the chief executive officer and management? (Hambrick, 1996; Pound, 1995; Pearce and Zahra, 1991; Lorsch, 1989).
3) *Purpose.* Toward what ends do boards act, and whom do they represent? (Preston, 1995; Fama, 1980; Drucker, 1973; Dodd, 1932). How have issues of shareholder and stakeholder activism and empowerment affected board purpose?

(Minow, 1999; Lorsch, 1995b; Briggs, 1994).

4) *Performance.* What are the expected outcomes of corporate board activity, and against what measurements or indicators are such outcomes assessed? (Swanson, 1999; Coffey and Wang, 1998; Brancato, 1997; Kaplan and Norton, 1996a; Davis et al., 1992; Boyd, 1991).

Although corporate governance has been widely examined and commented upon, prior research has focused almost exclusively on the "mature" board; that is, on the board of directors of an established corporation, generally an entity that has been operating as a public company for a decade or longer. With few exceptions (see, e.g., Finkle, 1998; Baker and Gompers, 1998; Beatty and Zajac, 1994), little other than anecdotal information has been offered to describe or to analyze how the process of corporate governance works when, as in the case of a newly created board, the board of directors has every opportunity to structure and operate a governance entity reflecting the best thinking and practices of the day.

1.2 IMPORTANCE OF THE RESEARCH

And yet newer boards of directors comprise a distinct segment of boards of directors overall. In the 1960-1997 period, over 13,000 newly public companies were launched in the United States, with over 4700 newly public companies launched during the ten-year period from 1988 through 1997, as shown in Table 1.1 (Reeves, 1997). The pace of formation of these companies and their financial import on the American business landscape is not insubstantial. According to data provided by Securities Data Co., over 1400 Initial Public Offerings were made in the United States in 1996-1997 (Reeves, 1997); the money raised via Initial Public Offerings during those two years exceeded the amount so raised from 1970 through 1989. In 1996 alone, these "new" companies in the United States created approximately $156.8 billion of wealth for the public stock exchanges (Brountas, 1997); through December 9, 1997, Initial Public Offerings had raised $38 billion from United States investors (Reeves, 1997). In each of the six years during the period from 1992-1997, Initial Public Offerings in the United States comprised close to a 10 percent minimum share of the total market, with aggregate proceeds over the period totaling $196 billion (Reeves, 1997).

Table 1.1 Initial Public Offerings: United States, 1988-1997

Year	Proceeds (in Billions)	Number of Issues
1988	6.1	222
1989	6.1	209
1990	4.5	172
1991	16.3	365
1992	23.4	512
1993	33.5	662
1994	22.7	570
1995	29.3	575
1996	48.8	864
1997	38.2	602
Total	**228.9**	**4753**

Source: Securities Data Co. (Reeves, 1997), updated through 1997

The focus on the formation, operation and performance of these newly public companies, especially those in the technology sector, has been widely reported on in the financial and popular press (see News and Opinion References), evincing interest reaching far beyond the realm of pure research. The reasons fueling practitioner, investor and general interest in newly created companies and their boards of directors are varied. First, business leaders have had few tested guidelines or situation-specific insights to help them in making corporate governance decisions in the relatively new environment, and there has been no real database for them to mine in the process of identifying potential candidates for a newly created board. Second, as has been noted, the sheer number of newly public corporations and concomitant newly created boards over the past decade has exerted a significant financial impact both on the economies at large and on individual investors.

1.3 OBJECTIVES OF THE STUDY

This study on corporate governance and newly created boards casts a critical eye on governance in the course of "normal" events (that is, in the absence of a crisis). Against this background, the objectives of the study are to:

1) focus current corporate governance literature and research on newly public companies as a subject distinct from that of corporate governance in general;

2) provide a theoretical framework for analyzing the processes and outcomes of corporate governance by newly created boards of newly public companies;
3) advance research in the field of corporate governance by examining how corporate governance is set up and corporate decisions are made, and the performance outcomes that result, when newly public companies have a *tabula rasa* opportunity to create a new corporate board; and
4) contribute to improved corporate governance in newly public companies by testing corporate governance theory in practice and by providing practitioners with insights gleaned from their fellow practitioners' experience and informed opinion.

1.4 DEFINITIONS

The following definitions are used in the course of this study:

Newly created board: The board of directors of a newly public company.
Newly public company: A legally established corporation that first offered its securities to the public between January 1, 1993 and December 31, 1997.
Heritage company: A public company originating as the result of an Initial Public Offering by a substantial business segment (carve-out or spin-off) of an existing public company, resulting in an independent, publicly traded firm with a newly constituted board of directors and governance structure distinct from that of the parent company.
Greenfield company: A public company originating as the result of an Initial Public Offering by a start-up company or a company previously operating as a private entity.

1.5 STRUCTURE OF THE THESIS

Chapter 2 reviews literature on company life cycle and culture; on corporate governance best practices, with a focus on board players, paradigm and practice; and on the definition and measurement of company performance. The company life cycle and organizational culture literature provides the basis for distinguishing between Heritage and Greenfield newly public companies for the purposes of this study. The corporate governance best practices literature describes current theory regarding how

boards of directors are best staffed, organized and operated, and strategically oriented to optimize board effectiveness. The performance measurement literature supplies the underpinnings and rationale for selecting growth in market capitalization as an appropriate means for assessing the relative performance of the newly public companies examined in the course of the survey. Chapter 3 outlines the specific propositions to be tested by the study. Chapter 4 discusses the overall research design and explains the decision to employ a triangulated data collection approach consisting of a mail questionnaire, public data sources and post-survey interviews; Chapter 4 also delineates the four statistical applications employed for quantitative data analysis. Chapter 5 describes the development and testing of a mail survey instrument; selection and testing of the survey sample; and survey administration and follow-up, including a discussion of the response rate and non-response bias.

Chapters 6 through 8 discuss the specifics of the survey analysis. First, Chapter 6 provides a descriptive analysis of the data. Chapters 7 and 8 then detail the univariate and multivariate analysis applied to predict company status (Greenfield or Heritage) and to predict company performance, respectively. Chapter 9 reviews the conduct and results of the post-survey interviews. Chapter 10, the final chapter of the thesis, discusses the study results and implications for practitioners of corporate governance, reviews the limitations of the research, and suggests areas for future research.

CHAPTER TWO
LITERATURE REVIEW

2.1 INTRODUCTION

The primary focus of this study is the following major research question: What is the relationship between corporate governance and company performance in newly public United States companies? The study accordingly has two overarching aims with regard to its scrutiny of the extant literature. The first aim is to examine the literature in order to identify a rationale for characterizing and classifying corporate governance in newly public companies as a discrete topic of inquiry. The second aim is to integrate the corporate governance best practices literature with the performance literature to examine whether, in fact, there is a demonstrable relationship between the processes of corporate governance and the outcome of company performance insofar as the newly public companies studied are concerned.

In this study of corporate governance in newly public companies, three primary bodies of literature provide the basis for the theoretical underpinnings of the work. This chapter begins with a review of the contributions of the "Company Life Cycle and Culture" literature, which is important to establishing a theoretical basis for distinguishing between newly public companies on the basis of their origin as "newborn" (start-up) companies or "reborn" (carve-out or spin-off) companies. The chapter then reviews the second, or "Best Practices" literature, which considers the development and status of current thinking as to the most advantageous and effective *modus operandi* of corporate governance; for purposes of this study, three areas of the literature on best practices have been examined. These are the "Players" literature, which deals with board member selection and demographics; the "Paradigm" literature, addressing the structure and operation of a board of directors; and the "Purpose" literature, which takes up the question of toward what ends and on whose behalf board members act. Finally, the "Performance" literature is reviewed, which reflects the body of thought that goes to defining and calibrating company performance.

2.2 CLASSIFICATION OF NEWLY PUBLIC COMPANIES

2.2.1 Introduction

This study examines how corporate governance is set up, how board decisions are made, and what company performance outcomes are achieved when newly public organizations have a *tabula rasa* opportunity to create an independent corporate board. Certainly, research relating to corporate governance in newly public companies is nearly open territory. There has been strong interest in the category of corporate governance overall, but there also has been a dearth of analysis about how newly formed public companies assemble boards and set up governance structures. Only a scant few studies on corporate governance have focused on newly public companies (see Finkle, 1998; Baker and Gompers, 1998; Beatty and Zajac, 1994) as a distinct category, and we are unaware of any extant studies examining for differences between types of newly public companies. Perhaps this is because, as noted in the prior section of this thesis, the trend toward initial public offerings has been a relatively recent phenomenon.

To address the overall research question of this study, then, one must first mine the literature to establish the rationale for constructing a typology of newly public companies. The two major lines of analysis appearing in the literature germane to distinguishing between Greenfield and Heritage companies focus on:

1) the significance of a firm's stage in a company life cycle (see, e.g., Sifonis and Goldberg, 1996; Kanter, et al., 1992; Leonard-Barton, 1992; Donaldson, 1990; Donaldson and Lorsch, 1983; Greiner, 1972; Stinchcombe, 1965; the several "Structure and Strategy" studies based on Chandler, 1962 [by Thanheiser, 1972; Scott, 1971; Channon, 1971; Wrigley, 1970])

2) the significance of a company's culture, which includes both the firm's internal culture and the larger context of cultures (industry, occupational, national) within which the company operates (see, e.g., Hamel, 1999; Arthur, 1996; Hofstede, 1993; Kanter et al., 1992; Fligstein, 1990)

At the nexus of these streams of literature lies the basis for characterizing and classifying newly public companies into two primary types: Heritage companies and

Greenfield companies.

2.2.2 Company Life Cycle and Culture Literature

A close examination of prior research provides a coherent theoretical framework to characterize and classify newly public companies. Certainly, such characterization can be important in analyzing the several ways in which newly public companies *as a group* can be distinguished from more "mature" companies; that is to say, from companies that have been operating as public entities for longer periods of time. Within the context of this study, however, the research is more important to distinguishing *among* newly public companies, to divide them into "newborn" (Greenfield) and "reborn"(Heritage) companies.

The existence of a company life cycle that proceeds from birth through growth and maturity toward decline is a staple in management literature (see e.g., Kanter et al., 1992; Kanter, 1987; Wright, 1987; Aldrich and Auster, 1986; Greiner, 1972). Although theorists vary in their characterization of the life cycle stages, the company life cycle literature overall coalesces to indicate that companies of long-standing duration bear certain marks of the "mature" business (Kanter et al., 1992), having progressed through distinct stages (Greiner, 1972) of company development. Researchers recognize not only that early-stage firms are altered in the course of their development, but that the similarities and dissimilarities in new versus established firms stretch across industry lines.

The life cycle research cited for the purposes of this study posits that companies, like people, accrete a body of history and characteristic ways of operation as they grow older. According to the literature, this accretion can tend to make companies less entrepreneurial, or less flexible (Adizes, 1988), as such ways typically become habitual and thus become incorporated into the company's culture. Further, the *modus operandi* of companies, which the literature defines overall as traditions or generally accepted operating principles and philosophy, will have a tendency to become imprinted ever the more firmly on companies as they grow older (Sifonis and Goldberg, 1996; Bower and Christensen, 1995; Donaldson and Lorsch, 1983). It is important to note that the so-called "rigidities" of the later-stage firm are seen as being present even in companies in industries that are characteristically highly

entrepreneurial (e.g., high technology). The literature indicates that these companies can be expected to become less entrepreneurial as they move into a later, more mature stage of the company life cycle. Thus company life cycle research maintains that it is the age of the company, and not the company's primary functional area of operation, that is particularly germane.

Kanter et al. (1992) help summarize the body of company life cycle research and literature, and its importance in distinguishing between Greenfield and Heritage companies, by noting in a study of organizational change that the age and stage of an organization affects what is seen as a given in that organization. The authors state: "Organizational age involves accumulated experience--how much needs to be invented versus how much is 'given' by tradition and therefore often done unthinkingly whether it fits the situation or not" (36).

In establishing a generalized model of company birth, growth and maturity, the life cycle literature thus serves as the underlying rationale for distinguishing between the Greenfield company and the Heritage company on the basis of their respective points of origin as publicly traded companies. The literature leads quite logically to our position that because the two types of newly public companies (Heritage and Greenfield) have been launched from divergent platforms, each type is at a different locus along the trajectory of the company life cycle and thus can be expected to operate within a different organizational culture context.

Organizational culture literature takes note of factors within and outside of the company that coalesce and interact to yield an organizational culture (Trompenaars, 1993). The latter research emphasizes that not only does an organization have its own internal culture, but it also operates within the context of other external cultures (such as industry culture, occupational culture, national culture) which in turn affect the individual company's culture. Fligstein (1990), for example, posits the influence of various organizational "fields" or groups of larger organizations within which any given organization is placed. Kanter et al. (1992) discuss the relationship between organizations and their environment, pointing out that "organizations participate in diverse environments simply by virtue of their geographic extent (operations in more than one region or country) and internal differentiation of functions (staff that belong

to varied professional communities), whether they are in a single industry or many industries" (33). Organizational culture research is germane to this study because it points both to the presence of an internal company culture and also to the importance of the larger context in which a company operates. Following an Initial Public Offering, then, a company enters into the larger field of public companies. For the Heritage company, this is a familiar arena; for the Greenfield company, however, the realm of the public company is virgin territory.

Having reviewed the company life cycle and culture literature upon which is based the distinction between the two types of newly public companies, we now summarize by measuring the Greenfield company and the Heritage company against the yardstick held up by the literature. First is the Greenfield company. The Greenfield company is neither offspring nor clone. Rather, it is *sui generis* so far as being a public company. The Greenfield company accordingly cannot bear the mark of its public "parent company", because it has no public parent company. Thus a Greenfield company rightly is described as positioned at the beginning of the public company life cycle. Unlike the Heritage company (which although "new" is not "newborn"), the Greenfield company is both new and newborn. The Greenfield company has not been required to have any particular organizational structure or method of data collection to support the stringent legal requirements attendant to being a public entity. Nor has it accreted any body of history or characteristic ways of acting as a public company; it has not yet developed a public company culture.

Greenfield companies, as entrepreneurial firms, generally have been founded and run by individuals with a bent for risk taking and innovation; such a stance is required in order to bring a firm into being as a start-up (Herron and Sapienza, 1992; Johnson, 1990). Many Greenfield companies also are clustered in certain industries that are not only amenable to but also necessarily driven by innovation. An analysis of 79 Initial Public Offerings in the New England region of the United States in 1996, for example, is representative of the larger picture. It shows technology and technology-dependent companies as key industry segments (Brountas, 1997). As actors in a rapidly changing and emerging field, such early-stage companies are well positioned for change. Fligstein (1990) comments, "Often, innovative behavior occurs in newly emerging organizational fields, fields whose structures and rules have yet to coalesce"

(7). Indeed, the rapid rate of change in technology and its applications in and importance to business now and in the future have been examined closely. Sifonis and Goldberg (1996), e.g., identify technology as one of the three essential components (with leadership and governance) affecting the future of corporations. A study of interviews with 1000 senior executives and academics, by researchers at the University of Pennsylvania's Wharton School, similarly focused on information technology (Brill and Worth, 1997). Indeed, directly addressing the importance of high technology companies to developments in corporate governance, a Spencer Stuart report comments in a 1997 profile of technology boards of directors: "Suffice it to say, we remained intrigued by the possibility that high technology companies may help redefine the contours of corporate governance as we know them today" (1).

Technology products and services are cutting edge and in high demand; in addition, research points to the fact that the development cycles for high-technology products and services have shortened. The net result here is that many Greenfield companies go public even sooner than had been the case in the past (Mamis, 1997), reinforcing our characterization of Greenfield companies as companies "young" in the public company life cycle. However, it is important to recognize that not all Greenfield companies are technology companies (neither are all technology companies Greenfield companies), and this research focuses on a range of companies.

In direct contrast to the Greenfield company, the Heritage company is positioned at a later stage in the public company life cycle. This positioning is attributable to the Heritage company's parentage. As has been noted, the Heritage company is the direct offspring of a company that has experience operating as a public entity and that can be characterized as having an attendant public company organizational culture. Thus, the Heritage companies can be seen as having inherited established "old" ways of doing business within the public company context. These ways are what Kanter et al. (1992) call "core rigidities" (45), after Leonard-Barton (1992). In discussing the organizational culture attached to well-established firms, Fligstein (1990) comments directly that organizations have "deep-seated interests to continue business as usual" (9). Kanter et al. say of the culture of mature firms: "The company's belief in its distinctive competence. . . becomes entrenched, almost ritualistic and unexamined" (45).

In summary, the company life cycle and culture literature provides a sound basis for distinguishing between the Greenfield and the Heritage companies as distinct subsets within the overall set of newly public companies. Further, the theses developed in the company life cycle and culture literature accordingly lead us to the consideration that the Greenfield company will be far more likely than the Heritage company to create new ways of doing business as a public company. This is because the Greenfield company, by dint of its locus in the public company life cycle and its organizational culture, is better positioned than the Heritage company to adopt the most progressive corporate governance practices if it so elects. As Corporate Board editor Ralph Ward (1997:18) has mused on corporate governance: "What if, a few progressive businesses thinkers wondered, just for once, the way things were could be brought into line with the way things were supposed to be?"

Indeed, all public company ways are new ways for the Greenfield company, precisely because this type of newly public company truly is wholly newly public. Finding the new path, in fact, is something Greenfield organizations well may be forced to do. Discussing a spate of obstacles and opportunities associated with startup companies, for example, Kanter et al. (1992) offer a snapshot summary of differences between Greenfield and Heritage companies. They comment of the startups that "the need to face and resolve each startup handicap pushes newer organizations to change *regardless* of the strategic intent of their founders" (39) [emphasis added].

Table 2.1 provides an overview of company life cycle and culture research that is key to establishing a differential characterization of newly public companies. This corpus of literature allows us to make a rationally defensible distinction between Heritage and Greenfield companies on the basis of their respective origins and cultures as newly public companies. As indicated in Table 2.1, some of the research serves to establish the existence of the life cycle continuum along which each of the two types of companies can be located. Such literature is noted in the table as "H vs. G." Other literature focuses closely on the attributes that can be assigned either to the Heritage company or to the Greenfield company (noted accordingly as "H" or "G").

Table 2.1 Characterization and Classification of Newly Public Companies: Summary of Related Research

Researcher/Date	Characterization	Type
Scott, Wrigley, Channon et al. 1970s	Industrial corporations undergo process of adaptation over time, in response to pressures and conditions within a specific economy.	H vs. G
Greiner 1972	Progression from entrepreneurial startups to increasingly complex, layered and proceduralized organizations.	H vs. G
Wright 1987	Companies go through progressive stages: entrepreneurial, maturation, aging, demise/renewal.	H vs. G
Kanter et al. 1992	Startups are open to change and innovation; mature companies are marked by inertia and entrenched modes.	H vs. G
Hofstede 1993	Corporate culture is a collective phenomenon manifest in an organization's practices as carried out via its members' actions.	H vs. G
Boyett 1995	Communities of practice (organizations) have shared "mental models" of normative behavior.	H vs. G
Donaldson & Lorsch 1983	Mature firms less free to set strategic direction; entrenchment arises belief in firm's distinctive competence.	H
Donaldson 1990	Existing processes and directions demand collective commitment and squelch challenge to status quo.	H
Fligstein 1990	Individual organizations are influenced by "fields" set by other firms in determining prevailing rules and modes of organizational behavior.	H
Beatty & Ulrich 1991	Managers in mature firms can become dependent on established norms, leading to complacency.	H
Kanter et al. 1992	Social and political forces surrounding organization transmit values and norms of behavior, which leads to organizational isomorphism through emulation.	H
Leonard-Barton 1992	Mature organizations exhibit embedded knowledge that inhibits innovation.	H
Bower & Christensen 1995	Mature companies are marked by inertia and reliance on current markets in face of disruptive technologies.	H
Sifonis & Goldberg 1996	Existing organizational "edifices" can stifle organizational evolution.	H
Casson 1996	The entrepreneurial firm is an institutionalized embodiment of the entrepreneur.	G
Arthur 1996	Strategic decisions in technology companies affected by supporting and enhancing "mini-ecologies."	G
Brown 1998	Successful technology firms use time pacing to keep "transitionally agile."	G
Hamel 1999	Technology firms stay innovative longer because new talent and ideas are constantly harvested.	G
Sahlman 1999	Technology sector business model, with quick start-up and rapid growth, is qualitatively different from more traditional schema.	G

2.2.3 Summary

This section of the thesis has provided a review and analysis of the literature that serves as the theoretical basis for distinguishing between newly public companies on the basis of their origin as "newborn" (Greenfield) companies or "reborn" (Heritage) companies. This "Company Life Cycle and Culture" literature posits first that companies pass through a generally orderly life cycle. The literature further indicates that companies in the early life cycle stages are marked by such characteristics as flexibility, innovation and a strong entrepreneurial spirit; while more mature companies tend to be characterized by adherence to an established set of norms and processes, rigidity and even torpor.

By providing a continuum or cycle within which to cite newly public companies, and by describing the characteristics generally associated with early-stage and later-stage companies, respectively, the literature provides a basis for grouping newly public companies into two primary types. It also provides a rationale for conceptually locating those two types at disparate locations in the life cycle of the public company. Because they have no prior experience operating as public companies, Greenfield companies have been positioned in the research at hand as "newborn" or early-stage public companies on the public company life cycle continuum. In contrast, Heritage companies, which are marked by the culture of the public companies from which they have originated, have been positioned as "reborn" or later-stage companies.

2.3 IDENTIFICATION OF CORPORATE GOVERNANCE BEST PRACTICES

2.3.1 Introduction

Over the past several decades, and particularly over the last eight to ten years in the United States, a significant body of research has coalesced around the form and process of corporate boards. The academic research has been accompanied by a series of real world factors acting to keep the spotlight of inquiry trained on corporate boards. Academic and chief executive officer-level groups such as the Sloan Project on Corporate Governance at Columbia University, the Business Roundtable, the Conference Board, and the J.L. Kellogg School of Management's Annual Corporate Governance Forum continue to meet regularly in the United States to discuss

corporate governance; focus on how practice is changing, and why; and frame appropriate corporate responses to those changes on the United States business scene. The driving focus is to attempt to identify those forms and processes of corporate governance that are most advantageous in yielding the best returns in terms of company performance.

This extensive body of corporate governance literature is important to this study because it identifies and dissects the complex components of corporate governance, documents the development of thought in this area, and points to those practices that are currently held to be most advantageous. For the purposes of this study, which examines the relationship between corporate governance and company performance, identifying key corporate governance best practices is a necessary step prerequisite to the examination of the research question. The subsections below provide a summary of key themes raised in the literature and explain how the literature provides the footing for the specific research propositions, which are discussed in Chapter 3.

2.3.2 The Players Literature

The first important stream of thought in the corporate governance best practices literature focuses on the corporate directors themselves. Overall, the "Players" literature discusses what kinds of people, both as individuals and as a group, constitute the most effective members of corporate boards.

The matter of the demographics and selection of board members has been examined from a variety of viewpoints. Overall, the research into board demography recognizes that both individually and collectively, people are a key element in any consideration of corporations and their governance (Dahya et al., 1998; Foshee, 1998; Hambrick, 1996,1997). Charkham (1997), for example, points to the "people factor" in discussing the differences and similarities in corporate governance in the United Kingdom and the United States; and The Business Roundtable has commented: "The 'soft' subjective factors in corporate governance--such as the quality of directors and the personalities of CEOs and directors--receive less attention from scholars and journalists [than formal structural attributes] but are critical in the real world of corporate behavior" (1997: 2).

Board composition and selection variables that have been examined include the effects of directors' interlocks in promoting homogeneity in demographics and performance (e.g., Lesly, 1995; Davis, 1991); the significance of personality and social attitude similarity as director selection determinants (Zajac and Westphal, 1996; Westphal and Zajac, 1995; Pettigrew and McNulty, 1995); and the impact of females and minorities on boards (Biggins, 1999; Browder, 1995; Bilimoria and Piderit, 1994). This research category can be fairly characterized as converging to examine how the population of a corporate board becomes both a predictor of and a driver in board function and performance. The "Players" research, although far ranging, converges to suggest that what heretofore has been the characteristic demographic homogeneity (across a range of variables such as gender, social status and what Pettigrew and McNulty [1995] have termed "will and skill") of corporate directors has acted overall as an agent of the status quo.

In tracing the evolution of thought and practice in this dimension of corporate governance, the literature further explains that a heterogeneous board is more advantageous than a homogeneous board. Heterogeneity is named a best practice, this body of literature explains, because heterogeneity brings to a corporate board the diversity of opinion, knowledge and expertise that promotes and supports the innovation, flexibility, dynamism and creative problem-solving essential to effective performance. Earnest Deavenport, chairman of Eastman Chemical Company, a 1994 spin-off from Eastman Kodak, summed up this position when he stated: "Perhaps the strongest conviction I brought to the table was our need for a board with diversity of thought. . . . I was convinced that we could reach our goals only with the help of board members with a rich diversity of background and experience" (1997: 37-38).

It is important to emphasize here that the issue of diversity in these considerations does not turn solely on questions of gender, age or race. The literature points out that ensuring a variety of perspectives on a corporate board increasingly means stocking that board with directors who are diverse in *what they do* as well as in *who they are*. The National Association of Corporate Directors, in its 1997 Corporate Governance Survey, plainly states: "The number of professions sought for boards is growing, as board nominating committees seek expertise in a wider range of fields" (1). The Business Roundtable agrees, joining together the *who* and the *what* in their

characterization of desirable board members: "Effective boards are composed of individuals who are highly experienced in their respective fields of endeavor and whose knowledge, background and judgment will be useful to the corporation" (Business Roundtable, 1997: 8).

In summary, the Players Literature contributes the first of three corporate governance best practices examined and tested in the course of this study: *board heterogeneity.*

2.3.3 The Paradigm Literature

Having mined the corporate governance literature that looks at the population of corporate boards, we next turn to the "Paradigm" literature. This category of inquiry into corporate governance best practices deals with the issue of how a corporate board is structured and operated. Paradigm literature views board architecture (including such matters as the "lead" director, committee structure, and percentages of outside directors) and *modus operandi*. Here, for example, the factors that affect outside director effectiveness have been subjected to scrutiny, with weight given to directors' need to be informed and aware, to be independent (Hodes, 2000; Block and Hoff, 1994), or to be knowledgeable in specific functional areas or about matters such as the chief executive officer's decision-making process (Judge and Dobbins, 1995). Research in this area looks to the protocol, rules, and customs that guide a board's operation, examining correlations between type and effectiveness. Much has been written, for example, about the various "typologies" of United States boards. Boyd (1990) points to the existence of over 100 such studies even a dozen years ago.

In discussing how boards function, however, researchers have emphasized that paradigm deals with more than mere structure; it goes to issues of power and control. As Drucker (1973: 630) has it: "It is becoming increasingly clear that top management will not--and in the large corporation must not--be permitted to operate without an effective and strong board." Accordingly, the question of the balance of power between the board and the chief executive officer/management has been a focal point of research. In this regard, for example, Pearce and Zahra (1991) measure four situations (caretaker boards, statutory boards, proactive boards, and participative boards), based on the relative powers of the chief executive officer and the board, concluding that powerful boards and strong financial performance are positively

correlated; however, the relationship is contested by a variety of researchers who have applied different definitions of power and ranging measurements of performance to come up with decidedly conflicting results (see, e.g., Boyd and Carroll, 1996; Boyd, 1994; Rechner et al., 1993; Wang and Coffey, 1992; O'Neill et al., 1989).

Literature on organization theory also weighs in when board paradigms are considered. This line of thought promotes the importance of strong leadership on the corporate board; in particular, the role of centralized and unitary authority is seen as essential to effective and efficient governance and is thought to be associated with superior company performance. Given this particular perspective regarding firm management, organization theory for example favors chief executive officer-board chairman duality, in which one person serves in both roles. Dalton and Daily (1998a: 565) explain the theoretical foundation for this point of view: "Consider, for example, the principle that authority should be commensurate with responsibility. In the CEO is vested the ultimate authority for the firm. Accordingly, he or she should not share authority with a separate board chairperson."

As Zajac and Westphal (1996) have summarized the research on this balance of power, there are two diverse academic perspectives regarding the direction of corporate governance in the United States today. One perspective suggests that shareholder activism, investor pressures, and public discussion and scrutiny all have contributed to greater independence among directors and boards of contemporary American corporations. The other perspective, perhaps echoing the Peter Drucker (1973: 628) characterization of the board as "a fiction," suggests that the chief executive officer remains as strong as ever and that boards are essentially extensions of the chief executive officer's control and decision-making process.

The bifurcation here appears dependent on the premise--one that is inherent in the agency theory of governance, as discussed in more detail in 2.3.4, below)--that chief executive officers and boards characteristically have different ends and that one or the other will be met to greater or lesser degree, depending on what kind of deal is struck. Indeed, a significant amount of research has been conducted and reported around the controversial question of under what circumstances and in what ways boards become involved in strategic matters. The Lorsch (1995b) position that boards should be

actively involved in strategic decision making has been endorsed by some researchers (see, e.g., Forbes and Millken, 1999; Pound, 1995) who see such a role as an evolution in function. Other researchers have concluded that boards become involved only in certain circumstances, such as when management fails (Johnson et al., 1993), or in the case of bankruptcy (Daily and Dalton, 1994a, 1994b).

However, the literature also indicates that question of "should" may increasingly be moot in the practice of corporate governance in the United States. For example, more than half of the United States and European senior executives and directors who responded to a 1995 Conference Board survey reported their boards with a growing role in strategy formulation; almost as many characterized their boards as actively involved in choosing strategic options (Berenbeim, 1996). The results of the 1997 Corporate Governance Survey by the National Association of Corporate Directors (drawn from 1,105 responses to questionnaires mailed to over 8,000 chief executive officers of major companies based in the United States) also indicated that board involvement in strategic planning is a fact. Over 90 percent of the respondents, when asked "Is your board involved in your company's strategic planning?" replied in the affirmative; over three-quarters answered affirmatively when asked if their directors have a "significant influence" on strategy. The report goes on: "So it is no wonder that strategic planning ability is a key attribute sought in today's outside directors" (NACD, 1997: 22). This position is echoed in a 1997 Business Roundtable report that addresses not whether the board should be active in strategy, but how: "Boards should also be conscious of the limitations inherent in having too much of their business handled in committees. Boards working as a whole on important strategic issues allow the corporation to take advantage of the collective wisdom of the board" (15).

In summary, analysis of the Paradigm literature indicates that cooperation between the CEO and the board, and among the board members, is identifiable as a corporate governance best practice. Thus, *board cooperation* becomes the second corporate governance best practice that is subjected to examination and testing in the course of this study.

2.3.4 The Purpose Literature

Thus far, this thesis has surveyed and analyzed the body of corporate governance literature to identify best practices within two areas. The first was concerned with who directors are. The second focused on how boards are structured and operated. The effort yielded *board heterogeneity* and *board cooperation* as two of three corporate governance best practices for consideration in the research. "Purpose" literature, the third and final area of corporate governance literature germane to this study, concerns itself overall with the *raisons d'être* of boards. In proposing answers to the question of why boards do what they do, literature on board purpose contributes the last of the three corporate governance best practices for examination and testing in this study.

A wide variety of theories have been propounded with regard to the perceived purposes of corporate boards. A closer review of the literature, especially that published within the past 30 years, shows an evolution of thought regarding the proper *raison d'être* for a corporate board and naming the groups the board is purported to represent. The intellectual constructs that are the most germane to considering governance in newly public companies are agency theory, shareholder theory, and stakeholder theory.

Agency theory (see, e.g., Fama and Jensen, 1983; Jensen and Meckling, 1976) focuses on matters of monitoring and representation on the board's part. Agency theory, based on the seminal work of Coase (1937), emerged in the 1970s. Influenced heavily by contract-based economic analysis, agency theory was put forth largely to provide an analytical framework for considering the respective interests and domains of managers and owners. The theory takes as its basis the premise that owners and managers of firms are characteristically and necessarily in contention; the separation of ownership and control is thus posited as engendering divergent goals and stances for owners and managers. The entities are seen as acting in different ways regarding the company endeavors, in particular with regard to entrepreneurialism and the shouldering of risk. Wang and Coffey (1992:772) have it this way: "Agency theory assumes that principals and agents have different self-interests and try to maximize their own utility. Principals are profit oriented because they have direct residual claims on a firm's earnings while agents tend not to be profit driven." Within the constructs of agency theory, boards of directors are seen to act as agents to ensure that

the worst excesses of the self-interest of company management are neutered (see, e.g., Fama [1980: 293], who calls directors "professional referees").

Important in the agency theory literature are the issues of to what degree and in what combination the directors are supposed to serve as the representatives of owners, shareholders, stakeholders, or the interests of "outside" social ends (see, e.g., Swanson, 1999; Verschoor, 1993). Other perspectives on this issue are abundant. In their seminal 1932 work, Berle and Means noted that the management of corporations is faced with the "ancient metaphysical squabble" (221) between loyalty to the corporation and loyalty to stockholders. Within this condition, the director must act as a fiduciary for all of the stockholders as well as for the corporate entity. Further, the literature takes into account the consideration that ownership and control in United States firms have changed actually, to include more diverse interests; and theoretically, to include a broader definition of what constitutes an ownership "share" (Blair, 1995a).

Because agency theory literature has as a key concern the relationship between managers and owners, *shareholder and stakeholder theory* is naturally allied to and a further enunciation of agency theory. Within the agency theory construct, the corporation is seen as a "nexus of contracts between resource holders" (Hill and Jones, 1992:132). Specifically, shareholders are among the most clearly identifiable groups of resource holders. Debate over shareholder theory (Mahoney, 1997; Donaldson and Preston, 1995; Jones, 1995; Wang and Dewhirst, 1992) is widespread particularly in the United States, where shareholder activism continues to transform the focus and function of directors and the interest in corporate governance. The literature documents the ways in which management is being made more accountable to shareholders via the shareholders' direct involvement, not only in the United States but also around the world. A 1994 Conference Board research report details that over 75 percent of the 260 United States, United Kingdom and European companies that responded reported having assigned to an individual the responsibility for managing institutional investor relationships, a practice the report's author calls "nearly universal among U.S. and U.K. participants and all responding companies with 1992 annual sales of more than $5 billion" (Berenbeim, 1994b: 8). Further, nearly 50 percent of the companies in the 1994 Conference Board study reported having had

more institutional contacts within the three years prior to the report than they had had in the prior three-year period. And the 1997 Corporate Governance Survey by the National Association of Corporate Directors indicates that the percentage of respondents who say they "actively seek the views of institutional shareholders" doubled since 1995 (NACD, 1997: 26).

Stakeholder theory casts a wider net than shareholder theory, to number an even more diverse cast of actors among the corporation's resource holders. Donaldson and Preston (1995) explain: "Stakeholders are persons or groups with legitimate interests in procedural and/or substantive aspects of corporate activity" (136). Examples of stakeholders, provided by Hill and Jones (1992), include employees, customers, suppliers, creditors, communities, and the general public. Stakeholder theory holds that the modern corporation, a public entity, is a social institution with responsibilities extending beyond those that are solely economic. As public institutions, corporations act in the context of a larger societal "field" that goes beyond the question of a strict owner-manager relationship to consider so-called "outside" interests. Wang and Dewhirst (1992: 115) summarize the stance this way: "Stakeholder theorists call for a change in the basic definition of modern corporations from a stockholder perspective to a stakeholder perspective. They recognize that a variety of clienteles or constituency groups can have legitimate claims upon the organization and be in a position to affect organizational outcomes."

Stakeholder theory in its broadest sense is two-way; it recognizes that a range of groups and interests beyond actual stockholders both influence and are influenced by the actions of organizations. Within this construct, then, part of the company's *modus operandi* necessarily is identifying, acknowledging and balancing various stakeholder interests. Blair (1995a) makes the argument:

> A firm that wants to maximize its total wealth-creation activity must pay attention to the costs, rewards, and risks imposed on other stakeholders in the firm. A director who represents only shareholders may be in a poor position to understand and weigh the effects of the company's actions on these other stakeholders. By contrast, directors who represent multiple stakeholders and who understand their job to be maximizing the total wealth creation of the firm, are more likely to be sensitive to these other effects (188).

Successful management of this responsibility is seen as enhancing the firm's actions

as a social entity, an outcome termed "corporate social performance" or "corporate social policy" in the literature (see, e.g., Boyd and Carroll, 1996; Wang and Dewhirst, 1992; Windsor and Preston, 1990; O'Neill et al., 1989; Kohls, 1985).

In summary, the Purpose literature documents the evolution of thought in this area of corporate governance, which moves toward the idea that the proper *raison d'être* of a board of directors is to represent and to be responsive to a wide range of interested entities relative to the corporation. Thus, the third of the three corporate governance best practices for examination and measurement by the study at hand is *board responsiveness* to shareholders and stakeholders.

2.3.5 Summary

This section of the thesis has provided a precis and analysis of the extensive body of corporate governance literature. The purpose of the analytical work discussed in this section has been to extract from the body of "Best Practices" literature the leading theories regarding the *players, paradigms* and *purposes* of corporate governance. Such identification has been required in order to identify the specific corporate governance best practices to be subjected to testing in this study. This process yielded these three corporate governance best practices: *board heterogeneity, board cooperation*, and *board responsiveness*.

For the purposes of this study, which examines the relationship between corporate governance and company performance, identifying corporate governance best practices has been an essential analytical step. The next section of the thesis proceeds to examine the other key element of the research question: company performance. It reviews the performance literature overall, as well as previous studies that have considered the relationship between corporate governance and company performance, in order to isolate the most appropriate measurement device for calibrating company performance.

2.4 CALIBRATION OF COMPANY PERFORMANCE

2.4.1 Introduction

Examining the relationship between corporate governance and company performance in newly public companies next requires a review of company performance literature.

The objective of this review and analysis is to identify the most apt measurement of company performance, for use in framing and testing the research propositions. This section of the thesis accordingly provides an overview of the company performance literature and proceeds to discuss the rationale for selecting compound annual growth rate in market capitalization as the company performance measurement employed for the purposes of this study.

The literature on company performance has defining performance and measuring performance as its two foci. As is the case with considering the definition of board purpose, characterizing and calibrating company performance requires an understanding of some theoretical underpinnings as to the nature of the firm. The "Purpose" line of inquiry, as explained above, asks: Who? Who is it that the directors are supposed to represent? Closely allied to this concern are the questions suggested in the literature on performance. These underlying questions are: What? and How? That is to say, What is it that the board is endeavoring to do? And, How can we tell if the board is succeeding in that endeavor? Thus, the body of performance literature concerns itself both with the target and with whether or not that target is hit.

2.4.2 Performance Definition Literature

In defining performance, the underpinnings of prior research have been rooted across a continuum. A point on one end of this spectrum is economic; at the other end is what loosely can be called non-economic or extra-economic; in between lies some combination of the two. The non-economic or extra-economic point embraces a wide group of concerns including, for example, social reform, good corporate citizenship and the like. Thus, movement along the continuum contained in the prior research launches from the idea that the business of business is making money and proceeds to the idea that the business of business is to act as a society-altering entity. Calling these competing characterizations "schizophrenic," Allen (1992: 471) explains the polarity:

> In the first conception, the corporation is seen as the private property of its owners (stockholders); its purpose is to advance the purpose of its owners (usually to increase their wealth). . . .The second conception sees the corporation not as the private property of stockholders, but as an institution; a form of social compact among various constituencies. In this view, the corporation is not strictly private; it is tinged with a public purpose.

Representative of one end of the spectrum is the so-called "Friedman doctrine," best

expressed in the title of a New York Times Magazine article: "The Social Responsibility of Business is to Increase Its Profits" (Friedman, 1970). Theoreticians (e.g., Millstein, 1993, 1994; The Working Group on Corporate Governance, 1991) of this position take as their starting point the assumption that increase in wealth is the *raison d'être* (or at least the *raison* on which competing interests can converge) of the corporation. This economic premise is stated directly by some researchers; it also can be considered to be assumed by a wide range of researchers who, in discussing corporate performance, correlate such performance with various historical indicators of financial performance (see, e.g., Boyd, 1995; Fleming, 1994; Rechner and Dalton, 1991).

However, the trend documented in the literature points toward a more broadly construed definition of performance. Brancato (1997: 133) comments that, while optimizing long-term success of the company is a generally agreed-upon objective against which performance can be assessed, "the definition of what it takes to achieve long-term success has been changing to accommodate a somewhat broader spectrum of concerns for directors." For example, Charkham (1997: 359), in his comparison of corporate governance in the United States and the United Kingdom, flatly states that stockholder value has never been the only concern of sound management of U.K. companies.

Indeed, a range of studies on corporate social responsiveness and profitability challenge the longstanding and widely accepted assumption that corporate social responsiveness (intangibles) and profitability (economics) stand in opposition to one another. Over a decade ago, O'Neill et al. (1989: 353) said: "Left unchecked, the pursuit of managerial interests is not likely to foster corporate social responsiveness, except in those instances where responsiveness makes good business sense (in other words, matches the interests of the managers)." Current thought (see, e.g., Goldstine, 1999; Dalton et al., 1998; Wang and Dewhirst, 1992; Wang and Coffey, 1992) suggests that the alliance of the two is more the rule than the exception thereto. This view contends that balancing multiple constituencies is linked to a firm's creating a sustainable competitive advantage; a high level of corporate social performance thus can be construed as being important because it contributes to clear branding and/or strong company reputation. Thus the literature contending that a stakeholder approach

joining economics and intangibles in the matter of performance assessment is a strategic as well as participative matter puts forth a "blended" approach of economics plus intangibles, seeing the two elements as complementary.

2.4.3 Performance Measurement Literature

The literature indicates that the question of measuring performance embraces a continuum similar to that associated with defining performance; indeed, the two are inextricably linked. In summarizing approaches to performance measurement, for example, Brancato (1997) groups various historically-based financial methodologies of assessing shareholder value into three groups. The methodologies are those that calculate cumulative shareholder returns over some specified period of time; those that determine excess returns over some market index; and those that combine some balance sheet and income statement ratios (e.g., economic value added, market value added). Representative of this approach in the prior research are theorists who focus on assessing performance in terms of profitability defined as return on equity, stock price performance, and various accounting performance assessments (e.g., Fleming, 1994; Brook, 1994; Boyd, 1995; Rechner and Dalton, 1991). In a 1991 meta-analytical review of strategic planning and financial performance, involving some 29 samples on a total of 2,496 organizations, Boyd (1991) charts nine economic performance measures; Davis et al. (1992) term profitability and growth two of the key dimensions of business performance.

However, a significant and recent body of research points out an evolutionary trend toward attention to other criteria and methodologies for performance measurement. Representative of this corpus of thought regarding performance is Kaplan and Norton's "Balanced Scorecard" (1996a), resulting from a 1990 multi-company study contending that "reliance on summary financial-performance measures were [*sic*] hindering organizations' abilities to create future economic value" (vii). The factors included in this "blended" approach to performance calibration are variously called "soft" (Berenbeim, 1995); "subjective" (Pearce and Zahra, 1991); "non-financial" (Millstein, 1994); or "intermediate", "nontraditional", or "intangible" (Brancato, 1997). They can include elements such as a company's competitive position (Boyd and Carroll, 1996), stance regarding corporate social performance/policies (Wang and Coffey, 1992; Windsor and Preston, 1990; Kohls, 1985) and overall company

profitability (Pearce and Zahra, 1991); the company's stock of scientific and technical knowledge, skill base, and/or reputation with various constituencies, and market position (Goldstine, 1999; Millstein, 1994); meeting of strategic and operational objectives (Berenbeim, 1995); and even "popularity" (see Brancato, [1997: 37] for a discussion of the varied performance assumptions embedded in the election of companies to the annual Fortune magazine list of "America's Most Admired Companies").

Thus, analysis of the literature marks the development of thought with regard to company performance. This development embraces an approach that goes beyond retrospective accounting/economic indices in the course of defining and measuring company performance. Of particular note here is the emphasis that the more current literature demonstrates regarding the importance of overall market valuation of a company. This approach combines retrospective indicators of performance with prospective indicators as to the likely performance of that company.

The latter approach, linking economic and intangibles in assessing company performance, is not only intellectually convincing but also borne out daily in my own practice as a company CEO and Chairman of the Board, and as a member of several corporate boards. My real-life experience has shown that in the early stages of a newly public company, the investment community looks closely at the experience of the company's senior team and directors in the course of valuing the enterprise. Part of what is considered is their track record in being able to understand the full range of what company shareholders and stakeholders are looking for, which increasingly goes beyond shareholder return. For example, a company's involvement in the social infrastructure of the community, and its relationship with its employees, has become a focal point for institutional and individual investors alike. Indeed, the particular and unique culture that a newly public company builds is a major equity portion not recorded on the balance sheet. Certainly, company culture has been key to attracting the type of employees who can make or break the technology-intensive companies with which I have personally been associated. These are employees who are working as much for an adventure as for their career, and who want to make a difference in their own life and in the life of the enterprise with which they are associated. These various "non-economic" elements, then, are vital components in the assessment of

actual and expected company performance and will play out in movement in the company's stock price and market capitalization. Blair (1995a), discussing the issue of retrospection versus prediction, goes so far as to comment that "what matters at any single point is not what the actual performance of the company will turn out to be during the next ten or so years, but what investors think the actual performance will be" (131).

Having reviewed the literature regarding the definition and measurement of company performance, the study now proceeds to survey the extant literature regarding the relationship between corporate governance and company performance. The discussion begins with a review of measures used by other corporate governance researchers in examining the relationship between corporate governance and company performance. The review serves as a prelude to the discussion of the rationale for selecting compound annual growth rate in market capitalization as the company performance measurement that is employed for the purposes of this study.

2.4.4 Literature on the Governance-Performance Relationship

This study's focus on the relationship between corporate governance and company performance in newly public companies is allied to a significant prior body of research that has sought to examine just that relationship in public companies overall. Review of this literature reveals rather divergent results, with three meta-analytical studies providing a useful summary of a large body of governance-performance research. One analysis, of 49 journal articles and chapters on strategic planning and financial performance (Boyd, 1991), found a modest correlation between the two but declared, "Extensive measurement problems suggest that these findings underestimate the true relationship between planning and performance" (354). A 1998 meta-analytic review examined 54 empirical studies of board composition and 31 studies of board leadership structure, and the relationship to firm performance (Dalton et al., 1998) and found neither board composition nor board leadership structure consistently linked to firm financial performance. A 1998 research report from The Conference Board's Global Corporate Governance Research Center discussed 14 recent (1993-1997) research studies which were looking for "a demonstration of enhanced firm performance, resulting from one or more types of corporate governance"(8). The Conference Board study failed to find a proven positive correlation between

governance and performance, and suggested that a negative correlation (poor performance is accompanied by poor governance) could possibly be more successfully proven.

Other seminal studies have found positive associations; four are cited here. Dess (1987) targeted the potential correlation between consensus on strategy formulation and performance, finding consensus on either objectives or methods positively related to company performance. A study of business unit relatedness and performance (Davis et al., 1992) found a high level of marketing relatedness associated with high sales growth. Hambrick et al. (1996) looked toward the relationship between top management team heterogeneity and company competitiveness, finding heterogeneity positively correlated both to a basic tendency for undertaking competitive initiatives and to magnitude of competitive actions. Boyd (1995), in one of his studies on CEO-chairman duality, found duality positively associated with firm performance, under certain circumstances.

In summary, a wide range of studies have sought to examine the relationship between corporate governance and company performance in United States companies overall. This research as a whole, as has been noted, has not been not focused directly on the relationship between corporate governance and company performance in newly public companies. However, prior research nonetheless provides both a general intellectual construct for considering how company performance ought to be measured, as well as a palette of performance measurements to evaluate with an eye to their applicability to the research at hand. Table 2.3 on the following page provides a summary of key representative research in the area of company performance.

2.4.5 Selection of a Company Performance Measurement

Overall, the review of the performance literature demonstrates evolution of thought favoring performance measures that include both economic and "intangible" elements. The review also concludes that performance measurement for newly public companies should incorporate a prospective dimension, rather than being solely retrospective. This dimension can be seen as requisite to reflecting the current conditions and environment within which newly public companies operate. On this point, Brancato (1997: 35) comments that "major shifts in markets, changes in interest

rates, and the investing climate will quickly render. . .historical data obsolete."

Table 2.3 Economic versus "Blended" Company Performance Measures: Outline of Representative Literature

Reporter	Focus	Measurement	Type
Rechner & Dalton 1991	CEO duality	return on investment return on equity profit margin	E/R
Fleming 1994	Large-stake investors	stock price performance accounting performance	E/R
Boyd 1995	CEO duality	sales growth market share	E/R
Pearce & Zahra 1991	CEO-board power	average earnings per share stock performance ratings competitive position overall performance overall profitability	B/R
Davis et al. 1992	Business unit	profitability relatedness growth	B/R
Brook 1994	Director liability	future performance (Tobin's q) operating performance flow operating profits/total assets	B/P
Millstein* 1994	Company valuation	scientific/technical knowledge skill base reputation market position	B/P
Kaplan & Norton 1996a	Business unit	financial data customer data internal business processes learning and growth	B/P
Brancato 1997	Shareholder value	strategic performance	B/P
Finkle 1998	Newly public companies	initial offering size aftermarket stock return	B/P

*Millstein reports on a 1992 Council on Competitiveness report authored by Michael Porter

Key: E=Economic B=Blended R=Retrospective P=Prospective

The literature review uncovered few broad-based performance measurements able to meet the appropriateness test for applicability to newly public companies. Most measurements used in the previous studies rely on ratios that calibrate one aspect of shareholder value, such as earnings per share, return on equity, or return on assets. Economic Value Added (EVA), for example, is based on the notion of residual income. This principal states that the residue that remains after paying shareholders'

and debtors' required annual return represents the company's real income (Dubey, 2000). However, the EVA methodology (as is that for Market Value Added, which measures difference between total market value and total invested capital) is also based on historical accounting data (Brancato, 1997) and thus was rejected for the purposes of this study.

As Table 2.3 shows, other performance methodologies were found to include both economic and intangible elements in performance measurement and to meet the criterion for a future orientation. One of these, Kaplan and Norton's Balanced Scorecard (1996a), demonstrates the unacceptable methodological challenge presented to the study at hand by certain of these blended approaches. The Balanced Scorecard tracks key elements of a company's strategy, complementing retrospective financial measures with prospective operational measures of customer satisfaction, internal processes, and a company's innovation and improvement activities (Kaplan and Norton, 1992). The Kaplan and Norton approach is tailored closely to each individual company. Thus, though suitable for assessing a single company, Balanced Scorecard offers no uniform methodology for comparative assessment of performance across a group of companies.

These considerations accordingly led to selection of market capitalization as the most apt performance measurement for the study at hand. Market capitalization is both an appropriate and elegant measurement for this study of newly public companies. In one of the few other research efforts focusing specifically on the relationship of corporate governance and company performance in newly public companies, Finkle (1998) explains the significance of market capitalization as a marker. With regard to the matter of company valuation at the Initial Public Offering, he comments succinctly: "Going public provides a firm with key additional resources for continued growth and survival" (6).

Market capitalization takes into account investors' assessments of how they expect the company will perform in the future; such a broad-based assessment necessarily is based on a wide range of factors considered by the market to be integral to the success of a company. Using market capitalization as a measurement device provides us with the capacity to make comparisons across a cohort of companies. This capacity is essential to the study at hand. In addition, using market capitalization ensures that we

can be confident of access to reliable, uniform data that are easily obtainable through public data sources and that do not have to be subjected to researcher interpretation. Explaining the utility of tracking stock prices for company performance measurement, Blair (1995a) touts the method as both forward-looking and free from the possibility of manipulation through "accounting tricks" (133). Plotting market capitalization over a period of time meets these tests; and thus, we elect to use compound annual growth rate (CAGR) in market capitalization as the encompassing measure of company performance. Use of CAGR provides a method for comparing the performance of companies with disparate market capitalizations over an extended period of time.

In summary, using market capitalization as a calibrator provides the study at hand with a performance measurement that blends economic and intangibles elements, has a prospective outlook, is uniquely suited to the measurement of performance in newly public companies, and is methodologically appropriate for making comparisons across a cohort over time.

2.5 SUMMARY AND CONTRIBUTION OF THE LITERATURE

This chapter has reviewed the three primary bodies of literature providing the theoretical underpinnings for this study of corporate governance in newly public U.S. companies. The "Company Life Cycle and Culture" literature offers a theoretical rationale for distinguishing between Greenfield and Heritage companies based on their respective origins and concomitant cultures. The "Best Practices" literature identifies and delineates those factors of board staffing, operation and *raison d'être* that have been posited as corporate governance best practices. Finally, the various "Performance" literature grapples with the question of defining and measuring company performance, delves into the relationship between corporate governance and company performance, and provides the basis for this study's use of compound annual growth in market capitalization as a blended (economic plus intangibles) indicator of company performance. This detailed review of the literature thus supplies a thorough underpinning for considering the major research question of this study: What is the relationship between corporate governance and company performance in newly public United States companies?

Accordingly, the specific research propositions, which are discussed in detail in the following chapter, turn first on integrating the company life cycle/organizational culture literature with the best practices literature. This integration serves to allow us to distinguish between Greenfield and Heritage companies as two different types of newly public companies, and to characterize their respective stances with regard to adopting the corporate governance best practices of board diversity, board cooperation and board responsiveness. This effort is followed by integration of the best practices literature with the company performance literature in order to allow a characterization of the relationship between corporate governance and company performance in newly public United States companies.

CHAPTER THREE
THE RESEARCH PROPOSITIONS

3.1 INTRODUCTION

Having discussed the theoretical underpinnings of the study by reviewing the extant literature, the thesis next proceeds to address the study's general research question regarding the relationship between corporate governance best practices and company performance in Greenfield and Heritage companies. Current theories of corporate governance, as has been in demonstrated in the review of the literature appearing in Chapter 2, construe a model corporate board as

1) composed of a board of directors who demonstrate heterogeneity;
2) structured and operated in cooperation with the chief executive officer;
3) acting in an agency role that is responsive to a wide range of interests.

Two assumptions underlie the overall research question in this study. The first assumption is that Greenfield boards, because of their locus as early-stage companies on the public company life cycle, will be more likely than Heritage companies to adopt and practice current corporate governance best practices. The second assumption is that the boards adopting and practicing corporate governance best practices will be those associated with newly public companies demonstrating superior performance.

This chapter explains the four research propositions that the study advances to examine this question and these assumptions. First are three propositions to test key variables associated with the staffing, structure and function, and *raison d'être* of newly created boards of Greenfield and Heritage companies (players, paradigm, and purpose). Then, the chapter sets out the fourth proposition, which seeks to investigate the relationship between the adoption of corporate governance best practices and the achievement of superior levels of company performance.

3.2 PROPOSITION ONE: PLAYERS

Prior research into the issue of board demographics indicates that whole of the "will and skill" (Pettigrew and McNulty, 1995) of a corporate board is made up of the sum of its members. The prevailing view regarding the importance and significance of board diversity is summed up by David Nosal of Korn/Ferry International in a November 1997 comment accompanying the firm's 24th Annual Board of Directors Study. The Korn/Ferry study was based on a survey of over 1100 directors and chairmen of Fortune companies and an analysis of proxies of all publicly held Fortune service and industrial companies. Nosal states that "diversity can be a critical board resource, providing important perspectives in an increasingly complex business environment" (Nosal letter, Korn/Ferry, 1997).

As has been noted, the composition of a board of directors can be analyzed across a wide variety of dimensions. The issues of heterogeneity that stand as key to this study, and which are subjected to scrutiny and testing by the research at hand, relate both to who directors are and to what directors do. Thus, racial, ethnic, and gender diversity (Biggins, 1999; Colvin, 1999; Bratten, 1998; Chandler, 1998; Browder, 1995; Bilimoria and Piderit, 1994) are considered, as well as sociopolitical/functional background and tenure on the board (Westphal and Zajac, 1995; Gopinath et al., 1994; Cannella and Lubatkin, 1993; Bacon, 1990).

As was noted in the preceding chapter, *board heterogeneity* is considered a corporate governance best practice. To assess heterogeneity, then, this study examines directors' areas of functional expertise (e.g., information systems, marketing, financial management) as well as their sociological demographics (e.g., gender and race), motivation for board service, and length of tenure, in order to site those studied along a diversity continuum. In addition, the study looks to assess the general direction of the boards toward greater or less heterogeneity. The first proposition pertaining to the board players is stated as follows:

P1: The Players Proposition

Newly created boards of Greenfield companies will demonstrate a greater degree of heterogeneity among directors than will newly created boards of Heritage companies.

3.3 PROPOSITION TWO: PARADIGM

A cooperative arrangement is one in which the parties have well-defined and separate spheres of influence that are exercised in consort to promote a common goal. A key consideration here is this: The study does not intend to suggest that chief executive officer-board of directors cooperation means the board acts as a kind of rubber stamp for the chief executive officer. Rather, cooperation is defined along the lines of a dynamic tension.

This study examines the relationship between the chief executive officer and the board of directors by looking at how and to what degree power is equalized between the two entities. This effort includes marking indicators identified as significant by the prior research cited, as has been documented in the prior chapter. These topics include separation of the roles of chief executive officer and chairman of the board of directors (Dalton and Daily, 1998a; Rechner and Dalton, 1991); the presence of independent board committees, such as for overseeing compensation or corporate governance (Sheinfeld, 2000; Buchholtz et al., 1998; Thompson, 1994); the influence of "outside" or independent directors, defined generally as those with no affiliation to a particular company other than board participation (Hodes, 2000; Dalton and Daily, 1998b; Tobin, 1994); the role of the board with regard to such issues as strategic planning, and CEO appointment or succession planning (Berenbeim, 1995; Pound, 1994; Gopinath et al., 1994); and the existence of "countervailing" measures for balancing power (Lorsch, 1989, 1995b, 1995c; Pearce and Zahra, 1991).

To test for *board cooperation*, the second of the three corporate governance practices mined from the literature and explained in Chapter 2, the proposition relating to paradigm looks to the relative balance of power and degree of cooperation between the board of directors and the CEO.

P2: The Paradigm Proposition

Newly created boards of Greenfield companies will adopt board structures and operating procedures which promote a more cooperative chief executive officer-board of directors relationship than those structures and operating procedures adopted by newly created boards of Heritage companies.

3.4 PROPOSITION THREE: PURPOSE

In considering the issue of board purpose, the study looks to those various considerations identified in the literature and discussed in detail in the previous chapter, and thus proceeds to analyze a board's stance *vis a vis* these various outside interests. The study applies agency theory broadly to corporate governance, as guided by the literature documenting the development of thought toward shareholder and stakeholder theory, and characterizes a board of directors as an internal control mechanism helping to ensure congruence between shareholder/stakeholder goals and management objectives.

This task of assessing the stances of various boards toward shareholders and stakeholders is undertaken in the study by examining relative levels of board insularity or openness. The effort involves looking to directors' assessment of the relative importance of various interests in shaping the composition and actions of the board (see, e.g., Verschoor, 1998; Monks and Minow, 1995 [pp. 14-79]; Quinn and Jones, 1995; Reich et al., 1994; Bacon, 1993). Examination of board purpose further involves considering directors' assessments of the relative importance of such responsiveness "marker" issues as treatment of workers, community needs, relations with stakeholders, shareholder representation, and shareholder equity in shaping the board agenda. In addition, the satisfaction of directors with regard to their respective boards' dealing with these issues is examined.

Accordingly, the third research proposition is framed to address the corporate governance best practice of *board responsiveness*. Once again, as has been the case with the prior two propositions, this proposition looks to the Greenfield boards to adopt the corporate governance best practice.

P3: The Purpose Proposition

Newly created boards of Greenfield companies will demonstrate a more responsive stance toward a broader range of shareholders and stakeholders than will newly created boards of Heritage companies.

3.5 PROPOSITION FOUR: PERFORMANCE

As has been noted in the preceding chapter, extant literature on the definition and calibration of company performance is fraught with difficulties. The primary question addressed in the course of the review of the prior research on performance was: What exactly are researchers assessing when they attempt to measure performance? Equally important to this study is the real-world corollary question: What difference does such measurement make to chief executive officers and boards of directors as they operate public companies? Thus the study, paying attention both to academic theory and to practitioner experience, has been assiduous about defining performance closely and choosing a measurement modality carefully.

Following current theory pertaining to what Dalton (1998) calls the "accounting vs. market based" (272) approaches to measuring company performance, the study employs compound annual growth rate (CAGR) in market capitalization as its measurement modality. The particular applicability of this calibrator for the research at hand lies in the fact that it combines both economic and intangibles measurements, is prospective, and allows for comparisons across the cohort of companies under examination. The literature firmly supports the choice (see Goldstine, 1999; Copp and Letza, 1998; Finkle, 1998; Morgan, 1998; Monks and Minow, 1995; Kaplan and Norton, 1992). In addition, the experience that I have accrued as a corporate governance practitioner directly attests to the reality and practicability of such a measurement.

Accordingly, the fourth proposition for the study addresses the performance dimension of the study and goes finally to the relationship between corporate governance and company performance. This proposition is:

P4: The Performance Proposition

By adopting and exercising corporate governance best practices, newly created boards of Greenfield companies will be associated with higher levels of company performance, as assessed by compound annual growth rate in market capitalization, than will newly created boards of Heritage companies.

3.6 SUMMARY

This chapter has set out the research propositions for testing the overall research question, which is: What is the relationship between corporate governance and company performance in newly public United States companies?

Based on the review of the literature, three propositions relating to corporate governance best practices have been framed. These are the Players Proposition on *board heterogeneity,* the Paradigm Proposition on *board cooperation,* and the Purpose Proposition on *board responsiveness.* In the main, the research propositions contend that Greenfield companies, because of their position as early-stage companies in the public company life cycle, will be more likely than Heritage companies to embrace the current thinking inherent in these three corporate governance best practices.

The fourth proposition goes directly to the relationship between corporate governance and company performance. This Performance Proposition posits that there will be a positive association between adopting and exercising the corporate governance best practices and demonstrating superior company performance, as measured by compound annual growth rate in market capitalization.

The thesis thus far has stated the overall research question and its four associated research propositions, with detailed explanation provided regarding the extant literature underpinning the propositions. As has been noted, the literature is drawn from the body of thought pertaining to research on company life cycles and organizational culture, corporate governance best practices, and definition and measurement of company performance. A summary of key literature and its relationship to each of the four research propositions is given in Table 3.1 on the following page.

Next the thesis proceeds to Chapter 4, in which is described the research methodology adopted for testing the research propositions.

Table 3.1 Key Literature Underpinning Research Propositions

P1: The Players Proposition
Newly created boards of Greenfield companies will demonstrate a greater degree of heterogeneity among directors than will newly created boards of Heritage companies.

Biggins, 1999/Boards with female, minority directors help corporations better understand and serve their customers and clients.
Colvin, 1999/Companies that pursue diversity outperform the Standand and Poor 500 Index.
Westphal & Zajac, 1995/Directors sharing common functional backgrounds tend to develop common schemata.
Pettigrew & McNulty, 1995/Motivation, need for power, willingness to act, and behavioral skills must be considered when studying corporate directors.
Bilimoria & Piderit, 1994 /Systematic recruitment of women for boards provides a competitive advantage.

P4: The Performance Proposition
By adopting and exercising corporate governance best practices, newly created boards of Greenfield companies will be associated with higher levels of company performance, as assessed by compound annual growth rate in market capitalization, than will newly created boards of Heritage companies.

Goldstein, 1999/Brand management and company performance are related.
The Conference Board, 1998/Relationship between good performance and such outputs as cumulative excess returns and EVA is assumed.
Finkle, 1998/Resource dependency means IPO offering size is a key assessor for newly public biotechnology companies.
Brancato, 1997/Strategic corporate performance measures include both historically-based financial measurements and strategic intangibles such as investments in intellectual capital and innovation.

P2: The Paradigm Proposition
Newly created boards of Greenfield companies will adopt board structures and operating procedures which promote a more cooperative chief executive officer-board of directors relationship than those structures and operating procedures adopted by newly created boards of Heritage companies.

Dalton & Daily, 1998a/Whether the CEO and chairman roles ought to be separated is debatable.
Gopinath et al., 1995/Boards can justify their increasing role in corporate strategy formulation.
Lorsch, 1995b/Chief executives who resist empowered boards must change their attitude.
Tobin, 1994/Outside directors should be proactive to improve company performance.
Pearce & Zahra, 1991/Powerful boards are associated with superior corporate financial performance.

P3: The Purpose Proposition
Newly created boards of Greenfield companies will demonstrate a more responsive stance toward a broader range of shareholders and stakeholders than will newly created boards of Heritage companies.

Verschoor, 1998/Overall financial performance and an emphasis on ethical behavior toward stakeholders are linked.
Quinn & Jones, 1995/In an agent morality view of business policy, firm managers must consider what is morally right in the business policies they undertake.
Monks & Minow, 1995/Corporations must relate to a wide variety of constituents, including shareholders, stakeholders and society at large.
Reich et al., 1994/Companies that have a supportive attitude toward workers are more likely also to have strong earnings.

CHAPTER FOUR
RESEARCH DESIGN AND METHODOLOGY

4.1 INTRODUCTION AND CHOICE OF METHODOLOGY

Although the topic of corporate governance and its relation to company performance has been studied widely, as has been noted, the focus on corporate governance in newly public companies is comparatively virgin research territory. The research question and its related propositions sought to determine whether there is in fact a relationship among the variables tested and, if such a relationship were to be determined, to calibrate the relationship. In so doing, the study is both preliminary and exploratory in nature.

Following Brewer and Hunter (1989), this study employed a multi-method approach to data collection. This tack was taken in order to overcome limitations that could be expected to accrue from using only one method of data collection. The multi-method research approach, termed "triangulated measurement," works to assess the values and parameters of a given research question by applying to that question sets of data that have gathered using several different approaches. Brewer and Hunter comment that "convergent findings may be accepted with far greater confidence than any single method's findings would warrant" (17).

Brewer and Hunter identify four overall modes of data collection applicable in social science research. These are field studies, surveys, experimental research, and non-reactive data collection. The study incorporates three data sources which comprise two of the four modes, drawing data from sources both reactive (i.e., those requiring subjects' cooperation) and non-reactive (i.e., those not requiring subjects' cooperation.) The three sources selected, which are discussed in more detail below and in subsequent chapters of this thesis, are

1) a mail questionnaire (survey/reactive research) of directors at newly public United States companies
2) public data sources (non-reactive research) comprising public filings as well as other documents providing salient information on the classification of newly

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public companies as either Greenfield or Heritage, and on market capitalization

3) post-survey telephone or face-to-face interviews (survey/reactive research) conducted with chairmen/CEOs, directors, academicians and senior executive search professionals after the results of the mail questionnaire were analyzed.

This section below describes in more detail the three primary data collection modes, reviews their associated strengths, and examines the manner in which they were employed in the course of the study.

4.2 THE MAIL QUESTIONNAIRE

The respective strengths and weaknesses in survey research of questionnaires generally, and of mail questionnaires specifically, have been well documented (see, e.g., Bourque and Fielder, 1995; Fink, 1995; Fowler, 1993; Brewer and Hunter, 1989; Joliffe, 1986; Dillman, 1978). Several types of questionnaires (including e-mail, telephone, or face-to-face) were evaluated as possible modes of data collection during the research proposal stage of the study. Face-to-face and telephone questionnaire administration both were rejected, primarily because the time and resources required by either mode ruled each out as practicable, given the anticipated survey sample. The e-mail questionnaire was a strong possibility because "electronic administration" could be effected quickly and inexpensively, as well as offer the respondents a convenient and efficient mode of response. However, e-mail's disadvantages appeared to outweigh the advantages. First, it immediately imposed an arbitrary screen-out for respondents lacking access to or facility with e-mail. Also, initial discussions with some potential respondents indicated they felt that e-mail was not secure enough, given the sensitive nature of the questions being posed.

This leg of the triangulation offered a variety of advantages for the study. A mail questionnaire lends itself well to wide geographic coverage and extensive numbers, is easier to implement, and is considerably less costly to administer; and, because a mail questionnaire is self-administered, it also is advantageous in treating sensitive or confidential topics (Bourque and Fielder, 1995; Fowler, 1993). The profile of the intended respondents and their anticipated accessibility also was well served by the

mail questionnaire. As Bourque and Fielder comment (1995: 11), "respondents may be much more willing to complete a self-administered questionnaire when it can be done at their convenience rather than having to make a commitment to an interviewer to be available for a specific length of time to do an interview."

The main disadvantages of the mail questionnaire relate to response rate and the inherent limitations of a self-administered survey instrument. Response rates for mail surveys tend to be among the lowest of any of the questionnaire types, with researchers suggesting as common a rate of 20 percent for an unsolicited survey distributed to a general population (Fink, 1995; Bourque and Fielder, 1995). Because no interviewer is present to ensure that the respondent answers all of the questions, the completion rate also can be low; similarly, the lack of an interviewer means that there is no one to clarify the questions or assist the respondent (Bourque and Fielder, 1995). As Fowler (1993: 45) summarizes, the main problem is in "inducing respondents to perform the task of filling out the questionnaire without the intervention of an interviewer."

Because there is no interviewer present, the mail questionnaire must stand on its own as a data collection device (Bourque and Fielder, 1995). In order to yield accurate and adequate responses, the mail questionnaire has to be easy for the respondent both to understand and to complete (Fowler, 1993), with questions unambiguous and answerable by all of the respondents (Bourque and Fielder, 1995). These requirements for comprehensibility and comprehensiveness build in certain concerns pertaining to the appearance (Joliffe, 1986) and length (Bean and Roszkowski, 1995) of the questionnaire, as well as the type of questions (i.e., closed fixed-response versus open-ended) that can be included (Fink, 1995; Joliffe, 1986).

In electing to use the mail questionnaire as one of the data collection modes, the study took steps first, to capitalize on its advantages and second, to compensate for its weaknesses by paying careful attention to the design, distribution, and analysis of the mail questionnaire itself (as discussed in detail in Chapter 5 of this thesis). In addition, the triangulation of sources in the selected methodology provides information obtained via public data sources and post-survey interviews in order to avoid data errors potentially arising from self-reporting by the mail questionnaire

respondents; and to correct, buttress or expand upon the questionnaire data yield.

4.3 PUBLIC DATA SOURCES

This leg of the triangulation involved obtaining data gathered from public data sources in order to ensure a consistent and non-reactive basis for identifying the cohort of newly public companies to be included in the study, classifying the companies as Greenfield or Heritage, and calibrating the companies' respective performance levels. Using public data sources went to overcoming certain potential errors that might arise from respondents' providing retrospective information (Golden, 1997). Information was gathered on the date of Initial Public Offering, so as to construct the cohort; on company origin, so as to classify each company as either Greenfield or Heritage; and on company market capitalization, so as to calibrate company performance.

4.4 POST-SURVEY INTERVIEWS

This leg of the triangulation methodology provided a means for gathering additional, in-depth information that could not easily be captured in the mail questionnaire, and which could serve to meet the overall measure of "truth" in the study. The post-survey interview data set consisted of a total of 20 face-to-face or telephone interviews conducted with corporate governance practitioners (Chairmen/CEOs, directors and senior executive search professionals) and academicians with expertise in the area of corporate governance.

Useem (1993), and Lorsch and McIver (1989) have demonstrated that the interview can yield new, in-depth insights into strategic decision making, policy-setting processes, and corporate governance structures and processes. The advisability of conducting post-survey interviews was driven by the evolutionary nature of newly created boards and by the consideration that an interview can go into the depth necessary and follow up on nuance, explanation and qualification in a way that the mail questionnaire could not be expected to do.

Post-survey interviews also offered a means for applying a reality test (see Riquier et

al., 1997) to the results of the univariate and multivariate analysis of the data obtained from the mail questionnaire. Discussing usefulness of results of Chi-square Automatic Interaction Detection (CHAID) modeling, Riquier et al. comment on the importance that a researcher or practitioner interpret findings in light of the particular research topic under scrutiny: "(New) segmentation approaches should always be subject to questioning regarding external validity" (n.p.).

4.5 STATISTICAL APPLICATIONS

Within each section of the statistical analysis, various analytical techniques are used. Cluster analysis (k-means) is used as an exploratory tool to determine if respondents naturally group themselves based on board status (Greenfield or Heritage). Following this exploratory analysis, the analysis continues with the development of a model to classify newly public companies based on the characteristics of their corporate governance. One of the techniques used during this stage of the analysis is Chi-square Automatic Interaction Detection (CHAID) to identify significant merging and splitting of categorical variables. Principal components factor analysis is used to identify common factors among the intervally scaled Paradigm and Purpose variables. These analytical tools lead to the use of stepwise discriminant analysis to develop a discriminant function that reliably predicts group membership.

The second section of the analysis involves the linking of corporate governance characteristics with a measure of company performance. Specifically, this measure of performance is the compound annual growth rate (CAGR) in market capitalization since the IPO date of the firm. Like the approach for the aforementioned discriminant analysis, CHAID and factor analysis are used, the results of which serve as inputs into a stepwise multiple linear regression analysis designed to predict CAGR.

4.6 SUMMARY

This chapter outlined the overall rationale for selecting a triangulated approach to data collection, identified the three data sources comprising the triangulation, and sketched their respective contributions to supporting the research design. The chapter also previewed the statistical applications selected for the quantitative analysis. The next

chapter discusses in detail the development, testing and administration of the mail questionnaire, and addresses issues of sample selection and response rate.

CHAPTER FIVE
THE SURVEY INSTRUMENT

5.1 INTRODUCTION

The design of the mail questionnaire for the study closely followed the detailed recommendations of Dillman's Total Design Method (1978), which is directed at maximizing the quantity and quality of responses to a mail questionnaire. Minor adjustments to Dillman's approach were made to reflect the survey population and survey constraints.

5.2 PILOT QUESTIONNAIRE DEVELOPMENT AND TESTING

The use of pilot projects has been characterized by researchers as a useful way not only to provide information on the adequacy of a survey instrument but also to shed preliminary light on the adequacy of the research propositions (King et al., 1994). As a precursor to administration of the full-scale mail questionnaire, the study developed, revised and distributed a pilot version of the mail questionnaire, then analyzed its results.

The pilot questionnaire was constructed with sections containing questions specifically corresponding to each of the research propositions, as is shown in Table 5.1 on the following page. In accordance with Dillman's cautionary instructions, the pilot instrument matched question type to the nature of the response behavior asked of the respondents. The instrument contained primarily but not exclusively closed-ended questions, including closed-ended with order choices; close-ended with unordered response choices; and partially closed-ended, itemized rating scales used for questions assessing respondents' opinions of importance and satisfaction. Three open-ended questions at the end of the questionnaire were added to gather further demographic information on the respondent and provide a so-called "ventilator" question (Bourque and Fielder, 1995) designed to solicit any additional comments that the respondent might like to add.

Following review by four academicians and three practitioners in the area of corporate

governance, the initial draft of the pilot questionnaire was revised to improve its clarity and comprehensiveness. The resulting pilot questionnaire and its transmittal letter appear as Appendices I and II, respectively.

Table 5.1 Pilot Questionnaire Variables and Related Research Questions

Proposition	Variable	Reference Sources	Associated Questions
Players	Board heterogeneity	Bilimora & Piderit, 1994 Zajac & Westphal, 1996 Westphal & Zajac, 1995 Browder, 1995 Pettigrew & McNulty, 1995	1B, 1C, 1L, 2A, 2B, 2C, 2D, 3D-H, 3J, 3L, 3M, 3N, 6A, 6B
Paradigm	Board structure and operation	Pearce & Zahra, 1991 Boyd, 1990 Lear, 1994 Zajac & Westphal, 1996 Lorsch, 1995 Pound, 1995	2B, 3O-S, 3V, 3W, 3X, 3Y, 4A, 4E, 4G, 4J, 4M, 4N, 5A, 5D, 5E
Purpose	Board orientation to external interests	Bacon, 1993 Tobin, 1994 Allen, 1995 Jones, 1995 Donaldson & Preston, 1995 Blair, 1995a Kosnik, 1987	2A, 3A-C, 3I, 3K, 4C, 4D, 4H, 4I, 4M,V, 5C, 5F-J
Performance	Levels of company performance	Brancato, 1997 Boyd, 1993 Davis et al., 1992 Pearce & Zahra, 1991	4K, 4O-S, 5B, 5K, 5L

To test the mail questionnaire, the pilot version was distributed between November 25, 1997 and January 15, 1998 to 22 directors of newly public United States companies. Following an initial call to alert each respondent to the impending arrival of the pilot survey, the questionnaires were sent out by mail. In order to provide a rigorous test of the questionnaire, care was taken to include both Greenfield and Heritage companies in the pilot sample; to include companies representing a range of annual revenue classifications and industry segments; and to ensure a distribution of respondents among different types of companies. Respondents were given a time frame of one week in which to respond; non-responders were given a follow-up telephone call to boost the response rate. Sixteen completed pilot questionnaires were returned by January 17, 1998.

The pilot survey achieved several objectives. First and foremost, this preliminary effort shed insight on the clarity of the survey instrument from the perspective of respondents. Second, the pilot examined the survey's utility as an instrument for capturing both descriptive and predictive data. The analysis of the completed questionnaires showed that overall question clarity had been achieved, that the integrity of responses was exceptionally high, and no alterations to the research propositions were required.

5.3 MAIL QUESTIONNAIRE DESIGN AND PREPARATION

Following the analysis of the pilot questionnaire results, the survey instrument was revised to incorporate changes dictated by the pilot survey, as well as to conform strictly to recommended design and distribution standards (Bourque and Fielder, 1995; Fink, 1995; Bean and Roszkowski, 1995; Fowler, 1993; Joliffe, 1986; Dillman, 1978). This included addressing the concerns that surfaced and accommodating structural requirements imposed by the planned used of CHAID for analyzing the returns to the full-scale survey. Responses were appraised to see whether questions had been misread or gaps in data were apparent; and specific recommendations to modify, add or delete questions were made. Careful attention was paid to the need to make the survey instrument more "user friendly" via better formatting, selection of font and overall appearance; and to reduce the possibility of error that could be introduced by having to rely solely on respondents' self-reporting of information (on industry segment, for example) that could be better provided by using public data sources.

In redesigning the mail questionnaire, attention also was paid to elements expected to promote the response rate; these went primarily to the questions of visibility and credibility. High-quality paper was used, featuring full-color on the face page of the questionnaire and color highlights on subsequent pages. The questionnaire was designed as a single page folded to six panels. The University of London was named on the outgoing envelope and face page of the questionnaire. The survey was positioned as research project with results expected to be of interest to academicians and practitioners; securing endorsement of the study by the New York Stock Exchange; NASDAQ; the accounting firm Deloitte & Touche; and the law firm

Brobeck, Phleger & Harrison LLP allowed placement of their full-color logos on the face page of the questionnaire, which was intended to boost study credibility and significance for intended respondents.

Finally, a graphic designer was engaged to ensure that the final questionnaire would be attractive and accessible to the intended respondents. A sample of the resulting mail questionnaire is included as Appendix III, with samples of the outgoing envelope and the reply envelope included as Appendices IV and V, respectively.

As recommended by Dillman, other design and preparation elements addressed the issue of promoting the expected response rate. Dillman suggests that offering an incentive can be an effective motivator; in this study, a respondent could elect to receive a summary of the questionnaire results. Recognizing that over half of the questionnaires would be going to outside directors not at the company address, "Personal and Confidential/Time Sensitive Material" was noted on the outgoing envelope. First-class 55-cent postage was applied and a business reply envelope included for return of the completed questionnaire. Rather than using adhesive labels, the addressee name, title, company and address was directly printed in upper and lower case on the outgoing envelopes. This step was taken in order to avoid a look suggesting the piece was part of a bulk mailing. A United States Postal Service-specified bar code simultaneously was imprinted on each outgoing envelope, to expedite accurate delivery. Each questionnaire contained the company name directly imprinted on the top of the questionnaire (respondents were, however, ensured anonymity). The reply envelope also had the reply address, including the project name, directly imprinted.

5.4 SAMPLE SELECTION

For several reasons, it was United States companies during the 1993-1997 period chosen to populate the sample. First was the fact that United States companies, with a rapidly accelerating number of Initial Public Offerings in the 1993-1997 period (when the total number of offerings was more than double the number of offerings in the prior five-year period), provided a potentially robust cohort to study in the realm of corporate governance in newly public companies. Second, the United States offered a

benchmark and the potential for extrapolation of results to other countries; various researchers (e.g., Firstenberg and Malkiel, 1994) described the situation in the United States at the time of the research proposal as representing an organic change in corporate governance as power shifted among the various players. Third was the issue of research practicability. United States companies stood as the most available and penetrable, because of extensive established records and databases; because of Securities and Exchange Commission reporting requirements and the Freedom of Information Act, which make records readily available as required for data triangulation; and because of my personal contact and direct access to other chief executive officers and board members.

An initial list of the names of 3559 companies with an Initial Public Offering in the United States between January 1, 1993 and December 31, 1997 was supplied by Securities Data Company. The list included a designator pertaining to the company's origin, adequate to permit classification of each company as either Greenfield or Heritage. The initial list was purged of non-U.S. countries, leaving a potential cohort of 3194 companies. Information on current company address and names of directors was available for 2669 United States companies, using data sourced primarily from the Standard & Poor directory, with additional data from Dun & Bradstreet References Services.

The contact list was constructed to reflect the distribution of inside directors and outside directors estimated in the sample population overall, as was determined by an analysis of the composition of 75 Greenfield boards and 75 Heritage boards selected randomly from the cohort. The resulting list included directors from 2406 Greenfield companies and 263 Heritage companies. The name of one director per each Greenfield company was included in the final contact list; to help promote an adequate response rate for the smaller sample subset of Heritage companies, the names of two directors per each Heritage company were included if available. The final contact list for the initial mailing contained 2878 names.

5.5 MAIL-OUT, FOLLOW-UP AND RESPONSE RATES

Dillman once again was consulted for guidance on procedures for mail-out. The mail-out package consisted of the questionnaire and a business reply envelope. Specific pre-distribution measures taken to control the quality of the mailing included returning below-quality questionnaires and envelopes to the printer for reprinting; matching the questionnaires and outgoing envelopes manually; and testing the contact list against the United States Postal Service automated address/ZIP code match for accuracy. On November 14, 1998, 750 of the questionnaires were mailed with first-class postage stamps applied. The remaining questionnaires, with first-class meter postage, were mailed on November 16, 1998.

Beginning eight weeks after the initial distribution of questionnaires, a series of vigorous steps to increase response rate were taken. Study questionnaires returned as undeliverable because of an inaccurate address (e.g., expired forwarding order or addressee unknown) were researched in the EDGAR database of the United States Securities and Exchange Commission for public companies; where a correct current address could be found, the questionnaire was re-enveloped, re-addressed, and re-sent.

A supplementary mailing of the questionnaire was made to a total of 48 directors in 17 Heritage companies that were on the original Securities Data Company list, but for which no information had been obtained from the Standard & Poor or Dun & Bradstreet sources. The contact information on these additional companies was sourced from the Securities and Exchange Commission EDGAR database. A follow-up letter (included as Appendix VI) was mailed to non-responders on January 15, 1999. On February 18, 1999, following personal contact on behalf of the study (made by the editor of a prominent national corporate governance journal), another copy of the questionnaire was mailed to directors at 40 of the non-responding companies (see Appendix VII). An additional 95 telephone calls were made during this period to non-responders, in an attempt to encourage completion and return of the questionnaire.

Finally, in late April 1999, the list of non-responding contacts at Heritage companies was vetted against each company's most recently filed proxy, as recorded in the EDGAR database. That process yielded a list of 318 director contacts distributed

among 189 Heritage companies. Between May 4 and 6, 1999, I sent a letter on my personal letterhead asking the cooperation of the Chairman (or other high-level contact) at each of the 189 Heritage companies (see Appendix VIII). These requests were sent out via FedEx courier.

If the Chairman was the intended recipient of the mail survey questionnaire, another copy of the questionnaire was included and the Chairman was asked to complete it. If the Chairman was not the intended recipient, a questionnaire (sealed in the University of London envelope, with the intended recipient's name indicated) was sent, along with a request for the Chairman to forward the questionnaire to the intended recipient. This final follow-up yielded an additional set of completed responses. Of the total of 2,934 surveys mailed to directors, undeliverable surveys totaled 191, or 6.5% of those mailed, leaving a net number of 2,743 delivered surveys. Tables 5.2 and 5.3 provide detailed summaries of the response distributions.

Table 5.2 Response Distributions

Category of Director	Respondents	Non-respondents	Net Mailed
Greenfield: Inside	49	952	1,001
Greenfield: Outside	59	1,184	1,243
Greenfield: Total	108	2,136	2,244
Heritage: Inside	22	190	212
Heritage: Outside	30	257	287
Heritage: Total	52	447	499
Inside: Total	71	1,142	1,213
Outside: Total	89	1,441	1,530
Total	160	2,583	2,743

As the data indicate, 160 directors returned surveys, with 108 completed surveys returned by Greenfield directors and 52 surveys returned by Heritage directors. The cumulative effect of multiple efforts resulted in an overall response rate of 5.83%. This includes a response rate among Greenfield directors of 4.81% and that among Heritage directors of 10.42%. While it is difficult to associate the return of completed surveys with each initiative specifically, we have attempted to draw some correlations by summarizing the various initiatives and presenting in Table 5.3 the cumulative response rates during the time of each initiative. This table also includes a brief notation describing each initiative.

Table 5.3 Cumulative Response Rate by Initiative

Category of Director	I	II	III	IV	V	VI
Greenfield: Inside	3.90%	4.30%	4.50%	4.80%	4.80%	4.90%
Greenfield: Outside	3.54%	4.34%	4.67%	4.67%	4.67%	4.75%
Greenfield: Total	3.92%	4.32%	4.59%	4.72%	4.72%	4.81%
Heritage: Inside	4.25%	4.72%	4.72%	5.19%	6.60%	10.38%
Heritage: Outside	2.09%	2.79%	3.14%	3.48%	4.18%	10.45%
Heritage: Total	3.01%	3.61%	3.81%	4.21%	5.21%	10.42%
Inside: Total	3.96%	4.37%	4.53%	4.86%	5.11%	5.85%
Outside: Total	3.27%	4.05%	4.38%	4.44%	4.58%	5.82%
Total	3.57%	4.19%	4.45%	4.63%	4.81%	5.83%

I: Initial mailing (Greenfield and Heritage, 11/98)
II: Incremental mailing to Heritage directors not part of initial mailing (Heritage only, 12/98)
III: Follow-up letters to non-responding directors (Greenfield and Heritage, 1/99)
IV: Personal contact made by editor of prominent journal (Greenfield and Heritage, 2/99)
V: Calls to non-responding directors (Heritage only, 2/99)
VI: Personal letter from me, sent via FedEx courier (Heritage only, 5/99)

As previously mentioned, several overtures were made to boost the number of responses from Heritage directors. This appears to have had a notable effect, with the response rate from Heritage directors more than double that for Greenfield directors. Not surprisingly, a limited number of completed surveys were received from two directors at the same Heritage firm. This possibility had been anticipated and a consistent decision rule was utilized and applied to all respondents. Specifically, only one completed survey per company was used in the final data set, and in situations in which two (or more) surveys were returned from the same company, only the first survey returned (as noted by the date of the postmark) was included. A total of nine "multiple" surveys were returned from directors at Heritage firms, while no Greenfield company had more than one survey returned. Among these nine surveys, eight were from outside directors and just one was from an inside director. Reviewing the designation (inside versus outside) of directors who responded first, all but one are outside directors. Thus, due to the high degree of similarity (in terms of their designation) between Heritage directors from the same company who responded first and those who responded second, the conclusion is that no material effect on the composition of the sample occurs as a result of the application of the decision rule. Thus, the total of respondents is 151, of which 108 (71.52%) are Greenfield directors and 43 (28.48%) are Heritage directors. Tables 5.4 and 5.5 summarize the final data set, net of any duplicated respondents.

Table 5.4 Final Response Distributions (Net of Duplicates)

Category of Director	Respondents (n)	Non-respondents (n)	Net Mailed
Greenfield: Inside	49	952	1,001
Greenfield: Outside	59	1,184	1,243
Greenfield: Total	108	2,136	2,244
Heritage: Inside	21	191	212
Heritage: Outside	22	265	287
Heritage: Total	43	456	499
Inside: Total	70	1,143	1,213
Outside: Total	81	1,449	1,530
Total	151	2,592	2,743

Table 5.5 Final Percentage Response Distributions (Net of Duplicates)

Category of Director	Respondents	Non-respondents	Total
Greenfield: Inside	45.4%	44.6%	44.6%
Greenfield: Outside	54.6%	55.4%	55.4%
Greenfield: Total	100.0%	100.0%	100.0%
Heritage: Inside	48.8%	41.2%	42.5%
Heritage: Outside	51.2%	58.1%	57.5%
Heritage: Total	100.0%	100.0%	100.0%
Inside: Total	46.4%	44.1%	44.2%
Outside: Total	53.6%	55.9%	55.8%
Total	100.0%	100.0%	100.0%

The final response rate (net of the nine duplicated Heritage respondents) is 5.50%, based on the usable sample of 151 directors, with only one director from each newly public company. The final response rates of usable surveys were 4.81% for Greenfield directors and 8.62% for Heritage directors. Response rates for inside directors and outside directors were nearly identical, with a final response rate for inside directors of 5.85% and a response for outside directors at 5.82%. These data are displayed in Table 5.6.

Table 5.6 Final Response Rate (Net of Duplicates)

Category of Director	VI
Greenfield: Inside	4.90%
Greenfield: Outside	4.75%
Greenfield: Total	4.81%
Heritage: Inside	10.38%
Heritage: Outside	10.45%
Heritage: Total	10.42%
Inside: Total	5.85%
Outside: Total	5.82%
Total	5.83%

The response rate obtained here is considerably lower than the 20% rate commonly predictable for an unsolicited survey distributed to the general population (Fink, 1995; Bourque and Fielder, 1995). Indeed, a review of the literature indicates that response rates generally can be expected to climb rather than decline when the sample population is highly literate and highly motivated about the topic being studied (see, e.g., Bourque and Fielder, 1995; Fowler, 1993).

However, the mail questionnaire in this study was distributed to a distinct subset of potential respondents: corporate directors. Other studies of directors, such as those periodically conducted by Korn/Ferry, show less robust response rates than those rates commonly achievable from a general population. The 1997 Korn/Ferry survey of directors at Fortune 1000 companies showed a 12% response, for example, while the 1998 and 1999 Korn/Ferry United States Board of Directors studies had response rates of 10% and 11%, respectively.

5.6 NON-RESPONSE BIAS

The response rate of 5.83% implies that 94.17% of directors who received a survey did not respond. Assessing the presence of some non-response bias is essential, because the sample of directors will be used to draw inferences about the broader population of directors (and their respective boards) at newly public companies. To assess the presence of non-response, the test of independence is conducted for both Greenfield and Heritage directors. This procedure tests the null hypothesis that no difference exists between the characteristics of the sample (n) and non-responders in terms of the designations of directors (inside versus outside director) within each. Using a significance level of 0.10 (α=0.10), no significant difference is observed in terms of director designation between responding Greenfield directors and non-responding Greenfield directors. Likewise, no significant difference is observed between responding Heritage directors and non-responding Heritage directors. Thus, while a mathematical difference does exist between the distribution of responding directors versus non-responding directors for both Greenfield and Heritage directors, a conclusion is made that no significant differences exist, and thus, non-response error is below any critical level.

5.7 ASSESSMENT OF INSTRUMENT RELIABILITY

The preparation of the final survey instrument involved the designing of the survey instrument in a manner that attempted to maximize the objectivity of the responses. Further, the instrument was structured in a way that helped promote clarity of instructions and response options. In so doing, reliable (i.e., consistent) results should be expected for questions that are of a highly similar or nearly identical nature. One commonly used measure of reliability is internal consistency, which applies to the consistency among the variables in a summated scale (Hair et al., 1998). Cronbach's alpha is computed for each set of the intervally scaled variables related to board Paradigm and Purpose. This value ranges from 0 to 1, and a value of 0.6 or less generally indicates unsatisfactory internal consistency results (Malhotra, 1999). Among the Paradigm scale variables, the Cronbach's alpha is 0.7320 (standardized = 0.7268), while among the Purpose scale variables Cronbach's alpha is 0.8308 (standardized = 0.8337). Therefore, the conclusion is made that the study possesses an acceptable level of internal reliability.

5.8 SAMPLE CHARACTERISTICS

In addition to information related to director designation as an inside or outside director, additional data pertaining to the sample also are available. Table 5.7 summarizes the distribution of IPO years for the companies of responding Greenfield and Heritage directors. These data were obtained concurrently with the secondary research conducted to determine the compound annual growth rate (CAGR) in market capitalization of responding directors' organizations. (Note: CAGR data are presented in detail in Chapter 6 and again in Chapter 8). The IPO date distribution is roughly similar between Greenfield and Heritage companies, with a directional difference observed in Greenfield companies, 57.4% of which went public in either 1996 or 1997, compared to 39.5% of Heritage firms that went public during these years.

Table 5.7 Year of IPO

Category	Greenfield	Heritage	Total
1993	16	7	23
1994	14	9	23
1995	16	10	26
1996	34	9	43
1997	28	8	36
Total	108	43	151

Note: χ^2 test indicates that no evidence of association exists between the IPO year and board status (Greenfield or Heritage, $\alpha = 0.10$). $\chi^2 = 4.491$, d.f. = 4.

In addition to IPO year data, one-digit Standard Industrial Classification (SIC) data were captured during the secondary research phase following the return of completed surveys. Table 5.8 summarizes the one-digit SIC groupings for the companies of responding directors.

Table 5.8 Standard Industrial Classification (SIC)

One-Digit SIC	Greenfield	Heritage	Total
(1) Mining and Construction	4	5	9
(2,3) Manufacturing	48	13	61
(4) Transportation, Communications, Electric, Gas, Sanitary Services	7	3	10
(5) Wholesale/Retail Trade	5	3	8
(6) Fire, Insurance, Real Estate	14	6	20
(7,8) Services	30	13	43
Total	108	43	151

Note: χ^2 test indicates that no evidence of association exists between the SIC and board status (Greenfield or Heritage, $\alpha = 0.10$). $\chi^2 = 5.197$, d.f. = 5. Although three cells had expected counts less than 5, the test results suggest limited levels of association, and as such, the conclusion of the hypothesis test is affirmed.

The distribution of Greenfield and Heritage companies represented by the directors in the sample is highly consistent. The manufacturing and services sectors account for 72.2% of the Greenfield firms in the sample and 60.4% of the Heritage firms in the sample.

5.9 SUMMARY

This chapter discussed in detail the various steps undertaken, in close accordance with Dillman's TDM approach (1978), with regard to the survey instrument leg of the triangulated research methodology. This discussion included description of the use of a pilot survey; design, preparation and distribution of the full-scale mail questionnaire; selecting and testing the sample; and assessment of the instrument validity. Chapter 6 next goes on to discuss the descriptive analysis of the data that were gathered from responding directors via the survey instrument.

CHAPTER SIX
DESCRIPTIVE ANALYSIS OF THE DATA

6.1 INTRODUCTION

The purpose of this chapter is to examine summary measures of the sample data obtained from the Greenfield and Heritage directors in the research study. The information presented in this chapter is descriptive in nature, and is presented in cross-tabulation format to identify directional differences and similarities between the respective boards in ways that pertain to the research propositions. Results also are presented for the total sample of respondents.

Tests of statistical difference between Greenfield and Heritage boards for these measures are conducted in Chapter 7 (analysis classifying Greenfield and Heritage boards) and Chapter 8 (analysis using corporate governance as a predictor of corporate performance). The statistical analyses (descriptive, univariate and multivariate) in this document are computed using SPSS (v.10.0), a statistical software application. The exception to this is the CHAID analyses, which use AnswerTree (v.2.0), a market segmentation software application produced by SPSS.

6.2 DATA DESCRIPTION

6.2.1 Players

Responding directors were asked to provide information related to the composition of the board on which they serve, and their motivation for accepting a position on the board. Several questions focused on the size of the board (at the time a board member was appointed, currently, and expected changes over the next two years), as well as a variety of key sociological demographics designed to assess board heterogeneity. These include the percentage of directors who are women, and the percentage of directors who are members of a racial minority. Current levels of each measure were determined, as well as projected levels over a two-year period. Table 6.1 summarizes the number of years a responding director has served on the board, while Tables 6.2 and 6.3 offer a closer look at the directors' primary motivations for accepting a position on the board.

Table 6.1 Number of Years Serving on Board

Category	Greenfield	Heritage	Total
1-2	16.8%	21.4%	18.1%
3-4	27.1%	42.9%	31.5%
5-6	29.0%	19.0%	26.2
7-8	7.5%	4.8%	6.7%
9 or more	19.6%	11.9%	17.4%
Total	100.0%	100.0%	100.0%

Table 6.2 Primary Motivation in Accepting a Position on the Board

Category	Greenfield	Heritage	Total
Personal contribution	24.5%	19.0%	23.0%
Personal development	2.8%	9.5%	4.7%
Professional contribution	35.8%	45.2%	38.5%
Professional development	6.6%	9.5%	7.4%
Compensation	1.9%	0.0%	1.4%
Other	28.3%	16.7%	25.0%
Total	100.0%	100.0%	100.0%

Table 6.3 Primary Motivation in Accepting a Position on the Board: "Other" Motivations

Category	Greenfield	Heritage	Total
Founder	35.5%	11.1%	30.0%
Officer of the Company	19.4%	55.6%	27.5%
Major Shareholder/Investor	35.5%	0.0%	27.5%
Other	9.6%	33.3%	15.0%
Total	100.0%	100.0%	100.0%

Note: These are verbatim responses that were manually classified.

Interestingly, the number of years of service on the board is directionally different for Greenfield and Heritage directors. Among Greenfield directors, 27.1% report having served on their board for seven years or more. Only 16.7% of the Heritage directors surveyed report having served on their board for that period of time. Bearing in mind that the sample of companies includes only those that became public entities between 1993 and 1997, it seems probable that some Greenfield directors have been with their

board since before the date of their company's initial public offering, likely serving on the board during the company's tenure as a privately held company. The data also suggest that at least some of the Heritage directors who have served on the board for seven or more years likely served on their company's board prior to its being spun off by its former parent company.

Greenfield and Heritage directors express somewhat similar motivations for accepting a position on their respective boards. Professional motivations appear to have the greatest influence, with 42.4% of Greenfield directors and 54.7% of Heritage directors claiming a "professional contribution" or "professional development" as their primary motivation. In terms of some form of non-professional motivation, 27.3% of Greenfield directors and 28.5% of Heritage directors said their primary motivation was for either a "personal contribution" or for "personal development". Perhaps the most interesting result is found with regard to the "other" category of motivation. Here 28.3% of Greenfield directors and 16.7% Heritage directors were found citing a motivation other than one that is personal or professional. Directors were asked to specify their "other" motivation, and following a manual classifying of the verbatim responses, the results were grouped into four main areas: Founder, Officer of the Company, Major Shareholder/Investor, and Other. Not surprisingly, Greenfield directors are much more likely than Heritage directors to claim their "other" motivation is related to the fact that they are a founder of the company. Conversely, Heritage directors are more likely to claim that their "other" motivation was being an officer of the company.

Tables 6.4 through 6.6 examine the issue of board size. A directional comparison of the results between Greenfield and Heritage companies shows fairly consistent distributions on these measures, although the data do point to some directional differences based on board status (Greenfield or Heritage). For example, Greenfield boards appear to have been smaller in size at the time the responding director joined the board. Just 26.0% of Greenfield directors report board size as "7 or more" directors when they first accepted a position on the board, compared to 44.2% of Heritage directors who report this amount. Further supporting this finding, 33.3% of Greenfield directors report that there were just "1 to 4" directors on their board when they first became a board member, compared to only 11.6% of Heritage directors who

report the same. The current size of Greenfield boards also tends to be smaller, although the differences between Greenfield and Heritage boards on this measure have diminished when compared to the size of each group of boards at the time the director joined the board. More than half (50.9%) of Greenfield boards currently have "7 or more" directors, compared to 64.3% of the Heritage boards reporting this amount. Yet, while it appears that Greenfield boards are smaller in size than Heritage boards, Greenfield directors also anticipate greater growth rates in the size of their boards over the next 2 years. Among Greenfield directors, 41.7% expect their boards to increase in size over the next two years (growth of 1% or greater), compared to just 27.0% of Heritage directors who share this expectation.

Table 6.4 Number of Directors on Board When First Appointed

Category	Greenfield	Heritage	Total
1-4	33.3%	11.6%	27.2%
5-6	40.7%	44.2%	41.7%
7-8	14.8%	23.3%	17.2%
9-10	7.4%	16.3%	9.9%
11-12	3.7%	2.3%	3.3%
13-14	0.0%	0.0%	0.0%
15 or more	0.0%	2.3%	0.7%
Total	100.0%	100.0%	100.0%

Table 6.5 Number of Directors on Board Currently

Category	Greenfield	Heritage	Total
1-4	7.4%	2.4%	6.0%
5-6	41.7%	33.3%	39.3%
7-8	30.6%	33.3%	31.3%
9-10	12.0%	21.4%	14.7%
11-12	5.6%	4.8%	5.3%
13-14	0.9%	2.4%	1.3%
15 or more	1.9%	2.4%	2.0%
Total	100.0%	100.0%	100.0%

Table 6.6 Expected Percentage Change in the Total Number of Directors Over the Next Two Years

Category	Greenfield	Heritage	Total
Decrease by > 25%	2.0%	2.7%	2.2%
Decrease by 11% to 24%	0.0%	5.4%	1.4%
Decrease by 1% to 10%	4.0%	0.0%	2.9%
Stay the same	52.5%	64.9%	55.8%
Increase by 1% to 10%	12.9%	10.8%	12.3%
Increase by 11% to 24%	23.8%	13.5%	21.0%
Increase by > 25%	5.0%	2.7%	4.3%
Total	100.0%	100.0%	100.0%

The Players Proposition hypothesizes that newly created boards of Greenfield companies will demonstrate a greater degree of heterogeneity among directors than will newly created boards of Heritage companies. The issue of board heterogeneity was examined directly by looking at several sociological demographic measures. These include the current percentage of directors on the board who are women and the expected change in the percentage of women directors over the next two years (Tables 6.7 and 6.8). In addition, the current percentage of board directors who are members of a racial minority was examined, as well as the expected change in the percentage of directors who are members of a racial minority over the next two years (Tables 6.9 and 6.10).

Table 6.7 Current Percentage of Board Members Who Are Women

Category	Greenfield	Heritage	Total
0%	79.6%	52.4%	72.0%
1% to 10%	4.6%	11.9%	6.7%
11% to 20%	13.0%	28.6%	17.3%
21% to 30%	2.8%	4.8%	3.3%
31% to 40%	0.0%	2.4%	0.7%
41% or more	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%

Note: Response categories continued in groups of ten units through "91% to 100%". No responses were recorded for percentages greater than or equal to "41% to 50%" Hence, all categories from "41% to 50%" and higher are grouped together as one.

Table 6.8 Expected Change in the Percentage of Board Members Who Are Women/Next Two Years

Category	Greenfield	Heritage	Total
Decrease by > 25%	0.0%	6.9%	2.1%
Decrease by 11% to 24%	0.0%	0.0%	0.0%
Decrease by 1% to 10%	6.0%	0.0%	4.2%
Stay the same	58.2%	58.6%	58.3%
Increase by 1% to 10%	19.4%	24.1%	20.8%
Increase by 11% to 24%	11.9%	6.9%	10.4%
Increase by > 25%	4.5%	3.4%	4.2%
Total	100.0%	100.0%	100.0%

A review of the data indicates that a directional difference exists between Greenfield and Heritage companies in terms of the percentage of their board members who are women. Notably, just 20.4% of Greenfield directors report that at least one to ten percent or more of their board members are women, while 47.6% of Heritage directors serve boards that currently have this amount. This directional finding is in opposition to the proposition that Greenfield boards will exhibit greater heterogeneity than Heritage boards. The expected change in the percentage of board members who are women over the next two years is highly consistent between Greenfield and Heritage companies, with 35.8% of Greenfield directors and 34.4% of Heritage directors expecting some increase over the next two years in the percentage of directors who are women.

Table 6.9 Current Percentage of Board Members Who Are Members of a Racial Minority

Category	Greenfield	Heritage	Total
0%	86.8%	73.8%	83.1%
1% to 10%	5.7%	4.8%	5.4%
11% to 20%	5.7%	9.5%	6.8%
21% to 30%	0.9%	9.5%	3.4%
31% to 40%	0.0%	2.4%	0.7%
41% to 50%	0.9%	0.0%	0.7%
51% or more	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%

Note: Response categories continued in groups of ten units through "91% to 100%".
No responses were recorded for percentages greater than or equal to "51% to 60%".
Hence, all categories from "51% to 60%"and higher are grouped together as one.

Table 6.10 Expected Change in the Percentage of Board Members Who Are Members of a Racial Minority/ Next Two Years

Category	Greenfield	Heritage	Total
Decrease by > 25%	0.0%	3.8%	1.2%
Decrease by 11% to 24%	0.0%	0.0%	0.0%
Decrease by 1% to 10%	1.7%	0.0%	1.2%
Stay the same	76.3%	92.3%	81.2%
Increase by 1% to 10%	13.6%	3.8%	10.6%
Increase by 11% to 24%	8.5%	0.0%	5.9%
Increase by > 25%	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%

Similar to earlier findings for women board members, a directional difference exists between Greenfield and Heritage boards, with 13.2% of Greenfield boards and 26.2% of Heritage boards with one or more percent of their directors being members of a racial minority. Looking ahead two years, some directional differences are observed between Greenfield and Heritage boards. Among the Greenfield directors surveyed, 22.1% expect some increase in the percentage of directors who are members of a racial minority. Only 3.8% of the Heritage directors expect some increase.

6.2.2 Paradigm

The second research proposition contends that Greenfield companies will adopt board structures and operating procedures which promote a more cooperative chief executive officer-board of directors relationship than those structure and operating procedures adopted by Heritage companies. This section of the survey used a variety of nominally, ordinally and intervally scaled questions to study the paradigm issue. Included in this stage are questions related to the independence of directors, the factors involved in shaping the composition of the board, the role of the CEO, standing committees on the board, stock/option requirements, board agenda and the balance of power between the Chairman and the board.

For purposes of this research, "independent" directors are defined as directors with no affiliation to a particular company other than board participation. Thus, an independent director is a director who does not serve as a vendor, contractor, or

employee to the company, nor is one who has some type of familial connection with the company or any other substantive relationship that would preclude independence. Table 6.11 examines Greenfield and Heritage boards in terms of the independence of their directors.

Table 6.11 Percentage of Responding Directors Who Are Independent, and Relationship to the Company of Directors Who Are Not Independent

Category	Greenfield	Heritage	Total
Independent: Yes	45.4%	48.8%	46.4%
No	54.6%	51.2%	53.6%
Total	100.0%	100.0%	100.0%
If "no", how affiliated:	**Greenfield**	**Heritage**	**Total**
Vendor	3.6%	0.0%	2.7%
Contractor	3.6%	0.0%	2.7%
Employee	78.2%	90.0%	81.3%
Family	0.0%	5.0%	1.3%
Other	14.5%	5.0%	12.0%
Total	100.0%	100.0%	100.0%

Responding directors of Greenfield and Heritage companies are nearly identical in terms of their status as an independent director (45.4% and 48.8%, respectively). Some directional differences exist between the two types of boards among those directors who do not consider themselves independent. Among non-independent Heritage directors, 90.0% claim their affiliation with the company is as an employee. This compares to a slightly lower percentage of non-independent Greenfield directors (78.2%). As the frequency distribution exhibits, the range of affiliations for non-independent Greenfield directors seems more extensive than that for Heritage directors. Several independent directors claimed their affiliation with the company on whose board they serve as being something other than that identified in the self-administered survey. Due to their relatively low number and the heterogeneity of responses, these verbatim responses were not coded and tabulated. "Other" affiliations of Greenfield directors who are not independent include mentions of "Chairman", "Founder", "Former Employee", and "Consultant." No write-in response was given by the one Heritage director who is not independent and who checked "other".

Greenfield and Heritage directors were asked to identify the percentage of directors on their board who are independent, as well as estimate the expected change in the percentage of independent directors on their board over the next two years. These data are summarized in tables 6.12 and 6.13.

Table 6.12 Current Percentage of Board Members Who Are Independent

Category	Greenfield	Heritage	Total
0%	1.0%	0.0%	0.7%
1% to 10%	0.0%	0.0%	0.0%
11% to 20%	5.0%	2.4%	4.2%
21% to 30%	3.0%	14.6%	6.3%
31% to 40%	20.8%	17.1%	19.7%
41% to 50%	12.9%	7.3%	11.3%
51% to 60%	11.9%	9.8%	11.3%
61% to 70%	17.8%	12.2%	16.2%
71% to 80%	16.8%	24.4%	19.0%
81% to 90%	9.9%	9.8%	9.9%
91% to 100%	1.0%	2.4%	1.4%
Total	100.0%	100.0%	100.0%

Table 6.13 Expected Change in the Percentage of Board Members Who Are Independent/Next Two Years

Category	Greenfield	Heritage	Total
Decrease by > 25%	1.1%	0.0%	0.8%
Decrease by 11% to 24%	2.2%	0.0%	1.6%
Decrease by 1% to 10%	1.1%	2.9%	1.6%
Stay the same	54.8%	67.6%	58.3%
Increase by 1% to 10%	15.1%	14.7%	15.0%
Increase by 11% to 24%	20.4%	11.8%	18.1%
Increase by > 25%	5.4%	2.9%	4.7%
Total	100.0%	100.0%	100.0%

The descriptive statistics reveal a great deal of similarity between Greenfield and Heritage boards in terms of the presence of independent directors. Among Greenfield directors, 57.4% serve on boards with more than 50% of their directors independent. Heritage directors report that 58.6% of their board's directors are independent. Some

directional differences do exist, however. For example, while just 9.0% of the Greenfield companies surveyed have boards with 30% or less of the directors being independent, fully 17.0% of the Heritage companies surveyed have 30% or less of their directors being independent. In addition, 27.7% of the Greenfield companies have boards with 71% or more of their directors being independent, compared to 36.6% of for Heritage companies. Thus it appears that directionally, Greenfield companies tend to have less variation in the percentage of independent directors on their board when compared to Heritage companies, who exhibit somewhat greater variation in the structure of their boards on this measure. Looking ahead, 40.9% of Greenfield directors expect the percentage of independent directors on their board to increase (1% or greater) over the next two years, compared to 29.4% of Heritage companies that have this expectation. In addition, 25.8% of Greenfield companies expect the percentage of their board members who are independent to increase by 11% or more. Just 14.7% of the Heritage directors surveyed have this expectation of their board.

Further exploring the structures and operating procedures newly public companies, directors were asked to rate the importance of various factors when shaping the composition of their boards. A balanced and forced scale was used with four response choices ("Very Unimportant", "Somewhat Unimportant", "Somewhat Important", "Very Important"). This type of scale is an ordinal scale, which implies that a hierarchy of the attitude construct can be obtained through its use. However, ordinal scales preclude the calculation of means and related statistical tests of means. To address this issue and to use these data points as inputs into the principal component factor analysis data reduction process, "equal distances" are assumed for this scale and all other scales of this type that are found in the survey instrument. By making this assumption, we can treat these data points as intervally scaled and thus apply more powerful statistical techniques (Burns and Bush, 2000). Table 6.14 summarizes the results of this set of questions.

Table 6.14 Importance of Various Factors Shaping Board Composition

Factor Shaping Board Composition	Greenfield Mean	Greenfield s.d.	Heritage Mean	Heritage s.d.	Total Mean	Total s.d.
Professional Diversity	3.35	0.77	3.51	0.76	3.40	0.77
Ethnic and Cultural Diversity	2.22	1.09	2.38	0.79	2.26	1.02
Age Diversity	2.18	0.78	2.32	0.77	2.22	0.78
Academic Diversity	2.27	0.90	2.25	0.87	2.27	0.89
Gender Diversity	2.18	0.91	2.34	0.81	2.22	0.89
Meeting Board Objectives	3.64	0.67	3.51	0.81	3.61	0.71
Community Needs	2.25	0.86	2.36	0.90	2.28	0.87
Management Ideology	3.14	0.74	3.33	0.73	3.19	0.74
Meeting Corporate Objectives	3.74	0.56	3.68	0.57	3.72	0.56
Functional Competency	3.78	0.44	3.63	0.80	3.74	0.57
Reputation of the Board Member	3.52	0.68	3.38	0.78	3.48	0.71
Strategic partnering to benefit the firm	3.16	0.86	2.98	0.92	3.10	0.87

Note: Responses were coded as follows: Very unimportant=1, Somewhat unimportant=2, Somewhat important=3, Very important=4.

"Functional Competency" and "Meeting Corporate Objectives" were the two most important factors in shaping the composition of the boards for both groups of companies. Some directional differences are observed, with Heritage directors placing greater importance on every measure of diversity with the exception of "Academic Diversity". Somewhat surprising are the relatively low mean scores for many of the diversity factors considered when shaping the composition of the board. While "Professional Diversity" is the fifth-highest-rated factor among Greenfield companies, "Age Diversity", "Gender Diversity", "Ethnic and Cultural Diversity" and "Academic Diversity" are the four lowest-rated factors. Similarly, "Professional Diversity" holds a relatively high ranking (tied for third position) among Heritage boards, yet these same boards share an identical set of four lowest-rated factors with their Greenfield counterparts.

Additional similarities are observed among Greenfield and Heritage companies in terms of the CEO's role within the board of directors. Among Greenfield directors, 61.3% report that their CEO also serves as Chairman of the Board. Quite similarly, 62.8% of Heritage directors claim their company's CEO also serves as Chairman of the Board.

Greenfield and Heritage directors were asked top describe the process by which individuals are appointed to the board. More specifically, directors offered insight as to which individual or entity within the board dictates the member selection process. These data are summarized in Table 6.15.

Table 6.15 Primary Driver of Process by Which Individuals Are Appointed to the Board

Category	Greenfield	Heritage	Total
The CEO alone	3.8%	2.4%	3.4%
Chairman of the Board alone	1.9%	7.3%	3.4%
CEO or Chairman w/limited board input	25.0%	14.6%	22.1%
CEO or Chairman w/extensive board input	30.8%	36.6%	32.4%
Nominating Committee composed of some board members	26.0%	34.1%	28.3%
Nominating Committee composed of all board members	7.7%	2.4%	6.2%
Other	4.8%	2.4%	4.1%
Total	100.0%	100.0%	100.0%

Both groups display a limited reliance on one individual to dictate the member selection process, with 5.7% of Greenfield directors claiming the "CEO alone" or the "Chairman of the Board alone" to dictate the member selection process. A still small but slightly higher percentage is observed for Heritage boards (9.7%). Several more substantial directional differences exist within the data. Heritage companies are more likely than Greenfield companies to use a "nominating committee composed of some board members" as the process by which directors are appointed is dictated (34.1% versus 26.0%). Yet, perhaps due to the apparent smaller size of Greenfield boards, 33.7% of Greenfield boards use a nominating committee composed of "some" or "all" board members. This is just slightly lower than the percentage of Heritage boards who do the same (36.5%). The member selection process of Greenfield boards is more likely than Heritage boards to be dictated by the "CEO or Chairman with limited input from the board". A limited number of "other" responses were offered by responding directors, and they are quite varied. Among Greenfield directors, other means by which the member selection process is dictated include: "Voted by stockholders", "Nominated by board", "Nominating committee of independent directors". Only one

"other" response, "Governance and nominating are combined to screen candidates", was obtained from Heritage directors.

Standing committees are a major organizational structure for many boards. The survey instrument established incidence rates for Greenfield and Heritage boards of seven different types of standing committees, plus an "other" category. The results are summarized in Table 6.16.

Table 6.16 Standing Committees on the Board (Incidence Rates)

Type of Standing Committee	Greenfield	Heritage	Total
Audit	97.2%	97.7%	97.4%
Community/Shareholder Relations	0.9%	2.3%	1.3%
Compensation	96.3%	97.6%	96.7%
Nominating	24.1%	25.6%	24.5%
Executive	22.2%	34.9%	25.8%
Finance	13.0%	14.0%	13.2%
Corporate Governance	4.6%	25.6%	10.6%
Other	4.6%	11.6%	6.6%

Evaluating the data for each type of board, one immediately notices that Heritage boards have directionally higher incidence rates for every type of standing committee. The greatest difference occurs with regard to a standing committee on corporate governance, with 25.6% of Heritage boards having such a standing committee, as compared to just 4.6% of Greenfield boards. The greatest case of similarity between the two boards occurs regarding a standing committee for "compensation", with 97.6% and 96.3% of Heritage and Greenfield boards possessing such a committee, respectively. Just 4.6% of Greenfield companies have other standing committees on their board. These mentions include: "Y2K", "Loan asset liability", "Investment", "Environmental" and "Acquisitions". A higher percentage (11.6%) of Heritage boards have other standing committees, and these include: "Technical", "Special stock option" and "Compliance".

Greenfield and Heritage boards are highly similar in terms of the number of times per year that they meet. Among the Greenfield sample of directors, 87.8% report that their board meets approximately three to six times per year, while 85.8% of Heritage

boards meet with such regularity. Table 6.17 summarizes the frequency of meeting for Greenfield and Heritage boards.

Table 6.17 Approximate Number of Times Board Meets Per Year

Category	Greenfield	Heritage	Total
1 to 2	0.0%	0.0%	0.0%
3 to 4	32.7%	31.0%	32.2%
5 to 6	55.1%	54.8%	55.0%
7 to 8	4.7%	7.1%	5.4%
9 to 10	0.9%	2.4%	1.3%
11 to 12	4.7%	4.8%	4.7%
13 or more	1.9%	0.0%	1.3%
Total	100.0%	100.0%	100.0

Directors were asked a series of questions regarding stock ownership and ownership of options in the company on whose board they serve (Table 6.18). The data indicate strong similarities between Greenfield and Heritage boards in terms of the percentage who currently own stock in the company (90.6% and 90.7%, respectively). Relative to other metrics within this particular question set, both sets of directors report relatively low incidence rates of a stock ownership requirement when they first became a director, while both groups have fairly high incidence rates of current ownership of options to buy stock in the company. Perhaps the most interesting result is that the incidence rates for Heritage boards, at least on a directional basis, are greater than those for Greenfield boards with regard to all three measures evaluated.

Table 6.18 Requirements of Stock Ownership, Current Ownership of Stock, and Ownership of Options to Buy Stock

Category	Greenfield	Heritage	Total
Required to own stock when first became a director	24.8%	32.6%	27.0%
Currently own stock in the company	90.6%	90.7%	90.6%
Currently own options to buy stock in the company	84.1%	92.9%	86.6%

Greenfield and Heritage directors also are highly similar in terms of their currently serving on any other boards and, for those who do serve on other boards, the number

of other boards on which they currently serve. In addition, both groups have nearly equal likelihood of considering serving on another corporate board in the future. With nearly two-thirds of Greenfield directors and almost 60% of Heritage directors serving on other boards, a majority of these directors are serving on approximately four different boards (each director's respective board plus service on an average of almost three other boards). Table 6.19 summarizes these results.

Table 6.19 Service as a Director on Another Board

Item		Greenfield	Heritage	Total
Currently serving as a director on another board:	Yes	64.5%	58.1%	62.7%
	No	35.5%	41.9%	37.3%
Total		100.0%	100.0%	100.0%
		Greenfield	**Heritage**	**Total**
If "yes", number of other boards on which director is currently serving		Mean = 2.85 s.d. = 1.89	Mean = 2.87 s.d. = 1.94	Mean = 2.86 s.d. = 1.89
Would consider serving an another board in the future:	Yes	88.7%	90.7%	89.3%
	No	11.3%	9.3%	10.7%
Total		100.0%	100.0%	100.0%

Several questions in the survey instrument were designed to better understand and contrast the balance of power within boards of Greenfield and Heritage companies. One of the first areas of exploration on this topic involved examining the role of the CEO and the board in initiating the board's agenda. As the data in Table 6.20 exhibit, the initiation of the board's agenda tends to be shared between the CEO or Chairman and the board. Only 11.3% of Greenfield directors and 13.9% of Heritage directors claim their board's agenda is initiated by either the "CEO alone" or the "Chairman of the Board alone". In addition, a small percentage of Greenfield and Heritage boards reported relying on the use of a "steering committee" composed of some or all board members to guide the board's agenda. These data are summarized in Table 6.20.

Table 6.20 Initiation of the Board's Agenda

Category	Greenfield	Heritage	Total
CEO alone	11.3%	11.6%	11.4%
Chairman of the Board alone	0.0%	2.3%	0.7%
CEO or Chairman w/limited input from the board	55.7%	46.5%	53.0%
CEO or Chairman w/extensive input from the board	20.8%	34.9%	24.8%
Steering Committee composed of some board members	3.8%	2.3%	3.4%
Steering Committee composed of all board members	3.8%	0.0%	2.7%
Other	4.7%	2.3%	4.0%
Total	100.0%	100.0%	100.0%

On a directional basis, Greenfield boards are more likely to have their agenda initiated by the CEO or Chairman with limited input from the board, while Heritage boards are directionally more likely to have the CEO or Chairman initiate the board's agenda with extensive input from the board. A very limited number of directors said that the agenda for their respective board was initiated by a method not specified by the response set. These "other" responses from Greenfield directors include: ""Principals of company who are board members", "General management" and "CEO and CFO". The only Heritage director who gave an "other" response reported the following: "Company is in transition. Board removed founder as CEO in [date] due to deteriorating performance. New CEO is (a) professional manager. Cultural change in progress. Many problems due to board composition and supervision."

A broader view of the balance of power was observed in a question that asked directors to provide an assessment of the general balance of power between the board and the Chairman. The results (shown in Table 6.21) support the directional findings pertaining to the initiation of the board's agenda. Of the Greenfield directors surveyed, 40.2% report that the balance of power is in favor of the Chairman, compared to 27.9% of the Heritage directors reporting such balance of power. In contrast, Heritage boards are directionally more likely to have the general balance of power roughly balanced between the board and the Chairman. Nearly half (48.8%) of

the Heritage directors report such a balance, compared to just 34.3% of Greenfield directors who share this perspective.

Table 6.21 General Balance of Power Between the Board and the Chairman

Category	Greenfield	Heritage	Total
In favor of the board	25.5%	23.3%	24.8%
In favor of the Chairman	40.2%	27.9%	36.6%
Roughly balanced between the board and the Chairman	34.3%	48.8%	38.6%
Total	100.0%	100.0%	100.0%

Directors were asked to assess the degree to which they vote in accordance with the majority of their board. The results (see Table 6.22) indicate that on a directional basis, Greenfield companies are less likely to "always" vote in accordance with a majority of the board.

Table 6.22 Frequency of Voting in Accordance with the Majority of the Board

Category	Greenfield	Heritage	Total
Always	25.2%	34.9%	28.0%
Often	68.2%	65.1%	67.3%
Sometimes	5.6%	0.0%	4.0%
Never	0.9%	0.0%	0.7%
Total	100.0%	100.0%	100.0

While Greenfield directors appear less likely to vote in accordance with the majority of their board, they also are less likely to express a dissenting opinion in opposition to the rest of the board. As Table 6.23 illustrates, just 11.6% of Greenfield directors claim they "always" or "sometimes" express a dissenting opinion in opposition to the rest of the board. This compares to 24.4% of Heritage directors who claim they "sometimes" express a dissenting opinion. No Heritage director claimed to "always" express a dissenting opinion in opposition to the rest of the board.

Table 6.23 Frequency of Expressing a Dissenting Opinion in Opposition to the Rest of the Board

Category	Greenfield	Heritage	Total
Always	1.0%	0.0%	0.7%
Often	10.6%	24.4%	14.5%
Sometimes	80.8%	65.9%	76.6%
Never	7.7%	9.8%	8.3%
Total	100.0%	100.0%	100.0%

6.2.3 Purpose

Several sets of questions were presented to examine the proposition that newly created boards of Greenfield companies will demonstrate a more responsive stance toward a broader range of shareholders and stakeholders than will newly created boards of Heritage companies. The first set of questions (Table 6.24) used an interval scale (equal distances assumed) to examine the level of importance of various factors in shaping the actions and decisions of the board. The second set of questions also used an interval scale to assess the importance of various issues to the board. This summary is found in Table 6.25. Linked to these questions are three sets of satisfaction-related questions that assess directors' satisfaction with the performance of various issues facing the board, as well as assessing overall satisfaction with the performance of the board and of the company.

As Table 6.24 highlights, mean scores for Greenfield and Heritage companies indicate fairly consistent levels of importance for the various factors that shape the actions and decisions of the board. Both groups of directors rate "meeting corporate goals or objectives", "long term planning" and "chair leadership" as the three most important factors. In addition, both groups rate "community needs" and "directors' desire for personal contribution" as the two least important factors. Directionally, Greenfield directors rate "long-term planning" more highly than Heritage directors, and Heritage directors rate "short-term planning" at a higher level than do Greenfield directors. The greatest directional difference between Greenfield and Heritage directors occurs with regard to the importance of "economic conditions" as factor shaping the actions and decisions of the board. Heritage directors rated this at a mean of 3.47, while Greenfield directors rated this factor at just a 3.27 mean.

Table 6.24 Importance of Factors Shaping the Actions and Decisions of Board

Factor	Greenfield		Heritage		Total	
	Mean	s.d.	Mean	s.d.	Mean	s.d.
Chair leadership	3.58	0.69	3.67	0.69	3.61	0.68
Community needs	2.22	0.79	2.31	0.72	2.25	0.77
Economic conditions	3.27	0.83	3.47	0.67	3.33	0.79
Meeting corporate goals or objectives	3.85	0.38	3.77	0.48	3.83	0.41
Directors' desire for personal contribution	2.39	0.85	2.29	0.96	2.36	0.88
Reaching board consensus	2.91	0.81	3.00	0.90	2.93	0.83
Management ideology of directors	2.77	0.84	2.88	0.70	2.80	0.80
Short-term planning	3.31	0.78	3.43	0.67	3.35	0.75
Long-term planning	3.75	0.55	3.67	0.64	3.73	0.58

Note: Responses were coded as follows: Very unimportant=1, Somewhat unimportant=2, Somewhat important=3, Very important=4.

Both Greenfield and Heritage directors indicate that "corporate performance" is the most important issue to the board, followed by "competitive threats to the firm". In addition, both groups of directors share a common set of least important issues to the board. These include "Director compensation", "Liability and insurance", and "Shareholder representation". These data are summarized in Table 6.25.

Table 6.25 Importance of Issues to the Board

Issue	Greenfield		Heritage		Total	
	Mean	s.d.	Mean	s.d.	Mean	s.d.
Strategic planning	3.74	0.59	3.62	0.70	3.70	0.62
Corporate performance	3.97	0.22	3.95	0.30	3.97	0.24
Relations with stakeholders (i.e., employees, suppliers)	3.49	0.67	3.30	0.60	3.44	0.65
Relations with management	3.50	0.71	3.51	0.51	3.50	0.65
Director compensation	2.49	0.78	2.42	0.85	2.47	0.80
State and federal regulation	3.27	0.79	3.21	0.74	3.26	0.77
Shareholder representation	3.25	0.79	3.12	0.79	3.21	0.79
Shareholder equity	3.50	0.62	3.28	0.63	3.44	0.63
Liability and insurance	3.15	0.84	3.00	0.72	3.11	0.81
Competitive threats to the firm	3.70	0.54	3.44	0.77	3.63	0.62

Note: Responses were coded as follows: Very unimportant=1, Somewhat unimportant=2, Somewhat important=3, Very important=4.

While the relative rankings of each factor are similar between the two board types on this issue, the data also highlight an interesting directional difference in that the

Greenfield importance scores exceeded those of Heritage directors for nine out of the ten factors studied. For the one factor where a Heritage importance score exceeds a Greenfield score ("relations with management"), the difference is a mere one-hundredth of a point.

The performance proposition uses the compound annual growth rate (CAGR) in market capitalization as its performance measure. To complement the board purpose analysis, several attitudinal measures of performance were assessed. These pertain specifically to satisfaction with the board's dealings on a variety of issues (all but one of which are identical to the issues detailed in Table 6.25). In addition, directors are asked to provide an overall assessment of their satisfaction with their board's performance and with the performance of the company of which they serve as a board member. To begin, Table 6.26 summarizes directors' satisfaction with the board's dealings with various issues.

Table 6.26 Satisfaction with Board's Dealings with Various Issues

Issue	Greenfield Mean	Greenfield s.d.	Heritage Mean	Heritage s.d.	Total Mean	Total s.d.
Strategic planning	3.27	0.75	3.28	0.89	3.27	0.79
Corporate performance	3.26	0.71	3.38	0.85	3.30	0.75
Relations with stakeholders (i.e., employees, suppliers)	3.31	0.65	3.27	0.77	3.30	0.68
Relations with management	3.60	0.60	3.51	0.72	3.58	0.63
Director compensation	3.33	0.66	3.43	0.65	3.35	0.66
State and federal regulation	3.58	0.59	3.36	0.60	3.53	0.60
Shareholder representation	3.41	0.66	3.42	0.64	3.41	0.65
Shareholder equity	3.33	0.71	3.44	0.65	3.36	0.69
Liability and insurance	3.55	0.56	3.40	0.74	3.51	0.61
Competitive threats to the firm	3.33	0.74	3.19	0.88	3.29	0.78

Note: Responses were coded as follows: Very dissatisfied=1, Somewhat dissatisfied=2, Somewhat satisfied=3, Very satisfied=4.

The satisfaction scores for Greenfield and Heritage directors are quite similar, although some directional differences do exist. The highest mean score for both groups pertains to satisfaction with their board's dealings with the issue of "relations with management". The lowest mean score for Greenfield directors is for satisfaction

in dealing with "corporate performance", while the lowest mean score for Heritage directors is for satisfaction in dealing with "competitive threats to the firm". Greenfield and Heritage directors also share nearly identical levels of satisfaction with regard to the performance of the board and the performance of the company on whose board they serve as a director. Table 6.27 summarizes these results.

Table 6.27 Satisfaction with Board Performance and Company Performance

Measure	Greenfield Mean	Greenfield s.d.	Heritage Mean	Heritage s.d.	Total Mean	Total s.d.
Satisfaction w/overall performance of the board	3.47	0.67	3.49	0.79	3.47	0.70
Satisfaction w/overall performance of the company	3.07	0.86	3.05	0.93	3.06	0.88

Note: Responses were coded as follows: Very dissatisfied=1, Somewhat dissatisfied=2, Somewhat satisfied=3, Very satisfied=4.

Finally, Greenfield and Heritage directors were asked to identify the greatest strength and the greatest weakness of the board on which they serve. These were verbatim comments that were manually coded. Table 6.28 summarizes the greatest perceived strengths of Greenfield and Heritage boards.

Table 6.28 Greatest Strength of the Board

Category	Greenfield	Heritage	Total
Diversity of board members	16.1%	16.7%	16.3%
Openness, Cooperation, Unity	18.4%	25.0%	20.3%
Functional expertise and competency	48.3%	44.4%	47.1%
Other	17.2%	13.9%	16.3%
Total	100.0%	100.0%	100.0%

Both Greenfield and Heritage directors consider their respective board's "functional expertise and competency" as its greatest strength. "Openness, cooperation and unity" and "diversity of board members" received the second and third highest number of mentions for the board's greatest strength.

The directors surveyed also provided insight into the perceived greatest weaknesses of their respective boards. As Table 6.29 shows, the verbatim responses are more varied than the responses summarized in Table 6.28. The greatest weakness for both groups of directors is a "lack of functional expertise and competency". The most interesting

result found in the table may be that pertaining to diversity and small size. As noted earlier, Greenfield boards are directionally smaller and less diverse than their Heritage counterparts. This appears to be of only limited concern to Greenfield directors, and perhaps of less concern to Greenfield directors than to Heritage directors.

Table 6.29 Greatest Weakness of the Board

Category	Greenfield	Heritage	Total
Lack of functional expertise and competency	38.5%	29.3%	36.3%
Lack of communication and mutual understanding	19.2%	20.8%	19.6%
Lack of diversity/small size	12.8%	20.8%	14.7%
Excessive influence of Chairman	10.3%	8.3%	9.8%
Other	17.2%	13.9%	16.3%
Total	100.0%	100.0%	100.0%

6.2.4 Performance

The fourth and final research proposition examines the hypothesis that Greenfield boards will be associated with higher levels of company performance, as assessed by both economic and intangible measurements, than will newly created boards of Heritage companies. The compound annual growth rate (CAGR) in market capitalization was used as the measure of company performance. In the multiple linear regression analysis found in Chapter 8, CAGR is a dependent variable predicted by independent predictor variables associated with various facets of corporate governance.

To develop a CAGR measure for each responding director's company, two sets of data points are needed. The first of these is the date and dollar value of the initial public offering (IPO) of each responding director's company. The second set of data includes the public company's market capitalization on a given date. Using these two sets of information, the CAGR growth was calculated for each company from its IPO to date to the date used to measure its recent market capitalization.

Obtaining these data points followed a straightforward process. Two online data sources were used. Initially, data on market capitalization as of the IPO date were

obtained from the Standard & Poor Net Advantage online service. The most recent market capitalization data for each company were taken from Hoover's Online, a syndicated business database. In some cases, IPO data for a particular company were not available from Standard & Poor, but were available from Hoover's. In these cases, the IPO market capitalization information and that for the company's most recent market capitalization were obtained from Hoover's.

While IPO dates varied, the recent market capitalization dates used for most companies were January 4 or 5, 2000. In a limited number of cases, the recent IPO date varied from these end-dates, with earlier end-dates largely due to a seminal shift with the company. Such shifts included acquisition or merger with another firm and discontinuation of operations. Table 6.30 summarizes the performance information for the total sample and for Greenfield and Heritage companies specifically.

Table 6.30 Compound Annual Growth Rate in Market Capitalization

Category	Greenfield	Heritage	Total
Mean	65.67%	69.95%	66.89%
Standard deviation	88.32%	77.20%	85.07%
Median	43.41%	50.40%	44.25%

The data in Table 6.30 show strong compound annual growth rates in market capitalization for both sets of companies and the sample as a whole. Most notable is the presence of mean CAGR growth rates exceeding median levels for both types of companies and hence, the total sample. In addition, the standard deviation values relative to the mean are seen as being high as well. These findings signal that the distribution of CAGR is skewed somewhat, with some Greenfield and Heritage companies likely having exceptionally high compound annual growth rates. The distribution of the compound annual growth rate in market capitalization is explored in greater detail in Chapter 8, where an attempt is made to develop a predictive model of CAGR in market capitalization, using specific characteristics of and attitudes toward corporate governance.

6.3 SUMMARY

Chapter 6 summarizes the descriptive data obtained from the Greenfield and Heritage directors who participated in the research project. In addition, secondary data are introduced which link a company's compound annual growth rate in market capitalization with specific elements of each firm's corporate governance. All of these issues specifically pertain to the Players, Paradigm, Purpose and Performance hypotheses under examination. At this time, the thesis now turns to the first of two predictive models using the data obtained from the sample of directors.

CHAPTER SEVEN
UNIVARIATE AND MULTIVARIATE ANALYSIS OF GREENFIELD AND HERITAGE BOARDS

7.1 INTRODUCTION

The purpose of this chapter is to test the research propositions of Players, Paradigm and Purpose by deliberately examining the descriptive data for Greenfield and Heritage boards and applying statistical techniques to identify any significant differences between the two groups. The analysis of the Players proposition looks at the sociological demographics of Greenfield and Heritage boards, while the analysis of the Paradigm proposition carefully studies the operating structures and procedures of the two board types. The analysis of the Purpose proposition studies the importance of items that shape the actions and decisions of Greenfield and Heritage boards, and it also looks at the importance of various issues to the board, ranging from "strategic planning" to "liability and insurance". This latter analysis also includes an examination of directors' satisfaction with board performance and the performance of the company. Following this study of significant differences between the Greenfield and Heritage boards, an attempt is made to develop a predictive model that reliably discriminates between the two.

The fourth research proposition pertains to the relationship between corporate governance and corporate performance. The fourth proposition hypothesizes that Greenfield boards will be associated with higher levels of company performance, as assessed by compound annual growth rate in market capitalization, than will newly created boards of Heritage companies. Chapter 8 is dedicated exclusively to the development of a multiple linear regression model to link corporate governance with company performance.

This chapter employs a rigorous approach to analyzing the data and addressing the research propositions. The first of these tools is k-means cluster analysis, which is used as an exploratory tool to determine whether directors naturally cluster into Greenfield and Heritage groups based on their responses to the 43 intervally scaled explanatory variables within the survey instrument. Chi-square Automatic Interaction

Detection (CHAID) also is used to explore how response categories of categorical questions merge and split as predictors of board status (Greenfield or Heritage).

Following the cluster and CHAID analyses, the raw data are prepared for tests of independence and the discriminant analysis. As noted in Chapter 5, the in-tab sample of 151 directors includes a total of 108 Greenfield directors and 43 Heritage directors. Further, the survey instrument contained numerous non-dichotomous, categorical questions. The combined conditions of many multiple-response questions and a low sample size, particularly as it pertains to Heritage directors, resulted in numerous instances in which observed cell counts within a cross-tabulation were less than five. Hence, when conducting subsequent Chi-square tests of independent samples, the results yielded numerous occurrences in which the expected cell counts of the cross-tabulations were below five (Aaker et al., 2001; Lehmann et al, 1998). When this occurs, the results of the Chi-square test can become unreliable. Since it is the objective of this study to identify significant differences between Greenfield and Heritage boards, variables with observed cell counts of less than five were subject to a "collapsing" procedure which helped ensure that as many variables as possible had expected cell counts of five or more, and thus, could be included in the univariate and multivariate analyses.

Following the collapsing of the non-dichotomous categorical variables with observed cell counts of less than five, the analysis uses the Chi-square test of independent samples as an exploratory technique to identify multiple-response categorical variables that display some significant association with board status. Chi-square Automatic Interaction Detection extends this analysis to identify the manner in which multiple response categorical variables significantly split or merge based on the association between board status and a particular predictor variable. These variables are then re-coded to reflect the splits and mergings identified in the CHAID analyses, and along with the dichotomous variables in the data set, are subjected to tests of independence for means and proportions.

Factor analysis (principal components), a multivariate technique, is used as a data reduction tool of the intervally scaled variables. Using the results of the tests of

independence and the factor analyses, discriminant analysis is then used to develop a predictive model of board status (Greenfield or Heritage).

7.2 EXPLORATORY RESEARCH: CLUSTER ANALYSIS

Cluster analysis is an exploratory technique that groups objects into clusters based on an object's association with other objects in a data set. Kachigan (1991:262) explains: "The ultimate goal of cluster analysis is to arrive at clusters that display small within-cluster variation, but large between-cluster variation." In so doing, cluster analysis maximizes the homogeneity of objects within each cluster and maximizes the heterogeneity between clusters. One of the primary features of cluster analysis is that groups are identified following the analysis, rather than on an *a priori* basis, in effect letting the data group themselves without any predetermination on a researcher's part.

Since two groups of board types are being evaluated, a non-hierarchical clustering procedure known as k-means clustering is used. Compared to hierarchical clustering methods, which involve the formation of treelike clusters, non-hierarchical procedures such as k-means analysis assign objects into clusters following the specification of the number of clusters to be formed (Hair et al., 1998). Therefore, for this k-means analysis, a total of two groups are pre-specified reflecting the two types of board status known in the sample of responding directors. The data set offers a rich number of intervally scaled questions that can serve as inputs into the cluster analysis. A total of 43 variables, all attitudinal, are used as inputs into this exploratory analysis, and cases are eliminated list-wise.

Table 7.1 is a cross-tabulation that summarizes the groupings within each of the two clusters by board status. As the table data indicate, 34.1% of the objects are grouped into Cluster 1 and 65.9% are grouped into Cluster 2. However, the cluster analysis does not provide support that Greenfield and Heritage boards are naturally grouped by board status. This is evident by the fact that approximately equivalent percentages of Greenfield and Heritage boards are represented within each of the two clusters. In fact, when tested for a significant difference, no significant difference exists in the proportions within the cross-tabulation ($p>0.10$). Thus, the cluster analysis provides

an early indication that Greenfield and Heritage boards are not naturally grouped in a manner that reflects their board status.

Table 7.1 Summary of Cluster Analysis: Cross-Tabulation of Cluster Grouping by Board Status

Category	Cluster 1	Cluster 2	Total
Greenfield	80.0%	74.1%	76.1%
Heritage	20.0%	25.9%	23.9%
Total	100.0%	100.0%	100.0%
Case Distribution	34.1%	65.9%	100.0%

However, a more in-depth examination of the results of the k-means cluster analysis does highlight some noticeable differences in selected means between the two clusters. These differences are summarized in Table 7.2. The results are quite interesting, and highlight directional differences of 0.30 or more in mean values for all of the intervally scaled variables used in the analysis.

While the cluster analysis did not successfully identify a natural grouping of Greenfield and Heritage companies, the differences outlined below signal differences in board composition, values and director satisfaction between the clusters. Relatively large gaps are observed in terms of the importance of diversity to members of each cluster, and likewise, differences in attitudes toward the satisfaction of board performance as it relates to various issues is noticeable. The results suggest that Cluster 1 places less importance on virtually every variable where noticeable differences exist. Further, Cluster 1 also exhibits lower levels of satisfaction than Cluster 2 for the variables where mean differences are 0.30 or greater.

Of particular interest is the wide but consistent divergence of diversity-related importance scores. Not only are the mean importance scores higher for Cluster 2 when compared to Cluster 1 on these measures, the data also suggest some polarization of the two clusters along these measures. For example, all except for one of Cluster 1's diversity-related means exceed a rating of 2 ("somewhat unimportant"), while all of Cluster 2's scores are firmly in the positive (i.e. more important) end of the response continuum. Further, average satisfaction scores related to the board's

dealing with various issues also show that Cluster 2 respondents are markedly more satisfied along a wide range of variables when compared to those in Cluster 1.

The associations between these two groups of variables are not easily explained, but one may hypothesize that respondents are segmenting their boards along some natural continuum of board life cycle as opposed to board status. For example, the researcher hypothesizes that Cluster 2 boards are more evolved in terms of their orientation toward diversity. This may reflect some level of accumulated experience and board maturation, which may lead to a concomitant development with progress along other variables with which the board deals (e.g. strategic planning, corporate performance, etc.). Successful governance related to these issues by these potentially more evolved boards may also be a driver of higher levels of satisfaction with board performance observed in Cluster 2.

Thus, while the results do not support the simple grouping of Greenfield and Heritage companies, some meaningful clustering of the sample is possible. This suggests that differences in the composition and attitudes of board members of newly public companies may vary to only a limited degree based on the status of their board (Greenfield or Heritage).

Table 7.2 Final Cluster Centers: Noticeable Differences Among Variables in the Analysis

Variables	Cluster 1	Cluster 2
Players: Importance of Variable When Shaping Board Composition		
Ethnic and Cultural Diversity	1.67	2.53
Age Diversity	1.73	2.47
Academic Diversity	1.87	2.43
Gender Diversity	1.87	2.50
Community Needs	2.03	2.53
Paradigm: Importance of Variable When Shaping Board Actions and Decisions		
Community Needs	1.90	2.50
Directors' Desire for Personal Contribution	2.17	2.47
Management Ideology of Directors	2.63	2.93
Purpose: Importance of Variable As an Issue to the Board		
Strategic Planning	3.47	3.81
Relations with Stakeholders (i.e. employees, suppliers)	3.23	3.57
Relations with Management	3.20	3.62
Shareholder representation	2.97	3.34

Table 7.2 Final Cluster Centers: Noticeable Differences Among Variables in the Analysis (cont'd)

Variables	Cluster 1	Cluster 2
Purpose: Satisfaction with Board's Dealing with Regard to Variable		
Strategic Planning	2.87	3.59
Corporate Performance	2.90	3.57
Relations with Stakeholders (i.e. employees, suppliers)	2.80	3.60
Relations with Management	3.30	3.84
Director Compensation	3.10	3.57
Shareholder Representation	3.07	3.67
Shareholder Equity	2.93	3.57
Liability and Insurance	3.23	3.67
Competitive Threats to the Firm	2.90	3.55
Overall Board Performance	2.90	3.76
Overall Company Performance	2.47	3.43

The thesis turns next to a more detailed analysis of the Players, Paradigm and Purpose propositions.

7.3 TESTING OF THE PROPOSITIONS

7.3.1 Research Proposition One: Players

Research Proposition One examines the membership of Greenfield and Heritage boards. This proposition looks at the sociological demographics of the directors on the board as well as their years of service to the board and the directors' primary motivation for serving on the board. Specifically, the first proposition is stated:
P1: Newly created boards of Greenfield companies will demonstrate a greater degree of heterogeneity among directors than will newly created boards of Heritage companies.

Numerous measures were obtained from the Greenfield and Heritage directors surveyed to allow a statistical determination as to whether Greenfield and Heritage boards differ in terms of the size and composition of their respective boards as they are today, and in terms of those directors' expectations of changes in their boards along these measures in the future ("next 2 years"). To better understand how these variables relate to board status, the analysis begins by using CHAID as an exploratory tool for all Players-related categorical variables.

To prepare for the statistical tests used to examine the first proposition, the descriptive results are reviewed and then modified in a manner that supports the quality of the analysis.

7.3.1.1 Exploratory Research of Players Variables: Chi-Square Automatic Interaction Detection (CHAID)

Chi-square Automatic Interaction Detection (CHAID) is a segmentation and data reduction tool that is appropriate when the dependent and explanatory (predictor) variables are categorical in nature. CHAID is a natural extension of simple cross-tabulation analyses that often fail to identify complex relationships within a data set. As noted by Haughton and Oulabi (1997), CHAID initially builds a contingency (cross-tabulation) table for the dependent variable "with each available explanatory variable and each possible way of combining the categories of the variable" (44). The dependent variable needs a minimum of two discrete categories, and more than two mutually exclusive categories can be established if required by the analysis. CHAID then identifies the most significant predictor variable in the contingency table and splits or merges categories to yield the lowest p-value of the Chi-square test. The analysis continues through additional levels until the explanatory variables are exhausted, the imposed stopping rules are reached (i.e., minimum observed cell count thresholds of less than 5 are encountered), or until any possible merging or splitting situations fall below some pre-established significance (α) cutoff. CHAID allows production of a tree diagram showing the most important predictor variables and the interactions associated with the dependent variable.

For this stage of the analysis, CHAID is used as an exploratory tool for the Players proposition categorical variables. Since these data are in their raw form, the power of CHAID will be leveraged by permitting the algorithm to merge or split the response categories of these categorical variable such that the significance of the merging and splitting is optimized (i.e., yield the lowest p-value). Prior to performing the CHAID analysis, a level of significance must be established, at which or higher the null hypothesis (H_O) is not rejected. In this case, the null hypothesis is that there is no significant association between board status and a particular predictor variable. The significance level, known as Type I error, reflects the tolerable level of error that one

is willing to accept in the analysis. As such, it is the error or risk associated with rejecting the null hypothesis when in fact it is true. This particular experiment is exploratory in nature. Thus, a higher significance level is accepted to permit the identification of a wider number of variables exhibiting some significant association with board status (Greenfield or Heritage). Therefore, the level of significance (α) is set at 0.10. As in the other CHAID analysis, the alpha level of 0.10 is input into the algorithm and is used as the significance threshold.

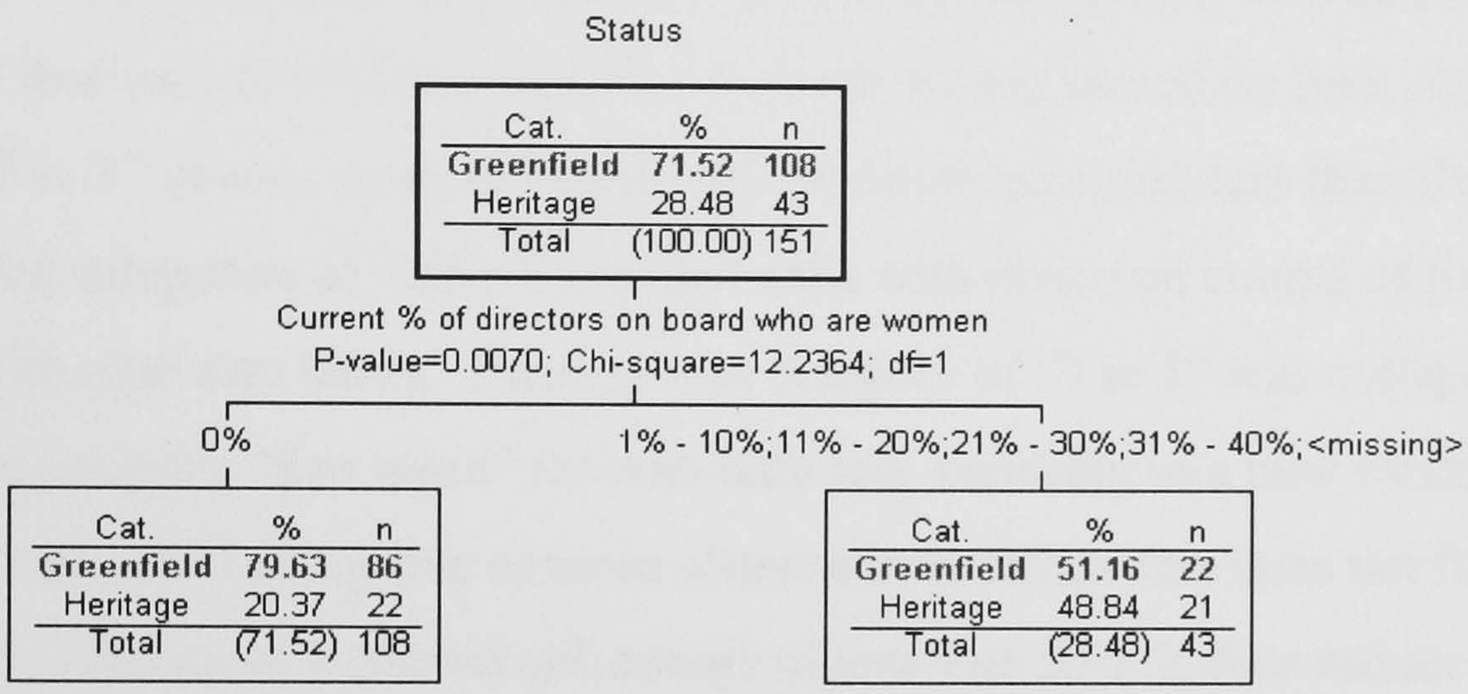
The results of the CHAID analysis, summarized in Figure 7.1, indicate that the variables "current percentage of directors on the board who are women" was the most significant predictor variable of the nine categorical predictor variables associated with the Players proposition ($p<0.01$). The significant merging and splitting of this predictor variable, as it pertains to the observed distribution of Greenfield and Heritage boards in the sample, occurred between "0%" and "1% or more", including one missing value within the responses for this predictor variable. This result does not imply that there are no other significant differences between Greenfield and Heritage boards along the Players variables under examination. However, it does indicate that due to one or more reasons, the CHAID analysis was concluded after only one level. As noted earlier, the reasons for such a concluding of the analysis are due to a combination of alpha levels having been exceeded or a stopping rule having been encountered.

7.3.1.2 Collapsing of Variables for Non-Dichotomous, Categorical Variables with Low Cell Counts

One of the inherent challenges of a small sample, particularly as it pertains to the testing of the research hypotheses in this study, is dealing with expected cell counts of less than five for non-dichotomous (i.e., multiple response) categorical variables. The reason for this is the Chi-square test, a statistical technique applied to two or more samples of independent variables that measures associations between those variables, should be used only when expected cell counts do not fall below five (Aaker et al., 2001; Lehmann et al., 1998). Since the presence of observed cell counts of less than five directly influences the presence of expected cell counts of less than five, the approach has attempted to mitigate the existence of such low cell counts in a way that

maximizes the integrity of the data while at the same time mitigates the risk of unreliable outcomes.

Figure 7.1 Tree Diagram Following CHAID Exploratory Analysis of Categorical Players Predictor Variables



To address this issue, the regrouping of some categories is performed using a procedure that achieves acceptable representation in cells by collapsing adjacent response categories (Lehmann et al., 1998). The first step in this process involves reviewing the cross-tabulations in the descriptive analysis pertaining to board membership and identifying those multiple-response, ordinally scaled categorical variables with observed cell counts of less than five. These cells are then collapsed with the adjacent cell that has the lowest cell count of the two adjacent cells. For "top box" categories for which no higher adjacent cell exists, any required collapsing is performed with the cell positioned just one below. For "bottom box" cells, the collapsing is performed with the next highest response category. Collapsing of the limited number of nominally scaled variables is done using an intuitive process that managerially attempts to identify similar response categories that have low cell counts.

This collapsing process yields many important analytical benefits. Specifically, the process maximizes the number of variables having observed cell counts of five or

more that serve as inputs into the Chi-square analyses. Further, it reduces the probability of expected cell counts of less than five, and it also maximizes the number of cell combinations that can be split or merged during the subsequent CHAID analyses.

Tables 7.3 and 7.4, which are shown on the next page, provide an example of the collapsing procedure used for the variable "years serving on the board", a Players variable and the first question presented on the survey instrument. The data in Table 7.3 indicate that only two Heritage directors report having served on their respective board for "7 to 8" years, obviously a cell with an observed count less than five. The collapsed categories of Table 7.4 reflect cells with observed counts of five or more and with new data labels. The response category of "7 to 8" was collapsed into the response category "9 or more" for both data sets, resulting in a new variable ("7 or more") with all cells having five or more observations. While this does not fully preclude the presence of expected cell counts of less than five, it does reduce the probability of such an outcome occurring. Further, the statistical output of Chi-square analyses using SPSS identifies situations in which expected cell counts fall below five, providing an alert to these situations when small expected cell counts still remain and additional collapsing should be considered.

Table 7.3 Years Serving on the Board: Cross-Tabulation Prior to Collapsing

Category	Greenfield	Heritage	Total
1-2	16.8%	21.4%	18.1%
	18	9	27
3-4	27.1%	42.9%	31.5%
	29	18	47
5-6	29.0%	19.0%	26.2%
	31	8	39
7-8	7.5%	4.8%	6.7%
	8	2	10
9 or more	19.6%	11.9%	17.4%
	21	5	26
Total	100.0%	100.0%	100.0%
	107	42	149

Table 7.4 Years Serving on the Board: Cross-Tabulation After Collapsing

Category	Greenfield	Heritage	Total
1-2	16.8%	21.4%	18.1%
	18	9	27
3-4	27.1%	42.9%	31.5%
	29	18	47
5-6	29.0%	19.0%	26.2%
	31	8	39
7 or more	27.1%	16.7%	24.2%
	29	7	36
Total	100.0%	100.0%	100.0%
	107	42	149

Not all of the categorical variables required collapsing, but for those that did, the process resulted in several variables with fewer categories but all categories having observed cell counts of five or more. Table 7.5, on two next pages, summarizes the Players Proposition variables for which collapsing of response categories was performed.

Table 7.5 Response Categories Before and After Collapsing

Variable	Original Categories	Collapsed Categories
Years serving on the board	♦ Less than one year ♦ 1 to 2 ♦ 3 to 4 ♦ 5 to 6 ♦ 7 to 8 ♦ 9 or more	♦ Less than one year ♦ 1 to 2 ♦ 3 to 4 ♦ 5 to 6 ♦ 7 or more
Primary motivation for accepting position on board	♦ Personal contribution ♦ Personal development ♦ Professional contribution ♦ Professional development ♦ Compensation ♦ Other	♦ Personal contribution or development ♦ Professional contribution or development ♦ Compensation or other
Number of directors on board when first appointed	♦ 1 to 4 ♦ 5 to 6 ♦ 7 to 8 ♦ 9 to 10 ♦ 11 to 12 ♦ 13 to 14 ♦ 15 or more	♦ 1 to 4 ♦ 5 to 6 ♦ 7 to 8 ♦ 9 or more

Table 7.5 Response Categories Before and After Collapsing (cont'd)

Variable	Original Categories	Collapsed Categories
Number of directors currently on board	♦ 1 to 4 ♦ 5 to 6 ♦ 7 to 8 ♦ 9 to 10 ♦ 11 to 12 ♦ 13 to 14 ♦ 15 or more	♦ 6 or less ♦ 7 to 8 ♦ 9 to 10 ♦ 11 or more
Expected change in the total number of directors/next 2 years	♦ Decrease by less than 25% ♦ Decrease by 11% to 24% ♦ Decrease by 1% to 10% ♦ Stay the same ♦ Increase by 1% to 10% ♦ Increase by 11% to 24% ♦ Increase by 25% or more	♦ Decrease or stay the same ♦ Increase
Current percentage of directors who are women	♦ 0% ♦ 1% to 10% ♦ 11% to 20% ♦ 21% to 30% ♦ 31% to 40% ♦ 41% to 50% ♦ 51% to 60% ♦ 61% to 70% ♦ 71% to 80% ♦ 81% to 90% ♦ 91% to 100%	♦ 0% ♦ 1% to 10% ♦ 11% or more
Expected change in the percentage of directors who are women/next 2 years	♦ Decrease by less than 25% ♦ Decrease by 11% to 24% ♦ Decrease by 1% to 10% ♦ Stay the same ♦ Increase by 1% to 10% ♦ Increase by 11% to 24% ♦ Increase by 25% or more	♦ Decrease or stay the same ♦ Increase
Current percentage of directors who are members of a racial minority	♦ 0% ♦ 1% to 10% ♦ 11% to 20% ♦ 21% to 30% ♦ 31% to 40% ♦ 41% to 50% ♦ 51% to 60% ♦ 61% to 70% ♦ 71% to 80% ♦ 81% to 90% ♦ 91% to 100%	♦ 0% ♦ 1% or more
Expected change in the percentage of directors who are members of a racial minority/next 2 years	♦ Decrease by less than 25% ♦ Decrease by 11% to 24% ♦ Decrease by 1% to 10% ♦ Stay the same ♦ Increase by 1% to 10% ♦ Increase by 11% to 24% ♦ Increase by 25% or more	♦ Decrease or stay the same ♦ Increase

Note: The variable "expected change in the percentage of board members who are members of a racial minority/next 2 years" still had one cell with an observed cell count of less than five (cell count = 1) following the collapsing of the variable. The particular cell ("increase") could not logically be collapsed into the response category "decrease or stay the same". All other variables collapsed had observed cell counts in their respective cross-tabulations of five or more.

The result of the collapsing process, which also is conducted during the analysis of Paradigm-related variables, yields of a larger number of collapsed variables that can be examined reliably using the Chi-square test of independent samples and CHAID.

7.3.1.3 Non-Dichotomous, Categorical Variables: Tests of Association

The Chi-square test of independent samples produces a measure of the degree of association between two variables by statistically comparing the actual number of observations in a response category to that which is expected based on the total distribution of responses. Thus, for purposes of this research study, the Chi-square test challenges the hypothesis that no association exists between board status and the particular variable under consideration. Rejection of the null hypothesis involves implicit acceptance of the alternate hypothesis, which states that some association does exist between board status and the particular variable being examined.

During this section of the analysis, the Chi-square test is performed for all non-dichotomous, categorical variables for which more than two response categories remain following any requisite collapsing of variables. This includes multiple responses (three or more responses) categorical variables, which were not subject to the variable collapsing process. However, it does not include dichotomous categorical variables, which will be tested using the tests of independence at a later point in the analysis. One of the variables, "current percentage of directors on board who are women", already demonstrated some significant association with board status (see Section 7.3.1.1) The purpose of the Chi-square analysis at this stage is multi-fold. First, the analysis seeks to identify significant associations between selected variables with multiple response categories and board status. For those variables deemed to exhibit a significant association, CHAID is then applied to identify where these multiple response categories significantly split or merge. After this identification has been made, the variables with significant splits or merges are then re-coded into a dichotomous variable and tested directionally using the test of independence. In

addition, for such variables that are not included in the factor analysis, their merging and splitting permits their use as inputs into the discriminant analysis.

Table 7.6 summarizes the results of the Chi-square tests of independent samples as they pertain to the Players proposition.

Table 7.6 Chi-Square Test of Independent Samples

Variable	Chi-Square	df	Significance (p)	Conclusion
Years serving on the board	5.221	3	0.156	FTR H_O
Primary motivation for accepting position on board	3.095	2	0.213	FTR H_O
Number of directors on board when first appointed	8.829	3	0.032	Reject H_O
Number of directors currently on board	2.716	2	0.257	FTR H_O
Current percentage of directors on board who are women	11.174	2	0.004	Reject H_O

α=0.10
FTR H_O denotes "Fail to Reject the Null Hypothesis H_O"

The results of the Chi-square test for the Players variables indicate that a total of two significant associations exist between board status and two multiple response Players variables. These variables, ranked in order of their significance, are: 1) "current percentage of directors who are women", and 2) "number of directors on board when first appointed". The significance levels, also known as p-values (denoted as "p" in the table) reflect the probability of observing an observed distribution of results if the null hypotheses (H_O) is true.

Examination of the cross-tabulations in Chapter 6 for the variables whose Chi-square results were found to be significant shows several observations running counter to the research proposition that Greenfield boards will exhibit greater member heterogeneity than Heritage boards. While the Chi-square results identify the presence of a significant association, they do not offer a sense of the direction of the differences. At this stage of the analysis, a review of the descriptive results offers insights into the direction of the differences. The descriptive data reveal that Heritage boards are more likely to have had a greater number of members than Greenfield boards at the time a

director joined the board. In addition, the descriptive data also indicate that Heritage boards also have a higher percentage of female directors currently on their board. The exploratory CHAID analysis in Section 7.3.1.1 identified one variable ("current percentage of directors on board who are women") and the optimal merging and splitting of its response categories as they are associated with board status. The next section of the analysis includes a similar analysis for the variable "number of directors on board when first appointed", and then summarizes both.

7.3.1.4 Chi-Square Automatic Interaction Detection (CHAID)

The Chi-square test of independent samples identified two multiple response, categorical Players variables that are significantly associated with board status. The application of this information at this stage of the analysis is straightforward: to determine exactly how these significant multiple response variables split or merge, and then to re-group these variables such that they can be tested directionally for independence and used in the discriminant analysis.

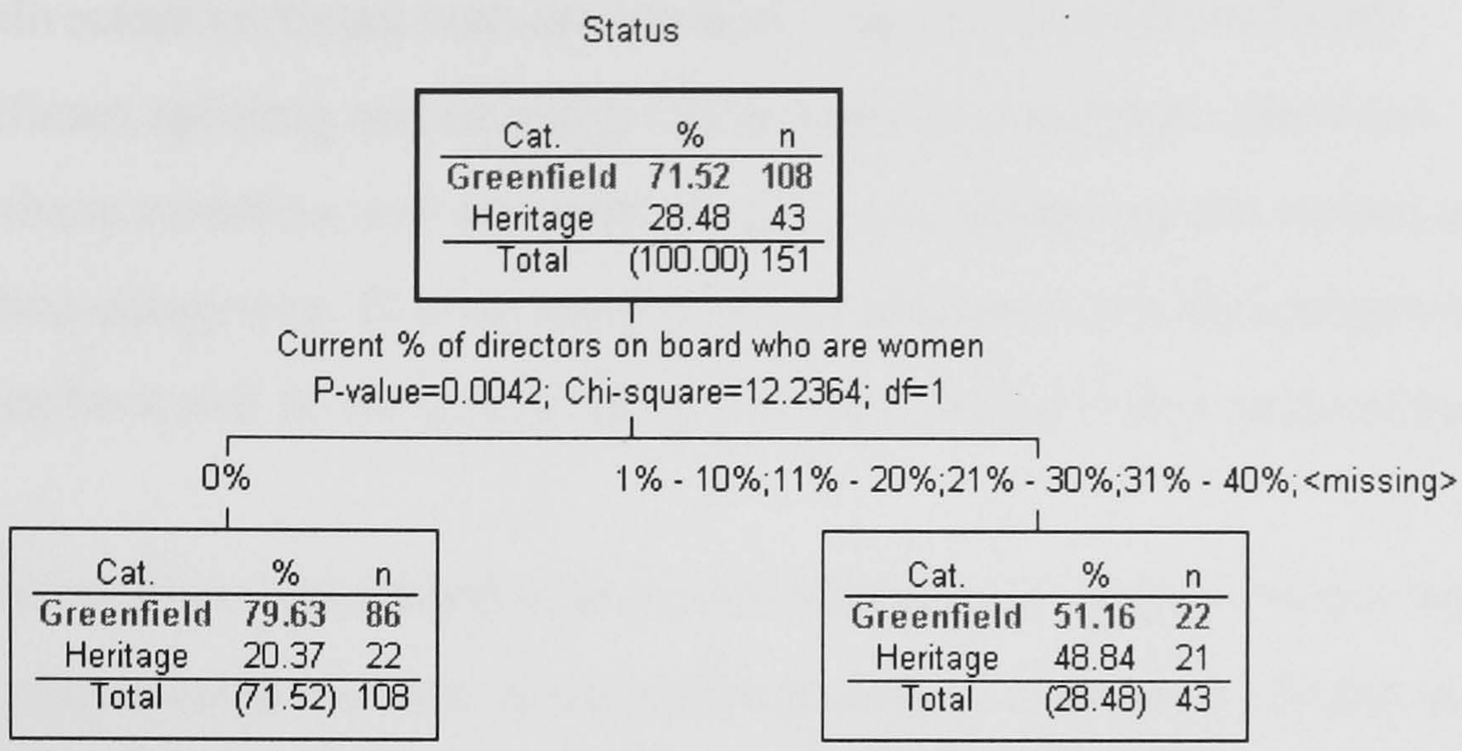
At this point in the analysis, CHAID is used to identify the optimal splits among the multiple response predictor variables exhibiting significant associations with company status, the dependent variable. For the two variables identified as having a significant association with board status, CHAID is used to determine the most significant merging and splitting of the predictor variables categories. As in the other tests conducted in the analysis, an alpha level of 0.10 is input into the algorithm. The results of the CHAID analyses are summarized below, although a tree diagram only is produced for the variable "number of directors on board when first appointed", because the CHAID tree diagram for "current percentage of directors on board who are women" was presented in Section 7.3.1.1.

Table 7.7 Results of CHAID Analysis

Variable	Chi-Square	df	p	Split(s)
Number of directors on board when first appointed	7.325	1	0.0408	"1-4" "5 or more"
Current percentage of directors on board who are women	12.2364	1	0.0070	"0%" "1% or more"

α=0.10

Figure 7.2 **CHAID Tree Diagram for Predictor Variable "Number of Directors on Board When First Appointed"**



The CHAID analyses offer perspective in terms of the nature of the relationship between the variables under evaluation and board status. It is increasingly evident that Greenfield boards had fewer board members at the time responding directors were appointed to the board, and that Greenfield boards have a lower percentage of women directors currently on their board. The analysis shows a significant association ($p<0.05$) between board status and the "number of directors on the board when the director was first appointed" (the explanatory variable). In the total sample, 71.52% of the directors surveyed were from Greenfield companies and 28.48% from Heritage companies. CHAID identified a significant split in the explanatory between response categories "1 to 4" and "5 to 6", and merged response categories "5 to 6" through "9 or more" to yield a re-grouped category of "5 or more". Having bifurcated the explanatory variable, one now observes that the distribution of Greenfield and Heritage directors with "1 to 4" directors on the board when they first joined the board is notably different from the distribution of those with "5 or more" directors at that time. A similar result, although more significant ($p<0.01$), is found in terms of the "current percentage of directors on the board who are women" (Figure 7.2). Both of these findings of association signal that Greenfield boards are less heterogeneous than their Heritage counterparts.

7.3.1.5 Dichotomous Variables: Tests of Independence

At this point, the analysis has identified two multiple response, categorical variables for which some significant association exists with board status. These variables are: 1) "number of directors when first became a member of the board", and 2) "current percentage of directors on board who are women". As a result of the CHAID analyses, significant splitting and merging of the response categories has been conducted for these variables, and the multiple response categories for variables can be reduced to two categories. The net result of these outcomes is a dichotomous variable that can be tested directionally using the test of independent proportions.

In addition, several other variables that became dichotomous in nature following the variable collapsing process also are examined at this time. A summary of the null and alternative hypotheses and the results of the tests are presented in Table 7.8.

Table 7.8 Results of Tests of Independence

Variable/Response Category Tested	G/H Proportions	Hypotheses	z	p	Conclusion
Number of directors on board when first appointed/ "5 or more"	G: 66.7% H: 88.4%	H_O: $P_G - P_H >= 0$ H_A: $P_G - P_H < 0$	-2.710	0.0034	Reject H_O
Expected change in the number of directors on board (next 2 years)/ "Increase"	G: 41.6% H: 27.0%	H_O: $P_G - P_H <= 0$ H_A: $P_G - P_H > 0$	1.568	0.0582	Reject H_O
Current percentage of directors on board who are women/"1% or more"	G: 20.4% H: 47.6%	H_O: $P_G - P_H >= 0$ H_A: $P_G - P_H < 0$	-3.335	0.0004	Reject H_O
Expected change in the percentage of directors who are women (next 2 years)/ "Increase"	G: 35.8% H: 34.5%	H_O: $P_G - P_H <= 0$ H_A: $P_G - P_H > 0$	0.122	0.4522	FTR H_O
Current percentage of directors who are members of a racial minority/"1% or more"	G: 13.2% H: 26.2%	H_O: $P_G - P_H >= 0$ H_A: $P_G - P_H < 0$	-1.903	0.0287	Reject H_O
Expected change in the percentage of directors who are members of a racial minority (next 2 years)/ "Increase"	G: 22.1% H: 3.8%	H_O: $P_G - P_H <= 0$ H_A: $P_G - P_H > 0$	2.086	0.0183	Reject H_O

α=0.10

The directional tests of independence offer great value toward understanding the similarities and differences between Greenfield and Heritage boards. Specifically, the analyses have identified five variables related to the Players proposition that exhibit significant differences between Greenfield and Heritage directors. The most significant result pertains to the "current percentage of board directors who are women", where Heritage boards are more likely to have women on their boards (percentage of 1% or higher) than are Greenfield boards. This result is significant at a level of $p<0.001$. Another measure of sociological demographics that reflects the heterogeneity of Greenfield and Heritage boards is the "current percentage of directors who are members of a racial minority". Here again, Heritage boards are nearly twice as likely as Greenfield boards to currently have directors who are members of a racial minority ($p<0.05$). While Heritage boards clearly are more heterogeneous now than are their Greenfield counterparts, the Greenfield directors surveyed do express an expectation of adding to the percentage of directors who are members of a racial minority over the next two years. More than 20% of Greenfield directors share this expectation, compared to just 3.8% of Heritage directors ($p<0.05$).

With the exception of the latter conclusion, which identifies an expectation rather than an existing condition, none of the test results support the Players proposition contention that Greenfield boards will be more heterogeneous in their composition than Heritage boards.

7.3.1.6 Summary

This section examined the research proposition that newly created boards of Greenfield companies will demonstrate a greater degree of heterogeneity among directors than will newly created boards of Heritage companies. Of the variables available for examination, five variables were found to possess significant differences ($p<0.10$) between Greenfield and Heritage boards in terms of their composition.

The most significant result pertains to the current percentage of board members who are women. Of the Greenfield directors surveyed, 20.4% report that 1% or more of their directors are women, compared to 47.6% of Heritage directors who report that 1% or more of their boards are women. The difference is highly significant ($p<0.001$), and indicates that on this measure of heterogeneity, Greenfield boards are much less

likely to have women directors than Heritage boards, and hence, are less heterogeneous when one examines them based on gender. Recognizing that no significant difference exists between boards in terms of the number of directors currently serving, the data also suggest that Heritage boards have both a higher percentage of women directors currently serving on their board and a higher number of women directors currently serving as well.

Greenfield boards also had significantly fewer directors at the time when the director was first appointed. Fully 88.4% of Heritage boards had five or more directors at the time when the respondent first was appointed to the board. This compares to 66.7% for Greenfield boards, and this difference is significant ($p<0.01$). Since no significant difference exists between Greenfield and Heritage boards in terms of the number of directors currently serving, and no difference between the boards is observed regarding the number of years serving as a director, the data suggest that the size of Greenfield boards has grown at a faster rate during the tenure of responding directors than that rate during the tenure of Heritage directors. In addition, Greenfield directors are significantly more likely to express an expectation of an increase in board size than are Heritage directors. Some 41.6% of Greenfield directors expect the number of directors on their board to increase over the next two years. This compares to just 27.0% of Heritage directors who share this perspective ($p<0.10$).

Yet another condition exists that does not support the notion of greater heterogeneity on Greenfield boards. Fully 26.2% of the Heritage directors surveyed report that members of a racial minority comprise 1% or more of their board members. Just 13.2% of Greenfield directors report that members of a racial minority currently comprise 1% or more of their board members. This result is significant ($p<0.05$), and indicates that a higher percentage of the directors on Heritage boards are members of a racial minority. Extending this conclusion, the results suggest that the Heritage boards are populated by a greater number of directors who are members of a racial minority.

A difference does exist that moderately supports the hypothesis of greater director heterogeneity among Greenfield boards. When asked to give their expected change in the percentage of directors who are members of a racial minority over the next two

years, 22.1% of responding Greenfield directors expected the change to be positive (an "increase") while just 3.8% of Heritage companies had this expectation (the balance expected no change or a negative percentage change). While this result is significant ($p<0.05$), its strength as an indicator of heterogeneity is limited in that it reflects an attitude of an expected outcome rather than a more substantive current condition.

Overall, then, the data do not support the Players proposition. Thus, two conclusions can be drawn from this stage of the analysis. First, Greenfield boards are not more heterogeneous than Heritage boards. Second, Greenfield boards actually are less heterogeneous than their Heritage counterparts.

7.3.2 Research Proposition Two: Paradigm

The second research proposition attempts to contrast Greenfield and Heritage boards based on their structure, practices and spheres of influence. Specifically, the Paradigm proposition states:

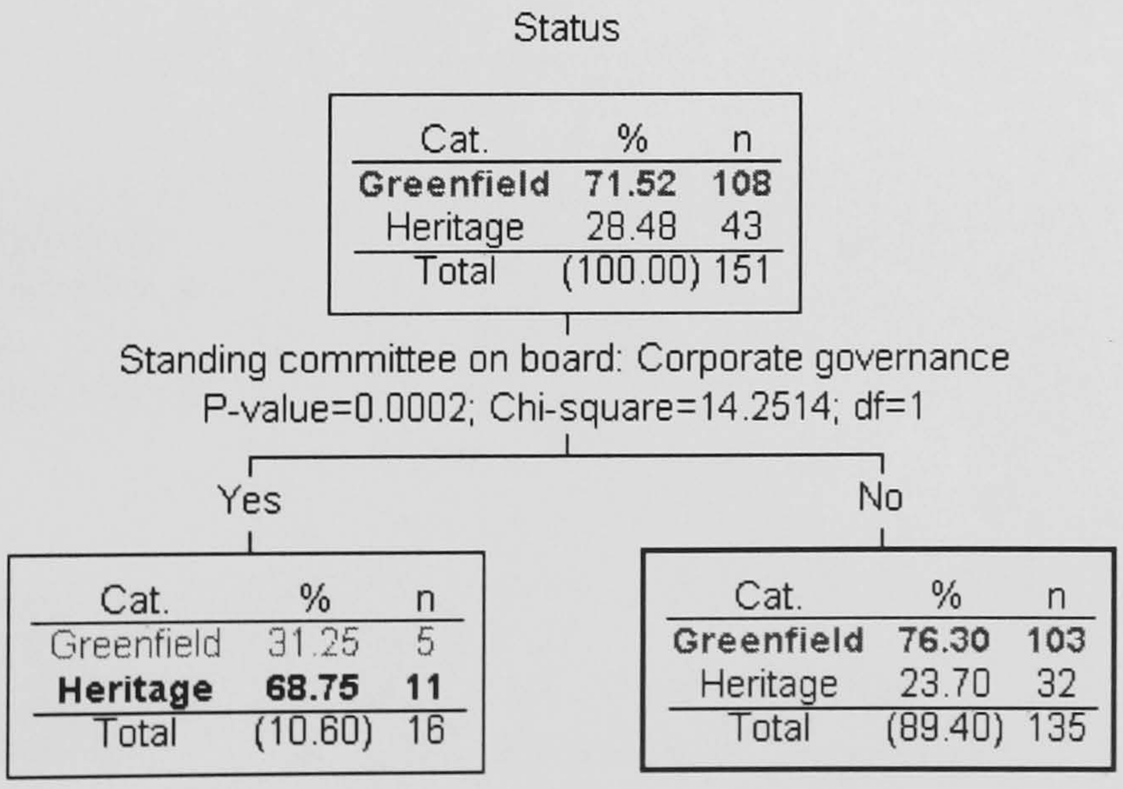
P2: Newly created boards of Greenfield companies will adopt board structures and operating procedures which promote a more cooperative chief executive officer-board of directors relationship than those structures and operating procedures adopted by newly created boards of Heritage companies.

This stage of the analysis carefully reviews Greenfield and Heritage boards along a variety of issues related to the Paradigm proposition. The presence of independent directors is examined, as is the importance of various factors that shape the composition of the board. In addition, the roles of the CEO and Chairman are reviewed, as are issues related to the frequency of board meeting, ownership of company stock and options, and the balance of power between the board and its Chairman. The analytical tools used to study the Players proposition are applied in this section as well. In addition, factor analysis (principal components) also is used as a data reduction tool for the intervally scaled variables related to the Paradigm proposition.

7.3.2.1 Exploratory Research of Paradigm Variables: Chi-Square Automatic Interaction Detection (CHAID)

Like the analysis conducted in Section 7.3.1.1, Chi-square Automatic Interaction Detection (CHAID) is used as an exploratory tool to identify associations between numerous categorical predictor variables and the board status. The analysis used an alpha level of significance of 0.10 and established a stopping rule where no splitting or merging of cells would take place if the category cell counts within a variable fell below five. Forty-one Paradigm predictor variables were part of the analysis, including intervally scaled categorical variables. The CHAID analysis identified "standing committee on board: corporate governance" as the most significant predictor variable ($p<0.001$). This was a binary coded variable with yes/no response categories. No additional merging or splitting of predictor variables was identified in this particular CHAID analysis, indicating that significance thresholds had been exceeded or a stopping rule had been encountered, or both.

Figure 7.3 Tree Diagram Following CHAID Exploratory Analysis of Categorical Paradigm Predictor Variables



7.3.2.2 Collapsing of Variables for Non-Dichotomous, Categorical Variables with Low Cell Counts

Several of the non-dichotomous (multiple response) categorical variables studied as part of the Paradigm proposition possessed observed cell counts of less than five. This was particularly evident for Heritage directors, only 43 of which comprised the final set of respondents. As a result, application of the Chi-square test of independent samples for variables with cell counts of less than five could yield unreliable results. To mitigate this condition, the cross-tabulations for the non-dichotomous categorical variables were reviewed and the variable collapsing process outlined earlier (7.3.1.2) performed. A summary of the Paradigm variables modified using the collapsing process is presented in Table 7.9. Only those variables for which collapsing was performed are shown.

Table 7.9 Response Categories Before and After Collapsing

Variable	Original Categories	Combined Categories
Current percentage of directors on board who are independent	◆ 0% ◆ 1% to 10% ◆ 11% to 20% ◆ 21% to 30% ◆ 31% to 40% ◆ 41% to 50% ◆ 51% to 60% ◆ 61% to 70% ◆ 71% to 80% ◆ 81% to 90% ◆ 91% to 100%	◆ 30% or less ◆ 31% to 50% ◆ 51% to 70% ◆ 71% to 80% ◆ 81% or more
(If not independent) Affiliation:	◆ Vendor ◆ Contractor ◆ Employee ◆ Family ◆ Other	◆ Employee ◆ Vendor, contractor, family or other
Expected change in the percentage of directors on board who are independent/next 2 years	◆ Decrease by less than 25% ◆ Decrease by 11% to 24% ◆ Decrease by 1% to 10% ◆ Stay the same ◆ Increase by 1% to 10% ◆ Increase by 11% to 24% ◆ Increase by 25% or more	◆ Decrease of stay the same ◆ Increase 1% to 10% ◆ Increase 11% or more
Process by which individuals are appointed primarily dictated by:	◆ CEO alone ◆ Chairman of the Board alone ◆ CEO or Chairman w/limited input from the board ◆ CEO or Chairman w/extensive input from the board ◆ Nominating committee composed of some board members ◆ Nominating committee composed of all board members ◆ Other	◆ CEO or Chairman alone ◆ CEO or Chairman w/limited or extensive board input, nominating committee, other

Table 7.9 Response Categories Before and After Collapsing (cont'd)

Variable	Original Categories	Combined Categories
Approximate number of times board meets per year	♦ 1 to 2 ♦ 3 to 4 ♦ 5 to 6 ♦ 7 to 8 ♦ 9 to 10 ♦ 11 to 12 ♦ 13 or more	♦ 4 or less ♦ 5 t 6 ♦ 7 or more

Note: The variable "process by which individuals are appointed primarily dictated by:" still had one cell with an observed cell count of less than five (cell count = 4) following the collapsing of the variable. Since the cell ("CEO or Chairman alone)") could not logically be collapsed into "CEO or Chairman w/input from board, nominating committee composed of some or all board members, other", the variable was excluded from the Chi-square analysis.

7.3.2.3 Non-Dichotomous, Categorical Variables: Tests of Association

The Chi-square test of independent samples is used at this time to identify non-dichotomous (multiple response) categorical variables that are significantly associated with company status. All Paradigm categorical variables with three or more response categories are included in the Chi-square analyses. These variables include those that have been collapsed and those that required no collapsing. The null hypothesis that no association exists between board status and a particular variable is tested at a significance level of 0.10, are presented below, and the results of each test are summarized in Table 7.10.

Table 7.10 Chi-Square Test of Independent Samples

Variable	Chi-Square	df	Significance (p)	Conclusion
Current percentage of directors on board who are independent	4.629	4	0.328	FTR H_O
Expected change in the percentage of directors on board who are independent/next 2 years	1.870	2	0.393	FTR H_O
Approximate number of times board meets per year	0.466	2	0.792	FTR H_O
Balance of power between the board and the Chairman	2.963	2	0.227	FTR H_O

α=0.10

The results of the Chi-square test indicate that none of the non-dichotomous variables is significantly associated with company status. Greenfield and Heritage directors are not statistically different in terms of the current percentage of directors who are independent, nor are they statistically different in terms of the expected change (next

two years) in the percentage of directors who are independent. Further, no statistical differences are observed in terms of the balance of power between the board and Chairman of Greenfield and Heritage companies. Finding no significant results, however, still permits conclusions to be drawn. One of the most notable findings from the Chi-square tests pertains to the issue of the balance of power within the board. No difference is observed based on board status in terms of the balance of power between the board and its Chairman, suggesting similar spheres of influence within both types of boards.

7.3.2.4 Chi-Square Automatic Interaction Detection (CHAID)

CHAID analysis would have been conducted during this stage of the analysis had any of the non-dichotomous categorical variables been identified as having a significant association with company status. Since no significant differences were observed, the analysis moves to the next section in which the dichotomous variables, including those originally non-dichotomous but then collapsed into dichotomous variables, are analyzed.

7.3.2.5 Dichotomous Variables and Means: Tests of Independence

The paradigm proposition includes many dichotomous variables that probe more deeply into a range of areas related to the structure, operations and spheres of influence of Greenfield and Heritage boards. These areas include the affiliation with management of directors who are not independent, the importance of factors that shape the composition of the board, the process by which individuals are appointed to the board, and the source (e.g., CEO alone) of initiating the board's agenda. In addition, the analysis examines issues related to standing committees on the board, directors' service on other boards, ownership of stock and options, frequency of voting in accordance with the majority of the board, and the frequency of expressing a dissenting opinion in opposition to the rest of the board. All dichotomous variables related to the Paradigm proposition and all variables that became dichotomous following the variable collapsing process also are tested for independence, with the exception of the multiple response, categorical variables that displayed no significant association with board status (summarized in Table 7.10).

The first set of tests of independence (Table 7.11) are directional, or one-tailed, tests that pertain to issues related to the independence of directors. The results of these tests indicate no significant differences between Greenfield and Heritage boards in terms of the percentage of directors who are independent or in the nature of the relationship between the board and company of directors who are not independent.

Table 7.11 Results of Tests of Independence: Issues Related to Status as an Independent Director

Variable/Response Category Tested	G/H Proportions	Hypotheses	z	p	Conclusion
Independent director/"Yes"	G: 45.4% H: 48.8%	H_O: $P_G - P_H >= 0$ H_A: $P_G - P_H < 0$	-0.378	0.3520	FTR H_O
(If not independent) Affiliation:/"Employee"	G: 78.2% H: 90.0%	H_O: $P_G - P_H >= 0$ H_A: $P_G - P_H < 0$	-1.160	0.1230	FTR H_O

α=0.10

Directors also were asked to rate the importance of various factors in shaping the composition of their boards. Table 7.12 summarizes these results for these intervally scaled measures.

Table 7.12 Results of Tests of Independence: Importance of Factors When Shaping the Composition of the Board

Variable/Response Category Tested	G/H Means	Hypotheses	t	p	Conclusion
Professional diversity	x-bar (G): 3.35 x-bar (H): 3.51	H_O: $\mu_G - \mu_H >= 0$ H_A: $\mu_G - \mu_H < 0$	-1.114	0.1335	FTR H_O
Ethnic and cultural diversity	x-bar (G): 2.22 x-bar (H): 2.38	H_O: $\mu_G - \mu_H >= 0$ H_A: $\mu_G - \mu_H < 0$	-0.793	0.2145	FTR H_O
Age diversity	x-bar (G): 2.18 x-bar (H): 2.32	H_O: $\mu_G - \mu_H >= 0$ H_A: $\mu_G - \mu_H < 0$	-0.912	0.1815	FTR H_O
Academic diversity	x-bar (G): 2.27 x-bar (H): 2.25	H_O: $\mu_G - \mu_H <= 0$ H_A: $\mu_G - \mu_H > 0$	0.132	0.4475	FTR H_O
Gender Diversity	x-bar (G): 2.18 x-bar (H): 2.34	H_O: $\mu_G - \mu_H >= 0$ H_A: $\mu_G - \mu_H < 0$	-0.973	0.1660	FTR H_O
Meeting board objectives	x-bar (G): 3.64 x-bar (H): 3.51	H_O: $\mu_G - \mu_H <= 0$ H_A: $\mu_G - \mu_H > 0$	1.008	0.1575	FTR H_O
Community needs	x-bar (G): 2.25 x-bar (H): 2.36	H_O: $\mu_G - \mu_H >= 0$ H_A: $\mu_G - \mu_H < 0$	-0.650	0.2585	FTR H_O

Table 7.12 Results of Tests of Independence: Importance of Factors When Shaping the Composition of the Board (cont'd)

Variable/Response Category Tested	G/H Means	Hypotheses	t	p	Conclusion
Management ideology	x-bar (G): 3.14 x-bar (H): 3.33	H_O: $\mu_G - \mu_H >= 0$ H_A: $\mu_G - \mu_H < 0$	-1.375	0.0855	Reject H_O
Meeting corporate objectives	x-bar (G): 3.74 x-bar (H): 3.68	H_O: $\mu_G - \mu_H <= 0$ H_A: $\mu_G - \mu_H > 0$	0.626	0.2660	FTR H_O
Functional competency	x-bar (G): 3.78 x-bar (H): 3.63	H_O: $\mu_G - \mu_H <= 0$ H_A: $\mu_G - \mu_H > 0$	1.392	0.0830	Reject H_O
Reputation of the board member	x-bar (G): 3.52 x-bar (H): 3.38	H_O: $\mu_G - \mu_H <= 0$ H_A: $\mu_G - \mu_H > 0$	1.012	0.1565	FTR H_O
Strategic partnering to benefit the firm	x-bar (G): 3.16 x-bar (H): 2.98	H_O: $\mu_G - \mu_H <= 0$ H_A: $\mu_G - \mu_H > 0$	1.100	0.1365	FTR H_O

α=0.10

Note: Responses were coded as follows: Very Unimportant=1, Somewhat unimportant=2, Somewhat important=3, Very important=4.

Of the twelve items that were tested, just two exhibited significant differences between Greenfield and Heritage directors. Heritage directors rated the importance of "management ideology" as a factor in shaping the composition more highly than did Greenfield directors ($p<0.10$). In addition, Greenfield directors rated the importance of "functional competency" more highly as a factor when shaping the composition of the board. Somewhat surprisingly, no difference is observed between Greenfield and Heritage directors with regard to any of the five diversity-related factors, despite the fact that the importance of these particular factors was directionally lower among Greenfield directors for four of the five variables.

Respondents were asked to comment on a range of operational issues, including the member selection process of the board, standing committees on the board, ownership of stock and options, service on other boards, and the manner by which the board's agenda is initiated. Table 7.13 summarizes these results, all of which are conducted for dichotomous categorical variables.

Table 7.13 Results of Tests of Independence: Measures Related to Various Operational Issues

Variable/Response Category Tested	G/H Proportions	Hypotheses	z	p	Conclusion
CEO also serve as Chairman of the Board/"Yes"	G: 61.3% H: 62.8%	H_O: $P_G - P_H >= 0$ H_A: $P_G - P_H < 0$	-0.171	0.4325	FTR H_O
Process by which individuals are appointed primarily dictated by:/"CEO or Chairman alone"	G: 5.8% H: 9.8%	H_O: $P_G - P_H >= 0$ H_A: $P_G - P_H < 0$	-0.854	0.1977	FTR H_O
Standing committee on board: Audit/"Yes"	G: 97.2% H: 97.7%	H_O: $P_G - P_H >= 0$ H_A: $P_G - P_H < 0$	-0.171	0.4325	FTR H_O
Standing committee on board:Community/ Shareholder Relations/"Yes"	G: 0.9% H: 2.3%	H_O: $P_G - P_H >= 0$ H_A: $P_G - P_H < 0$	-0.686	0.2451	FTR H_O
Standing committee on board: Compensation/"Yes"	G: 96.3% H: 97.6%	H_O: $P_G - P_H >= 0$ H_A: $P_G - P_H < 0$	-0.398	0.3446	FTR H_O
Standing committee on board: Nominating/"Yes"	G: 24.1% H: 25.6%	H_O: $P_G - P_H >= 0$ H_A: $P_G - P_H < 0$	-0.193	0.4247	FTR H_O
Standing committee on board: Executive/"Yes"	G: 22.2% H: 34.9%	H_O: $P_G - P_H >= 0$ H_A: $P_G - P_H < 0$	-1.609	0.0537	Reject H_O
Standing committee on board: Finance/"Yes"	G: 13.0% H: 14.0%	H_O: $P_G - P_H >= 0$ H_A: $P_G - P_H < 0$	-0.163	0.4364	FTR H_O
Standing committee on board: Corporate Governance/"Yes"	G: 4.6% H: 25.6%	H_O: $P_G - P_H >= 0$ H_A: $P_G - P_H < 0$	3.786	<0.0001	Reject H_O
Standing committee on board: Other/"Yes"	G: 4.6% H: 11.6%	H_O: $P_G - P_H >= 0$ H_A: $P_G - P_H < 0$	-1.564	0.0594	Reject H_O
Required to own stock in company when first became a member/"Yes"	G: 25.0% H: 32.6%	H_O: $P_G - P_H >= 0$ H_A: $P_G - P_H < 0$	-0.942	0.1736	FTR H_O
Currently own stock in company/"Yes"	G: 90.6% H: 90.7%	H_O: $P_G - P_H >= 0$ H_A: $P_G - P_H < 0$	-0.010	0.4602	FTR H_O
Currently own options to buy stock in the company/"Yes"	G: 84.1% H: 92.9%	H_O: $P_G - P_H >= 0$ H_A: $P_G - P_H < 0$	-1.418	0.0778	Reject H_O

Table 7.13 Results of Tests of Independence: Measures Related to Various Operational Issues (cont'd)

Variable/Response Category Tested	G/H Proportions	Hypotheses	z	p	Conclusion
Currently serving as a director on any other boards/"Yes"	G: 64.5% H: 58.1%	H_O: $P_G - P_H <= 0$ H_A: $P_G - P_H > 0$	0.733	0.2327	FTR H_O
(If currently serving on other boards)/ "Number of other boards"	x-bar (G): 2.85 x-bar (H): 2.87	H_O: $\mu_G - \mu_H >= 0$ H_A: $\mu_G - \mu_H < 0$	-0.370 *	0.4850	FTR H_O
Consider serving as a director on any other boards/"Yes"	G: 88.7% H: 90.7%	H_O: $P_G - P_H >= 0$ H_A: $P_G - P_H < 0$	-0.358	0.3594	FTR H_O
Board's agenda primarily initiated by:/"CEO or Chairman alone"	G: 88.7% H: 90.7%	H_O: $P_G - P_H >= 0$ H_A: $P_G - P_H < 0$	-0.458	0.3228	FTR H_O

α=0.10
* t-value

Once again, only a limited number of variables exhibit a significant difference between Greenfield and Heritage boards and their respective directors. The most consistent differences pertain to the incidence rates of various standing committees on Greenfield and Heritage boards. Heritage boards are significantly more likely to have an executive committee ($p<0.10$), "other" committees not specified in the survey instrument ($p<0.10$), and most significantly, a corporate governance committee ($p<0.0001$). In addition, Heritage directors are more likely than their Greenfield counterparts to currently own options to buy stock in the company ($p<0.10$). Equally informative are the structural and operational areas where no significant differences are observed. Both groups have an equal likelihood of having the CEO also serve as Chairman of the Board, and only a limited proportion of both groups rely on their CEO or Chairman solely to dictate the individual appointment process to the board. However, a strong proportion of both groups of directors report that the board's agenda is primarily initiated by the CEO or Chairman alone. Further, Greenfield and Heritage directors are equally likely to be required to own stock in the company upon becoming a board member, and they are also equally likely to currently own stock in the company. Finally, no difference exists in terms of the percentage of Greenfield and Heritage directors who serve on the boards of other

companies. Among those who do serve, no difference exists in terms of the number of different boards on which each set of directors serves.

The final set of Paradigm-related tests of independence for dichotomous variables pertain to the issue of the balance of power on the board. Table 7.10 summarized one measure of power (general balance of power) using the Chi-square test and found no significant relationship between the general balance of power and company status. Two additional measures intended to more specifically examine the balance of board power were tested and are summarized in Table 7.14. These pertain to the "frequency of voting in accordance with the majority of the board, and the "frequency of expressing a dissenting opinion in opposition to the rest of the board".

Table 7.14 Results of Tests of Independence: Measures of Board Power

Variable/Response Category Tested	G/H Proportions	Hypotheses	z	p	Conclusion
Frequency of voting in accordance with the majority of the board/"Always"	G: 25.2% H: 34.9%	H_O: $P_G - P_H >= 0$ H_A: $P_G - P_H < 0$	-1.197	0.1151	FTR H_O
Frequency of expressing a dissenting opinion in opposition to the rest of board/ "Always, often"	G: 11.5% H: 24.4%	H_O: $P_G - P_H >= 0$ H_A: $P_G - P_H < 0$	-1.951	0.0256	Reject H_O

α=0.10

The results show that Greenfield and Heritage directors are equally likely to "always" vote in accordance with the majority of the board. However, Heritage directors are significantly more likely than Greenfield directors to "always" or "sometimes" express a dissenting opinion in opposition to the rest of the board.

7.3.2.6 Factor Analysis

The series of survey questions related to board Paradigm has twelve intervally scaled questions that assess the degree to which various items shape the composition of the board of a newly created public company. Differences in the attitudes and perceptions of these variables among Greenfield and Heritage directors were examined in Table 7.12. However, this set of intervally scaled variables is one of four sets within the entire data set that account for 43 different variables. Such a large number of variables

makes it somewhat cumbersome to build a discriminant function to predict Greenfield or Heritage board status. Under this condition, one typically uses factor analysis as a data reduction technique. The purpose of factor analysis is to identify underlying correlations within a given set of data. In so doing, a larger number of variables often can be reduced to a smaller number which share a common set of factors that maximize the explained variation in a data set. Once the factors have been identified, the researcher's ability to understand the relationships within the data set usually is enhanced. Finally, as noted by Kachigan (1991), "factor analysis is a family of procedures for removing redundancy from a set of correlated variables and represents the variables with a smaller set of 'derived' variables, or factors" (237). In so doing, factor analysis reduces the risk of having highly correlated predictor variables in the discriminant function, a situation that can lead to an unreliable predictive model.

Factor analysis can serve several major functions for the research. These functions, according to Hair et al., include "1) identifying structure through data summarization, 2) data reduction, 3) using factor analysis with other multivariate techniques, and 4) variable selection" (95-96). For purposes of the development of a discriminant model to predict Greenfield or Heritage board status, factor analysis is employed as a data reduction tool for subsequent use in the discriminant analysis, a multivariate technique. In addition, the specific factor analysis method used for this study is principal components analysis. Malhotra (1999) finds that principal components analysis is suggested when one of the primary objectives is "to determine the minimum number of factors that will account for the maximum variance in the data for use in a subsequent multivariate analysis" (591).

Prior to conducting the factor analysis, the SPSS Case Processing function was used to examine the intervally scaled questions that would be included in the analysis. This is an important step because a case must have valid responses to all of the variables that are part of the factor analysis for it to be included in that analysis. In addition, missing values can reduce the integrity of the discriminant analysis, which for this analysis will also use a "holdout" sample (often termed a "training" sample) to assess the integrity of the predictive model. Trial runs of the four factor analyses performed for this research yielded valid variable counts ranging from a low of 117 (scores related to the importance of items shaping the composition of the board) to 143

(importance of issues to the board as a whole). Of the 43 variables examined, just three variables have missing values as a percentage of all respondents exceeding 10.0% (maximum of 13.2%). In fact, the average percentage of missing values for each question is just 4.5% (standard deviation of 3.5%). These results, and a visual inspection of the data, reveal that it is not the total number of missing values affecting the factor analysis and keeping valid counts below 151, but rather the fact that these missing values are "scattered" about the 151 cases under examination. Thus, any consideration of removing variables with a relatively high percentage of missing values from analysis is not likely to increase meaningfully the number of valid responses in the factor analysis and the subsequent discriminant analysis. Therefore, no intervally scaled variables were removed from the data set prior to the analysis. Rather, the researcher elects to calculate the factor scores by conducting one preparatory step. The missing values among the intervally scaled variables will be replaced with means for those variables. This greatly adds to the utility of the factor analysis as an input into the discriminant analysis, as it maximizes the number of usable cases that will be available for the discriminant analysis.

Having replaced the missing values with means for all intervally scaled variables, the next step in this first of four principal components factors analyses involves selecting the variables to be entered into the analysis. All of the intervally scaled Paradigm variables (12 in total) related to the importance of issues shaping the composition of the board were entered and the analysis conducted. Associated with each factor that is generated is an eigenvalue, which represents the number of different variables represented by a specific factor. SPSS permits users of factor analysis to select a minimum cutoff for eigenvalues. For this analysis, only factors with eigenvalues exceeding 1.0 are extracted. A varimax rotation of the factors also is used. The varimax procedure, an orthogonal method, minimizes the number of variables with high factor loadings (Malhotra, 1999). High factor loadings occur when there is a high correlation between the factor and the variables used as inputs into the analysis. Such rotations increase the ease of factor interpretation and lead to uncorrelated factors (Malholtra, 1999). A summary of the rotated sums of squared component (factor) loadings is shown in Table 7.15. Five factors cumulatively represent nearly 70 percent of the variation of the twelve variables that served as inputs.

Table 7.15 Rotated Sums of Squared Component (Factor) Loadings

Component (Factor)	Eigenvalue	% of Variance	Cumulative %
F 1_1	2.033	16.939	16.939
F 2_1	1.826	15.220	32.159
F 3_1	1.718	14.315	46.473
F 4_1	1.535	12.792	59.265
F 5_1	1.241	10.340	69.606

The next step in the analysis involves identifying the variables that are part of each component, and then naming each factor in a manner that best reflects the collection of variables within it. Table 7.16 summarizes the rotated component matrix for the five factors and twelve variables.

Table 7.16 Rotated Component Matrix

	Factor				
Variable	**1**	**2**	**3**	**4**	**5**
Gender diversity	.885				
Ethnic and cultural diversity	.860				
Community needs	.468	.317		.383	
Academic diversity		.796			
Age diversity	.442	.679			
Management ideology		.634	.307		
Meeting board objectives			.793		
Meeting corporate objectives			.768		
Functional competency			.567		.530
Reputation of the board member				.865	
Strategic partnering to benefit the firm	.311			.686	
Professional diversity					.796

The five factors were saved as variables for use in the subsequent discriminant analysis. However, before continuing, we must name the factors in a manner that optimally reflects the variables with high loadings that comprise it. Table 7.17 summarizes the naming of the components.

Table 7.17 Naming of Factors

Factor	Name	Explanation
F 1_1	♦ Importance of gender and cultural diversity	♦ The variables related to the importance of gender and cultural diversity are most highly correlated with F 1_1
F 2_1	♦ Importance of academic/age diversity and ideology	♦ The variables related to the importance of academic diversity, age diversity and management ideology are most highly correlated with F 2_1

Table 7.17 Naming of Factors (cont'd)

Factor	Name	Explanation
F 3_1	♦ Importance of directors' ability to meet objectives	♦ The variables related to the importance of meeting board objectives and meeting corporate objectives are most highly correlated with F 3_1
F 4_1	♦ Importance of director reputation and potential benefit of strategic partnering	♦ The variables related to importance of the reputation of the board member and strategic partnering to benefit the firm are most highly correlated with F 4_1
F 5_1	♦ Importance of professional diversity	♦ The variable related to the importance of professional diversity is most highly correlated with F 5_1

7.3.2.7 Summary

This section examined the proposition that newly created boards of Greenfield companies will adopt board structures and operating procedures which promote a more cooperative chief executive officer-board of directors relationship than those structures and operating procedures adopted by newly created boards of Heritage companies. A variety of analytical techniques were used in this section, including the Chi-square test of independent samples and tests of independence. Principal components factor analysis also has been used as a data reduction tool of the intervally scaled variables. The factors generated will be used as inputs into the predictive discriminant model.

A portion of this section is devoted to examining the presence of independent directors on the board. No significant difference is observed between Greenfield and Heritage boards in terms of the percentage of their directors who are independent. In addition, of those directors who are not independent, a strong majority of both groups are affiliated with the company as employees, with no significant differences observed between Greenfield and Heritage boards.

The directors surveyed also were asked to rate the importance of various factors when shaping the composition of their respective boards. These factors ranged from "ethnic and cultural diversity" to "strategic partnering to benefit the firm". Using the test of independent means, only two significant differences were observed between Greenfield and Heritage boards. Specifically, Heritage directors rated the importance of "management ideology" when shaping the composition of their board more highly

than did Greenfield directors. Conversely, Greenfield directors rated the importance of "functional competency" when shaping the composition of the board more highly than did Heritage directors. Notably, no significant differences were observed between the two types of boards in terms of the importance of diversity-related factors (professional, ethnic and cultural, age, academic and gender) when shaping the board composition.

Other issues related to the operating procedures of Greenfield and Heritage boards were examined statistically. Here again, only a limited number of significant differences were observed between the two. Greenfield and Heritage boards differ significantly in terms of the number and types of standing committees on the board. Specifically, Heritage boards have significantly higher incidence rates than Greenfield boards regarding the existence of Executive, Corporate Governance, and "Other" committees of the board.

No significant differences were observed between Greenfield and Heritage boards in terms of the individual appointment process to the board, or in terms of the process by which the board's agenda is initiated. In addition, while a majority of Greenfield and Heritage directors currently own stock in their respective companies, no significant difference is observed in the incidence rate. Interestingly, Heritage directors are significantly more likely than Greenfield directors to own options to buy stock in their company.

No significant differences were observed in terms of the percentage of Greenfield and Heritage directors who currently serve as a director on another board. Of those who do serve on another board, no significant difference exists in terms of the number of other boards on which the respective directors serve. The majority of Greenfield and Heritage directors interviewed said they would consider serving as a director on another board in the future, although the difference between the percentage of each making such a claim is not significant.

Further, no difference between Greenfield and Heritage directors was observed in terms of the directors' "always" voting in accordance with the majority of the board. However, a significant difference does exist between the two types of boards in terms

of the directors' "always" or "sometimes" expressing a dissenting opinion in opposition to the rest of the board. On this measure, the incidence rate of Heritage directors who claim to express such an opinion is significantly higher than that for Greenfield directors.

Finally, five factors were extracted from twelve intervally scaled variables that related to the importance of various items shaping the composition of the board. These factors account for nearly 70 percent of the variation within the twelve variables, and will be used as independent predictor variable in the discriminant analysis.

7.3.3 Research Proposition Three: Purpose

Research Proposition Three attempts to contrast Greenfield and Heritage boards in terms of their responsiveness toward a range of factors that shape their respective boards. In addition, this proposition also examines the various directors' satisfaction on a variety of relevant items. Specifically, the third research proposition is framed as follows:

P3: Newly created boards of Greenfield companies will demonstrate a more responsive stance toward a broader range of shareholders and stakeholders than will newly created boards of Heritage companies.

Nearly all of the variables that comprise this proposition are intervally scaled. The two that are not intervally scaled pertain to open-ended questions related to the greatest strengths and weaknesses of a director's respective board. Thus, the section of the analysis begins with tests of independence for the means associated with Greenfield and Heritage directors. Following this, the analysis uses factor analysis to reduce these variables (three sets of variables, 31 variables in total) to a more manageable set that ultimately will be used as inputs into the discriminant analysis. Finally, the Chi-square test of independent samples is used to determine whether any association exists between board status and the greatest strength and greatest weakness of the board.

7.3.3.1 Exploratory Research of Purpose Variables: Chi-Square Automatic Interaction Detection (CHAID)

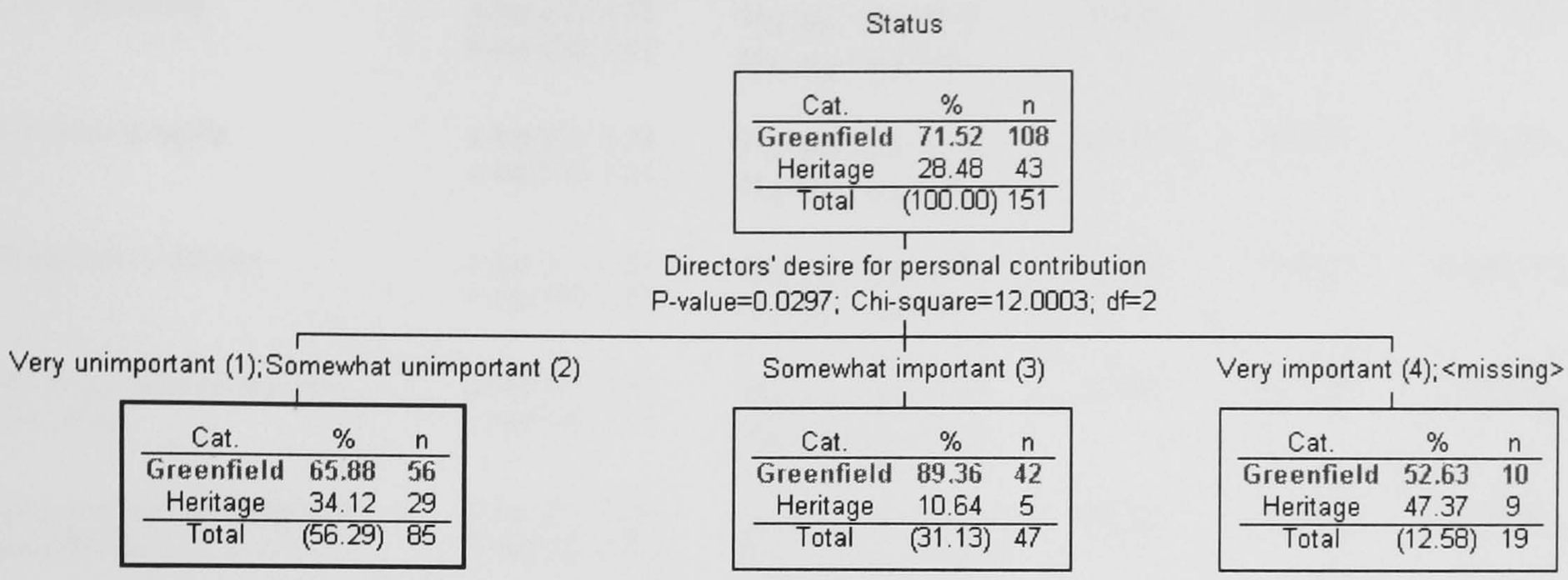
A total of 33 categorical variables are related to the board Purpose proposition, including two open-ended questions that pertain to directors' perceived greatest strengths and greatest weaknesses of their boards. The majority of these categorical variables are intervally scaled. CHAID analysis is used at this time as an exploratory technique to identify any significant associations between board status and this set of variables.

Figure 7.4, which appears on the following page, summarizes the output of the CHAID analysis. Of all the Purpose predictor variables, the most significant predictor is the variable representing the importance of "directors' desire for personal contribution" as an item shaping the actions and decisions of the board. This variable was significant at a level of $p<0.05$, and the subsequent development of the CHAID tree diagram leads to an interesting result.

The CHAID merging and splitting process regrouped the four response categories (plus a "missing values" category representing four cases) into three. Looking at the tree diagram, some polarization of importance on this construct is evident among Heritage directors, who show above expected concentrations in the tails of the response alternatives. Conversely, Greenfield directors exhibit more of a middle ground distribution on this measure with an above-expected concentration in the "somewhat important" node.

While these data are informative, it is less than an optimal solution in predicting Greenfield and Heritage board status, given that 33 Purpose variables were part of the list of independent predictor variables that were considered for this phase of the analysis. Still, this is simply the result of an exploratory analysis of the variables that may significantly differentiate between Greenfield and Heritage boards in terms of their purpose. The upcoming factor analysis of the Purpose variables will yield factors that include this variable pertaining to "directors' desire for personal contribution", and thus, will be captured in the set of independent variables of the discriminant analysis.

Figure 7.4 **Tree Diagram Following CHAID Exploratory Analysis of Categorical Purpose Predictor Variables**



7.3.3.2 Tests of Independence

The first set of questions related to board Purpose pertain to the importance of various factors in shaping the actions and decisions of the board. Data for a total of nine intervally scaled variables were obtained, and the test of independent means was applied to determine if any significant differences exist between Greenfield and Heritage directors on these measures. These results, summarized in Table 7.18, indicate that few differences exist between Greenfield and Heritage boards in terms of the importance they place on factors that shape their board's actions and decisions. In fact, only one significant difference is observed, with Heritage directors placing higher levels of importance on "economic conditions" when shaping the actions and decisions of the board. All other variables, ranging from the importance of "chair leadership" to the importance of "reaching board consensus", exhibit no significant differences between the two groups.

Table 7.18 Results of Tests of Independence: Importance of Factors In Shaping the Actions and Decisions of the Board

Variable/Response Category Tested	G/H Proportions	Hypotheses	t	p	Conclusion
Chair leadership	x-bar (G): 3.58 x-bar (H): 3.67	H_O: $\mu_G - \mu_H >= 0$ H_A: $\mu_G - \mu_H < 0$	-0.668	0.2525	FTR H_O
Community needs	x-bar (G): 2.22 x-bar (H): 2.31	H_O: $\mu_G - \mu_H >= 0$ H_A: $\mu_G - \mu_H < 0$	-0.611	0.2710	FTR H_O
Economic conditions	x-bar (G): 3.27 x-bar (H): 3.47	H_O: $\mu_G - \mu_H >= 0$ H_A: $\mu_G - \mu_H < 0$	-1.365	0.0870	Reject H_O
Meeting corporate goals or objectives	x-bar (G): 3.85 x-bar (H): 3.77	H_O: $\mu_G - \mu_H <= 0$ H_A: $\mu_G - \mu_H > 0$	1.136	0.1290	FTR H_O
Directors' desire for personal contribution	x-bar (G): 2.39 x-bar (H): 2.30	H_O: $\mu_G - \mu_H <= 0$ H_A: $\mu_G - \mu_H > 0$	0.583	0.2805	FTR H_O
Reaching board consensus	x-bar (G): 2.91 x-bar (H): 3.00	H_O: $\mu_G - \mu_H >= 0$ H_A: $\mu_G - \mu_H < 0$	-0.620	0.2680	FTR H_O
Management ideology of directors	x-bar (G): 2.77 x-bar (H): 2.88	H_O: $\mu_G - \mu_H >= 0$ H_A: $\mu_G - \mu_H < 0$	-0.801	0.2125	FTR H_O
Short-term planning	x-bar (G): 3.31 x-bar (H): 3.43	H_O: $\mu_G - \mu_H >= 0$ H_A: $\mu_G - \mu_H < 0$	-0.832	0.2035	FTR H_O
Long-term planning	x-bar (G): 3.77 x-bar (H): 3.67	H_O: $\mu_G - \mu_H <= 0$ H_A: $\mu_G - \mu_H > 0$	0.769	0.2215	FTR H_O

α=0.10

The second set of questions was designed to assess directors' importance with various issues facing the board. This set attempts to study the scope of factors that a board considers in the due course of its operations. The results of these tests are summarized in Table 7.19, and once again, just three significant differences between Greenfield and Heritage directors are observed among the ten variables under examination. Three variables did exhibit significant differences between Greenfield and Heritage directors. Greenfield directors, for example, place significantly greater importance on "relations with stakeholders" as an issue to the board than do their counterparts at Heritage firms. Greenfield directors also place greater importance on "shareholder equity" and "competitive threats to the firm" as an issue to the board than do directors at Heritage companies.

Table 7.19 Results of Tests of Independence: Importance of Various Issues to the Board

Variable/Response Category Tested	G/H Proportions	Hypotheses	t	p	Conclusion
Strategic planning	x-bar (G): 3.74 x-bar (H): 3.62	H_O: $\mu_G - \mu_H <= 0$ H_A: $\mu_G - \mu_H > 0$	1.056	0.1465	FTR H_O
Corporate performance	x-bar (G): 3.97 x-bar (H): 3.95	H_O: $\mu_G - \mu_H <= 0$ H_A: $\mu_G - \mu_H > 0$	0.411	0.3410	FTR H_O
Relations with stakeholders (i.e. employees, suppliers)	x-bar (G): 3.49 x-bar (H): 3.30	H_O: $\mu_G - \mu_H <= 0$ H_A: $\mu_G - \mu_H > 0$	1.609	0.0550	Reject H_O
Relations with management	x-bar (G): 3.49 x-bar (H): 3.51	H_O: $\mu_G - \mu_H >= 0$ H_A: $\mu_G - \mu_H < 0$	-0.138	0.4455	FTR H_O
Director compensation	x-bar (G): 2.49 x-bar (H): 2.42	H_O: $\mu_G - \mu_H <= 0$ H_A: $\mu_G - \mu_H > 0$	0.465	0.3210	FTR H_O
State and federal regulation	x-bar (G): 3.27 x-bar (H): 3.21	H_O: $\mu_G - \mu_H <= 0$ H_A: $\mu_G - \mu_H > 0$	0.459	0.3235	FTR H_O
Shareholder representation	x-bar (G): 3.25 x-bar (H): 3.12	H_O: $\mu_G - \mu_H <= 0$ H_A: $\mu_G - \mu_H > 0$	0.902	0.1845	FTR H_O
Shareholder equity	x-bar (G): 3.50 x-bar (H): 3.28	H_O: $\mu_G - \mu_H <= 0$ H_A: $\mu_G - \mu_H > 0$	1.950	0.0265	Reject H_O
Liability and insurance	x-bar (G): 3.15 x-bar (H): 3.00	H_O: $\mu_G - \mu_H <= 0$ H_A: $\mu_G - \mu_H > 0$	1.040	0.1500	FTR H_O
Competitive threats to the firm	x-bar (G): 3.70 x-bar (H): 3.44	H_O: $\mu_G - \mu_H <= 0$ H_A: $\mu_G - \mu_H > 0$	2.353	0.0100	Reject H_O

α=0.10

The final set of variables examined under the board Purpose paradigm pertains to directors' satisfaction with their board's dealings on specific issues. In addition, overall satisfaction with the performance of the board and overall satisfaction with the performance of the company is studied. As Table 7.20 indicates, of the twelve variables examined that are related to satisfaction, the only significant difference observed pertains to director satisfaction with the board's performance regarding "state and federal regulation", with Greenfield directors exhibiting significantly higher levels of satisfaction on this measure than Heritage directors.

Table 7.20 Results of Tests of Independence: Satisfaction with the Board's Dealing With Various Issues

Variable/Response Category Tested	G/H Proportions	Hypotheses	t	p	Conclusion
Strategic planning	x-bar (G): 3.27 x-bar (H): 3.28	H_O: $\mu_G - \mu_H >= 0$ H_A: $\mu_G - \mu_H < 0$	-0.086	0.4655	FTR H_O
Corporate performance	x-bar (G): 3.26 x-bar (H): 3.38	H_O: $\mu_G - \mu_H >= 0$ H_A: $\mu_G - \mu_H < 0$	-0.866	0.1940	FTR H_O
Relations with stakeholders (i.e. employees, suppliers)	x-bar (G): 3.31 x-bar (H): 3.27	H_O: $\mu_G - \mu_H <= 0$ H_A: $\mu_G - \mu_H > 0$	0.272	0.3930	FTR H_O
Relations with management	x-bar (G): 3.60 x-bar (H): 3.51	H_O: $\mu_G - \mu_H <= 0$ H_A: $\mu_G - \mu_H > 0$	0.747	0.2285	FTR H_O
Director compensation	x-bar (G): 3.33 x-bar (H): 3.43	H_O: $\mu_G - \mu_H >= 0$ H_A: $\mu_G - \mu_H < 0$	-0.784	0.2175	FTR H_O
State and federal regulation	x-bar (G): 3.58 x-bar (H): 3.36	H_O: $\mu_G - \mu_H <= 0$ H_A: $\mu_G - \mu_H > 0$	1.824	0.0350	Reject H_O
Shareholder representation	x-bar (G): 3.41 x-bar (H): 3.42	H_O: $\mu_G - \mu_H >= 0$ H_A: $\mu_G - \mu_H < 0$	-0.103	0.4590	FTR H_O
Shareholder equity	x-bar (G): 3.33 x-bar (H): 3.44	H_O: $\mu_G - \mu_H >= 0$ H_A: $\mu_G - \mu_H < 0$	-0.826	0.2055	FTR H_O
Liability and insurance	x-bar (G): 3.55 x-bar (H): 3.40	H_O: $\mu_G - \mu_H <= 0$ H_A: $\mu_G - \mu_H > 0$	1.256	0.1055	FTR H_O
Competitive threats to the firm	x-bar (G): 3.33 x-bar (H): 3.19	H_O: $\mu_G - \mu_H <= 0$ H_A: $\mu_G - \mu_H > 0$	0.969	0.1670	FTR H_O
Satisfaction with overall performance of board	x-bar (G): 3.47 x-bar (H): 3.49	H_O: $\mu_G - \mu_H >= 0$ H_A: $\mu_G - \mu_H < 0$	-0.160	0.4365	FTR H_O
Satisfaction with overall performance of company	x-bar (G): 3.07 x-bar (H): 3.05	H_O: $\mu_G - \mu_H <= 0$ H_A: $\mu_G - \mu_H > 0$	0.105	0.4580	FTR H_O

α=0.10

7.3.3.3 Chi-Square Test of Independent Samples

The directors surveyed were asked two open-ended questions at the conclusion of the survey instrument. These two questions pertained to the "greatest strengths" and the "greatest weakness" of the board on which they serve. The open-ended responses were coded and are summarized in Tables 6.26 and 6.27 of the descriptive analysis. Table 7.21 indicates that the Chi-square test of independent samples revealed no significant association between board status and either of these measures.

Table 7.21 Chi-Square Test of Independent Samples

Variable	Chi-Square	df	Significance (p)	Conclusion
Greatest strength of board	1.114	3	0.774	FTR H_O
Greatest weakness of board	2.161	4	0.706	FTR H_O

α=0.10

7.3.3.4 Factor Analysis of the Importance of Items Shaping the Actions and Decisions of the Board

Three sets of principal components factor analyses are conducted for the intervally scaled Purpose variables (31 variables in total). The first analysis pertains to the importance of various items shaping the actions and decisions of the board. The results of this analysis, which uses the principal components and varimax orthogonal rotation approaches described in 7.3.2.5, are summarized in Tables 7.22 through 7.24. The first table indicates that among the importance of items shaping the actions and decisions of the board, three factors account for approximately 53% of the variation between the nine variables that serve as inputs to the analysis.

Table 7.22 Rotated Sums of Squared Component (Factor) Loadings

Component (Factor)	Eigenvalue	% of Variance	Cumulative %
F 1_2	1.787	19.859	19.859
F 2_2	1.584	17.602	37.462
F 3_2	1.399	15.544	53.005

Table 7.23 Rotated Component Matrix

	Component		
Variable	1	2	3
Directors' desire for personal contribution	.747		
Reaching board consensus	.727		
Management ideology of directors	.699		
Meeting corporate goals or objectives		.665	
Long-term planning		.638	
Short-term planning		.575	
Chair leadership	.390	.527	
Community needs			.848
Economic conditions		.318	.695

The rotated component matrix (Table 7.23) identifies those variables with loadings that relate most closely to each factor. Specific names are assigned to factors in Table 7.24.

Table 7.24 Naming of Factors

Factor	Name	Explanation
F 1_2	♦ Importance of director orientation	♦ The variables related to the importance of directors' desire for personal contribution, reaching board consensus and management ideology of directors are most highly correlated with F 1_2
F 2_2	♦ Importance of planning and goal attainment	♦ The variables related to the importance of meeting corporate goals or objectives and long-term planning are most highly correlated with F 2_2
F 3_2	♦ Importance of macro needs and conditions	♦ The variables related to the importance of community needs and economic conditions are most highly correlated with F 3_2

7.3.3.5 Factor Analysis of the Importance of Issues to the Board

The second factor analysis of this section pertains to the ten variables that examine the importance of various issues to the board. The principal components analysis identified three factors that account for more than 56% of the variation within the set of variables. Table 7.26 summarizes the rotated component matrix.

Table 7.25 Rotated Sums of Squared Component (Factor) Loadings

Component (Factor)	Eigenvalue	% of Variance	Cumulative %
F 1_3	2.270	22.697	22.697
F 2_3	2.220	22.195	44.892
F 3_3	1.168	11.677	56.569

Table 7.26 Rotated Component Matrix

	Component		
Variable	1	2	3
Liability and insurance	.799		
State and federal regulation	.784		
Competitive threats to the firm	.613	.305	.316
Shareholder equity	.446	.363	
Relations with management		.760	
Relations with stakeholders		.720	
Director compensation		.704	
Shareholder representation	.414	.514	
Corporate performance			.850
Shareholder equity	.450	.314	-.499

The matrix reveals those variables that have loadings most closely correlated to each of the three specific factors. With this information, names are assigned to each factor in Table 7.27.

Table 7.27 Naming of Factors

Factor	Name	Explanation
F 1_3	♦ Importance of liability and compliance	♦ The variables related to the importance of liability and insurance, and state and federal regulation are most highly correlated with F 1_2
F 2_3	♦ Importance of relations with internal and external stakeholders	♦ The variables related to the importance of relations with management and relations with stakeholders are most highly correlated with F 2_2
F 3_3	♦ Importance of corporate performance	♦ The variable corporate performance is most highly correlated with F 3_2

7.3.3.6 Factor Analysis of Satisfaction with Dealings of the Board

The third and final factor analysis attempts to take the set of variables related to directors' satisfaction with the dealings of the board and reduce it to a more manageable set of factors. Included in this principal components factor analysis are two variables that assess satisfaction with the overall performance of the board and with the overall performance of the company. Table 7.28 indicates that just two factors are extracted using principal components analysis, but these two factors represent almost 54% of the variation within the thirteen variables that serve as inputs. The variables most closely associated with these factors are summarized in Table 7.29, and the names assigned to each factor are summarized in Table 7.30.

Table 7.28 Rotated Sums of Squared Component (Factor) Loadings

Component (Factor)	Eigenvalue	% of Variance	Cumulative %
F 1_4	3.604	30.037	30.037
F 2_4	2.852	23.765	53.802

Table 7.29 Rotated Component Matrix

	Component	
Variable	**1**	**2**
Corporate performance	.794	
Strategic planning	.748	
Performance of company	.739	
Performance of board	.727	
Relations with stakeholders	.567	.454
Competitive threats	.536	.376
Director compensation	.520	.327
Relations with management	.483	.472
Shareholder representation		.799
Liability and insurance		.755
State and federal regulation		.739

Table 7.30 Naming of Factors

Factor	Name	Explanation
F 1_4	♦ Satisfaction with overall board/corporate performance	♦ The variables related to satisfaction with corporate/company performance, strategic planning and board performance are most highly correlated with F 1_4
F 2_4	♦ Satisfaction with shareholder representation and legal compliance	♦ The variables related to satisfaction with shareholder representation, liability and insurance, and state and federal regulation are most highly correlated with F 2_2

7.3.3.7 Summary

The analysis of the Purpose proposition primarily involved the use of a variety of analytical tools to improve understanding of the relationship between board status and corporate governance. Chi-square Automatic Interaction Detection (CHAID) analyses were conducted to explore this relationship, and tests of independence were used to determine the existence and direction of significant differences between Greenfield and Heritage boards. Finally, principal components factor analyses were used to reduce the intervally scaled variables within this section to a smaller and more manageable number.

Like the analysis of Players and Paradigm propositions, the analysis of the Purpose proposition identified a limited number of significant differences observed between Greenfield and Heritage boards which relate to the board's purpose. Specifically, Heritage directors place significantly higher levels of importance than Greenfield directors on the "economic conditions" as a factor shaping the actions and decisions of the board. Greenfield directors place significantly higher importance than Heritage directors on three issues facing the board. These are 1) "relations with stakeholders", 2) "shareholder equity", and 3) "competitive threats to the firm". Greenfield directors also express higher levels of satisfaction with the performance of the board in terms of its dealings with "state and federal regulation". Thus, the conclusion is drawn that while some differences do exist in terms of the purpose of each board, the differences seem limited when compared to the wider range of possible areas for uniqueness of attitudes and values.

With three sets of intervally scaled variables related to the Purpose proposition, principal components factor analysis was conducted and yielded a total of eight

factors. Like that for the analysis of the Paradigm proposition, the results of the principal components factor analysis related to the Purpose proposition will be used as an input into the discriminant analysis to predict board status.

7.4 CHI-SQUARE AUTOMATIC INTERACTION DETECTION (CHAID) OF ALL PLAYERS, PARADIGM AND PURPOSE CATEGORICAL VARIABLES

To this point, the Players, Paradigm and Purpose analyses used CHAID to explore the relationship between board status and the categorical variables within each analytical data set. In all cases, only a limited number of significant splittings and mergings were observed. At this time, CHAID analysis is conducted using all of the categorical variables within each proposition concurrently as predictor variables. The results are presented in Figure 7.5

The CHAID analysis yields a three-level tree diagram with the variable "standing committee on board: corporate governance" as the most significant predictor ($p<0.001$). Reviewing the data within each node of the tree, the CHAID confirms the earlier conclusions that found that Heritage boards are significantly more likely to have a standing committee on corporate governance than are Heritage boards. In addition, among boards that do not have such a standing committee, Greenfield boards also are more likely to have no directors on their board who are women. An additional split is observed among the directors whose board does not have a standing committee on corporate governance and who currently have no women directors on their board. Among this group, Greenfield directors are less likely than Heritage directors to report that "management ideology" is a very important item in shaping the composition of the board.

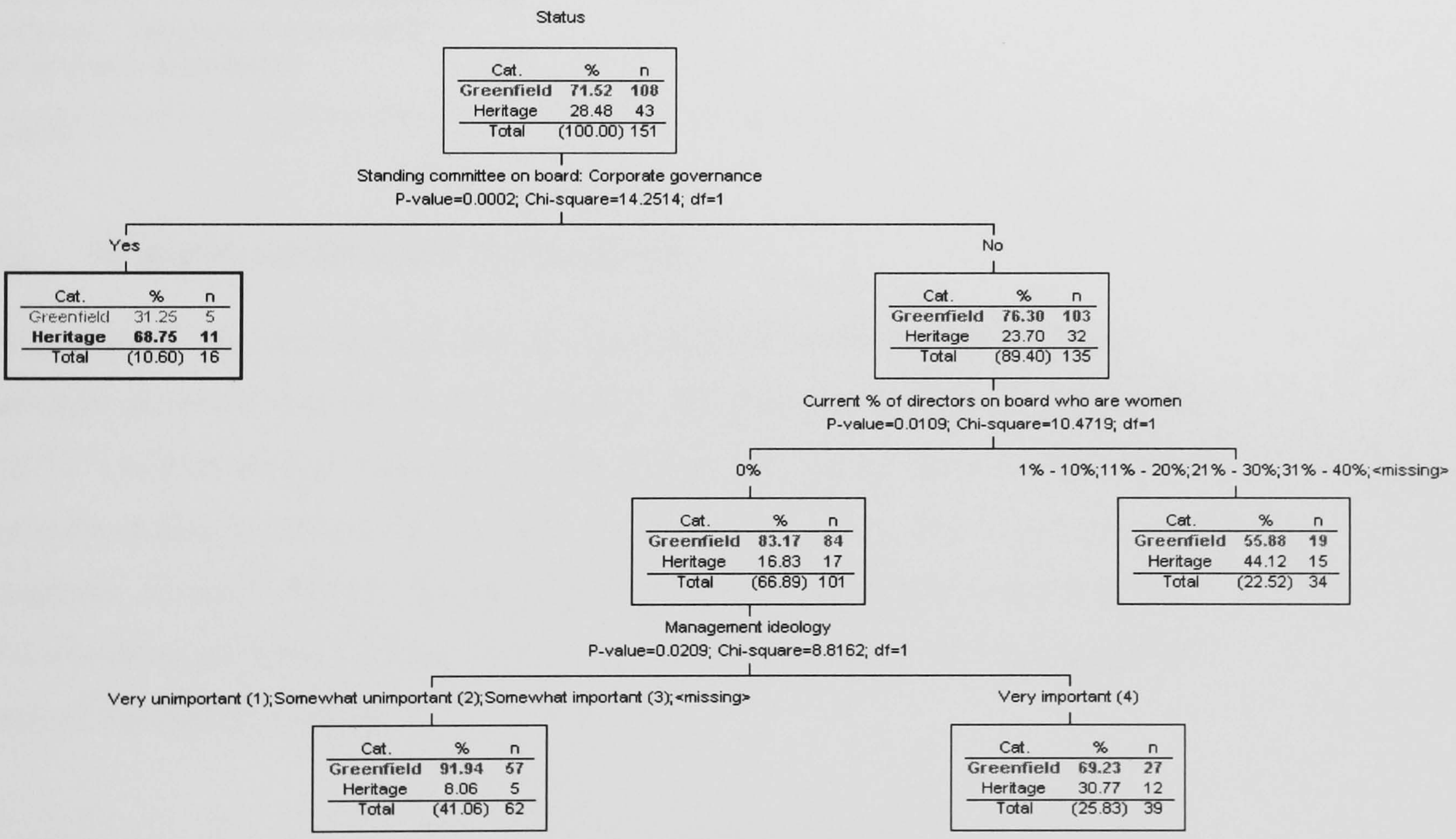
7.5 EXAMINATION OF INTERACTION EFFECTS

Interaction effects occur between variables when the effect of a combination of variables exceeds the sum of the individual effects. In such situations, an interaction term is needed that captures this combined effect. This term is simply the product of the two variables. If such a situation is present within the data set, then the effects can

be captured and included as independent predictor variables in the discriminant analysis.

Practically, the large number of variables in the survey instrument reduces the ability to examine all possible interactions among the numerous variable combinations. Although no interacting variables were noticed within the data set, a limited number of tests still were conducted using general linear model (GLM) analysis of variance (ANOVA) on selected pairs of variables. The objective was to determine the effect of these variables' interactions on the variable board status. The variables used in this

Figure 7.5 Tree Diagram Following CHAID Exploratory Analysis of Categorical Predictor Variables (Players, Paradigm, Purpose)



analysis were drawn from various sections of the data set. The results of the tests, summarized in Table 7.31, find no significant interactions among the variables examined. This conclusion is believed to extend as well to other combinations of

variables within the data set, and thus, precludes the development of interaction variables use in the multivariate discriminant analysis.

Table 7.31 Results of Testing for Interaction Effects Using GLM ANOVA

Variables	F	p
Number of directors currently on board * Expected change in the number of directors on board/next 2 years	1.056	0.405
Current percentage of directors who are members of a racial minority * Expected change in the percentage of directors who are members of a racial minority	0.411	0.665
Importance of corporate performance as an issue to the board * Importance of long-term planning as an issue to the board	0.020	0.887
Satisfaction with overall performance of the company * Satisfaction with overall performance of the board	0.580	0.715

α=0.10

7.6 CODING OF DUMMY VARIABLES

To prepare for the discriminant analysis, the significant dichotomous predictor variables are converted into dummy variables. These binary variables (coded as "0" and "1") will be used as independent predictors along with the extracted factors that were developed from the principal components factor analysis of the intervally scaled variables. A total of ten dichotomous variables have been re-coded in this manner. The variables are listed in Table 7.32, along with the respective labeling along with each of the dummy variables.

Table 7.32 Dummy Variable Coding for Significant Dichotomous Variables

No.	Variable	Dummy Variable Coding
1	Number of directors on directors on board when first appointed	0 = 1 to 4 1 = 5 or more
2	Expected change in the number of directors on board/next 2 years	0 = Decrease/Stay the same 1 = Increase

Table 7.32 Dummy Variable Coding for Significant Dichotomous Variables (cont'd)

No.	Variable	Dummy Variable Coding
3	Current percentage of directors on board who are women	0 = 0% 1 = 1% or more
4	Current percentage of directors on board who are members of a racial minority	0 = 0% 1 = 1% or more
5	Expected change in the percentage of directors who are members of a racial minority/next 2 years	0 = Decrease/Stay the same 1 = Increase
6	Standing committee on board: Executive	0 = No 1 = Yes
7	Standing committee on board: Corporate Governance	0 = No 1 = Yes
8	Standing committee on board: Other	0 = No 1 = Yes
9	Currently own options to buy stock in the company	0 = No 1 = Yes
10	Frequency of expressing a dissenting opinion in opposition to the rest of the board	0 = Never/Sometimes 0 = Always/Often

7.7 PREDICTING BOARD STATUS USING STEPWISE DISCRIMINANT ANALYSIS

Discriminant analysis is a statistical tool that predicts membership in two or more groups of a nominally scaled criterion variable based on a set of intervally scaled predictor variables. As noted by Kinnear and Taylor (1991), the objective of discriminant analysis is "to find a linear combination of the independent variables that makes the mean scores across categories of the dependent variable on this linear combination maximally different" (633-634). Such means are typically known as centroids, in that they represent the mean score of each group. Ideally, the discriminant function optimizes the percentage of correctly classified objects using these predictor variables. Predictors can range from binary-coded dummy variables such as those detailed in Table 7.32 to intervally scaled multiple response variables and factors scores. From an applications perspective, discriminant analysis offers two major benefits: 1) identification of those variables that are related to a particular criterion variable, and 2) prediction of values of the criterion variable when values of the predictor variables are available (Kachigan, 1991)

Since there are substantial number of predictor variables, a stepwise method is used for conducting the analysis with a variable entry and retention criterion of α=0.10. This reduces the risk of multicollinearity among predictor variables, a situation in which there is high correlation among the predictor variables. Such situations can make the estimates of the discriminant function unreliable. In stepwise discriminant analysis, predictors are entered sequentially based on their ability to discriminate between the two groups. In addition, each predictor is tested for its retention based on the other predictors selected. Malhotra (1999) notes, "The process continues until all predictors meeting the criteria for entry and retention have been entered into the discriminant function" (579). The stepwise method also uses Wilks' lambda (also known as the U statistic) to test the intra-group differences. Wilks' lambda ranges from 0 to 1; smaller scores indicate that that group means differ while larger values indicate that group means seen are more similar.

The inputs to the discriminant analysis are drawn from the analyses conducted to this point. The two major sets of independent predictor variables include all significant multiple response and dichotomous variables that have been re-coded as dummy variables and all of the factor scores drawn from the principal components factor analysis of intervally scaled variables (see summary in Table 7.33).

7.7.1 Review of Missing Values Among the Categorical Dummy Variables

To ensure as large a valid sample of respondents into the development of the discriminant function, the categorical dummy variables were reviewed using the SPSS Case Processing function. Of the ten variables, the average percentage of missing values as a percentage of all respondents is 6.6% (standard deviation of 14.2% due primarily to one outlier). Since binary (categorical) dummy variables are coded as an interval of 0 to 1, then the property of "equal intervals" between categories is satisfied (Kinnear and Taylor, 1991). Therefore, the binary dummy variable possesses the qualities of an intervally scaled variable, and thus its missing values can be replaced by means for use in the discriminant function. Having done so, preparation for the discriminant analysis continues using the full sample of 151 respondents. Such is the case since the missing values of the dummy variables have been replaced by means

and the factors used as inputs into the discriminant analysis were formed from intervally scaled variables whose missing values were replaced by means.

Table 7.33 Independent Predictor Variables Used in the Discriminant Analysis

No.	Variable
1	Number of directors on board when first appointed
2	Expected change in the number of directors on board/next 2 years
3	Current percentage of directors on board who are women
4	Current percentage of directors on board who are members of a racial minority
5	Expected change in the percentage of directors who are members of a racial minority/next 2 years
6	Standing committee on board: Executive
7	Standing committee on board: Corporate Governance
8	Standing committee on board: Other
9	Currently own options to buy stock in the company
10	Frequency of expressing a dissenting opinion in opposition to the rest of the board
11	F 1_1: Importance of gender and cultural diversity
12	F 2_1: Importance of academic/age diversity and ideology
13	F 3_1: Importance of directors' ability to meet objectives
14	F 4_1: Importance of director reputation and potential benefit of strategic partnering
15	F 5_1: Importance of professional diversity
16	F 1_2: Importance of director orientation
17	F 2_2: Importance of planning and goal attainment
18	F 3_2: Importance of macro needs and conditions
19	F 1_3: Importance of liability and compliance
20	F 2_3: Importance of relations with internal and external stakeholders
21	F 3_3: Importance of corporate performance
22	F 1_4: Satisfaction with overall board/corporate performance
23	F 2_4: Satisfaction with shareholder representation and legal compliance

7.7.2 Prior Probabilities and Establishment of a Holdout Sample

Two techniques are used to support the integrity of the discriminant analysis. The first of these is the use of prior probabilities. The sample of 151 respondents includes 108 (71.5%) Greenfield directors and 43 Heritage directors (28.5%). However, the sample frame from which these respondents were drawn (the master mailing list) included 2,878 newly public companies in the United States. Within this master list of companies, 82.2% were Greenfield companies and 17.8% were Heritage companies. Discriminant analysis uses a cutoff value to assign objects to a particular group. Cases with discriminant scores that exceed the cutoff value are assigned to one group, while those whose discriminant scores fall below the cutoff value are assigned to another. Since SPSS defaults to the sample distribution of the dependent variable (board status) when developing a discriminant function and the mathematically derived cutoffs, we have modified the syntax of the function to reflect the actual probabilities (referred to hereafter as prior probabilities) in the sample frame. This adjustment is important because prior probabilities are used to develop the cutoff value.

The second technique used to enhance the integrity of the discriminant analysis involves the establishment of a holdout (also known as "training") sample of 20% of the entire set of respondents. The holdout sample is randomly drawn. Those cases not part of the holdout sample are used to develop the discriminant function. Once the discriminant function is developed, the holdout sample is "run through" the discriminant function, and the percentage of correctly and incorrectly classified objects is determined and used as a measure of the predictive strength of the function.

7.7.3 Results of the Discriminant Analysis

Of the 151 cases in the analysis, 119 were used to develop the discriminant function and the remaining 32 (21.2%) comprised the randomly chosen holdout sample. The output of the discriminant analysis is extensive, and begins with Table 7.34, which summarizes the results of the Wilks' lambda test of equality of group means (centroids) for each of the predictors. While these data do not comprise the final set of predictor variables that comprise the stepwise discriminant function, they do provide an indication of those predictors that most significantly discriminate between Greenfield and Heritage boards.

Table 7.34 Tests of Equality of Group Means

Variable	Wilks' Lambda	F	p
Number of directors on board when first appointed	.938	7.683	.006
Expected change in the number of directors on board/next 2 years	.990	1.197	.276
Current percentage of directors on board who are women	.918	10.405	.002
Current percentage of directors on board who are members of a racial minority	.987	1.574	.212
Expected change in the percentage of directors who are members of a racial minority/next 2 years	.982	2.134	.147
Standing committee on board: Executive	.978	2.580	.111
Standing committee on board: Corporate Governance	.901	12.906	.000
Standing committee on board: Other	.979	2.466	.119
Currently own options to buy stock in company	.985	.1727	.191
Frequency of expressing a dissenting opinion in opposition to the rest of the board	.986	1.616	.206
F 1_1: Importance of gender and cultural diversity	.997	.331	.566
F 2_1: Importance of academic/age diversity and ideology	.978	2.684	.104
F 3_1: Importance of directors' ability to meet objectives	.999	.166	.684
F 4_1: Importance of director reputation and potential benefit of strategic partnering	.996	.496	.483
F 5_1: Importance of professional diversity	.991	1.083	.300
F 1_2: Importance of director orientation	.998	.205	.651
F 2_2: Importance of planning and goal attainment	.998	.187	.667
F 3_2: Importance of macro needs and conditions	.992	.972	.326
F 1_3: Importance of liability and compliance	.974	3.066	.083
F 2_3: Importance of relations with internal and external stakeholders	.998	.212	.646
F 3_3: Importance of corporate performance	.986	1.603	.208
F 1_4: Satisfaction with overall board/corporate performance	.988	1.421	.236
F 2_4: Satisfaction with shareholder representation and legal compliance	.989	1.315	.254

α=0.10

As signaled by the analyses discussed earlier, the variable with the most significant between-group mean difference is "standing committee on board: corporate governance" ($p<0.001$). This is followed by "current percentage of board members who are women" ($p<0.01$) and "number of directors when first appointed" ($p<0.01$). The two factors with the highest significance are "importance of liability and compliance" as an issue to the board (F 1_3, $p<0.10$) and importance of "academic/age diversity and ideology" in shaping the composition of the board (F 2_1, $p<.15$).

A total of five variables are ultimately included in the stepwise discriminant analysis, and the Wilks' lambda values for these variables have been recomputed to reflect their interrelationship with the other predictor variables. Table 7.35 summarizes the variables in the analysis, their Wilks' lambda values, their significance values and each predictor's tolerance value. The tolerance value ranges from 0 to 1 and reflects, according to Hair et al. (1998) "the proportion of the variation in the independent variables not explained by the variables already in the model" (243). Hair et al. also note that "a tolerance of 0 means the independent variable under consideration is a perfect linear combination of the variables already in the model. A tolerance of 1 means that an independent variable is totally independent of the other variables in the model" (243). The table indicates that tolerance levels are very close to 1, strongly suggesting that the degree of multicollinearity among the predictors is low.

Table 7.35 Variables in the Discriminant Analysis

Variable	Wilks' Lambda	p	Tolerance
Standing committee on board: corporate governance	.827	.002	.951
Number of directors on board when first appointed	.806	.011	.983
Current percentage of directors on board who are women	.796	.026	.965
Expected change in the percentage of directors who are members of a racial minority/next 2 years	.972	.047	.972
F 1_3: Importance of liability and compliance	.785	.062	.991

$\alpha=0.10$

Several measures are available for summarizing the discriminant function. These are identified in Tables 7.36 and 7.37.

Table 7.36 Eigenvalues

Measure	Value
Eigenvalue	.313
Canonical Correlation	.488

The eigenvalue of the discriminant function is the ratio of the between-group sum of squares to the within-group sum of squares, with large eigenvalues implying superior discriminant functions. The canonical correlation for two-group discriminant analyses is simply a Pearson Product-Moment correlation between the discriminant that measures the association between the discriminant function and the dependent grouping variable (board status). Higher canonical correlations are desirable, and thus, we conclude that the canonical correlation of .488 is a mid-range correlation that signals a modest correlation.

Table 7.37 Wilks' Lambda

Wilks' Lambda	Chi-Square	df	p
.761	31.205	5	.000

The second set of summary data (Table 7.37) includes statistics for Wilks' lambda, Chi-square and the significance of the Chi-square test on group differences. Wilks' lambda is the proportion of the total variance in the discriminant scores not explained by differences among the two groups. Thus, a modestly strong percentage (eta = .239) of the variance in the discriminant scores is explained by differences among the two groups. The Chi-square test statistic is highly significant ($p<0.001$).

The standardized canonical discriminant function coefficients can be used to predict group membership for new cases. Summarizing the coefficients in Table 7.38, the discriminant function predicting board status (Greenfield or Heritage) is as follows:

Board Status (z) = -.359(F 3_1: Importance of liability and compliance) + .488(Number of directors on board when first appointed) + .432(Current percentage of directors on board who are women) -.386(Expected change in the percentage of directors who are members of a racial minority/next 2 years) + .589(Standing committee on board: corporate governance)

Table 7.38 Standardized Canonical Discriminant Function Coefficients

Predictor Variable	Coefficient
F 3_1: Importance of liability and compliance	-.359
Number of directors on board when first appointed	.488
Current percentage of directors on board who are women	.432
Expected change in the percentage of directors who are members of a racial minority/next 2 years	-.386
Standing committee on board: corporate governance	.589

Perhaps the truest test of the predictive of the discriminant function involves an examination of its ability to correctly predict cases. As Table 7.39 indicates, the discriminant function to predict membership in either Greenfield or Heritage boards correctly classifies 76.5% of the original grouped cases (those used to develop the function) and 75.0% of the holdout sample of cases. In context, this is a relatively weak result. Bearing in mind that 71.9% of holdout sample is composed of Greenfield companies, the analysis offers only limited predictive accuracy above a random "guess" of group membership. Notably, all Greenfield companies in the holdout sample were correctly classified, yet only 11.1% of the Heritage companies in the holdout sample were classified so. The overall weak predictive accuracy of the discriminant function could be attributed to the limited number of variables (relative to the total number examined in the study) for which significant differences between Greenfield and Heritage companies were observed. Further, the limited number of significant difference may be partly due to the relatively small overall sample size of Heritage companies, which can increase the standard errors of the estimates derived for the variables under examination.

Table 7.39 Classification Results

		Predicted Group Membership		
	Status	**Greenfield**	**Heritage**	**Total**
Original Grouped Cases				
	Greenfield	81	4	85
	Heritage	24	10	34
Holdout Sample				
	Greenfield	23	0	23
	Heritage	8	1	9

Note: Original grouped cases = 119. Holdout sample = 32.

7.8 SUMMARY

This chapter provided a rigorous analysis of the Players, Paradigm and Purpose propositions. The net result of an extensive series of statistical inquiries is a stepwise discriminant function with board status as the dependent variable. A limited number of predictor variables yielded a significant canonical correlation ($p<0.001$) and successfully classified 75.0% of the holdout sample. While this result is encouraging, in many ways the analysis of the Players, Paradigm and Purpose propositions failed to find evidence to support these propositions, and in many instances, refuted them.

CHAPTER EIGHT
UNIVARIATE AND MULTIVARIATE ANALYSIS TO PREDICT COMPANY PERFORMANCE

8.1 INTRODUCTION

The analyses pertaining to the Players, Paradigm and Purpose proposition examined differences between Greenfield and Heritage boards along numerous measures. The fourth proposition, that of Performance, attempts to link corporate governance with company performance. Specifically, the Performance proposition is stated as follows:

P4: By adopting and exercising corporate governance best practices, newly created boards of Greenfield companies will be associated with higher levels of company performance, as assessed by compound annual growth rate in market capitalization, than will newly created boards of Heritage companies.

To evaluate this proposition, stepwise multiple linear regression is used to forecast company performance as measured by the compound annual growth rate (CAGR) in market capitalization. CAGR is a continuous measure, and thus, multiple linear regression is an appropriate analytical technique. Each of the 151 companies of the responding directors has associated with it ratio scale metrics that permit calculation of the compound annual growth rate. These include the value of the IPO on the offering date and the company's market capitalization on the "recent" date. Using these data points, each firm's CAGR was calculated using simple compounding mathematics. These data are summarized in Table 8.1.

Table 8.1 Compound Annual Growth Rate in Market Capitalization

Category	Greenfield	Heritage	Total
Mean	65.67%	69.95%	66.89%
Standard deviation	88.32%	77.20%	85.07%
Median	43.41%	50.40%	44.25%
Maximum	427.18%	384.13%	427.18%
Minimum	-56.63%	-46.41%	-56.63%

As noted in Chapter 6, the mean CAGR for responding companies was 66.89%, with a median value of 44.25%. The data also indicate some skew of the distribution of CAGR, with the bias on the high side as evidenced by the minimum CAGR well within two standard deviations, while the maximum is more than four standard deviations away from the mean. At this time, the thesis turns to the development of a model that reliably predicts the compound annual growth rate in market capitalization of responding directors' companies. Its purpose is to understand how the independent variables related to corporate governance relate to CAGR, and further, to be able to make predictions about a firm's CAGR using information about its corporate governance.

8.2 TESTING OF RESEARCH PROPOSITION FOUR

Several analytical tools are used to construct a predictive model of a newly public company's CAGR using elements of corporate governance as independent predictor variables. Initially, the dependent variable (CAGR) is examined for normality, a requirement for multiple linear regression. Following this, multiple response categorical variables are examined using CHAID. Significant variables are converted to dummy variables, and saved as inputs into the stepwise regression analysis. Dichotomous variables are converted to dummy variables also, and they too are saved. Finally, four sets of factor analysis are conducted for all intervally scaled Players, Paradigm and Purpose variables. All of these results are aggregated as inputs into the stepwise regression analysis.

8.2.1 Examination of the Dependent Variable for Normality

Multiple linear regression is a dependence analytical technique, and in this analysis the compound annual growth rate in market capitalization is the dependent variable. Regression analysis carries with it the assumption of the dependent variable (x) having normally distributed error terms for the values of the independent (predictor) variables (Malhotra, 1999). As such, the assumption thus becomes one where the dependent variable is *conditionally* normal (equivalent to the residuals being normal) given the values of the independent variables. By examining the distribution of the CAGR in Table 8.1, the data suggest a strongly skewed distribution that does not satisfy this assumption of normality.

Skewness is a measure of the symmetry of distribution. Hair et al. (1998) report that "skewness values falling outside the range of –1 to +1 indicates a substantially skewed distribution" (38). The skew value for the 151 companies that comprise the sample is 1.861, suggesting a substantially skewed result with several outlier values in the right tail of the distribution. To address this condition, those outlier cases were identified which had the greatest contribution to the skew value's being outside of the desired range. A total of seven outlier cases were removed from the data set. Of this group, six cases were from Greenfield companies and one case from a Heritage company. With this accomplished, the skew value for the remaining data set (n=144) becomes 0.681. Key summary measures for the modified data set are presented in Table 8.2.

Table 8.2 Compound Annual Growth Rate in Market Capitalization Following Removal of Outliers

Category	Greenfield	Heritage	Total
Mean	49.64%	62.47%	53.38%
Standard deviation	57.96%	60.34%	58.74%
Median	40.30%	49.48%	42.34%
Maximum	196.83%	218.15%	218.15%
Minimum	-56.63%	-46.41%	-56.63%

A test of independent means did not identify any significant difference between the compound annual growth rate in market capitalization of Greenfield companies and that of Heritage companies ($p>.10$).

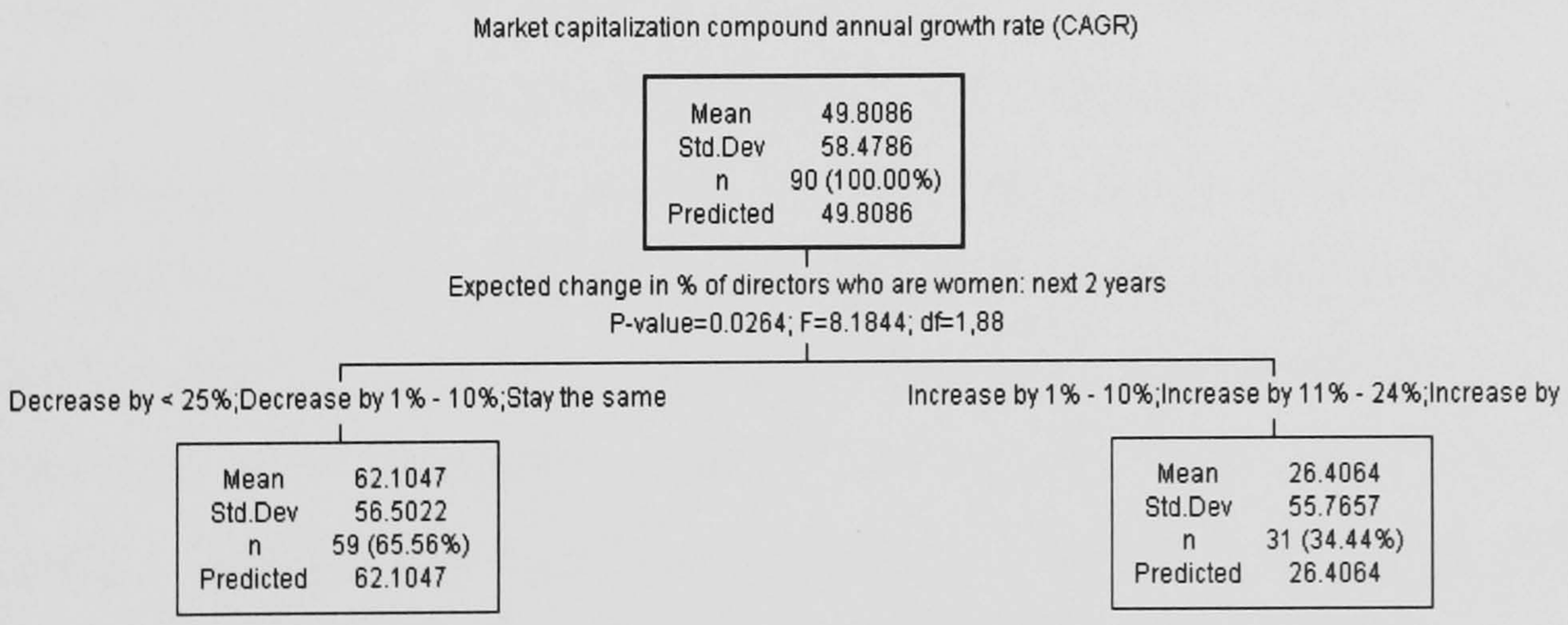
8.2.2 Chi-Square Automatic Interaction Detection (CHAID)

Having adjusted the data set to reflect a normal distribution of the dependent variable, the analysis now turns toward the preparation of the independent predictor variables. In the analysis of the Players, Paradigm and Purpose propositions, CHAID was conducted for all non-intervally scaled, multiple response (non-dichotomous) variables within each proposition. The purpose of this effort was to identify any significant splitting and merging of response categories, which in turn resulted in the development of predictor dummy variables that were used in the discriminant analysis. A similar technique is used at this stage, with CAGR as the dependent

variable. SPSS AnswerTree provides an algorithm for CHAID analyses of ratio-scaled dependent variables such as the CAGR. Rather than the Chi-square test which was used for the categorical variable "status" to test the previous propositions, this algorithm of CHAID uses the F distribution, which tests the equality of population variances based upon the ratio of sample variances (Berenson and Levine, 1992).

The results of this CHAID analysis, which used a significance level of 0.10 (α=0.10), identified only one multiple response, categorical variable that exhibited a significant association with the compound annual growth rate in market capitalization. As demonstrated in Figure 8.1, this variable, "expected change in the percentage of directors who are women/next two years", is significant at a level of $p<0.05$. Note that that missing values are excluded from this analysis, and hence, the total number of data points is below that for the entire sample (90 versus 144).

Figure 8.1 Tree Diagram Following CHAID Exploratory Analysis of Categorical Players Predictor Variables



Although the CHAID analysis identified only one non-dichotomous categorical as having a significant association with the CAGR, the results of even this single relationship are revealing; the merging and splitting of the independent predictor's response categories are intuitively sound. The post-CHAID categories can now be

summarized as "decrease or stay the same" and "increase". Interestingly, those directors who expect the percentage change in directors who are women to decrease or stay the same over the next two years serve on boards whose companies had higher compound annual growth rates in market capitalization than the population as a whole. It is worthwhile noting that the analysis of the Players proposition found no significant difference between Greenfield and Heritage boards in terms of their belief that the percentage of directors who are women would increase over the next two years. Further, the data (albeit for the single measure associated with expectation for change in the percentage of directors who are women) run counterintuitive to the "best practices" literature, which purports that a more heterogeneous board is associated with higher company performance.

8.2.3 Factor Analysis

Principal components factor analysis is used again as data reduction technique. It is applied, by section, to each of the intervally scaled Players, Paradigm and Purpose variables. However, as was encountered earlier, a limited number of cases have modest levels of missing values. To include these cases in the factor analysis, and ultimately in the regression analysis, the missing values of these cases are replaced by the means of the variables. This analysis is highly similar to that which was conducted in the preceding chapter. However, since the sample size used in this chapter has been reduced from 151 to 144 to adjust for skew in the CAGR responses, all factor analyses have been re-computed to reflect this change. While the results of the factor analyses in Chapter 8 are highly similar to those in Chapter 7, the researcher believes this recalculation reflects a responsible and prudent approach to the predictive modeling of CAGR. The net results are factors extracted using the full sample of directors. Using a varimax rotation method, a summary of the factor analyses begins with Table 8.3. This table summarizes the results of the factor analysis for the intervally scaled Paradigm variables.

Table 8.3 Paradigm Variables: Rotated Sums of Squared Component (Factor) Loadings

Component (Factor)	Eigenvalue	% of Variance	Cumulative %
F 1_1	2.206	18.385	18.385
F 2_1	1.719	14.321	32.706
F 3_1	1.642	13.681	46.387

Table 8.3 Paradigm Variables: Rotated Sums of Squared Component (Factor) Loadings (cont'd)

Component (Factor)	Eigenvalue	% of Variance	Cumulative %
F 4_1	1.409	11.739	58.126
F 5_1	1.325	11.040	69.165

As indicated in the table, five factors account for 69.165% of the variation in the Paradigm variables. The next step in the analysis involves identifying the variables that are part of each component, and then naming each factor in a manner that best reflects the collection of variables within it. Table 8.4 summarizes the rotated component matrix.

Table 8.4 Rotated Component Matrix

	Factor				
Variable	**1**	**2**	**3**	**4**	**5**
Professional diversity	319		-.338		.640
Ethnic and cultural diversity	.586	-.535			
Age diversity	.682	-.324			
Academic diversity	.645				.467
Gender diversity	.625	-.474			-.341
Meeting board objectives	.472	.466	-.500		
Community needs	.668				
Management ideology	.357	.397	.379	-.502	
Meeting corporate objectives	.337	.466		-.337	-.424
Functional competency	.325	.503	-.452	.380	
Reputation of the board member		.453	.425	.634	
Strategic partnering to benefit the firm	.407		.569		

The five factors, which were saved as variables for use in the multiple linear regression analysis, are named in Table 8.5. (Note: Explanations of the naming of factors are presented in Chapter 7. Due to the highly similar results observed for the factor analyses of Chapter 8, the detailed explanations of the naming of factors are omitted in this chapter.)

Table 8.5 Paradigm Variables: Naming of Factors

Factor	Name
F 1_1	♦ Importance of diversity (ex. professional diversity) and community needs
F 2_1	♦ Importance of functional competency rather than ethnic/cultural diversity
F 3_1	♦ Importance of strategic partnering rather than meeting corporate objectives
F 4_1	♦ Importance of board member's reputation
F 5_1	♦ Importance of professional diversity

Principal components factor analysis continues with the intervally scaled Purpose variables. The results of this analysis, including the naming of the factors, continues with Tables 8.6 through 8.8, which pertains to the importance of various items in shaping the actions and decisions of the board.

Table 8.6 Purpose Variables: Rotated Sums of Squared Component (Factor) Loadings

Component (Factor)	Eigenvalue	% of Variance	Cumulative %
F 1_2	1.766	19.625	19.625
F 2_2	1.747	19.410	39.035
F 3_2	1.295	14.391	53.426

Purpose variable "group": Importance of items shaping board actions and decisions.

The factor loadings indicate that more than 50% of the variation in this first group of Purpose variables is explained by three factors. Table 8.7 presents the rotated component matrix for this group of variables and factors.

Table 8.7 Rotated Component Matrix

	Factor		
Variable	**1**	**2**	**3**
Chair leadership	.581		-.452
Community needs			.797
Economic conditions	.511		.533
Meeting corporate goals or objectives	.688		
Directors' desire for personal contribution		.755	
Reaching board consensus		.713	
Management ideology of directors		.710	
Short-term planning	.561		
Long-term planning	.575		

The three factors that account for more than half of the variation, as noted above, are named in Table 8.8.

Table 8.8 Purpose Variables: Naming of Factors

Factor	Name
F 1_2	♦ Importance of goal attainment
F 2_2	♦ Importance of directors orientation and ideology
F 3_2	♦ Importance of macro needs and conditions

The second set of intervally scaled Purpose variables pertains to the importance of various issues to the board. Tables 8.9 through 8.11 summarize the results of this factor analysis.

Table 8.9 Purpose Variables: Rotated Sums of Squared Component (Factor) Loadings

Component (Factor)	Eigenvalue	% of Variance	Cumulative %
F 1_3	2.373	23.732	23.732
F 2_3	2.156	21.565	45.296
F 3_3	1.169	11.693	56.989

Purpose variable "group": Importance of various issues to the board.

Three extracted factors account for 56.989% of the variation in the Purpose variables related to the importance of various issues to the board.

Table 8.10 Rotated Component Matrix

	Factor		
Variable	**1**	**2**	**3**
Strategic planning	.692		
Corporate performance			.849
Relations with stakeholders	.699		
Relations with management	.739		
Director compensation	.371	.426	-.499
State and federal regulation		.817	
Shareholder representation	.586	.374	
Shareholder equity	.421	.385	
Liability and insurance		.790	
Competitive threats to the firm	.379	.575	.315

Table 8.11 Purpose Variables: Naming of Factors

Factor	Name
F 1_3	♦ Importance of internal/external relations and strategic planning
F 2_3	♦ Importance of risk management and reduction
F 3_3	♦ Importance of corporate performance

The fourth and final set of intervally scaled Purpose variables pertains to directors' satisfaction with the dealings of the board relative to various issues. This set of Purpose variables deals as well as with the directors' overall level of satisfaction with the performance of the board and with the performance of the company. As the results of this last factor analysis indicate, just two factors are extracted from this last set of

Purpose variables, and these account for 53.948% of the total variation among the set of variables that serve as inputs. These results are shown in Tables 8.12 through 8.14.

Table 8.12 Purpose Variables: Rotated Sums of Squared Component (Factor) Loadings

Component (Factor)	Eigenvalue	% of Variance	Cumulative %
F 1_4	3.630	30.248	30.248
F 2_4	2.844	23.700	53.948

Purpose variable "group": Satisfaction with board's dealings with various issue and overall satisfaction with performance of board and company.

Table 8.13 Rotated Component Matrix

Variable	Factor 1	Factor 2
Strategic planning	.738	350
Corporate performance	.796	
Relations with stakeholders	.575	.434
Relations with management	.503	.435
Director compensation	.505	.377
State and federal regulation		.732
Shareholder representation		.783
Shareholder equity	.422	.561
Liability and insurance		.761
Competitive threats to the firm	.527	.422
Satisfaction with overall performance of the board	.743	
Satisfaction with overall performance of the company	.747	

Table 8.14 Purpose Variables: Naming of Factors

Factor	Name
F 1_4	♦ Satisfaction with performance of the board and company
F 2_4	♦ Satisfaction with risk management and shareholder representation

8.2.4 Replacement of Missing Values Among Dichotomous Variables

In addition to using principal components factor analysis to capture the intervally scaled variables in the analysis, the analysis seeks to capture the potential predictive power of the dichotomous (coded as "0" and "1") variables in the data set. Included in this analysis is one multiple response categorical variable ("expected percentage change in the percentage of directors on board who are women/next 2 years") which, as determined in section 8.2.2, is significantly associated with the compound annual growth rate in market capitalization. For this variable, the newly coded response categories also are "0" (decrease/stay the same) and "1" (increase). Most of these

variables have some small percentage of missing values, but as was noted in the discriminant analysis predicting board status, binary variables satisfy the definition of "equal distances" and thus can be viewed as having interval properties. As such, missing values for these variables can be replaced using the means of the specific variable. Therefore, the final step in preparing for the stepwise multiple linear regression analysis involves the replacement of missing values with means for all dichotomous variables that possess missing values. Following this step, the analysis moves next to the development of the predictive model with the full complement of 144 cases.

8.2.5 Stepwise Multiple Linear Regression Analysis Using Factor Scores

Stepwise multiple linear regression is a multivariate dependency technique that uses two or more independent predictor variables to forecast values of an intervally scaled dependent (criterion) variable. Malhotra (1999) states, "The purpose of stepwise multiple linear regression analysis is to select, from a large number of predictor variables, a small set of variables that account for most of the variation in the dependent or criterion variable" (546). Predictor variables are shown in Table 8.15.

Table 8.15 Independent Predictor Variables Used in the Multiple Linear Regression Analysis

No.	Variable
1	Expected change in the percentage of directors who are women/next 2 years
2	(All dichotomous categorical variables coded as dummy variables)
3	F 1_1: Importance of diversity (ex. professional diversity) and community needs
4	F 2_1: Importance of functional competency rather than ethnic cultural diversity
5	F 3_1: Importance of strategic partnering rather than meeting corporate objectives
6	F 4_1: Importance of board member's reputation
7	F 5_1: Importance of professional diversity
8	F 1_2: Importance of goal attainment
9	F 2_2: Importance of directors' orientation and ideology
10	F 3_2: Importance of macro needs and conditions
11	F 1_3: Importance of internal/external relations and strategic planning
12	F 2_3: Importance of adherence to risk management and reduction
13	F 3_3: Importance of corporate performance
14	F 1_4: Satisfaction with performance of the board and company
15	F 2_4: Satisfaction with risk management and shareholder representation

As with the previously completed stepwise discriminant analysis, the predictor variables are added to and removed from the analysis incrementally using a significance cutoff of α=0.10. A summary of the regression analysis begins with Table 8.16, with Table 8.17 identifying the model's significant predictor variables.

Table 8.16 Stepwise Regression Analysis: Model Summary

Measure	Value
R^2	.136
R^2 (Adjusted)	.111
Standard Error of the Estimate	55.373%
F	5.481
Significance of F	p<0.001

Table 8.17 Stepwise Regression Analysis: Predictor Variables

Predictors
♦ Constant
♦ Expected change in the percentage of directors who are women/next 2 years
♦ F 5_1: Importance of professional diversity
♦ F 2_4: Satisfaction with risk management and shareholder representation
♦ (If not an independent director) Employee

This stepwise multiple linear regression model produces results that are of low but significant predictive strength. The coefficient of determination (R^2) indicates that 13.6% of the variation in the dependent variable (CAGR in market capitalization) is explained by the variation in the independent variables. Since the coefficient of determination ranges from zero to one, the adjusted R^2 value is calculated to reflect diminishing returns due to the number of independent variables and the sample size (Malhotra, 1999). The adjusted R^2 value indicates that just 11.1% of the variation in the dependent variable is explained by the variation in the independent variables. The F-statistic of 5.481 is highly significant (p<0.001, d.f. = 143), indicating that the null hypothesis of no linear relationship between the dependent variable and the independent variables is rejected. It must be noted that the regression analysis may be somewhat compromised by the fact that missing values are replaced by means. This has the net effect of increasing the homogeneity of responses, as missing values are assigned the average response to the respective question. Further, the dependent variable (CAGR) is a percentage that is compared, in effect, to the CAGR levels of all other companies in the sample. A more appropriate measure for future research may

be that of CAGR in some form of an index, with each company's compound annual growth rate compared to that of some sector benchmark (i.e. the average CAGR of all companies with a particular SIC sector).

Just four variables, plus a constant value, comprise the set of significant predictor variables from the stepwise multiple linear regression analysis. Table 8.18 summarizes these variables, including their unstandardized (B) and standardized (β) coefficients, as well as the significance levels of each variable.

Table 8.18 Coefficients of Stepwise Analysis

Variable	B	β	Sig.
Constant	39.398	-	.005
Expected change in the percentage of directors who are women/next 2 years	-36.281	-.233	.004
F 5_1: Importance of professional diversity	-10.670	-.182	0.024
F 2_4: Satisfaction with risk management and shareholder representation	-9.975	-.170	.033
(If not an independent director) Employee	33.100	.163	.042

The initial stepwise analysis provides very little support of the proposition that corporate performance is linked to corporate governance. To continue the analysis, one change is made before re-running the regression. This change involves excluding the fitted constant (a) of the regression from the stepwise analysis. Such an exclusion can be an input into the development of the model using SPSS. In stepwise regression analysis, a researcher should take the initiative to remove independent variables, and the analysis should be used in conjunction with the judgment of a researcher (Keller et al. (1990).

8.3 SUMMARY

The purpose of Chapter 8 was to test the proposition that Greenfield boards, because of their adopting and exercising corporate governance best practices, will be associated with higher levels of company performance than will Heritage boards. A

variety of analytical tools were used to examine this proposition. The primary method of analysis was stepwise multiple linear regression analysis. This analysis identified a predictive model that significantly explains only 11.1% of the variation in the compound annual growth rate. However, upon closer inspection of the independent variables that were identified as being significant predictors of CAGR, only one variable (a component of a factor) corresponded to a corporate governance variable for which Greenfield and Heritage boards differed significantly. Therefore, the conclusion of this analysis is that corporate performance in newly public companies can be forecasted in a minimally predictive manner, but little linkage exists between the corporate governance best practices and the company performance of either Greenfield or Heritage companies.

CHAPTER NINE
POST-SURVEY INTERVIEWS

9.1 INTRODUCTION

The post-survey interviews, which comprise one leg of the methodological triangulation strategy adopted for this study, serve both compensatory and validation purposes. First, interviews were conducted to compensate for the inherent limitations of the self-administered mail questionnaire, which are associated with the lack of a survey administrator (Fink, 1995; Bourque and Fielder, 1995; Fowler, 1993; Brewer and Hunter, 1989; Joliffe, 1986; Dillman, 1978). Most importantly here, the post-survey interviews offered a venue for going into more depth with interviewees, at a peer level, on matters that could only be approached in the questionnaire (Useem, 1993; Lorsch and McIver, 1989; Dillman, 1978). Second, interviews were included in the methodology in order to provide a means for bridging the gap between theory and practice with regard to the questionnaire methodology and results. That is, by allowing me to review and question with academicians and practitioners the statistical results obtained from the mail questionnaire, the interviews afforded a kind of "reality test", or what Riquier et al. (1997) term an assessment of the "external validity" of the data. Thus the post-survey interviews augmented the results of the statistical analysis by moving toward meeting the measure of "truth" in the study.

9.2 INTERVIEW GUIDE DEVELOPMENT

To provide for a degree of uniformity and to ensure adequate coverage, a detailed interview guide was developed for use in the post-survey interview process. The interview guide, which appears as Appendix IX, contained an introduction and three sections. The Introduction provided an overview of the intended topics and ensured interviewee anonymity. Section 1 contained questions pertaining to the interviewee's current and past experience as a director. Section 2 reviewed the study's research propositions, methodology and expected outcomes; and elicited interviewee response to the overall study outcomes. Section 3 posed questions specifically tied to the research propositions on board membership (The Players Proposition), board structure (The Paradigm Proposition), and board purpose (The Purpose Proposition). Section 4

inquired about these additional topics: the potential for board transmogrification or maturation over time; the effects of company sector or leader personality on corporate boards; and how best to calibrate company performance (The Performance Proposition). Section 4 also contained an open-ended query regarding other topics in corporate governance deemed important or interesting by the interviewees.

In addition, a one-page sheet encapsulating the study objectives and methodology was prepared (see Appendix X). This summary was offered to all of the interviewees, along with the explanation that the sheet would provide the interviewee with a concise overview. Eight of the interviewees requested that they receive the written summary in advance of the interview, and those interviewees were faxed the one-page sheet. In the course of the interviews, I reviewed the contents of the summary sheet orally with the remaining interviewees at the outset of the interview. This approach gave the interviews a measure of consistency so far as the interviewees' all having a common understanding of the study objectives and methodology.

9.3 INTERVIEWEE SELECTION

Criteria for selecting the post-survey interviewees were established to help ensure diversity of the interview cohort. Careful attention was paid to selecting interviewees who were geographically dispersed and from different types of companies (including Greenfield, Heritage, and "other" companies that were neither Greenfield nor Heritage). This step was taken to avoid the potential problem of selecting clusters of interviewees (for example, interviewees from California's technology-intensive Silicon Valley) that could tend toward homogeneous experiences and opinions. To broaden the sample of post-survey interviewees, participants were sought from search firms experienced in placing directors in a wide range of companies; and from several different academic institutions. All interviewees were either known to me personally or recommended to me, and were selected on the basis of their expertise with and active interest in the area of corporate governance.

The post-survey interview data set accordingly consisted of information garnered from a total of 20 interviews. Included in the interview cohort were thirteen corporate governance practitioners (Chairmen, CEOs, directors), four senior executive search

professionals, and three academicians with interest and knowledge in the area of corporate governance. Of the practitioner interviewees, ten were associated with Heritage or Greenfield companies, and three were practitioners at companies other than Heritage or Greenfield as defined in the study; that is to say, the companies did not have an Initial Public Offering during the 1993-1997 time frame.

Table 9.1 Characteristics of Post-Survey Interview Cohort

Interview Number	Category	Company Type	Date (1999)	Mode
1.	Chairman and CEO	Greenfield	October 26	Telephone
2.	Director	Greenfield	October 26	Telephone
3.	Chairman and CEO	Greenfield	October 30	Telephone
4.	Director	Greenfield	November 1	Telephone
5.	Chairman and CEO	Other	November 1	Telephone
6.	Director	Greenfield	November 1	Face-to-face
7.	Academician	Educational Institution	November 1	Telephone
8.	Academician	Educational Institution	November 3	Telephone
9.	Director	Other	November 3	Telephone
10.	Director*	Heritage	November 8	Face-to-face
11.	Senior Executive Search Professional	Executive Search Firm	November 8	Telephone
12.	Director	Heritage	November 14	Telephone
13.	CEO	Other	November 14	Telephone
14.	CEO	Heritage	November 15	Face-to-face
15.	Senior Executive Search Professional	Executive Search Firm	November 16	Telephone
16.	Senior Executive Search Professional	Executive Search Firm	November 16	Telephone
17.	CEO	Heritage	November 17	Telephone
18.	Chairman and CEO	Greenfield	November 17	Telephone
19.	Senior Executive Search Professional	Executive Search Firm	November 17	Telephone
20.	Academician	Educational Institution	November 17	Telephone

* In study sample as non-respondent Heritage director

9.4 CONDUCT OF INTERVIEWS

Seventeen of the post-survey interviews were conducted via the telephone, and the remaining three were face-to-face interviews. Dillman (1978) comments generally that face-to-face interviews are preferable to telephone interviews because the face-to-face modality allows an interviewer to observe the interviewee's responses first hand

and to use that feedback to keep the interview flowing smoothly. However, the circumstances of this study allowed for the use of telephone interviews because the barriers typically associated with telephone interviews, such as lack of access by the interviewer (Jones, 1998; Edmunds, 1996) or those barriers named by Dillman, were either absent or mitigated. In this instance, the telephone interviewees were not "cold call" interviews; that is, each of the interviewees either was previously known to me or introduced to me by another interviewee who was previously known to me.

The interview typically opened with a review of the one-page summary provided to the interviewee, then proceeded through the order of questions in the interview guide. To capitalize on the advantages of the personal interview modality, the interviewer deviated from the guide to skip non-applicable questions, to ask follow-up questions and pursue avenues of discussion raised by the interviewee (Dillman, 1978); and to seek lengthier, more detailed answers to "why" questions (Jones, 1998). Interviews ranged generally from 45 to 90 minutes. Each interview was taped and then transcribed.

9.5 DISCUSSION AND SUMMARY OF INTERVIEW RESULTS

The post-survey interviews provided a wealth of information to augment the survey results. Ensured anonymity, the interviewees were remarkably candid about their specific experiences on boards and about their thoughts about corporate governance in general. Overall, they not only responded fully to the questions posed but also volunteered additional questions and lines of thought for incorporation into the study. Thus, from these interviews came new information as well as my deepened sense of the very real need for real-life information for corporate directors, and an increased awareness of the demands placed on directors of newly public companies in these difficult economic times in the United States.

While the interviewees discussed a wide-ranging number of topics and issues in corporate governance, a few themes essential to placing the survey results within a larger context and approaching the measure of "truth" emerged. These key themes are discussed below.

At the outset, the interviewees as a group demonstrated what appeared to be distinctly bifurcated opinions regarding the study's overall results. Asked why they thought the study did not yield any compelling evidence to indicate that Greenfield boards are more likely than Heritage boards to adopt corporate governance best practices, one group of interviewees said they were not surprised at this outcome because they believe the opposite to be true. These interviewees gave two primary explanations for their commonly held opinion that Heritage boards rather than Greenfield boards would be the more likely to embrace corporate governance best practices. First, they suggested that an underlying pattern for the practice of corporate governance, which has already been established in the parent company, is "imprinted" on the Heritage board at its inception. Accordingly, these interviewees said the Heritage board would thus have a natural framework in place that makes the board more likely to attend formally to matters of corporate governance and to adopt corporate governance best practices. Some representative comments:

> *I would probably say that the Greenfields are less likely to have a corporate governance committee, because of less experience and development with working with a board. So my guess is that it would lean more toward the Heritage.*
>
> *My instincts would tell me that boards of Heritage companies bring with them a legacy of conduct and legacy of view.*
>
> *[In] Greenfield [companies] the company ideology is going to be organically grown. In Heritage companies, I imagine it's going to be a transplant.*
>
> *I don't think the Heritage boards are much different from the boards of the parents. I think they're selected by those people. They're on the board. They have the same balance, the same emphasis and weighting of external and internal concern.*

These interviewees suggested further that Heritage boards are more keyed to currying favorable public opinion and taking an action either because it is "the right thing to do" or because it will be seen as "the right thing to do", particularly with regard to racial and gender diversity. Two interviewees explained:

> *People who come out of a Heritage [environment], where there's a legacy and people have been thinking about these issues longer, would have women and*

> *blacks and other kinds of minorities; [they] would say that 'I'm very cognizant of these issues because I've been under that scrutiny already before.'*
>
> *I would say that companies that are Heritage companies took a look earlier at their minority and diversity issues on their board.*

These interviewees also suggested that corporate governance best practices are in fact luxuries or niceties that Heritage boards can afford and have the time to shoulder because those boards are less likely than Greenfield board to be struggling with the baseline question of company survival. The interviewee quoted below painted the situation in blunt terms:

> *The difference that comes to mind is the Heritage company board of the traditional old boys getting around the table to shoot the [vulgarity]. Where [in] the Greenfield company, people come together around the board to get the job done. That's why they're there. One's a social thing, and my sense is that in Heritage companies, a lot of time it's prestige to be on the board, so it's treated as a social thing. Whereas with a Greenfield, there's so much work to be done, and has been just to get there. That's a real working board.*

Another put it this way:

> *I would say that Heritage is much more likely to have a corporate governance committee because of their history and connection to the bigger company. [Greenfields] don't think about it until they're further along. . . . I'm not sure if it's five years, but clearly in the first three years you're worried about many more other things, like compensation and audit and running the company as opposed to whether you have a corporate governance committee.*

In apparent contrast, the other group of interviewees expressed surprise at the overall study outcome. This group said they expected that the underlying study proposition would have been proven to demonstrate that Greenfield boards are indeed more likely to go with "the best and the brightest" when it comes to selecting directors and operating a board. However, additional questioning and a closer examination of responses revealed that the second group actually was in closer accord with the first group than was immediately apparent. These interviewees in fact said their experience with Greenfield boards showed those boards to be focused on one objective: to "achieve lift-off", as one interviewee put the matter. Representative comments from these interviewees illustrate the point:

I think generally most Greenfield companies are living in a much more highly charged competitive environment. You know, they're new into the business and so I think there's much more of a sense of sort of 'live or die' than in Heritage boards that are spun off from previously existing successful businesses.

[In Greenfield] companies, probably because they're in a survival mode, the board is more focused on what you need to do to build a business. Period.

These interviewees contended that the Greenfield boards would go with directors who could further that end; functional diversity was reported as being vital to Greenfield boards even as racial or gender diversity was painted as being irrelevant. In fact, for some interviewees, talent was the non-discriminating board pre-qualifier. Some of the interviewees went so far as to suggest that racial and gender diversity is a kind of a nicety for companies, a luxury that they can look after once they have the all-important issue of survival under control. This directly reinforced the information that came out of the survey results. Some specific comments in this regard:

I think a Heritage company would come out of a mature company who would have the time to develop a social conscience, to develop some of that diversity you talk about would be purposefully placed in the board for whatever reasons those things are important. In a Greenfield company, you don't have that stature, you don't have the moral compass set yet, so what you're really looking for is for people you know who are willing to do it.

I think that companies with large employee bases probably benefit from having your racial and gender diversification [on the board] because I think it makes them more attuned to the needs of your employees. But short of that, I'm not sure it's a particularly compelling issue. I'm not sure that it's a politically correct thing to say, but if I think about most board meetings and the kinds of subjects that are discussed, I think it's meaningless.

Thus the interviewees' opinions appeared to coalesce around the idea that corporate governance best practices are an "add-on" once company survival is assured, rather than an element in either promoting or assuring company survival.

The current economic environment in the United States has put this matter into even sharper contrast. In fact, the necessity of having a survivalist mentality is seemingly being demonstrated across a wide range of issues, in everything from diversity to company culture to loyalty to performance metrics. Simply put, the view is this: that which does not support company survival is subject to be jettisoned when the

corporate ship is taking on water. Where once the market was accepting of new performance measures such as "click-throughs" or "unique users", for example, more traditional economic metrics now are being emphasized. And the intangibles clamoring for admission into blended or Balanced Scorecard-type performance systems are being viewed with a coldly appraising eye.

Finally, interviewees across the board suggested that the range of possibilities with regard to corporate governance paradigms is becoming increasingly constricted as Securities and Exchange Commission rules become more restrictive. This drive, they believe, is requiring corporate boards to become all the more alike. Indeed, the results from the interviewees suggest that over time, Greenfield and Heritage companies can be expected to mimic one another with regard to their corporate governance practices. Some explanation:

> *Whether or not your origins are from a big company or a pure start-up, once you start looking at the public market, you're going to have to deal with what the SEC wants and what the public markets require as a public entity.*

The "survival first, governance next" stance was one part of a broader theme emerging during the course of the post-survey interviews. The theme went to the study's look at company performance, and its research proposition positing a relationship between adopting corporate governance best practices and achieving superior levels of company performance. Interviewees questioned whether there is any real, demonstrable connection between corporate governance and company performance at all. The interviewees' position on this matter ranged from the metaphorically raised eyebrow at the notion of such a link to outright rejection of the possibility. Some representative comments:

> *I'm not sure that [corporate governance] is a factor of corporate success.*

> *Interestingly enough, the top worst board in terms of corporate governance [on lists of best and worst boards] happens to be one of the best performing companies in its industry. And one of the best corporate governance boards, with regard to independent directors, happens to be the worst performing. Corporate governance, at the end of the day, doesn't really influence growth.*

> *I think corporate governance doesn't kick in unless a corporation gets in trouble.*

These comments were echoed by one of the senior executive search professionals, who seemed to struggle against the notion he was conveying:

> *The issue of does good corporate governance (and we could talk for hours about what that means) equate to good performance and shareholder value? We could go on for hours. There apparently was, a couple of years back, an exhaustive McKinsey study, and the answer was that there is no conclusive evidence that there is a correlation between governance and performance. Now on the other hand, we could give you thousands of examples where boards were asleep at the switch and the company tanked. I'm saying that I haven't seen a lot of conclusive results, but I guess maybe I'm a worker in the wilderness here.*

The various interviewees' rejection of corporate governance as a key to superior company performance led them to think more deeply about what does drive performance. They came up with a range of possibilities; the influence of talented people, individually and as a group, was at the top of the list for many of the interviewees. Indeed, the post-survey interviews surfaced a range of issues regarding the role and impact of individual directors within the context of the board, as opposed to looking at the impact of the board as a whole. One consideration that garnered significant attention was the importance of director orientation and training. Another issue was the concept of the "go-to" director, which can be defined loosely as an influential individual from whom consistent, solid, nonpartisan judgment and decisive action can be expected. Interviewees identified this type of director as the point player on boards that otherwise might be considered to perform a perfunctory function as a group. For example:

> *There's always kind of a lead dog. It's always like 'profiles in courage.' Some guy always rises to be the lead horse and make it happen.*

> *Going forward, I only want go-to people on the board. Even if sparks fly, it's more fun, it's more intellectually challenging, and good stuff happens.*

These comments certainly are consonant with my personal experience as a Chairman, CEO and director. One of the more constraining and sometimes frustrating aspects of this study has been viewing the board of directors as a whole, in which the various individual directors are conceptually seen as pieces in the larger jigsaw puzzle that is the board. In fact, time and time again personal experience has demonstrated that one

director can in effect be the board, depending on the situation and circumstances; it is the individual that matters greatly in corporate governance.

In a similar vein, interviewees pointed to the influence of individual personality as a factor in board power. They cited the presence of an engaging and dynamic CEO, Chairman, or CEO/Chairman as a force not to be underestimated in the equation of company success. Indeed, a characteristic interviewee response was to burst out laughing when asked the following two questions from the post-survey interview guide (see Appendix IX): "What role, if any, does personality play in corporate governance? Does a CEO or chair who is a strong leader or who has a dominant personality have any material effect on the board?" Some salient, and unguarded, quotations:

> *[Laughter] Yes. Yes. Yes. Yes. Yes. Yes. There's no question in my mind that a Chairman-CEO who effectively conducts those meetings or orchestrates them, or sets the agenda for them--the personality of that individual has enormous impact on how your board acts. And to me, it's critically important to the selection of your CEO and to your Chairman to understand you're affecting the nature of that discourse tremendously.*

> *I think the stronger the personality of the CEO, the more the CEO is likely to find the passivity of the board higher. And I don't say that in a negative sense. I think the stronger the CEO is--the better regarded he or she is within the business of the entity and certainly by those who cover the entity, either general journalists or specific analytic-type people--I think the more wide the franchise of governance will be from the non-management directors to that CEO.*

Other interviewees agreed that company performance turns on individual talent:

> *I think that company performance is so focused on the quality of talent, and that people drive everything today, so actually what drives company performance starts with the CEO and moves down. And it's really not about having the best board, having the best manufacturer, highest quality best marketing. It's all about whoever has the best talent.*

> *The nature of your personality and leadership style direct interaction with how the board functions and how effective I think you can be on a board.*

Thus, along this dimension, the interviewees once again tended to emphasize the importance of individuals rather than group action as important in the realm of corporate governance and company performance.

The emphasis on individual action highlights one aspect of the interviews that was particularly interesting. This was the question of why the various directors had agreed to join the boards on which they serve. Personal experience has suggested that the particular passion driving a director--whether it is adventure, a sense of obligation, hope of financial gain, or a desire to innovate--has a material influence on how that director thinks and acts. It also is a key to how satisfied the director will be in his or her board service. For those directors who are looking for financial gain, their measure of satisfaction is relatively straightforward: if they make money, they're happy. But for other directors, the matter is much more complex. They may be looking for an opportunity to build a company, to do something absorbing and intellectually challenging.

> *[I joined the three boards because] one is my own company and the second is a spin-off of our company, in the Internet space, so it was a company that I wanted to make sure continues to perform well. And the third was probably an intellectual interest in the space and in addition to that, an opportunity to expand my network, gain knowledge and experience in being a board member, and the economic upside.*

In sum, then, the post-survey interviews served to both buttress and expand upon the survey findings and conclusions. As did the results of the mail questionnaire, the information gleaned from the post-survey interviewees suggested the presence of an evolutionary arc with regard to corporate governance best practices. That is, the interviewees contended that the threshold of survival generally must be met before the matter of corporate governance becomes of marked significance to a corporate board. The interviewees questioned the existence of a clear link between the adoption and exercise of corporate governance best practices and the attainment of superior levels of company performance--the very link that could not be affirmed by the survey data.

CHAPTER TEN
DISCUSSION AND CONCLUSIONS

10.1 INTRODUCTION

This doctoral research has focused on the topic of corporate governance in newly public companies and its link to company performance. This final chapter reviews the findings of the study; relates those findings to the literature that provided the theoretical underpinning for the research; and discusses the implications of the results for practitioners of corporate governance in newly public companies, as well as for academicians interested in this area of study.

The section following this introduction deals with the results of the testing of all four research propositions by means of univariate and multivariate analysis. The three research propositions (Players, Paradigm and Purpose) that pertain to corporate governance practices are treated first. This is followed by a discussion of the fourth (Performance) proposition and its link to the prior three propositions. The additional and important insights gained by means of the post-survey interviews called for by the study's triangulated methodological approach also are leavened into the discussion.

Overall, this chapter serves to place the study results within the context of the previous literature and to highlight the contributions made to that body of literature by this study. The balance of the chapter suggests the implications the study results likely will have for corporate governance practitioners; for academicians, it points to the limitations of the research and to the additional questions it has raised, so as to suggest topics and concerns that merit further work by other researchers.

10.2 DISCUSSION AND SUMMARY OF THE STUDY RESULTS

This research yielded limited but nonetheless interesting information with regard to the differences in the degree to which various corporate governance best practices are adopted and exercised by Greenfield and Heritage boards respectively. At an aggregate level, the analysis of the Players, Paradigm and Purpose propositions failed to find evidence to support the propositions, which hypothesized collectively that in

de novo corporate governance, it would be the Greenfield boards that would be more likely than Heritage boards to establish and carry out those corporate governance practices currently posited to be most advantageous.

10.2.1 Board Heterogeneity (The Players Proposition)

A detailed examination of the data germane to the Players proposition, with its focus on board heterogeneity (Biggins, 1999; Zajac and Westphal, 1996; Westphal and Zajac, 1995; Pettigrew and McNulty, 1995; Lesly, 1995; Browder, 1995; Bilimoria and Piderit, 1994), revealed a negative relationship between board status and corporate governance best practices. That is, with regard to the certain variables found to possess significant differences ($p<0.10$) in terms of the composition of the board, it was the Heritage boards, not the Greenfield boards, that were found to be adopting and practicing corporate governance best practices in support of promoting heterogeneity.

Most significant was the result demonstrating that Greenfield boards are much less likely to have women directors than Heritage boards, and hence, are less heterogeneous when one examines them based on gender. Of the Greenfield directors surveyed, 20.4% reported that 1% or more of their directors are women, compared to 47.6% of Heritage directors who reported that 1% or more of their boards are women. This result was found to be highly significant ($p<0.001$); and, recalling that the data showed no significant difference between Greenfield and Heritage boards in terms of the number of directors currently serving, the data concomitantly suggested that Heritage boards have both a higher percentage of women directors currently serving on their board and a higher number of women directors currently serving as well.

Another condition that did not support the proposition's notion of greater heterogeneity on Greenfield boards pertained to racial diversity. Fully 26.2% of the Heritage directors surveyed reported that members of a racial minority comprised 1% or more of their board members. This compared to just 13.2% of Greenfield directors so reporting. Again, as with the instance of female directors, this result was significant ($p<0.05$), and indicated that a higher percentage of the directors on Heritage boards are members of a racial minority. Extending this conclusion, the results suggested that

the Heritage boards are populated by a greater number of directors who are members of a racial minority.

The data did demonstrate one difference that moderately supported the hypothesis of greater director heterogeneity among Greenfield boards. Asked to project the change they expected regarding racial diversity of the board over the next two years, 22.1% of responding Greenfield directors expected an increase; however, just 3.8% of the Heritage directors projected an increase, expecting instead either no change or a decrease. While this result was significant ($p<0.05$), its strength as an indicator of heterogeneity is limited because it is predictive rather than reflective of current reality.

Overall, then, the data did not support the Players proposition. In direct contrast, the data instead supported the twin conclusions that the Greenfield boards *are not more heterogeneous* than Heritage boards and also *are less heterogeneous* than their Heritage counterparts; and notably, no significant differences were observed between the two types of boards in terms of directors' perceptions of the *importance* of diversity-related factors (professional, ethnic and cultural, age, academic and gender) when shaping the board composition. These results are, however, consistent with the overall observations of the post-survey interviewees, who both expressed the opinion and reported on the experiential reality that Heritage boards are more likely to conform to corporate governance practices calling for the appointment of women and members of racial minorities to their boards.

Thus, the study can neither confirm nor advance the theoretical stance contained in the literature pertaining to company life cycle and organizational culture literature, which posits overall that (to use the terminology in the study) the boards of "newborn" (Greenfield) companies will exhibit fewer "core rigidities" (see Kanter et al., 1992) than will "reborn" (Heritage) companies, and thus will be more likely to practice heterogeneity in board composition. Interestingly, the data obtained from the statistical analysis and the information obtained from the post-survey interviews thus appear to converge at a different theoretical nexus; it is one suggesting that perhaps the corporate governance best practices pertaining to heterogeneity are already in play at the parent companies of the Heritage firms and are accordingly carried over in the

course of the spin-off or carve-out. Some data to support this tentative conclusion were present in the survey analysis, which found that the incidence rate for the existence of a corporate governance committee of the board was higher among Heritage boards than Greenfield boards; one interviewee stated that a Heritage company is more likely to have a governance committee "just because of the corporate culture and . . . they're used to it."

10.2.2 Board Cooperation (The Paradigm Proposition)

The Paradigm proposition hypothesized that newly created boards of Greenfield companies were more likely to carry out those corporate governance best practices pertaining to the adoption of board structures and operating procedures that promote a cooperative chief executive officer-board of directors relationship. This arrangement is concerned with board composition and architecture, as well as with procedural considerations.

As was discussed in Section 3.3, the proposition turns on the construct that a cooperative arrangement is one in which the parties have well-defined and separate spheres of influence that are exercised in consort to promote a common goal. Accordingly, the Paradigm proposition considered the purported importance of the director independence (Hodes, 2000; Block and Hoff, 1994; Tobin 1994), as well as the role of the directors in agenda setting and strategic planning (Forbes and Millken, 1999; Berenbeim, 1996; Pound, 1995). The role of the CEO, and the overall balance of power between the Chairman and the board (Boyd and Carroll, 1996; Rechner et al., 1993; Wang and Coffey, 1992; Pearce and Zahra, 1991) were examined as well, along with the presence of standing committees on the board, and the various stock/option requirements.

The Paradigm proposition analysis used such analytical techniques as the Chi-square test of independent samples and tests of independence, and principal components factor analysis. With regard to the presence of independent directors on the board, no significant difference between Greenfield and Heritage boards was observed in terms of the percentage of their directors who are independent. In addition, of those directors who are not independent, a strong majority of both groups are affiliated with

the company as employees, with no significant differences observed between Greenfield and Heritage boards.

The directors surveyed also were asked to rate the importance of various factors in shaping the composition of their respective boards. The test of independent means found only two significant differences between Greenfield and Heritage boards in this regard. Specifically, Heritage directors rated "management ideology" as more important in shaping the composition of their board than did Greenfield directors. Conversely, Greenfield directors rated the importance of "functional competency" when shaping the composition of the board more highly than did Heritage directors.

Issues related to the operating procedures of Greenfield and Heritage boards were examined statistically. Here again, only a limited number of significant differences were observed between the two, with Heritage boards having significantly higher incidence rates than Greenfield boards regarding the existence of Executive, Corporate Governance, and "Other" committees of the board. These data run counter to the proposition, which looks to Greenfield boards to have such committees as a modality of countervailing power.

No significant differences between Greenfield and Heritage boards were observed in terms of the individual appointment process to the board, nor in terms of the process by which the board's agenda is initiated. In addition, while a majority of Greenfield and Heritage directors currently own stock in their respective companies, significant differences in the incidence rate were not present. Interestingly, Heritage directors are significantly more likely than Greenfield directors to own options to buy stock in their respective companies.

With an eye to the adverse effects of director interlocks (Lesly, 1995; Davis, 1991), no significant differences were observed in the respective percentages of Greenfield and Heritage directors who currently serve as a director on another board. Of those who do serve on another board, there were no significant differences with regard to the number of other boards on which they serve.

The examination of levels of cooperation, assessed via questions about directors' voting behavior and their patterns of expressing, saw no difference between Greenfield and Heritage directors in terms of the directors' "always" voting in accordance with the majority of the board. However, a significant difference between Greenfield and Heritage boards was seen in the incidence of directors who "always" or "sometimes" express a dissenting opinion in opposition to the rest of the board, with dissenting Heritage directors more prevalent than Greenfield directors. While this difference was significant, and is in support of the proposition, it does rely on both self-assessment and self-reporting and thus its strength, particularly in the absence of confirming data, is somewhat limited.

Overall, then, the data failed to demonstrate in either a significant or decisive way that Greenfield boards are more cooperative with the CEO than are Heritage boards, and thus did not support the Paradigm proposition. As was the case with the Players proposition, therefore, the study can neither confirm nor advance the theoretical stance contained in the literature pertaining to the balance of power and degree of cooperation.

The post-survey interviews also provided important insight on the realities of the relative balance of power in Greenfield and Heritage boards. Interviewees suggested that in their view, the CEO of a Greenfield company tended to have powerful sway over the board in three particular instances: 1) when the CEO is the Greenfield company founder; 2) when the CEO is also the Chairman; and 3) when the CEO has a dominant personality (termed an "alpha dog" personality by one interviewee), particularly in the earliest stages of the company. These considerations echo the intra-firm organization theory discussed in Section 2.3.3, which promotes the importance of strong leadership and favors chief executive officer-board chairman duality, with one person serving in both roles (Dalton and Daily, 1998a; Boyd, 1995). This contention was in turn echoed by the statistical analysis, which on a directional basis indicated that Greenfield boards are more likely to have their agenda initiated by the CEO or Chairman with limited input from the board, while Heritage boards are more likely to have the CEO or Chairman initiate the board's agenda with extensive input from the board.

Here, too, the study can offer little definitive information regarding the differential characterization of Greenfield and Heritage boards along the dimensions pertaining to board paradigm, and thus can neither confirm nor advance the body of salient literature.

10.2.3 Board Responsiveness (The Purpose Proposition)

The Purpose proposition took up the hypothesis that directors serve as an internal control mechanism helping to ensure congruence between shareholder goals and management objectives. The analysis of this proposition was thus directed at characterizing the board's stance *vis a vis* outside interests (Golembiewski, 1995; Allen, 1992); specifically, the analysis proceeded by assessing the relative importance of outside interests in shaping the composition and actions of the board. Along with emphasizing the agency theory model as that best aligned with corporate governance best practices, the study has taken care also to recognize that stakeholder theory sees the corporation as a social institution acting in the context of a larger societal "field" that goes beyond the question of the owner-manager relationship to consider also "outside" interests (Brancato, 1997; Wang and Dewhirst, 1992), and this stance is implicit in the Purpose proposition. The assessment of purpose also touches (particularly in the post-survey interviews) on the importance of managerial control (e.g., Johnson et al., 1993; Boyd, 1990; Drucker, 1973) and the personality of the various players (Doig, 1997; Casson, 1996; Payne, 1991) as influential in helping to establish the purported *raison d'être* of a given board.

As was the case in the analysis of Players and Paradigm propositions, examination of the Purpose proposition yielded only a scant number of significant differences between Greenfield and Heritage boards with regard to the purpose of the board. In the first instance, the differences appear to contradict one another; Heritage directors placed significantly higher levels of importance on "economic conditions" as a factor shaping the actions and decisions of the board, while Greenfield directors placed significantly higher importance on "shareholder equity", an outcomes pairing that raises the interpretative question whether either group can be characterized as the true disciple of the so-called Friedman (1970) doctrine stipulating that increase in wealth is the *raison d'être* of any corporation. Along with placing higher importance on "relations with stakeholders" and "competitive threats to the firm" than did the

Heritage directors, Greenfield directors also expressed higher levels of satisfaction with board performance with regard to dealing with "state and federal regulation".

These differences, while real, seemed limited when compared to the wider range of possible areas for uniqueness of attitudes and values. In addition, they are highly open to interpretation, being dependent as they are not only on the respondent's or interviewee's understanding of the terms, but also on the researcher's.

In contrast to the ambiguous results of the statistical analysis, the information gleaned from the post-survey interviews paints a different picture. The interviewees were remarkably consistent in painting the primary purpose of the Greenfield boards: to act to ensure the very survival of the company; that is, to achieve "lift-off", as one interviewee termed it.

Once again, as was the case with the Players and Paradigm variables, the study can neither confirm nor advance the theoretical underpinnings relative to this stream of thought in the corporate best practices literature.

10.2.4 Company Performance (The Performance Proposition)

The fourth and final research proposition turned on the idea that Greenfield boards, by adopting and exercising corporate governance best practices, would be associated with higher levels of company performance than would Heritage boards. The primary method of analysis was stepwise multiple linear regression analysis, which was successful in identifying a predictive model that significantly explained more than 50% of the variation in the compound annual growth rate (CAGR) in market capitalization of newly public companies. However, closer inspection of the independent variables that were identified as being significant predictors of CAGR showed only one variable (a component of a factor) that corresponded to a corporate governance variable for which Greenfield and Heritage boards differed significantly. No significant difference between the compound annual growth rates of Greenfield and Heritage companies was observed, and the data failed to provide evidence that Greenfield boards adopt and exercise corporate governance practices that necessarily lead to higher levels of company performance.

The post-survey interviews were enlightening on the subject of these study results. Practitioners overall expressed little surprise at the outcome, and several commented that they did not believe that there is, indeed, a direct connection between corporate governance and company performance.

Thus, with regard to the Performance Proposition, the survey results indicate that corporate performance in newly public companies can be forecast in a marginally reliable way, but there is little apparent linkage between corporate governance best practices and the company performance of Greenfield or Heritage companies. These results did not provide evidence to support the study's research propositions, but arguably are consistent with a body of literature that has failed to demonstrate a clear link between corporate governance and company performance. The Performance Proposition findings, along with those pertaining to the propositions on Players, Paradigm and Purpose, are summarized in Table 10.1 on the following page.

10.3 IMPLICATIONS FOR PRACTITIONERS

This research has contributed greatly to understanding corporate governance in newly public companies. As I personally have seen in practice, and as was noted in the beginning of this thesis, this study makes a foray into new territory. Prior to this research, there was little targeted information about corporate governance in newly public United States companies which was available to guide CEOs, boards of directors, investors, regulators or shareholders.

In the course of the post-survey interviews, and in the months since the study was completed, I have taken the opportunity to discuss the study's assumptions, propositions and findings with a number of my colleagues. Interest in the work has been intense, and many fellow practitioners have requested a copy of the thesis. Colleagues have commented on what they assess as a troubling and continuing lack of information or awareness of what actually is involved in being a corporate director. Both current and prospective directors see value in the study's real-life information about what actually goes on in the boardrooms of newly public companies in the United States. Solid information is judged particularly valuable for prospective board members who want to be able to weigh the real risks against the potential rewards of

Table 10.1 Key Research Findings

P1: The Players Proposition
Newly created boards of Greenfield companies will demonstrate a greater degree of heterogeneity among directors than will newly created boards of Heritage companies.

Summary Finding: Proposition not supported

Greenfield boards have a smaller percentage of female directors and directors who are members of a racial minority.
Greenfield directors less likely to expect an increase in the percentage of directors who are members of a racial minority.
No difference observed in directors' tenure, motivation for accepting a board position on the board, or current board size.
No differences are observed in expected change over the next two years in the number of female directors.

References: Biggins, 1999; Colvin, 1999; Pettigrew & McNulty, 1995; Bilimoria & Piderit, 1994

P4: The Performance Proposition
By adopting and exercising corporate governance best practices, newly created boards of Greenfield companies will be associated with higher levels of company performance, as assessed by compound annual growth rate in market capitalization, than will newly created boards of Heritage companies.

Summary Finding: Proposition marginally supported

Six variables identified as moderate but significant predictors of company performance: 1) importance of professional diversity, 2) importance of diversity (ex. professional diversity) and community needs; 3) standing compensation committee; 4) percentage of non-independent directors affiliated as employees 5) expected change in percentage of female directors 6) satisfaction with risk management and shareholder representation.
Some significant difference observed in satisfaction with risk management and shareholder representation; Greenfield directors have higher levels of satisfaction in board dealings with state and federal regulation.

References: Goldstein, 1999; The Conference Board, 1998; Finkle, 1998; Brancato, 1997

P2: The Paradigm Proposition
Newly created boards of Greenfield companies will adopt board structures and operating procedures which promote a more cooperative chief executive office – board of directors relationship than those structures and operating procedures adopted by newly created boards of Heritage companies

Summary Finding: Proposition not supported

Greenfield boards less likely to have a standing corporate governance committee or a standing executive committee; no other differences observed regarding standing committees.
No difference observed in percentage of independent directors.
No difference observed in CEO's likelihood of serving as Chairman.
No difference observed in process of appointment to the board.
No difference observed in process of initiating the board's agenda.

References: Dalton & Daily; 1998a; Gopinath et al., 1995; Lorsch, 1995b; Tobin, 1994; Pearce & Zahra, 1991

P3: The Purpose Proposition
Newly created boards of Greenfield companies will demonstrate a more responsive stance toward a broader range of shareholders and stakeholders than will newly created boards of Heritage companies.

Summary Finding: Proposition moderately supported

Greenfield companies place a higher level of importance on relations with stakeholders (i.e. employees, suppliers) as an issue to the board.
No difference observed in importance of community needs as a factor when shaping the actions and decisions of the board.
No difference observed in importance of state and federal regulation as a board issue.
No difference observed in importance of shareholder representation as a board issue.
No difference observed in importance of relations with management as a board issue.

References: Verschoor, 1998; Quinn & Jones, 1995; Monks & Minow, 1995; Reich at al, 1994

joining a board, especially in an economic environment that is so volatile now in the United States. The research also is salient for CEOs laboring to steer a course through economically troubled waters. When a CEO under fire (particularly a founder-CEO of a Greenfield company) is inexperienced and also knows little to nothing about corporate governance, that is a prescription for disaster.

One of the more interesting results for practitioners is the implication that corporate boards, like the companies they serve, may well proceed through a distinct life cycle. The information obtained from the analysis and the post-survey interviews suggests that the first job of the newly created board is to ensure survival of the company, with directors apparently paying only cursory attention to the forms and processes of corporate governance. The import of this particular result has been driven home forcefully as the debilitating decline of the "New Economy" for newly public companies in the United States has continued into 2001. In 1996, Federal Reserve Board Chairman Alan Greenspan described the behavior of U.S. investors as characterized by "irrational exuberance". Certainly, the current U.S. economic environment is far different from the climate that dominated the 1993-1997 study period. In that heyday period for Initial Public Offerings, it seemed to many CEOs and board members of Greenfield companies that changes in both the theory and practice of business not only could be made, but could be made lasting. These changes, it was believed, would benefit the companies, their workers, and society at large by empowering workers; creating more enlightened, creative and innovative workplaces; and democratizing the availability, acquisition and use of information. The promise was there at the start, as "dot-com" company after company made a breathtaking launch. As time has worn on and the crush of the marketplace has intensified, however, the mother lode the companies struck at the IPO has seemed to be fool's gold rather than a rich new vein.

Therefore, perhaps the most significant implication for practitioners is the fact that this research did not demonstrate any compelling direct relationship between corporate governance and company performance. This, as was made abundantly clear in the post-survey interviews, came as no great surprise to the interviewees who saw corporate governance as largely irrelevant. Neither is it startling to me, because the finding is consonant with my own experience regarding some corporate boards on

which I have served. This is not to suggest that corporate governance in unimportant; it does have more import than serving as the "white gloves" of the company, a form of corporate good manners. Certainly, practitioners agree that corporate governance is a responsibility with regard to necessary regulation of public companies on the one side and an important protection for directors on the other side. However, the outcome of this research perhaps serves most importantly to buttress practitioners' tendencies to look in places other than corporate governance for their keys to superior company performance. And perhaps academics also are well served thusly.

Company survival is an ever the more vital question for corporate governance practitioners in the United States in 2001. This study offered as one observation the "survival first, governance next" approach embraced by Greenfield companies. If the issue of survival and corporate governance was intriguing during the 1993-1997 study period, it is compelling currently. The economy has become a crucial variable in the corporate governance equation. CEOs and directors of Greenfield companies in particular have to be concerned about how those companies will carry out their responsibilities to shareholders and stakeholders when survival is on the line. The notion of an enlightened workplace with an ennobling corporate culture seems sharply at odds with the reality that is emerging as the "New Economy" turns old and sour. Very much is in turmoil now at newly public companies, and what was done so quickly when the economy was booming is being undone even more quickly as the boom has gone bust. The rapidity with which the changes have occurred has given practitioners precious little time to react and even less time for introspection. But this study nonetheless offers up corporate governance questions about the fundamental nature of the corporation and the fundamental responsibilities of directors. These questions do not vary with the economy, and practitioners will have to face these issues as companies disappear, employees are laid off, and CEOs move on.

10.4 LIMITATIONS OF THE STUDY

This study, as do all such studies, has its certain limitations. This section reviews the methodological limitations, then proceeds to discuss the key assumption underlying the entire research effort: that there is in fact a direct and measurable relationship between corporate governance and company performance.

While the research incorporated efforts both reasonable and rigorous in order to collect data sufficient to drawing conclusions, the work was hampered by the relatively small sample obtained in the course of conducting the mail questionnaire. With a response rate less than 6%, the resultant sample size had the effect of limiting the analysis somewhat, particularly in the application of CHAID.

In addition, the research was largely dependent on subjective assessment, self-reported, for three of the four variables tested. The Players, Paradigm and Purpose variables all relied (both for the mail questionnaire and for the post-survey interviews) on respondent self-reporting of retrospective and predictive information. Thus the possibility that this information has been purposely or inadvertently misreported must be acknowledged.

Finally, in framing propositions pertaining to the relationship between corporate governance best practices and company performance, the study launched from a theoretical platform resting on the underlying assumption that there is a direct and measurable link between the two. Certainly, the existence of the purported link can be (and has been) hotly debated (see, e.g., Boyd and Carroll, 1996; Boyd, 1995; Rechner et al., 1993; Wang and Coffey, 1992; O'Neill et al., 1989). The 1998 Conference Board Report entitled "The Link Between Corporate Governance and Performance" summarizes and analyzes 14 studies conducted between 1993 and 1997. The report asks the question "Is there a link between corporate governance and corporate performance?' and provides this answer: "The Conference Board does not find quantitative evidence to either prove or disprove such a link" (3). The report goes on to comment that even those studies that do find some association are pressed to demonstrate causation. This study leaves the question unanswered, and so it remains.

10.5 SUGGESTIONS FOR FUTURE RESEARCH

In the main, this study provides valuable contributions both to the methodology of survey research of corporate directors, and to the body of corporate governance and performance literature. The work also provides a starting point from which other

researchers examining corporate governance and company performance in newly public companies can launch.

10.5.1 Methodological Research

First, this study points to methodological considerations worthy of future study. Despite this study's careful attention to Dillman (1978), the gold standard for mail surveys, the mail questionnaire achieved only a modest 5.5% response rate overall. This rate, and the frustration and inordinate effort entailed in obtaining it, prompts the question whether a different approach might be called for in a study that has as its target corporate directors or other high-level managerial respondents. Indeed, many of Dillman's methodological exhortations appeared only marginally applicable to the subject group for this study. As a Chairman, CEO and director myself, I doubt that a reply envelope with a stamp applied will prompt a higher response rate than a business reply envelope, for example; or that offering a high-level executive a small premium for participating in a survey will guarantee a waterfall of responses.

The need for different procedures and standards for surveying corporate directors is an important consideration and is borne out by the differences in the response rates for three stages of this study. They were 76.9% for the pilot questionnaire, which was accompanied by a letter on my personal letterhead and distributed to respondents who were well known to me; 5.5% for the questionnaire designed according to Dillman's Total Design Method (1978) and distributed via first class mail to respondents largely unknown to me; and 8.1% for the subset of respondents who were contacted through the Chairman of the company on whose board the intended respondent director sat, following the distribution of a "colleague to colleague" requesting letter on my personal letterhead and dispatched via Federal Express courier service. (It is important to note also that the 5.5% response rate for the mail questionnaire includes the response received following the "colleague to colleague" appeal; absent those results, the overall response rate would be even lower.)

Dillman addresses the issue of respondent population subsets himself, in his book *Mail and Internet Surveys: The Tailored Design Method.* The book, which was published in 2000, acknowledges that what the author in his 1978 publication calls the "one-size-fits-all approach of the Total Design Method" (preface, ix) needed to be

modified. Commenting that procedures and techniques call for additional shaping based both on technological advances in surveying and on the specific populations, sponsorship and/or content involved, Dillman goes on to say that "we are experiencing a survey revolution, the consequences of which are yet to be clearly known" (preface, xi).

Based on the wealth of experience I garnered in the course of this doctoral study, I believe that the rigorous academic specifications for studies of this sort detract from the utility of the eventual results so far as practitioners are concerned. Simply put, the process consumes too much time moving from concept to execution and analysis. The world of business moves far faster than the timetable of academic research. There is a pressing need for new research modalities and a shorter, compressed time frame so that the results of academic research into topics on corporate governance--and other topics in business theory and management--can be timely and prescriptive rather than merely offering historical perspective. Certainly, the power of technology offers promising and important implications for survey research. The ability to survey interactively online, for example, could provide a richer and more timely data yield than that now afforded by more traditional means.

Finally, the relative value of case studies as a means for examining the attitudes and opinions of corporate directors and other high-level managerial respondents also merits further scrutiny and documentation. The course of this study's post-survey interviews vividly illustrated to me the bounty that can come from examining a topic at much closer range than is allowed by the mail questionnaire "fly over." Case studies would permit another researcher to delve down deep into what has happened in the myriad dimensions of corporate life for a newly public company, providing the kind of detailed historical perspective that then could be analyzed and translated into prescriptive action for other companies similarly situated. A methodological question for other researchers to explore, then, would be what kinds of research questions or assumptions lend themselves best to study and testing via case study, versus those questions or assumptions best approached via questionnaire survey research.

These questions of methodology offer fertile field for other researchers to plow.

Future work to identify and test possible approaches to the techniques and procedures most relevant to the corporate director and/or high level managerial populations thus holds the potential to yield important benefits to other researchers in corporate governance in specific and in business management in general.

10.5.2 Comparative Research: Demographics

For me, one of the most promising and exciting possibilities for further research lies at the intersection of these study results and the current economic climate for newly public companies in the United States. This study has been groundbreaking in its consideration of corporate governance *in newly public companies* as a topic of inquiry distinct from that of corporate governance in general. It has addressed in detail how corporate governance proceeds when newly public companies have a *tabula rasa* opportunity to create a new corporate board. The study was conducted during a period of rising tides for newly public companies, a prime time for examining the constitution of corporate boards under the most favorable of economic conditions.

In the United States now however, the economy has gone sour for newly public companies. The years 1999 and 2000 each brought over 400 Initial Public Offerings. In contrast, 2001 produced only 15 IPOs through March 19; a straight-line projection would bring the 2001 total to 71 (FactSet Research Systems, 2001). The picture is particularly dismal for Internet companies, which led the pack with 27.5% of all IPOs in 1999 and 19.8% in 2000. As of March 19, 2001, Internet IPOs had declined to 6.7% of total IPOs (see Chart 10.1 on the following page). Dozens of Internet "darling" companies have failed, and survivors' stock prices have dropped 80% in a year (FactSet Research Systems, 2001).

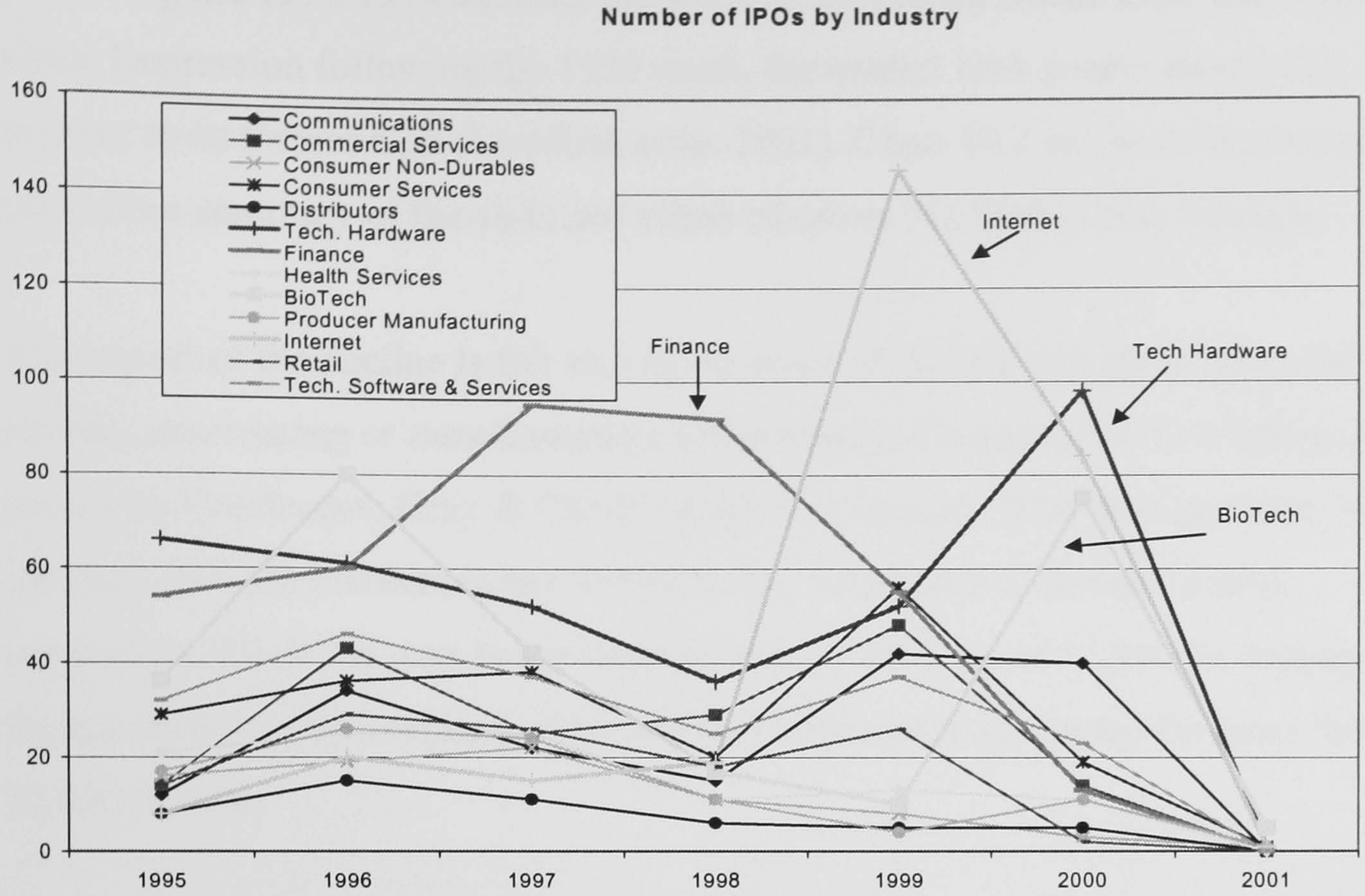
And it now appears that whatever recovery is in the offing in the United States will emerge gradually. On March 20, 2001, the U.S. Federal Reserve reduced short-term interest rates by half a percentage point. This was the third such half-point reduction in the first quarter of 2001, but the fact that the reduction was not more aggressive was taken in most quarters as a bad sign. By the end of the day, the Dow industrials had fallen 2.4%, down 238.35 to 9720.76, its lowest since March 1999. The dive at NASDAQ was even more marked, with a plummet of 4.8% to its October 1998 mark, down 93.74 to 1857.44. As the March 21 Wall Street Journal commented, "The size

of the drop illustrates how little faith investors seem to have that the Fed's action to date will reverse the darkening corporate picture" (1). Journal reporter Ken Brown commented, "When the Fed first cut interest rates in January [2001], the market took off like a rocket. Yesterday, it looked like the doomed space station Mir." Brown went on to provide historical context:

Chart 10.1 Initial Public Offerings By Industry, 1995-2001

	1995	1996	1997	1998	1999	2000	2001
Communications	3.1%	6.0%	4.4%	4.3%	8.0%	9.4%	0.0%
Commercial Services	3.6%	7.6%	5.0%	8.4%	**9.1%**	3.3%	0.0%
Consumer Durables	3.9%	3.7%	2.6%	2.3%	0.9%	0.7%	0.0%
Consumer Non-Durables	4.2%	3.4%	4.4%	3.2%	1.5%	0.7%	6.7%
Consumer Services	7.6%	6.4%	7.6%	5.8%	**10.6%**	4.5%	6.7%
Distributors	2.1%	2.7%	2.2%	1.7%	0.9%	1.2%	0.0%
Tech. Hardware	**17.2%**	**10.8%**	**10.3%**	**10.4%**	**9.9%**	**23.1%**	6.7%
Energy	0.8%	1.1%	0.8%	1.2%	1.1%	0.9%	**20.0%**
Finance	**14.1%**	**10.7%**	**18.9%**	**26.7%**	**10.4%**	3.1%	0.0%
Health Services	5.5%	4.4%	5.0%	3.2%	2.5%	2.6%	0.0%
BioTech	9.4%	**14.2%**	8.3%	4.9%	1.9%	**17.6%**	**33.3%**
Industrial Services	2.6%	2.1%	4.2%	3.2%	0.8%	1.6%	**13.3%**
Minerals	1.0%	0.9%	1.0%	0.3%	0.6%	0.0%	0.0%
Process Industries	3.6%	1.8%	2.4%	2.0%	0.4%	1.6%	0.0%
Producer Manufacturing	4.4%	4.6%	4.8%	3.2%	0.8%	2.6%	6.7%
Internet	2.1%	3.6%	3.0%	5.5%	**27.5%**	**19.8%**	6.7%
Retail	3.6%	5.2%	5.2%	5.2%	4.9%	0.5%	0.0%
Tech. Software & Services	8.3%	8.2%	7.4%	7.2%	7.0%	5.4%	0.0%
Transportation	2.3%	1.6%	2.4%	1.2%	0.6%	0.5%	0.0%
Utilities	0.5%	1.1%	0.4%	0.0%	0.6%	0.9%	0.0%

Source: FactSet Research Systems, 2001



Source: FactSet Research Systems, 2001

The difference between the two reactions says a lot about the mood among professional money managers, especially those who had bet on a quick rebound after the first rate cut. This group, still smarting from a six-week drubbing, is now gun-shy, wary of making any big bets (C1).

Kenneth Scheinberg, head of New York Stock Exchange trading at the New York Securities firm SG Cowen, offered a succinct and pessimistic assessment of the situation: "The economy is slowing down and the bottom line is every piece of news is negative. Selling begot selling; it snowballed" (Zuckerman: C1).

As the tide has gone out, the detritus of companies and careers in ruin is left to litter the shores of optimism. A closer look at the demise of companies with an Initial Public Offering in or since 1995 serves to illustrate the situation. According to data provided by FactSet (2001), 124 of the 2834 companies with an IPO between January 1, 1975 and March 19, 2001 are no longer in business. Of the companies still standing, nearly 70 percent were trading more than ten percent below their IPO price as of March 19, 2001. Indeed, it appears that the current market may be the worst bear market for the NASDAQ since 1973-1974. While the NASDAQ has dropped nearly as far (on a percentage basis approaching 60%) as it did in 1973, the slide has occurred at a far more rapid pace. This precipitous decline raises serious questions about the current prospects for and the potential rate of recovery in the United States.

Following the 1973-1974 decline, the worst in the United States since the onset of the Great Depression following the 1929 crash, the market took nearly three years to recover to its former high (LowRisk.com, 2001). Chart 10.2 on the following page provides a summary of the slide and climb of recent NASDAQ bear markets.

The impact of the decline is felt also in the wave of layoffs that accompany the closing, downsizing or transformation of the beseiged companies. According to a survey by Challenger, Gray & Christmas (2001), January 2001 brought over 142,000 job cuts, and this problem is not limited to the NASDAQ or Internet-based companies. While job cuts in the Internet space totaled about 12,000 in January 2001, the automobile, telecommunication and retail industries accounted for more than 72,000 layoffs.

This decidedly is not an attractive scene, but it does provide an attractive opportunity for further research. The question into which researchers ought to be looking is this one: What happens to (and with) corporate governance in newly public companies when those companies are hammered by economic distress and fading prospects? There are several intriguing and potentially vital dimensions to these prospective research considerations.

First, and most directly linked to this thesis and my practice both, is the issue of what effects are felt among the board of directors of a newly public company when such a severe economic downturn strikes. The trumpet signal of change for these corporate boards is being blasted in the United States now, and practitioners are watching transformation occur at a sometimes disturbingly rapid rate.

In the realm of board staffing, both the size and composition are being affected. Now observable, for example, is the shifting role and participation of venture capitalists in newly public companies. Certainly the flow of money from venture capitalists to new enterprises has slowed down--and with good reason. Since 1995, 435 venture-backed pre-IPO companies have folded; those companies had raised over $5 billion in the private markets and had employed over 30,000 people (VentureOne, 2001).

Chart 10.2 NASDAQ Bear Market Decline and Recovery, 1973-2001



Source: LowRisk.com, 2001

Period	Decline	Time to Decline	Time to Recover to Former High
1973-74	59.9%	21 months	68 months
1983-86	31.5%	13 months	30 months
1987-89	35.9%	2 months	23 months
1989-90	33.0%	12 months	18 months
1990-91	30.7%	3 months	8 months
2000-01	58.1%	12 months	

Source: Compiled from a variety of reference sources, 2001

Instead of funding new companies, venture capitalists are pumping funding into existing companies, to try to shore up their portfolios. There has also been a noticeable exodus of venture capitalists off of corporate boards, for what appears to be a variety of reasons. One clear reason is that pressure and exposure associated with board service has intensified as litigation has increased. Thus, board service for companies in decline has truly become just that--service. This unattractive scenario, with its sharp financial downside and churning *sturm und drang,* does not comport with what numbers of the venture capitalists were seeking: the big payday.

Indeed, venture capitalists are not the only board members who are departing. In the circumstances of the current United States economy, directors are parsing out their time very carefully. Dealing with a company in crisis increases exponentially the amount of time and the level of concern to which a director must commit. As a result, numbers of directors have decided to pass rather than to commit, choosing to devote more of their time dealing with companies that have been funded but have not yet gone public than with newly public companies that are on the quick slide down. The nascent companies are now being subjected to more demands and controls from the public marketplace than was the case in the heyday of the late 1980s and early 1990s in the United States. Indeed, the environment has almost reverted to the pre-1992 landscape, in my opinion and experience. Venture capitalists are taking two weeks--or two months--to evaluate proposals that once got the happy nod after 20 minutes. And companies are being required to prove out concepts and models in the private market before moving to an Initial Public Offering. The attitude about burning cash in the early stages of public company life (to seize the first mover advantage, for example) also has altered as concern about the necessity of cash to company sustainability has intensified.

And the queue to replace the departing directors is not as long and deep as it once was; understandably, the opportunity to jump onto a listing or sinking ship is not a shot that every sailor longs for. Increased regulatory scrutiny and the opportunities for negative public exposure have grown even as financial opportunities have contracted. Lawsuits over revenue recognition, questioning whether an audit committee is just a rubber stamp, have made some prospective directors skittish. In December 1999, the United States Securities and Exchange Commission announced new regulations pertaining to audit committees. These rules were developed in response to the SEC Chairman's concern about earnings management and the report of a Blue Ribbon Commission on corporate audit committee effectiveness. The regulations, with their new standards regarding independence, committee membership, "financial literacy" for members, and disclosure and reporting, have upped the accountability ante for audit committee members. In response, practitioners who are recruiting board members, especially for Greenfield companies, are finding some who will join the board only if they can avoid service on the audit committee, or the compensation committee--or both.

The current wave of director recruitment also has highlighted which characteristics of demography are seen as irrelevant and which are deemed essential for newly public companies in crisis. Echoing the post-survey interviewees, my own experience dictates that achieving heterogeneity is still considered a best practice toward which corporate boards ought to press. However, one must be assiduous in defining what is currently meant by diversity in the context of corporate governance. Generally, racial and gender diversity for its own sake is considered largely as irrelevant by practitioners. But functional diversity is rated as essential. That is to say, directors as a group ought to represent the unique mix of various functional specialties deemed vital to the firm. Functional diversity is the diversity that matters, especially in a crisis, say the practitioners.

This economic environment and these factors, then, offer the possibility for important research into the questions of board staffing and composition for newly public companies operating in crisis. One approach would be to examine whether there are substantive differences between Heritage and Greenfield companies along these dimensions under these circumstances. Another would be to compare the newly public companies to more mature companies, along the same dimensions and under the same circumstances. This latter approach could make good use of the extensive body of literature already existing pertaining to the actions of boards when companies are in crisis.

In addition to suggesting additional research on the board, I (along with fellow practitioners) see tremendous potential value in a detailed study regarding the impacts of market cyclicality on CEOs of newly public companies who are working to survive and prosper in good times and bad. The current scene in the United States is rendering noticeable change in the roles of Greenfield CEOs, to be sure. There has been marked turnover in the group of "New Economy" companies as a spate of chief of executive managers has been very publicly ushered to the door. Further, the drive is now on to replace some founder-CEOs and a number of ineffective CEOs with so-called "professional managers": CEOs who possess proven records in the trenches of management under a variety of conditions. This current routing out of CEOs seems to me, as a researcher and a practitioner, to have had the effect of changing the allowable

trial (or trial by fire) period for CEOs of newly public companies. Whereas in more mature companies a CEO might be graced with a decade to make or break, three years or less appears to be the thumbnail grace period now.

The diversity issue--in this instance, the non-diversity issue--also has become a vital factor in CEO selection for newly public companies. Recent experience in the United States has demonstrated the importance of having a company CEO who has both functional competence and industry-specific knowledge and expertise. In the current environment, it is challenging enough for a CEO to change companies; to change industries as well is far too daunting for the executive and far too risky for the company in crisis.

These shifts toward "professional managers" with industry-specific knowledge and expertise have implications for the development or alteration of organizational culture in newly public companies. This is fodder for future research as well. To take one prominent example, one can ask: How will a company culture be transmogrified now that its valuation is approximately one-tenth of its market capitalization at the Initial Public Offering and a professional manager is being wheeled in to replace the founder-CEO?

In summary, this research demonstrated that during a time of economic boom for newly public companies, there were few significant differences identified between Greenfield and Heritage companies along the dimensions of corporate governance studied. The research suggested further that the newly public companies so studied could be considered as a group, rather than bifurcated, in future studies. Thus, one general area suitable for future research could be an examination of the differences between corporate governance practices in newly public companies as a group and corporate governance practices of all other companies during the same 1993-1997 boom period.

The results of this study have indicated that a corporate board may have to steer a new company to some safe harbor of survival before it can turn (or perhaps return) to the "niceties" of corporate governance best practices. The current economic situation in the United States, in my opinion, provides a stellar opportunity for investigation into

the respective corporate governance practices of Greenfield and Heritage companies when the question of survival is a very real and pressing one.

10.5.3 Comparative Research: Company and Board Life Cycles

In the course of the study at hand, the performance of the newly public companies under scrutiny was assessed over a period that extended to a maximum of five years. The thrust of the research was to focus on how Greenfield and Heritage corporate boards are set up and operated in the "normal" course of the business of these newly public companies. The economy in the United States during the study period was such that considering the "normal" or non-crisis course of business was indeed possible. In so doing, the thesis has set down solid groundwork for researchers who, given the current environment of economic turmoil, now have a unique opportunity to look at how Greenfield and Heritage boards will behave during a decidedly "un-normal" course, in the face of a severe economic downturn. Such research could go in a variety of directions; the issues of board and CEO demographics have been raised in the preceding section of this thesis. Accordingly, this section goes on to point out possible research initiatives concerning the length of and fluctuation in the life cycle of newly public companies.

Building on this thesis, life cycle studies should be launched to look to the possibility of identifying differences between the survival rates of Greenfield and Heritage companies over an extended length of time (ten years appears to be a reasonable span) that includes upturns and downturns in the economy. For example, a natural extension of this study, and of the extant literature on company life cycles, would be research to assess whether the origins of the Greenfield and Heritage companies, respectively, will have a material effect on how they handle economic crisis. Salient investigative questions in this regard would include this one: Is a Greenfield company more at risk because it is absent the public company "track record" that a Heritage company inherits from a parent company? That is, when a Greenfield company is under duress, is it more likely to sputter out because it has no real corpus of corporate governance history or practice on which it can rely? Another question is this: Are Greenfield companies, because they are "newborn", less likely to pay heed to due diligence when they are battling for survival? A third would be: What effect has the "compression" of business cycles, a legacy of the "New Economy", had on the long-term survival rates

for Greenfield and Heritage companies, respectively? Or, is a situation that is seen and treated as life-threatening to a Greenfield company viewed instead as a bump in the road for a Heritage company that has a longer memory and some real lineage? Factors to examine in this regard could include, for example, the impact of the presence or absence of professional management, of broad-based versus narrow-focus support in the investment community, or of the experience level of the CEO or board of directors. This proposed research could provide a series of intriguing "opposite number" studies to match this one, with the work yielding companion studies that ask whether newness is a liability or an asset for a newly public company in crisis.

In addition, a researcher might look to the relationship between NASDAQ listing, versus listing on the New York Stock Exchange, and company survival and prosperity for newly public companies. For me, whose company has recently made the leap from NASDAQ to the Big Board of the New York Stock Exchange, this topic is of particularly compelling interest.

In my opinion, and in the opinions of the post-survey interviewees, the "survival first" issue that emerged from this study, and the recent realities of an extremely volatile market, combine to suggest that research should cover a longer period of time than five years. Thought among interviewees suggested a possible gold standard time frame of eight or ten years, and this study now offers a decade as the minimum (or whatever time bracket embraces both a prolonged up market and a prolonged down market). However, I bequeath to another researcher the matter of setting an optimal time frame for assessing survival rates and levels of performance in newly public United States companies.

Finally, research potentially could bear fruit by focusing on the trajectory of a corporate board life cycle separate and distinct from the company life cycle examined at length in this thesis. The research here has noted that Greenfield boards may well experience a "survival first, governance next" continuum. Extension of this concept leads to the consideration that Greenfield boards may begin to function more like Heritage boards as time goes by. If in fact Greenfield boards do progress through the same life cycle continuum as do Heritage boards, does there come a time when the

two types of boards "collide"; and if there is such a collision, do the boards then become essentially indistinguishable after that point?

Other research in this area might look to the relationship between company and board lifecycles, to examining newly public companies as a single group (e.g., to compare them more mature companies), or to uncovering among boards of newly public companies other distinctions more nuanced than the Greenfield/Heritage split employed here. With regard to this last question, for example, a researcher might look to a potential relationship between the length of time a newly public company (regardless of origin) was in operation before the IPO and the development of "core rigidities."

10.5.4 Company Morphology and Performance Measurement Research

This doctoral study sought to examine differences in corporate governance practices as adopted and exercised by Greenfield and Heritage boards. Although the research failed to find evidence supporting the posited distinction between Greenfield and Heritage boards regarding the Players, Paradigm and Purpose propositions (and in some instances refuted them), the cluster analysis in Chapter 7 did reveal certain consistent and intriguing directional groupings. These groupings centered on the relative importance of a range of variables regarding board composition, board actions, and issues of importance; and on director satisfaction with the board's dealings with regard to various identified matters. Further examination to determine what lies at the basis of the split into those clusters (e.g., industry sector? age of company? director demographics?) was outside the scope of this study, but might provide information of interest to other corporate governance researchers.

The research also examined but failed to demonstrate a definitive relationship between corporate governance and the performance of newly public companies. Other researchers might inquire whether the attempt failed because the relationship does not exist or because the performance measurement employed was inadequate. Let us refer to the example suggested above to consider whether admitting company sector in the calculations might paint a different picture. If CAGR in market capitalization were indexed by industry sector, the concomitant assessment of performance might be more finely calibrated and yield a different outcome for another researcher.

10.5.5 Psycho-Sociological Research

Finally, there are related psycho-sociological questions that have arisen out of this research effort and this practitioner's experience, and these questions hold out the promise for some truly intriguing research. One relates to the human behavior in the midst of a business crisis. The yield of my own real-life experience, augmented by discussions with colleagues, indicates that it is the very strong CEOs who have lasted and stayed the course in the current storm in the United States. These are strong willed (and in some cases, strong-arming) leaders in whom directors appear to have continuing confidence despite the hard times. On this point, anecdotal information suggests that in times of crisis, a chairman who has charisma and dynamism is he or she who can endure. Additional research into the role of personality in management, especially during crisis, could contribute further to the body of literature on the relationship between individual power and company performance.

A second psycho-sociological study, a bit farther removed from this research, but promising nonetheless, could concern itself with the "New Economy" phenomenon of instant billionaires and millionaires. What impact has the rapid accumulation of great wealth had on individuals when the bounty is first acquired, then subsequently when that wealth is lost entirely or subjected to rapid diminution? This research could concern itself with the business elements of the transformation, such as the loss of a managerial elite's creditable public persona or the degree of negative impact on that CEO or director's subsequent employability.

10.5.6 Summary

Though this research has contributed importantly to the topic of corporate governance in general, and to corporate governance in newly public companies in particular, its further value lies in the panoply of research possibilities it has raised. Rigorous research into these questions about corporate governance in newly public companies (both in the normal course and under crisis conditions) is an important and worthy research endeavor. Questions about the relationship between corporate governance and company performance; about the "survival first, governance next" continuum; and about the life cycles of newly public companies, boards and CEOs merit answers.

And finding those answers will construct another span in the long and still unfinished bridge between theory and practice in corporate governance.

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BOARD OF DIRECTOR STRUCTURES AND OUTCOMES QUESTIONNAIRE

TRODUCTION

rporate America is undergoing significant change. Often this change is fast paced, as newly established mpanies lead the domestic economy toward new and exciting paths. However, the roads to business ccess, as guided by many of these newly formed boards of directors, are as diverse as their governing uctures. As boards of directors across America are continually faced with new challenges and choices in ir effort to maximize both corporate and board performance, which governance models are most useful and ective in managing today's dynamic business environment?

an effort to better understand this and other issues related to board governance, you have been randomly osen to participate in a national study of individuals who are involved in a variety of ways with board of ector activities. If you are not now a director, please answer for the time when you were a director Your nfidential responses to this research project will be combined with the opinions of others to draw nclusions about the effectiveness of various board structures, and the factors which influence overall board rformance. Please take a few minutes to complete this brief survey and return it in the enclosed postage-d return envelope to Christos M. Cotsakos. Your anonymity is fully assured. Thank you for your rticipation.

EASE PRINT LEGIBLY

RT 1. GENERAL INFORMATION

1A.) Full Name	
1B.) Title at Current Employer	
1C.) Currently Employed by	
1D.) Address	
1E.) City	
1F.) State	
1G.) Zip Code	
1H.) Director of (company ame)	
1I.) Contact Telephone #	

J.) At some point during the past two years, have you served on the board of directors for the company ed above in Question 1H?

❑ Yes ❑ No ❑ Don't Know

K.) What type of business is this company primarily involved in? (PLEASE CHECK ONE RESPONSE)

❑ Manufacturing
❑ Services (non-finance)
❑ Trade
❑ Finance
❑ Transportation, Communication & Utilities
❑ Other (PLEASE SPECIFY) _____

❑ Don't Know

1L.) How many years have you been serving on this board? (PLEASE CHECK ONE RESPONSE)

❑ Less than one year
❑ 1-3 years
❑ 4-9 years
❑ 10-15 years
❑ 16 years or more
❑ Don't Know

1M.) What was your primary motivation in accepting the position on that board? (PLEASE CHECK ALL HAT APPLY)

❑ Personal Contribution
❑ Personal Development
❑ Professional Contribution
❑ Professional Development
❑ Compensation
❑ Other (PLEASE SPECIFY) _____
❑ Don't Know

ART 2. BOARD MEMBERS

'e would now like to ask you some specific questions about the board you've served on at this company, its ze, and its governance structure.

2A.) How many individuals were on your board when you were first appointed? (PLEASE CHECK ONE ESPONSE)

❑ Less than 4
❑ 5-7
❑ 8-10
❑ 11-14
❑ 15 or more
❑ Don't Know

2B.) Over the past two years has the number of individuals serving on this board been: (PLEASE CHECK NE RESPONSE)

❑ increasing
❑ decreasing
❑ stayed the same
❑ Don't Know

2C.) Currently how many directors on your board are women? (PLEASE CHECK ONE RESPONSE)

❑ None
❑ 1-2
❑ 3-5
❑ 6-10
❑ 11 or more
❑ Don't Know

12D.) Currently how many directors on your board are members of a racial minority? (PLEASE CHECK ONE ESPONSE)

- ❑ None
- ❑ 1-2
- ❑ 3-5
- ❑ 6-10
- ❑ 11 or more
- ❑ Don't Know

ART 3. BOARD STRUCTURE

/e would now like to ask you some questions about this board's director selection process, as well as a few uestions regarding your own personal experience as a member of this board.

3A.) "Independent directors" are usually defined as those with no affiliation to a particular company other an board participation. Would you consider yourself an "independent director" on your board? (PLEASE HECK ONE RESPONSE)

- ❑ Yes
- ❑ No
- ❑ Don't Know

3B.) If NOT an independent director, how are you affiliated with management? (PLEASE CHECK PPROPRIATE RESPONSE)

- ❑ Vendor
- ❑ Contractor
- ❑ Employee
- ❑ Family
- ❑ Other (PLEASE SPECIFY) _____

3C.) Currently how many directors on your board are independent? (PLEASE CHECK ONE RESPONSE)

- ❑ None
- ❑ 1-2
- ❑ 3- 5
- ❑ 6-10
- ❑ 11 or more
- ❑ Don't Know

sing a scale of **1 to 7**, where **1** is "**highly unimportant**" and **7** is "**highly important**", how i**mportant** were ıe following factors in shaping **the composition of your board?** (PLEASE CHECK THE APPROPRIATE ESPONSE FOR EACH)

FACTOR	1= Highly Unimp.	2	3	4 Neutral	5	6	7= Highly Imp.	Unsure
Q3D.) Professional Diversity								
Q3E.) Ethnic and Cultural Diversity								
Q3F.) Age diversity								
Q3G.) Academic Diversity								
Q3H) Gender Diversity								
Q3I.) Community Needs								
Q3J) Management Ideology								
Q3K.) Meeting Corporate Goals or Objectives								
Q3L.) Functional Competency								
Q3M.) Reputation of the Board Member								
Q3N.) Strategic Partnering to Benefit the Company								

3O.) Does the CEO also serve as Chairman of the board?: (PLEASE CHECK ONE RESPONSE)

- ❑ Yes
- ❑ No
- ❑ Don't Know

3P.) Regarding the member selection process of your board, was the process by which individuals were ›pointed primarily dictated by: (PLEASE CHECK ONE RESPONSE)

- ❑ The CEO alone
- ❑ The Chairman of the board alone
- ❑ The CEO or Chairman with limited input from the board
- ❑ The CEO or Chairman with extensive input from the board
- ❑ A nominating committee composed of SOME board members
- ❑ A nominating committee composed of ALL board members
- ❑ Other (PLEASE SPECIFY) _____
- ❑ Don't Know

3Q.) Which of the following are standing committees on your board: (PLEASE CHECK ALL THAT APPLY)

- ❑ Audit
- ❑ Compensation
- ❑ Nominating
- ❑ Executive
- ❑ Finance
- ❑ Corporate Governance
- ❑ Other (PLEASE SPECIFY) _____
- ❑ There are no standing committees that I am aware of

)3R.) Approximately how times during the calendar year does your board meet regularly? (PLEASE CHECK)NE RESPONSE)

- ❑ 1-2 times
- ❑ 3-6 times
- ❑ 7-12 times
- ❑ 13 -20 times
- ❑ More than 20 times
- ❑ Don't Know

)3S.) As a director, were you required to own stock? (PLEASE CHECK ONE RESPONSE)

- ❑ Yes
- ❑ No
- ❑ Don't know

)3T.) Are you now serving as a director on any another boards? (PLEASE CHECK ONE RESPONSE)

- ❑ Yes
- ❑ No

)3U.) Would you consider serving as a director on another board in the future? (PLEASE CHECK ONE ESPONSE)

- ❑ Yes
- ❑ No
- ❑ Don't Know

3V.) Is your board's agenda primarily initiated by: (PLEASE CHECK THE APPROPRIATE RESPONSE)

- ❑ The CEO alone
- ❑ The Chairman of the board alone
- ❑ The CEO or Chairman with limited input from the board
- ❑ The CEO or Chairman with extensive input from the board
- ❑ A steering committee composed from SOME board members
- ❑ A steering committee composed from ALL board members
- ❑ Other (PLEASE SPECIFY) _____
- ❑ Don't Know

3W.) In your opinion, is the general balance of power between the Board and the Chairman: (PLEASE HECK ONE RESPONSE)

- ❑ In favor of the Board
- ❑ In favor of the Chairman
- ❑ Roughly balanced between the Board and Chairman
- ❑ Don't Know

Q3X.) Generally speaking, how often did you vote in accordance with the majority of your board? (PLEASE CHECK ONE RESPONSE)

- ❑ Always
- ❑ Very Often
- ❑ Sometimes
- ❑ Rarely
- ❑ Never
- ❑ Don't Know

Q3Y.) Generally speaking, how often were you comfortable expressing a dissenting opinion in opposition to the rest of your board? (PLEASE CHECK ONE RESPONSE)

- ❑ Always
- ❑ Very Often
- ❑ Sometimes
- ❑ Rarely
- ❑ Never
- ❑ Don't Know

PART 4. PURPOSE

In your opinion, using a scale of **1 to 7**, where **1** is "**highly unimportant**" and **7** is "**highly important**", how **important** are each of the following factors in shaping the **actions and decisions of your board?** (PLEASE CHECK THE APPROPRIATE RESPONSE FOR EACH)

FACTOR	1= Highly Unimp.	2	3	4 Neutral	5	6	7= Highly Imp.	Unsure
Q4A.) Chair leadership								
Q4B.) Community Needs								
Q4C.) Economic Conditions								
Q4D.) Meeting Corporate Goals or Objectives								
Q4E.) Directors' Desire for Personal Contribution								
Q4F.) Reaching Board Consensus								
Q4G.) Management Ideology of Directors								
Q4H.) Short-Term Planning								
Q4I.) Long-Term Planning								

n your opinion, using a scale of **1 to 7**, where **1** is "**highly unimportant**" and **7** is "**highly important**", how **mportant** are each of the following **issues** to your board? (PLEASE CHECK THE APPROPRIATE RESPONSE FOR EACH)

ISSUES	1= Highly Unimp.	2	3	4 Neutral	5	6	7= Highly Imp.	Unsure
Q4J.) Strategic Planning								
Q4K.) Corporate Performance								
Q4L.) Relations with Stakeholders (employees, suppliers)								
Q4M.) Relations with Management								
Q4N.) Director Compensation								
Q4O.) State and Federal Regulation								
Q4P.) Shareholder Representation								
Q4Q.) Shareholder Equity								
Q4R.) Liability and Insurance								
Q4S.) Competitive Threats to the Company								

PART 5. PERFORMANCE

n your opinion, using a scale of **1 to 7**, where **1** is "**highly dissatisfied**" and **7** is "**satisfied**", how **satisfied** re you with your board's dealings with the following **issues**? (PLEASE CHECK THE APPROPRIATE RESPONSE FOR EACH)

ISSUES	1= Highly Dissatis-fied	2	3	4 Neutral	5	6	7= Highly Satisfied	Unsure
Q5A.) Strategic Planning								
Q5B.) Corporate Performance								
Q5C.) Relations with Stakeholders (employees, suppliers)								
Q5D.) Relations with Management								
Q5E.) Director Compensation								
Q5F.) State and Federal Regulation								
Q5G.) Shareholder Representation								
Q5H.) Shareholder Equity								
Q5I.) Liability and Insurance								
Q5J.) Competitive Threats								

Q5K.) In your opinion, using a scale of **1 to 7**, where **1** is "**highly dissatisfied**" and **7** is "**satisfied**", how **satisfied** are you with the **overall performance of your BOARD**? (PLEASE CHECK THE APPROPRIATE RESPONSE)

	1= Highly Dissatis-fied	2	3	4 Neutral	5	6	7= Highly Satisfied	Un-sure
OVERALL PERFORMANCE OF BOARD								

Q5L.) In your opinion, using a scale of **1 to 7**, where **1** is "**highly dissatisfied**" and **7** is "**satisfied**", how **satisfied** are you with the **overall performance of the COMPANY of which you are a board member**? PLEASE CHECK THE APPROPRIATE RESPONSE)

	1= Highly Dissatis-fied	2	3	4 Neutral	5	6	7= Highly Satisfied	Un-sure
OVERALL PERFORMANCE OF COMPANY								

Q5M.) What is the **greatest strength** of the board you served on? (PLEASE CONTINUE ON BACK IF NECESSARY)

GREATEST STRENGTH _____

Q5N.) What is the **greatest weakness** of the board you served on? (PLEASE CONTINUE ON BACK IF NECESSARY)

GREATEST WEAKNESSS_____

_____

_____

_____

_____

_____

_____

Q6A.) Finally, just for classification purposes, your current age? (PLEASE CHECK ONE RESPONSE)

- ❑ Under 18
- ❑ 18-24
- ❑ 25-34
- ❑ 35-44
- ❑ 45-54
- ❑ 54-64
- ❑ Over 64

Q6B.) Your gender?

- ❑ Male
- ❑ Female

Q6C.) Do you have any additional comments that you would like to add?

_____

_____

_____

_____

Thank you for participating in this market research study.

If you have any questions or comments about this survey, please contact:

Christos M. Cotsakos
510 Eucalyptus Avenue
Hillsborough, CA 94010
Phone: 650/842-2501

Mr. or Mrs. <first name> <last name>
<title>
<company>
<address 1>
<address 2>
<city>, <state> <zipcode>

Via Courier

<date>

Dear Mr. or Mrs. <last name>:

Further to our conversations regarding my pursuit to obtain my PhD. Degree in corporate governance at The Management School, Imperial College in London, I would like to solicit your help in completing the survey for my research proposal.

I have enclosed, for your review, a pilot questionnaire regarding the effectiveness of various board structures, and the factors which influence overall board performance. Your confidential responses to this research project will be combined with the opinions of others to draw conclusions about corporate governance in newly public United States companies.

Please take a few minutes to complete this brief survey and return it in the enclosed postage-paid return envelope within the next 30 days. Your anonymity is fully assured. I will be following up with a telephone call should I not receive a return envelope from you within the above mentioned time period.
Should you have any further questions, please do not hesitate to contact me via telephone at 650/842-2501.

Thank you very much in advance for your participation.

Sincerely,

APPENDIX III

UNIVERSITY OF LONDON

Imperial College
MANAGEMENT SCHOOL

LASER PRINT COMPANY NAME

Dear Board Member:

Corporate governance is a key topic in strategic management and corporate performance worldwide. However, despite the fact that over 3,000 initial public offerings with total proceeds in excess of $170 billion were made in the United States from 1993 through 1997, **corporate governance in newly public companies** has not been examined as a separate topic of inquiry. This omission is an opportunity for research that could yield important information about board structures and practices in newly public companies, and their relationship to board and company performance.

You are one of a group of randomly selected directors at U.S. companies with an initial public offering between January 1, 1993 and December 31, 1997. You are being asked to give information and your opinions on corporate governance **at the company indicated above**. You can be assured that your responses will be completely confidential. Neither your name nor the name of the company of which you are a director will be individually identified in the completed research report.

Your timely response to this request is essential. The information you provide will be combined with responses from directors at other companies in order to better understand and draw conclusions about corporate governance and performance in newly public companies.

This research project, which has been endorsed by the New York Stock Exchange, the Nasdaq/AMEX Stock Market, Deloitte & Touche, and Brobeck, Phleger & Harrison, will yield results of interest to academicians and practitioners of corporate governance. If you are interested in receiving a summary of the research results please enclose your business card, along with your completed questionnaire, in the business reply envelope included here. If you have any questions about this research, please contact (650) 842-8673 or email cmccorpgov@aol.com.

Thank you in advance for your prompt participation and timely response.

Sincerely,

Christos M. Cotsakos
Research Director

NYSE

NASDAQ AMEX

Deloitte & Touche

BROBECK PHLEGER & HARRISON LLP ATTORNEYS AT LAW

CORPORATE GOVERNANCE IN NEWLY PUBLIC COMPANIES

A QUESTIONNAIRE FOR CORPORATE DIRECTORS ☑

Your candid responses, which are completely confidential, are vital to this timely and significant research project on corporate governance in newly public companies in the United States. Neither individual respondents nor individual companies will be identified in the report. Thank you for your assistance.

Q1.) How many years have you been serving on this board? (PLEASE CHECK ONE)

- ❑ Less than one year
- ❑ 1-2 years
- ❑ 3-4 years
- ❑ 5-6 years
- ❑ 7-8 years
- ❑ 9 years or more

Q2.) What was your <u>primary motivation</u> in accepting the position on this board? (CHECK ONE)

- ❑ Personal Contribution
- ❑ Personal Development
- ❑ Professional Contribution
- ❑ Professional Development
- ❑ Compensation
- ❑ Other (SPECIFY) _____
- ❑ Unsure

☑ BOARD MEMBERSHIP

Q3A.) When you were first appointed, how many directors were on your board? (CHECK ONE)

- ❑ 1-4
- ❑ 5-6
- ❑ 7-8
- ❑ 9-10
- ❑ 11-12
- ❑ 13-14
- ❑ 15 or more
- ❑ Unsure

Q3B1.) How many directors <u>currently</u> are on your board? (CHECK ONE)

- ❑ 1-4
- ❑ 5-6
- ❑ 7-8
- ❑ 9-10
- ❑ 11-12
- ❑ 13-14
- ❑ 15 or more
- ❑ Unsure

Q3B2.) <u>Over the next two years</u>, the <u>total number of directors</u> on your board will: (CHECK ONE)

- ❑ **decrease** by more than 25%
- ❑ **decrease** by 11% to 24%
- ❑ **decrease** by 1% to 10%
- ❑ **stay the same**
- ❑ **increase** by 1% to 10%
- ❑ **increase** by 11% to 24%
- ❑ **increase** by more than 25%
- ❑ Unsure

Q3C1.) Currently, what percentage of your board directors are <u>women</u>? (CHECK ONE)

- ❑ 0%
- ❑ 1%-10%
- ❑ 11%-20%
- ❑ 21%-30%
- ❑ 31%-40%
- ❑ 41%-50%
- ❑ 51%-60%
- ❑ 61%-70%
- ❑ 71%-80%
- ❑ 81%-90%
- ❑ 91%-100%
- ❑ Unsure

Q3C2.) <u>Over the next two years</u>, the percentage of directors on your board who are <u>women</u> will: (CHECK ONE)

- ❑ **decrease** by more than 25%
- ❑ **decrease** by 11% to 24%
- ❑ **decrease** by 1% to 10%
- ❑ **stay the same**
- ❑ **increase** by 1% to 10%
- ❑ **increase** by 11% to 24%
- ❑ **increase** by more than 25%
- ❑ Unsure

CONTINUED ON NEXT PAGE ➲

Q3D1.) **Currently, what percentage of your board directors are members of a racial minority? (CHECK ONE)**

- ❑ 0%
- ❑ 1%-10%
- ❑ 11%-20%
- ❑ 21%-30%
- ❑ 31%-40%
- ❑ 41%-50%
- ❑ 51%-60%
- ❑ 61%-70%
- ❑ 71%-80%
- ❑ 81%-90%
- ❑ 91%-100%
- ❑ Unsure

Q3D2.) **Over the next two years, the percentage of directors on your board who are members of a racial minority will: (CHECK ONE)**

- ❑ **decrease** by more than 25%
- ❑ **decrease** by 11% to 24%
- ❑ **decrease** by 1% to 10%
- ❑ **stay the same**
- ❑ **increase** by 1% to 10%
- ❑ **increase** by 11% to 24%
- ❑ **increase** by more than 25%
- ❑ Unsure

☑ BOARD STRUCTURE

Q4A.) **"Independent directors" are usually defined as those with no affiliation to a particular company other than board participation. Would you consider yourself an "independent director" on your board? (CHECK ONE)**

- ❑ Yes (Go To Q4C)
- ❑ No (Go To Q4B)
- ❑ Unsure (Go To Q4C)

Q4B.) **If you are NOT an independent director, how are you affiliated with management? (CHECK ALL THAT APPLY)**

- ❑ Vendor
- ❑ Contractor
- ❑ Employee
- ❑ Family

Other (SPECIFY) _____

_____

Q4C1.) **Currently, what percentage of the directors on your board are independent? (CHECK ONE)**

- ❑ 0%
- ❑ 1%-10%
- ❑ 11%-20%
- ❑ 21%-30%
- ❑ 31%-40%
- ❑ 41%-50%
- ❑ 51%-60%
- ❑ 61%-70%
- ❑ 71%-80%
- ❑ 81%-90%
- ❑ 91%-100%
- ❑ Unsure

Q4C2.) **Over the next two years, the percentage of directors on your board who are independent will: (CHECK ONE)**

- ❑ **decrease** by more than 25%
- ❑ **decrease** by 11% to 24%
- ❑ **decrease** by 1% to 10%
- ❑ **stay the same**
- ❑ **increase** by 1% to 10%
- ❑ **increase** by 11% to 24%
- ❑ **increase** by more than 25%
- ❑ Unsure

Q4D-Q4O). **In your opinion, how important are the following factors in shaping the composition of your board?**

FACTOR	Very Unimportant	Somewhat Unimportant	Somewhat Important	Very Important	Unsure
Professional Diversity	❑	❑	❑	❑	❑
Ethnic and Cultural Diversity	❑	❑	❑	❑	❑
Age Diversity	❑	❑	❑	❑	❑
Academic Diversity	❑	❑	❑	❑	❑
Gender Diversity	❑	❑	❑	❑	❑
Meeting Board Objectives	❑	❑	❑	❑	❑
Community Needs	❑	❑	❑	❑	❑
Management Ideology	❑	❑	❑	❑	❑
Meeting Corporate Objectives	❑	❑	❑	❑	❑
Functional Competency	❑	❑	❑	❑	❑
Reputation of the Board Member	❑	❑	❑	❑	❑
Strategic Partnering to Benefit the Firm	❑	❑	❑	❑	❑

CONTINUED ON NEXT PAGE

Q4P1.) Does the CEO also serve as Chairman of the Board?

❑ Yes ❑ No

Q4P2.) Are you the CEO of this company?

❑ Yes ❑ No

Q4Q.) Regarding the member selection process of your board, is the process by which individuals are appointed primarily dictated by: (CHECK ONE)

❑ The CEO alone
❑ The Chairman of the Board alone
❑ The CEO or Chairman with limited input from the board
❑ The CEO or Chairman with extensive input from the board
❑ A nominating committee composed of SOME board members
❑ A nominating committee composed of ALL board members
❑ Other (SPECIFY) _____
❑ Don't Know

Q4R.) Which of the following are standing committees on your board? (CHECK ALL THAT APPLY)

❑ Audit
❑ Community/Shareholder Relations
❑ Compensation
❑ Nominating
❑ Executive
❑ Finance
❑ Corporate Governance
❑ Other (SPECIFY) _____
❑ There are no standing committees

Q4S.) Approximately how many times during the calendar year does your board regularly meet? (CHECK ONE)

❑ 1-2 times
❑ 3-4 times
❑ 5-6 times
❑ 7-8 times
❑ 9-10 times
❑ 11-12 times
❑ 13 or more times
❑ Unsure

Q4T1.) Were you required to own stock when you first became a member of the board? (CHECK ONE)

❑ Yes ❑ No ❑ Unsure

Q4T2.) Do you currently own stock in the company?

❑ Yes ❑ No

Q4T3.) Do you currently own options to buy stock in the company?

❑ Yes ❑ No

Q4U.) Are you currently serving as a director on any <u>other</u> board(s)? (CHECK ONE)

❑ Yes ❑ No If yes, how many? _____

Q4V.) Would you consider serving as a director on another board in the future? (CHECK ONE)

❑ Yes ❑ No ❑ Unsure

Q4W.) In your opinion, your board's agenda primarily is initiated by: (CHECK ONE)

❑ The CEO alone
❑ The Chairman of the Board alone
❑ The CEO or Chairman with limited input from the board
❑ The CEO or Chairman with extensive input from the board
❑ A steering committee composed of SOME board members
❑ A steering committee composed of ALL board members
❑ Other (SPECIFY) _____
❑ Unsure

CONTINUED ON NEXT PAGE

Q4X.) **In your opinion, the general balance of power between the board and the Chairman is: (CHECK ONE)**

- ❑ In favor of the board
- ❑ In favor of the Chairman
- ❑ Roughly balanced between the board and Chairman
- ❑ Unsure

Q4Y.) **Generally speaking, how often do you vote in accordance with the majority of your board? (CHECK ONE)**

❑ Always ❑ Often ❑ Sometimes ❑ Never ❑ Unsure

Q4Z.) **Generally speaking, how often do you express a dissenting opinion in opposition to the rest of your board? (CHECK ONE)**

❑ Always ❑ Often ❑ Sometimes ❑ Never ❑ Unsure

☑ BOARD PURPOSE

Q5A-Q5I). **In your opinion, <u>how important</u> are the following factors in shaping <u>actions and decisions of your board</u>?**

FACTOR	Very Unimportant	Somewhat Unimportant	Somewhat Important	Very Important	Unsure
Chair Leadership	❑	❑	❑	❑	❑
Community Needs	❑	❑	❑	❑	❑
Economic Conditions	❑	❑	❑	❑	❑
Meeting Corporate Goals or Objectives	❑	❑	❑	❑	❑
Directors' Desire for Personal Contribution	❑	❑	❑	❑	❑
Reaching Board Consensus	❑	❑	❑	❑	❑
Management Ideology of Directors	❑	❑	❑	❑	❑
Short-Term Planning	❑	❑	❑	❑	❑
Long-Term Planning	❑	❑	❑	❑	❑

Q5J-Q5S). **In your opinion, <u>how important</u> are the following <u>issues</u> to your board?**

ISSUES	Very Unimportant	Somewhat Unimportant	Somewhat Important	Very Important	Unsure
Strategic Planning	❑	❑	❑	❑	❑
Corporate Performance	❑	❑	❑	❑	❑
Relations with Stakeholders (i.e., employees, suppliers)	❑	❑	❑	❑	❑
Relations with Management	❑	❑	❑	❑	❑
Director Compensation	❑	❑	❑	❑	❑
State and Federal Regulation	❑	❑	❑	❑	❑
Shareholder Representation	❑	❑	❑	❑	❑
Shareholder Equity	❑	❑	❑	❑	❑
Liability and Insurance	❑	❑	❑	❑	❑
Competitive Threats to the Firm	❑	❑	❑	❑	❑

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☑ BOARD PERFORMANCE

Q6A-Q6J). In your opinion, how <u>satisfied</u> are you with your board's dealings with the following <u>issues</u>?

<u>ISSUES</u>	Very <u>Dissatisfied</u>	Somewhat <u>Dissatisfied</u>	Somewhat <u>Satisfied</u>	Very <u>Satisfied</u>	<u>Unsure</u>
Strategic Planning	❑	❑	❑	❑	❑
Corporate Performance	❑	❑	❑	❑	❑
Relations with Stakeholders (i.e., employees, suppliers)	❑	❑	❑	❑	❑
Relations with Management	❑	❑	❑	❑	❑
Director Compensation	❑	❑	❑	❑	❑
State and Federal Regulation	❑	❑	❑	❑	❑
Shareholder Representation	❑	❑	❑	❑	❑
Shareholder Equity	❑	❑	❑	❑	❑
Liability and Insurance	❑	❑	❑	❑	❑
Competitive Threats	❑	❑	❑	❑	❑

Q6K.) How <u>satisfied</u> are you with the <u>overall performance of your BOARD</u>?

❑ Very Dissatisfied ❑ Somewhat Dissatisfied ❑ Somewhat Satisfied ❑ Very Satisfied
❑ Unsure

Q6L.) How <u>satisfied</u> are you with the <u>overall performance of the COMPANY of which you are a board member</u>?

❑ Very Dissatisfied ❑ Somewhat Dissatisfied ❑ Somewhat Satisfied ❑ Very Satisfied
❑ Unsure

Q7.) What is the <u>greatest strength</u> of the board on which you serve? _____

_____

Q8.) What is the <u>greatest weakness</u> of the board on which you serve? _____

_____

Q9.) Before the company for which you serve as a director became public, it was: (CHECK ONE)

❑ part of another company that was <u>public</u> ❑ a start-up company ❑ Unsure
❑ part of another company that was <u>private</u> ❑ a private company, not a start-up

Q10A.) For classification purposes, what is your gender?

❑ Male ❑ Female

Q10B.) Are you a member of a racial minority?

❑ Yes ❑ No

Q10C.) What is your current age?

❑ Under 18 ❑ 25-34 ❑ 45-54 ❑ 65-74
❑ 18-24 ❑ 35-44 ❑ 55-64 ❑ 75+

Thank you for participating in this research project. Please use the enclosed, postage-paid return envelope to forward your confidential responses to:

Corporate Governance Research Project
P.O. Box 330006
West Hartford, CT 06133-9948

If you have any questions or comments about this project, please contact:

Mail Corporate Governance Research Project
P.O. Box 51978, Palo Alto, CA 94303
Telephone (650) 842-8673
Email cmccorpgov@aol.com

APPENDIX IV

UNIVERSITY OF LONDON
CORPORATE GOVERNANCE RESEARCH PROJECT
P.O. BOX 330006
WEST HARTFORD, CT 06133-0006

PERSONAL AND CONFIDENTIAL
TIME SENSITIVE MATERIAL

APPENDIX V

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO 61185 HARTFORD CT

POSTAGE WILL BE PAID BY ADDRESSEE

CORPORATE GOVERNANCE RESEARCH PROJECT
PO BOX 330006
WEST HARTFORD CT 06133-9948

APPENDIX VI: JANUARY 1999 FOLLOW-UP LETTER TO ALL NON-RESPONDERS

<DATE>

Dear Board Member:

How does corporate governance affect the performance of newly public companies?

The Corporate Governance Research Project is examining that question—and you have the information to help provide a more complete answer. Several weeks ago, we mailed a questionnaire to you and other selected directors at U.S. companies with an initial public offering between January 1, 1993 and December 31, 1997. The questionnaire offers you an important opportunity to provide information on your direct experience as a corporate director, and on the knowledge you have gained from that experience.

Although directors at a wide range of companies already have responded, we have not yet received a completed questionnaire from you. Your participation is vital. The information you provide will be combined with responses from directors at other companies, to better understand and draw conclusions about corporate governance and company performance. Your responses will be completely confidential.

Please complete and return your questionnaire now so that your input can be included in this timely research project endorsed by the New York Stock Exchange, the Nasdaq/AMEX Stock Market, Deloitte & Touche, and Brobeck, Phleger & Harrison.

Your completed questionnaire should be returned in the postage-paid reply envelope provided with the questionnaire, faxed to (860) 651-2883 or mailed to:

Corporate Governance Research Project
P.O. Box 330006
West Hartford, CT 06133-9948.

If you did not receive your questionnaire, or if you need another copy, please telephone (650) 842-8673 or email cmccorpgov@aol.com immediately for a questionnaire and postage-paid reply envelope.

Sincerely,

Christos M. Cotsakos
Research Director

APPENDIX VII

Mr. or Mrs. <first name> <last name>
<title>
<company>
<address 1>
<address 2>
<city>, <state> <zipcode>

Via Mail

<date>

Dear Mr. or Mrs. <last name>:

Corporate governance and company performance are issues of the utmost importance to corporate directors of newly public companies. Although there is a wealth of academic research about best practices and their effect on performance, however, that research has largely ignored newly public companies as a separate topic of inquiry.

The Corporate Governance Research Project was mounted to address this need for research-based information about the practice of corporate governance in newly public companies. The project, which focuses on U.S. companies with an IPO between January 1993 and December 1997, is being conducted under the auspices of the Management School of the Imperial College at the University of London. The research effort has been endorsed by the New York Stock Exchange, the Nasdaq/AMEX Stock market, Deloitte & Touche, and Brobeck, Phleger & Harrison.

Your informed opinions and experience can make an important contribution to this undertaking. Because you are actively involved as a director of a company included in the research study group, I urge you to participate in the project by completing a questionnaire. Please take a few minutes to complete the questionnaire enclosed here, then use the business reply envelope to return your completed questionnaire directly to the research project team. Please note that your responses are entirely confidential.

Once you have sent in your completed questionnaire, please call me or send a note to let me know that you are participating in the research. I appreciate your willingness to contribute to the body of knowledge and experience that is vital to all corporate directors.

Chairman and
Editor-in-Chief
Leading Corporate Governance Journal

APPENDIX VIII

LETTER TO CHAIRMAN, WITH QUESTIONNAIRE(S) FOR OTHER DIRECTOR(S)

Mr. or Mrs. <first name> <last name>
<title>
<company>
<address 1>
<address 2>
<city>, <state> <zipcode>

Via Courier

<date>

Dear Mr. or Mrs. <last name>:

How corporate governance affects company performance is a question necessarily of interest to us both.

As Chairman and CEO of E*TRADE Group, and a member of several corporate boards, I am acutely aware of the need for more information about a topic largely overlooked in academic research: corporate governance in newly public companies.

In response, through the University of London, I am directing the Corporate Governance Research Project. This research was launched to compare corporate governance practices and company performance in Greenfield (start-up) companies to those of Heritage (carve-out and spin-off) companies. The project has been endorsed by the New York Stock Exchange, the Nasdaq/AMEX Stock Market, Deloitte & Touche, and Brobeck, Phleger & Harrison.

Earlier we sent a comprehensive questionnaire on corporate governance to a randomly selected sample of some 3000 directors at companies with an IPO between January 1993 and December 1997. The questionnaire provides a unique opportunity for directors to report on their direct experience and the knowledge they have gained by serving on a corporate board.

The responses are completely confidential and are for research purposes only. Neither individual directors nor individual companies will be identified in the research report.

Because approximately 90 percent of these companies are Greenfield companies, it is particularly important that we receive a body of responses from Heritage directors adequate to support our drawing statistically valid conclusions. The research team reports that in a number of instances, however, questionnaires did not reach the intended recipients. For example, some questionnaires mailed to company addresses but intended for non-executive directors were returned unopened.

I am asking you to help with this timely research by ensuring that the material enclosed with this letter reaches the intended recipient promptly.

Inside each envelope marked with the recipient's name is a copy of the corporate governance questionnaire and a postage-paid reply envelope for returning the completed questionnaire directly to the research team. Director names were randomly selected by the research team and drawn from recent proxy statements on file with the SEC.

Because of confidentiality requirements and research protocol, I must request that you transmit the material unopened to the director indicated on the envelope. If you would like to see a sample of the questionnaire, or receive a summary of the research results, please send me a copy of your business card (or call me at telephone number 650/842-2427).

I extend my personal thanks to you for your assistance in this research of importance to us both.

Sincerely,

1 Encl.

LETTER TO TOP LEVEL CONTACT (CHAIRMAN OR CEO) WITH QUESTIONNAIRE

Mr. or Mrs. <first name> <last name>
<title>
<company>
<address 1>
<address 2>
<city>, <state> <zipcode>

Via Courier

<date>

Dear Mr. or Mrs. <last name>:

How corporate governance affects company performance is a question necessarily of interest to us both.

As Chairman and CEO of E*TRADE Group, and a member of several corporate boards, I am acutely aware of the need for more information about a topic largely overlooked in academic research: corporate governance in newly public companies.

Through the University of London, I am directing The Corporate Governance Research Project to compare corporate governance practices and levels of company performance in Greenfield (start-up) companies to those of Heritage (carve-out and spin-off) companies. This effort has been endorsed by the New York Stock Exchange, the Nasdaq/AMEX Stock Market, Deloitte & Touche, and Brobeck, Phleger & Harrison.

The enclosed comprehensive questionnaire has been sent to some 3000 chairmen and directors at companies with an IPO between January 1993 and December 1997. Because approximately 90 percent of these companies are Greenfield companies, it is particularly important that we receive a body of responses from Heritage directors adequate to support our drawing statistically valid conclusions.

I am asking you to help by providing information on your direct experience and the knowledge you have gained as a corporate director. Your responses will be completely confidential and are for research purposes only.

Please complete the enclosed questionnaire and return it promptly in the postage-paid envelope provided. Your participation can help yield the kind of information about corporate governance and company performance we need to meet the demands of today's business environment.

If you would like to receive a summary of the research results, please include a copy of your business card with your completed questionnaire. You have my personal thanks for your cooperation in this research of interest to us both.

Sincerely,

1 Encl.

APPENDIX IX: POST-SURVEY INTERVIEW GUIDE

INTRODUCTION

Thanks for agreeing to talk with me about the research I recently completed on corporate Governance in newly public companies. First I'd like to review with you the research and its results. Then I want to discuss your thoughts both about my specific research and about corporate governance in general.

You are one of a small group of high-profile directors, other business leaders and academicians I'm interviewing in connection with the research. Your comments will be anonymous. No specific person or company will be mentioned by name in the report, so feel free to be completely candid.

I am taping our conversation to maintain the authenticity and accuracy of your responses throughout the completion of the research project at which time this tape will be discarded.

SECTION 1: PRACTITIONER AND COMPANY PROFILE

1. Have you in the past or do you currently sit on any boards of directors of public companies?

   - (If yes), How many?

2. Have you recently served on any boards of newly public companies? Think of a newly public company as one with an IPO in 1993 or later.

   - (If yes, GO TO 3)

   - (If no, GO TO 7)

Service on G or H Boards

3. (If yes), How many Greenfield boards have you served on? How many Heritage boards?

4. Generally speaking, what were your primary motivations to serve on these (this) boards?

5. Overall, how satisfied have you been with your experience as a member of these (this) boards? Why do you feel this way?

6. Overall, how satisfied have you been with the performance of the companies for which you have served as a board member? Why do you feel this way?

No Service on G or H Boards

7. (If no), What were your primary motivations to serve on these (this) boards?

8. How satisfied have you been with your experience as a member of these (this) boards? Why do you feel this way?

9. How satisfied have you been with the performance of the companies for which you have served as a board member? Why do you feel this way?

SECTION 2: REVIEW OF PROJECT HYPOTHESES AND EXPECTED OUTCOMES

Now let me tell you about the Corporate Governance Research Project. When I began this project over five years ago, I was looking for information on the relationship between corporate governance and corporate performance in newly public companies.

I questioned whether all boards of newly public companies are created equally. Specifically, I sought to test whether boards of Greenfield companies (defined as start-ups or formerly private firms with no prior experience as a public company) differ from boards of Heritage companies (defined as spin-offs or carve-outs of companies already public).

To test these research questions, I conducted a mail survey of directors at over 2,600 U.S. companies with an IPO between 1993 and 1997. The 151 directors whose responses are included in the analytical data set commented on such matters as the characteristics of board members, board structure and operation, board purpose, and satisfaction of board members along various measures. To measure the performance of each of the respondent companies, I examined the compound annual growth rate in market capitalization from the date of the IPO forward.

What I actually found was this: The data did not demonstrate many significant differences between Greenfield and Heritage companies, nor did it provide strong associations between corporate governance and actual company performance in newly public companies.

1. Can you comment on why you think those results were obtained?

SECTION 3: QUESTIONS RELATED TO HYPOTHESES

Board Membership

1. To the best of your knowledge, do you think differences exist between boards of Greenfield companies and boards of Heritage companies in terms of their board size and membership? If so, how do they differ?

   - Do you believe any differences exist in terms of: If so, how do they differ?
   overall growth rates in board size?
   the percentage of board directors who are women?
   the percentage of board directors who are members of a racial minority?

Board Structure

1. To the best of your knowledge, do you think differences exist between boards of Greenfield companies and boards of Heritage companies in terms of their board structure?

   - Do you believe any differences exist in terms of the percentage of board directors who are considered "independent", thus having no particular affiliation with the company other than board participation?

2. Do you believe any differences exist between Greenfield and Heritage companies in terms of the factors that shape the composition of their boards? If so, how do they differ?

   - Do you believe any differences exist in terms of how important these factors are in staffing the board?
   management ideology?
   functional competency?
   functional diversity?
   reputation of the board member?
   strategic partnering to benefit the firm?

3. Let's talk a bit about decision making at these companies. Do you think CEOs at Greenfield and Heritage companies are about equally likely to serve as Chairman of the Board? If not, how are they different?

4. A board often has a variety of standing committees. Some boards have a corporate a governance committee. Do you think that Greenfield and Heritage companies are equally likely to have a corporate governance committee? If not, how are they different?

5. Do you believe any differences exist between Greenfield and Heritage companies in terms of ownership of stock or stock options among board directors?

6. Do you believe any differences exist among Greenfield and Heritage companies in terms of the balance of power between board members and the Chairman? If so, what are those differences?

- (If a difference exists) What factors might lead one board to have a more balanced power structure than another?

Board Purpose

1. To the best of your knowledge, do you think differences exist between boards of Greenfield companies and boards of Heritage companies in terms of their board purpose?

- Do you believe any differences exist in terms of the factors that shape the actions and decisions of the board? Possible factors might include:

economic conditions
short term planning
long term planning
community needs
director ideology
organizational culture

2. To the best of your knowledge, do you think differences exist between boards of Greenfield companies and boards of Heritage companies in terms of the importance of various issues to the board?

- For example, do you believe any differences exist in the importance of:

strategic planning
corporate performance
shareholder representation
competitive threats to the firm
relationships with key stakeholders like employees and suppliers
liability and risk management

SECTION 4: ADDITIONAL TOPICS

1. In your opinion, do boards change over time? If so, how do they change?

    - What are the characteristics of a very young or relatively new board?

2. What effect, if any, does company sector have on the way a new board is staffed, structured or operated? For example, do boards of high tech companies differ from boards of hard goods companies or financial services companies?

3. What role, if any, does personality play in corporate governance? Does a CEO or chair who is a strong leader or who has a dominant personality have any material effect on the board?

4. The study I conducted used the compound annual growth rate in market capitalization from the date of the IPO forward as a measure of corporate performance. Do you believe this is an appropriate measure of performance?

    - Can you think of any other economic measures that could be used to effectively measure corporate performance?
    - Can you think of any non-economic measure that could be used to measure corporate performance?

5. What topics on the subject of corporate governance in newly public companies do you believe merit further attention and research?

SECTION 5: SUMMATION

1. Finally, could you sum up in a few sentences your impressions of the major differences between Greenfield and Heritage boards?

2. Here is my understanding of the major points you have expressed. (SUMMATION). Is that consistent with your impressions?

3. Keeping in mind the focus of this research, is there anything else about corporate governance in newly public companies that we have not discussed but you feel is important?

THANK YOU!

APPENDIX X: POST-SURVEY SUMMARY SHEET

Research Objective
To examine corporate governance by newly created boards of newly public companies corporate governance in newly public United States companies.

Research Rationale
To focus specifically on governance in newly public companies.

Definitions
Newly created board: the board of directors of a newly public company.

Newly public company: a corporation legally established as the result of an IPO occurring between January 1, 1993 and December 31, 1997.

> *Heritage company*: a public company originating when a substantial business segment (carve-out or spin-off) of an existing public company issues an IPO.
>
> *Greenfield company*: a public company originating when a start-up company or a company previously operating as a private company issues an IPO.

Research Propositions
That boards of directors of Greenfield companies are more likely to adopt corporate governance best practices than are boards of directors of Heritage companies.

That adopting and exercising corporate governance best practices will lead to superior company performance as measured by compound annual growth in market capitalization.

Research Methodology
An initial survey instrument containing fixed-response and open-ended questions to elicit information on director opinion and experience developed and tested.

Topics covered by the survey instrument included characteristics of board members, board structure and operation, board strengths and weaknesses, and company performance.

The survey instrument was mailed to over 2800 inside and outside directors at approximately 2600 U.S. companies with a 1993-1997 IPO.

Selected groups of non-responders were contacted by telephone, U.S. mail or Federal Express; in some cases, additional copies of the survey instrument were sent.

Data from 151 completed surveys (approximately a 5% response rate) was compiled and analyzed. The data set included responses from 108 Greenfield directors and from 43 Heritage directors.

