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Keywords

risk, performance, compensation, firm, manager, companies, research, employee, IPO, HRM

Comments

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PREDICTING PERFORMANCE OF INITIAL PUBLIC OFFERING (IPO) FIRMS: SHOULD HUMAN RESOURCE MANAGEMENT (HRM) BE IN THE EQUATION?

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ABSTRACT

Population ecology is utilized to understand the role of human resource management (HRM) in enhancing the performance of initial public offering (IPO) companies. This is done by examining the determinants of structural inertia and developing hypotheses on the relationship between HRM and organizational performance. The results indicate that two human resource variables (human resource value and organization-based rewards) predict initial investor reaction and long-term survival. The rewards variable negatively affects initial performance while positively impacting survival.

There is a growing body of literature that focuses on the impact of human resource practices on organizational performance (Fisher, 1989; Huselid, 1994; Mahoney & Deckop, 1986; Truss & Gratton, 1994). This research generally falls under the title of strategic human resource management (SHRM). SHRM is different from traditional HRM in its focus on organizational outcomes, its integration of the various functional areas of human resource management, and its concern with a more macro perspective on the topic (Lundy, 1994). The field has progressed significantly, however, it remains plagued by inadequate definitions and sparse theoretical development (Dyer & Kochan, 1994; Kochan & Dyer, 1993; Zedeck & Cascio, 1984) and only a handful of studies have used multi-industry, multi-firm samples with independent measures of firm performance (see Abowd, Milkovich & Hannon, 1990; Huselid, 1995; Ichniowski, 1990).

Although numerous theories of organization exist, much of the research in SHRM has focused primarily on one view, that which is posited by strategic contingency theory (Fisher, 1989; Wright & McMahan, 1992). The result has been a number of "fit" or "matching" models suggesting that in order to enhance organizational performance human resource management policies should be implemented to support a firm's business unit or organization strategy (Baird & Meshoulam, 1989; Huselid, 1994; Miles & Snow, 1984; Tichy, Fombrum & Devanna, 1982). Although popular, this theory is limited in its ability to predict performance of younger companies that quickly change strategies. As will be discussed later in the paper, it seems implausible that a firm's human resource strategy can or should continue to change in order to continue "matching" the firm's business strategy. Therefore, in order to expand both the theoretical and empirical work in the field of SHRM, this paper develops a different theoretical perspective and then tests hypotheses developed from this theory with a unique sample that allows us to investigate the impact of human resource management issues on an ultimate measure of performance, firm survival. The research elaborates upon the theoretical work conducted by population ecologists to understand the role that human resource management might play in the survival and performance of younger, smaller, growing firms. These organizations, which have been overlooked by human resource management researchers, are an important part of the economy because they are a significant source of new jobs and innovations (Birch, 1987). They also provide a unique opportunity to study how SHRM can affect a firm in its earlier stages of development.

Most of the strategic human resource management research has been conducted with cross sections of larger, established organizations, while targeting the practices of the human resource department. The dominant research method involves the sending of surveys to human

resource professionals; therefore, the process ultimately results in samples of larger firms that have human resource departments (Jackson, Schuler & Rivero, 1989). Even when samples are drawn from sources that include smaller and newer organizations (such as Compact Disclosure) (e.g. Huselid, 1995; Abowd, Milkovich & Hannon, 1990), the research design often results in larger, older firms being selected for analysis. The process of obtaining survey data to measure human resource strategy results in a final selection (because survey data are matched with archival data) of only those firms with human resource departments (Snell & Dean, 1994). In the case where the human resource department is not surveyed (such as in the Abowd et al., 1990 study), other factors often limit the sample to larger firms. For example, the Abowd et al. study coded announcements in the Wall Street Journal to capture human resource management initiatives, but press releases for smaller firms are seldom picked up by the Wall Street Journal. A few organizational level studies have concentrated on specific industries (MacDuffie, 1995 studied auto assembly plants; Arthur, 1995 researched steel minimills), however, these companies were also more established, older firms.

Although contributing to our understanding of macro human resource issues, several problems exist when human resource management is studied within larger, established organizations, and these issues cannot be addressed without expanding the research into more diverse samples. First, the actions taken by the corporate office (in particular, the headquarters human resource department) might not translate into behaviors by managers at the division, business unit, or plant level. For instance, having a performance appraisal system or an extensive selection methodology in place might not indicate the degree to which these programs are really used by either employees or management; it might merely reflect the staffing levels of the personnel department (they have more people so they can develop more programs). Thus, data from corporate human resource managers might not be tapping the underlying construct of interest in this research; it might be measuring the activity level of the human resource department. In addition, the reliance on larger, established organizations automatically limits variance in performance because these firms have survived their early years and are, as a result, in a better position to continue to survive.

On the other hand, smaller, newer organizations present a unique opportunity in which to study human resource management and perhaps to more adequately address causation. As Romanelli (1989: 369) notes, "new organizations are notoriously poor at surviving their early years." Thus, samples of smaller and younger firms have more variation in performance, including firm survival. These newer, smaller businesses do not usually have formal human resource management departments; in fact, that is one of the reasons they have not been

studied in the past (Snell, 1992). However, we think that the "missing" department and the application of population ecology provide an opportunity to establish a different operational definition of the construct underlying the strategic human resource management literature. The variable focuses on the organization's overall strategic approach toward its employees as evidenced by actions of the top management team rather than policies implemented and administered by the human resource department.

Initial public offering (IPO) firms, which are the focus of this research, have not been studied by researchers in strategic human resource management. IPO firms are organizations that offer their stock to the public market for the first time; they are moving from being a privately owned firm to a publicly owned company. The move is not an easy one, and it requires at least one year of the company's time (particularly that of the top management team) in preparing and "marketing" the company. In addition, the firm undergoes numerous internal changes as it prepares to become "professional" and submit to the scrutiny of shareholders, investment bankers, and the Securities and Exchange Commission.

These firms present a unique opportunity to study smaller and younger organizations that are undergoing dramatic change (moving from being a privately held company to a publicly held firm). IPO firms often are considered to be more successful than other small organizations because they have survived to this stage. However, they still face a high risk of failure that is comparable to that encountered by other start-up organizations. Of the 3,186 companies that went public in the 1980s, with stock listed on the NYSE, AMEX, or NASDAQ, only 58% were still listed by 12/31/89 (Zeune, 1993). Comparably, a Dunn and Bradstreet study showed that 53% of all failures and bankruptcies of firms in 1980 occurred less than five years after founding, and 80% failed in less than ten years (Romanelli, 1989). Therefore, even though it may seem that initial public offering firms are more successful than other small firms, they still face significant risks of survival.

We utilize population ecology as a framework for examining the relationship between human resource management and organizational performance within initial public offering firms. Population ecology is particularly useful for studying these organizations because it focuses on determinants of organizational survival. Survival is a dependent variable that has received very little attention from FIRM researchers. According to Abowd, Milkovich, and Hannon, "research on the relation between human resource decisions and organizational performance appears to have focused most on immediate outcomes (behavior and attitudes), less on intermediate outcomes (accounting measures, firm health, and economic outcomes), and hardly at all on ultimate outcomes such as survival" (1990: 204).

This study applies population ecology to the study of human resource management in order to understand how human resource decisions at an early stage (the time of the IPO) might affect long-term performance (survival after 5 years). Although population ecology discusses human resource determinants of organizational survival, this aspect of the theory has not been adequately developed. Therefore, the first section of this paper reviews population ecology to explicate its implications for the relationship between human resource management and organizational performance. Population ecology allows us to develop hypotheses about a firm's long-term performance, however, it is not helpful in understanding the outcomes of the actual initial public offering process. Therefore, an additional exploratory analysis of the effect of human resource management on investor reaction to the firm is also conducted. The next section describes the findings of a study based on a sample of 136 firms that initiated their public offering in 1988. Finally, we consider the ramifications of these results for the field of SHRM.

POPULATION ECOLOGY AND HUMAN RESOURCE MANAGEMENT

Wright and McMahan, after reviewing the strategic human resource management literature and noting its dependency on contingency-based or strategic choice models, conclude that "a variety of theoretical models exist in the organization theory literature ...these models may also serve as fertile ground for broadening our perspective of the role of human resource management in organization" (1992: 315). Even though they include population ecology as one such model, it has not been adequately utilized by researchers in the field. Perhaps this omission results from conclusions of some organization theorists, that according to population ecology, the role of the manager is passive or inactive (Astley & Van de Ven, 1983; Singh & Lumsden, 1990). Morgan notes that "the population ecology view has been much criticized for downplaying the importance of choice of strategic direction for an organization" (1986: 68). If managerial actions cannot augment firm performance, then human resource management practices, which are implemented by managers, would not appear to be important in predicting organizational outcomes. This view seems to have been accepted by many management scholars, however, the conclusion that managers' actions cannot affect firm performance is one that is currently being debated and that is rejected by some population ecology researchers (Amburgey, Kelly & Barnett, 1992; Haveman, 1992; Haveman, 1993). We contend that there is nothing inherent in the theory itself that concludes management actions and decisions are not important, in fact, we will show that population ecology has implications for understanding how human resource management can impact firm survival.

Population ecology was developed as an alternate view of how organizational forms change over time. The dominant paradigm before population ecology was introduced focused on the way in which managers and strategic choice affect firm performance. Freeman and Hannan comment that they "thought it was a mistake to build models of organizational change that rely on anthromorphic images of organizations or on heroic images of managers; (they) attempted to build a perspective that treats organizations as complex systems with strong limitations on flexibility and speed of response" (1989: 426). Thus, the focus of their work was to advance an alternative theory of organizational change, and in doing so, the unit of analysis was the population of organizations rather than the individual corporation. The theory has been used to understand the impact of competition, firm age, environmental turbulence, and technology on variance in organizational forms and survival over time (Astley & Van de Ven, 1983; Hannan & Carroll, 1992). Although it may not have been posited, population ecology does have implications for the internal management of companies. Discussions of structural inertia center on the importance of human capital and the way in which processes are managed to produce reliability and accountability, which are posited to be determinants of survival (Freeman & Hannan, 1990).

According to the strategic choice and contingency theory literatures, managers can respond to environmental conditions by altering their business strategies, and this action should then lead to improved performance (Lyles, 1990). The SHRM literature has elaborated upon this idea by suggesting that, as a subsequent (or concurrent) step, human resource policies should be changed to match the new or altered business strategies (Dyer, 1984; Lengnick-Hall & Lengnick-Hall, 1989; Milliman, Von Glinow & Nathan, 1991). Strategic human resource management suggests that there is no "one best way" to manage employees, but each firm should tailor its programs to meet the challenges and needs of its business strategy and environment. In fact, Baird and Meshoulam (1988), who developed a model specifying the way in which human resource management strategies should evolve, claim that if the human resource department does not make timely changes, it will be ineffective. They argue that "if human resource activities skip a stage, they will be ineffective. It will be necessary to revisit an earlier stage for the unit to regain its erect" (1988: 122). This means that the human resource department cannot be more "advanced" than the rest of the company. They also state that new leadership within human resources is required at each stage of the life cycle. This view implies dramatic and frequent changes guided by business strategy and life cycle. But new leadership and constant change also put pressure on organizations, and it is this type of pressure that population ecologists suggest leads to disruption and increases the risk of organizational death.

Population ecology takes a different approach in that it claims too many organizational change efforts (such as changing human resource practices to match the current environment, business strategy, corporate strategy, or life cycle) will have a negative impact on organizational performance and survival. At the core of population ecology is the concept of inertia (Hannan & Freeman, 1984). Although inertia often conjures up images of stale, immobile organizations, the definition does not necessarily mean "standing still." Newton's first law of physics, the law of inertia, states that "an object at rest tends to stay at rest; an object in motion tends to stay in motion." And this overall tendency to stay at rest or in motion is called inertia. Inertia is defined by Webster's dictionary as "a property of matter by which it remains at rest or in uniform motion in the same straight line unless acted upon by some external force." An organization that has inertia might be at rest, but it might just as well be moving forward, until it is acted upon by something that causes the "entire organization" to move, together, in a different direction. Inertia keeps an organization moving during a change, even though the direction has changed. We know that initial public offering firms are not at rest because they are entering the public market in order to grow; therefore, when applied to IPO firms, inertia is a desirable characteristic because it helps the organization to continue moving forward.

Rather than altering human resource systems to match life cycle or business strategy (as suggested by contingency theory), population ecology arguments imply that human resource techniques should be designed to strengthen structural inertia early in the life cycle, and in this way increase survival chances. Population ecology is applicable to the study of human resource management because there is a relationship between HRM practices and structural inertia. If human resource management can increase inertia, then HRM systems will contribute to the long-term performance and survival of organizations.

Population ecology claims that reliable companies producing collective action (where people work together toward a common goal) are more likely to survive, and the most reliable firms are those with characteristics that enhance high structural inertia (Freeman & Hannan, 1990; Hannan & Freeman, 1989). We suggest that collective action and structural inertia imply that firms have 'structural cohesion,' and this enables them to respond to the environment while still moving forward. High inertia results from a variety of internal and external factors. Internal factors include sunk costs, personnel or human capital, technology, and political coalitions, while external factors include things such as legal environment, market conditions, and pace of technology change. Although population ecology researchers have not focused on the personnel or human capital component, there is a theoretical argument that this element should be investigated.

A few implications for human resource management can be drawn from discussions of the internal pressures that create structural inertia. Hannan and Freeman (1977) suggest that greater investments in personnel, particularly in specialized employees, lead to higher inertia. Investments in personnel are usually made because a firm thinks its employees are important to the business. Although many initial public offering firms do not have formal human resource departments and the types of policies and procedures that are implemented by these departments, IPO firms do vary in the degree to which they consider employees to be an important part of their business. This variance is evidenced by the degree to which they acquire specialized personnel and make other investments in employees (training, support systems, etc.). Smaller companies rely on high levels of cooperation and flexibility from their employees because they are usually understaffed, and they do not have excess resources; in order to meet the demands of a changing environment, they need to rely on each individual employee to contribute. If a company has high inertia as a result of a strong, cohesive work force, it is more likely to be able to marshal those resources to respond to its challenging environment.

Although not included in traditional measures of strategic human resource management, we define this variable as "human resource value" and suggest that human resource value affects survival chances because it increases structural cohesion. In summary, we conclude that companies placing higher value on employees early in their development (at the time of the IPO) will improve their chances of survival. Placing high value on employees is reciprocated by employees placing high value on the organization and its goals, thus increasing the company's chances of survival.

Hypothesis 1: Organizations that place more value on employees at the time of the IPO will increase their survival chances.

In addition to human resource value increasing inertia and structural cohesion, compensation programs might also affect inertia by encouraging and rewarding collective action. Hannan and Freeman (1984) note that diversity of interests among members of the organization and uncertainty about means-end relationships lead to a weak political environment that can reduce inertia. Their reasoning is that these conditions encourage employees to pursue separate goals (creating dispersed action and a lack of cohesion), and these individual objectives may be in conflict with each other and/or the overall mission of the firm. Much of the literature on individual incentives and team bonuses shows that these pay programs have similar dysfunctional outcomes (for a review, see Gomez-Mejia & Balkin, 1992). Individual incentives tend to encourage employees to maximize their own income by engaging in behaviors that are often inconsistent with the needs of the company. Team-based incentives

can also create an environment that sets various groups in competition with each other, leading to lower organization effectiveness (Welbourne & Gomez-Mejia, 1991).

On the other hand, pay based on organization performance links all employees to the firm and its mission, thus encouraging collective action and decreased competition between individuals and between work teams (Lawler, 1981; Milkovich & Newman, 1993; Welbourne & Gomez-Mejia, 1995). Companies that implement compensation systems based on organizational 14 performance (such as stock options, profit sharing, etc.) will be more likely to retain employees and rally these individuals around a common goal (Kruse, 1993), thus enhancing inertia and structural cohesion. Organization-based compensation programs provide employees with a longer-term perspective of the business, which should also assist in sustaining the type of inertia that can improve long-term survival chances.

Hypothesis 2: Companies with organization-based compensation programs at the time of the IPO will be more likely to survive.

The role that human resource management can play in strengthening inertia and enhancing survival is particularly applicable to companies at the initial public offering stage. Population ecology suggests that the internal structures in place at times such as the IPO (past infancy and entering a new stage of growth) will be critical in determining an organization's chances of survival because these basic structures are not likely to change (Aldrich & Marsden, 1988; Hannan & Carroll, 1992). This view seems consistent with the conclusions of compensation researchers who have observed that rewards programs are resistant to change (Gerhart & Milkovich, 1990; Gomez-Mejia & Balkin, 1992). Snell and Dean recently noted that "once in place, administrative systems, such as compensation systems, are notoriously intractable" (1994: 1118).

SHORT-TERM IPO PERFORMANCE

Population ecology provides little direction in predicting how investors will react to firms with high levels of human resource value and organization-based rewards. However, given that the goal of an initial public offering is to raise cash for the company, and that the amount of cash is maximized by obtaining a high stock price, it seems useful to examine the impact of the human resource variables on the initial public offering.

This is particularly interesting because the way in which initial stock price is set is not well understood. Given the limited operating history of IPO firms, it may be difficult to judge the future value of the firm (Altman, 1988; Wat, 1983). Overall, the stock price is set through a series of negotiations between the underwriter and the company. The process has been called more of an "art" than a "science" (Hofineister, 1987: 53), and it has been suggested that

mathematical models and accounting models are "rarely more than a portion of the ingredients which make up the determination of final price" (Weaver, 1969:33). Several of the 1988 prospectii even state "...price determined by negotiations between the company and the representatives of the underwriters and bears no relation to the assets, earnings, or book value, or any other established criterion of the value of the company."

Even though the process might not be well understood, the underwriters and company are provided with a significant amount of information with which to make the pricing decision. The underwriters, lawyers, and accountants are all involved in evaluating the company before finalizing the prospectus. Prior to the actual pricing date, the company conducts what is called a "road show" where the management team attempts to sell the firm to large institutional investors in group meetings and in one-on-one sessions. Investors then make a buy decision based on both the prospectus and the information obtained in the meetings prior to the firm going public, and this decision is communicated to the underwriters prior to the time when the stock price is finalized. Thus, the underwriters also use expected investor reaction (obtained through the road show) to help determine final stock price.

Therefore, even though there might not be sufficient theory or research on how IPO firms are initially priced, the decision seems to be one that is made with a considerable amount of facts about the firm and probable market reaction to the firm. The question that this research will address is whether human resource related data is used as part of the pricing decision, and if so, in what way is that information evaluated by potential investors.

RESEARCH METHODS

The target population for the study is companies that are preparing to move into a new stage of growth and need an infusion of cash. Initial public offering (IPO) firms have been neglected in the human resource management literature, but they represent an important sector of the economy. Successful IPO firms typically are smaller, rapidly growing companies that have the potential to create large numbers of jobs and introduce new technologies (Birch, 1987). While these firms must offer enough potential to attract investors, they usually possess a short operating history and present higher risks than larger, more established firms (Beatty & Zajac, 1994).

Sample

The sample used for this study contains 136 non-financial companies that initiated their IPO in 1988. A total of about 250 firms filed securities registrations with the SEC to conduct an IPO, and we pared the list down to 170 by deleting those that were listed as closed-end finds, real estate investment trusts, and other firms not producing a good or service. Upon receipt of

the 170 prospectuses, we eliminated additional firms that also fell into the "not producing a good or service" category. As a result, we included a total of 136 non-financial companies in the sample. The year, 1988, was chosen because it allowed for five years of follow-up data, and because it had approximately a 60% survival rate as of 1993, permitting a comparison between survivors and non-survivors.

Data were gathered from the prospectus of each firm. The prospectus is the document provided to the Securities and Exchange Commission (SEC) prior to the public offering, and it is also the document circulated by the underwriter to assess demand for the firm's stock. The SEC requires firms to follow strict guidelines in the format. The document itself is usually written by members of the management team and then scrutinized by lawyers and accountants.

While the potential for positive bias exists in the prospectus, the firm is liable for any information that might mislead investors (O'Flaherty, 1984). The Securities and Exchange Act of 1934 (with amendments) sets the requirements for the prospectus, thus assuring consistency in the type of information that is included in the document. The SEC also requires that the prospectus be accurate to the best knowledge of management. Given this requirement and the fact that the SEC requires a tremendous amount of detail regarding company operations, the prospectus is a useful data source (Marino, Castaldi, & Dollinger, 1989).

Data Collection and Coding

Prospectuses from 1988 are not readily available in public sources, therefore, copies were obtained from Disclosure, which is a data clearing house for the Securities and Exchange Commission. We were able to acquire the prospectuses for all companies that initiated an initial public offering during 1988. Data were coded using a two-step process with two coders who were unaware of the survival status of the companies as they coded.

First, a five-page summary of each prospectus was constructed. Given the fact that the prospectus is not a traditional data source, this first step allowed for careful reading of each document, cross checking at the second stage of coding, and notation of any unusual firm characteristics. The second step involved numerically coding each five-page summary for specific information. Researchers cross-coded a sample of companies (two people coded the same prospectus), and they switched companies for the second stage of coding. Any questions about codes were resolved through group consensus, which involved meetings with the coders and an additional researcher.

Sample Characteristics

The average firm incorporated in 1981, although half incorporated in 1985 or later. Half the firms employed fewer than 110 workers, however, 20% had 700 or more employees. On

average, the firms had 6 executive officers, and 3 outside directors. The businesses were located throughout the United States, but were most heavily concentrated in the Pacific states (See Appendix A). The sample includes companies from numerous industries, ranging from food service retailing to biotechnology to steel minimills (See Appendix A). As of 1993, 81 firms still survived. Descriptive statistics for the sample are listed in Table 1.

Table 1: Descriptive Statistics for the Sample		
	Mean	S.D.
Year incorporated	1981	12.15
Number of executives	5.67	2.83
Number of outside directors	3.17	2.10
Number of employees	729	2054
Unionized (1=yes, 0=no)	.14	.35
Percent stock owned by directors and executives after the IPO	38.91	22.30
Percent of firm stock sold in IPO	25.40	9.80
CEO age (years)	47	9
CEO Salary ($000)	173.80	182.20
Expected IPO Proceeds (millions$)	12.16	16.91

Independent Variables

Human resource value. In order to test hypothesis one, a measure of human resource value was required. This variable attempts to assess the degree to which a company values employees as a specialized asset of the firm. Given that the prospectus describes the competitive advantages of each company, it is a useful source for understanding how each firm values its employees. If employees were considered to be a source of competitive advantage, the firm's strategy, mission statement, and operating practices should reflect that value. We attempted to capture human resource value by coding a variety of indicators found throughout the prospectus.

This measure was computed as the sum of several variables coded as "1" if the firm engaged in the practice, and as "0" if not. The overall measure of human resource value included multiple indicators, which were summed so that the overall measure represents the degree to which the company values its employees. The items included the following: (1) The company's strategy and mission statements were reviewed to determine if employees were cited as a competitive advantage. (2) The inclusion of a training program for employees was also coded as an indicator of HR value due to the fact that these employers were allocating resources that resulted in employees obtaining company-specific education. (3) Another indicator of HR value was the presence of an officer with responsibility for human resource

management. (4) The degree to which employers used full-time employees (on a regular basis), rather than temporary or contract employees, was also coded. Companies that used temporary workers were coded as zero, thus lowering their overall score on HR value, while companies using full-time, permanent employees were coded one, increasing their overall HR value score. (5) The SEC requires employers to rate their employee relations climate. This was coded with a "0" if they had poor or satisfactory relations, "1" if they had good relations, and 2 if they had "excellent" relations with employees.

Overall HR value was calculated as the sum of these various indicators, and the measure ranged from 0 to 6, with a mean of 2.57 and standard deviation of 1.15. We were not able to calculate statistics for internal reliability due to the fact that the overall measure is a summated measure. Basically, this scale indicates the *degree* to which a company values its employees as evidenced by the pervasiveness of various indicators of human resource value (See Table 2).

Table 2: Descriptive Statistics for Human Resource and Rewards		
Variable	Mean	Standard deviation
Human resource value	2.57	1.15
Executive with HR responsibility	.20	.40
Use full-time employees	.71	.46
Have an employee training program	.15	.36
Cite employees as strategic asset	.51	.50
Quality of employee relations	1.00	.52

Rewards	1.79	1.17
Stock plan for all employees	.49	.50
Stock plan for management	.85	.36
Profit sharing for all employees	.12	.32
Profit sharing for management and key employees	.20	.40
Other incentive, all employees	.10	.30
Other incentive, management	.05	.22

Rewards

Hypothesis two focuses on the use of rewards based on organizational performance. Employers can design organizational-based compensation systems (such as stock options and profit sharing) for all employees or for only the management team, therefore, we coded the existence of rewards programs for both populations. The measure was computed by adding responses to the following dummy indicators: whether the firm had stock options for all employees, for key employees and management, whether the firm had profit sharing for all employees, for key employees and management, and whether the organization had other forms

of group-based incentives (gainsharing, customized rewards) for all employees or for management. This measure ranged from 0 to 5, with a mean of 1.79 and a standard deviation of 1.17.

Dependent Variables

The hypotheses indicate that firms valuing their employees and utilizing rewards based on organizational criteria will improve their survival chances. In addition, we were interested in understanding the impact of these variables on the initial public offering. Three different dependent variables were used to measure firm performance and survival. Two measures assess IPO financial performance, and the third measures long-term performance. Because initial public offering firms are so young, many of the traditional measures of firm performance used in prior strategic human resource management research, such as productivity (Kruse, 1993; MacDuffie,1995), abnormal returns (Abowd et al., 1990), and ratio data such as return on assets (Huselid, 1995) could not be utilized because IPO firms are new to the stock market, many do not have productivity data (because it is not available and/or because many do not produce a product yet), and zero would have to be used for many of the ratio measures of performance (e.g. many of these firms have no sales) (Eisenhardt & Schoonhoven, 1990).

Perceived market potential

The absolute stock price at the time of IPO, while important, can be misleading in that it fails to account for the worth of firm assets. A high-tech start-up may have enormous potential, but it is unlikely to garner a high stock price because it will have very few assets. Conversely, a steel mill may command a high stock price, but much of that value may lie in equipment. In order to control for assets, percent of the share price that is the price premium was used in the analysis (Rasheed & Datta, 1994). The premium is the amount of the stock price that is above and beyond the book value, and it represents the perceived potential value of the firm.

For example, consider two companies selling their stock at $10.00 per share. Firm X has a book value of $2.00, while Firm Y has a book value of $6.00. Firm X is a more risky investment, because if it goes bankrupt, its assets are only worth $2.00, while those of Firm Y are worth $6.00. For Firm X and Firm Y to command equivalent stock prices, an investor must believe that Firm X has the potential to do very well. The difference between the stock price and the book value is called the dilution value, since it represents a dilution to investors purchasing the stock. However, from the company's perspective, it is a price premium. The company attempts to maximize this premium in its offering, while investors wish to minimize the premium so that their investment is more secure. The price premium is a useful measure of performance, since it measures the perceived potential of the firm (Rasheed & Datta, 1994). To standardize

this premium across all firms, it was divided by the total share price, to obtain the percent premium. The calculation is as follows:

Percent Price Premium = {(Stock price - Book value) / Stock price}

Tobin's Q

We also calculated Tobin's Q, which is a more traditional measures of perceived potential of a firm. In order to calculate Tobin's Q, we used initial stock price / book value. By using initial stock price, we are measuring the reaction of the initial investors (primarily institutional investors) to the firm.[1] Although book value is historic, therefore not an exact approximation of replacement cost (which is intended in the calculation of Tobin's Q, stock price to book has been recommended as a way to measure investor reaction to a firm (Smirlock, Gilligan & Marshall, 1984). Tobin's Q, therefore, indicates how potential investors value the firm; the higher the ratio, the more the firm is valued (Davis, 1991; Davis & Stout, 1990). The calculation is as follows:

Tobin's Q = (Stock price /Book value)

Survival

A third dependent variable, which tests the population ecology hypotheses and reflects long-term performance, is survival. All firms still in business at year-end in 1993 were coded as survivors. Survival status is not easily determined, therefore, several steps were taken to assure correct identification of survivors.

First, an on-line data base of current public firms was searched to find current information on the companies. Supplemental information was gathered from Disclosure, a data clearing-house for the Securities and Exchange Commission (SEC). Disclosure was able to identify many of the active and inactive companies. The Directory of Obsolete Securities (1994) also was searched to identify bankruptcy, name changes, recapitalization, and mergers. In addition, phone calls were made to the numbers provided in the prospectus. Fourteen firms (10%) changed their names. These firms were called to find out whether the name changes were cosmetic, or whether the businesses had undergone other major transformations. Mergers were considered to be nonsurvivors under the logic that the firm, as coded in 1988, had been joined with another set of management and organizational culture (Aldrich & Marsden, 1988; Kalleberg & Leicht, 1991). In addition, the stock price of the mergers was tracked, and we

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[1] A more traditional approach might be to use 7-day stock price, rather than initial stock price. The 7-day price measures market reaction after the company is traded. However, the focus of this research is on the reaction of individuals who are more familiar with the firm, therefore, initial stock price was used. However, 7-day stock price and initial stock price are strongly related, with a correlation of .96. The correlation between Tobin's Q calculated with initial stock price and Tobin's Q calculated with 7-day stock price is .90. Both are significant at the $p < .001$ level.

determined that 7 out of 8 mergers had stock prices that had decreased prior to the merger, therefore, the trend in this particular sample seemed to be that mergers reflected something closer to a nonsurvivor than a survivor. Overall, 81 companies, or 59.6% of the sample, were coded as survivors.

Control Variables

Several control variables, selected based on a review of both the strategic human resource management and initial public offering literatures (e.g. Beatty & Zajac, 1994; Huselid, 1995) were used in the analysis. The total number of employees, logged to correct for skewness, was included as a measure of size. Net profit per share at the time of the IPO was added as a performance measure. Net profit was used as a measure of performance because many firms had net losses reported, which indicated variance in performance. Other measures of performance, such as sales, presented the problem of zero sales for many organizations in the sample. A dichotomous measure coded "1" for service industry and "0" for manufacturing was used to control for industry. This code was limited to manufacturing versus service firms in the analyses reported. However, analyses were also run using dummy variables for more detailed industry categorization (the 6 categories listed in Appendix A and suggested by the Small Business Administration), and the results are included in notes to the tables. Geographic area was also included as a control, and although not listed in the tables, the categorical variables were included in all analyses, and the results are listed in notes to the tables. A total of seven geographic areas were included, with the northeast being the omitted category (See Appendix A). A final control variable indicated the level of risk of the firm. Each prospectus contains a section listing all risk factors faced by the firm, which must be disclosed to meet the requirements of the Securities and Exchange Commission. Prior research on initial public offering firms found that his measure was a useful way to code risk (Beatty & Zajac, 1994; Rasheed & Datta, 1994). The presence of the following risk factors were included in this measure: technological obsolescence, new product, few or limited products, limited number of years in operation, inexperienced management, technical risk, seasonality, customer dependence, supplier dependence, inexperienced underwriters, competition, legal proceedings against company, liability, and government regulation. The summated risk measure ran from 1 to 11, with a mean of 4.18 and a standard deviation of 1.80. Table 3 includes the means and standard deviation for all of the dependent variables and control variables. Company age is significantly correlated with size, risk, and profit per share, therefore, it was not included as a control in the analyses reported. However, a separate analysis was reported with age included

as a control (both with and without the expanded list of industry variables), and the results are reported in notes to the tables.

Table 3: Descriptive Statistics for Dependent Variables and Controls		
	Mean	S.D.
Percent Price Premium	68.62	24.40
Survival	.60	.49
Risk Level	4.18	1.80
Ln. #employees	4.56	2.61
Service Industry	.46	.50
Net Profit per share	.88	2.25
Tobin's Q (Market/book)	**4.72**	**9.39**

RESULTS

Table 4 contains a correlation table for the variables used in the analyses. Human resource value is positively related to survival, while rewards is negatively related to measures of initial stock performance and positively related to survival five years after the initial public offering.

Table 4: Correlations for Variables Used in the Analyses									
	1	2	3	4	5	6	7	8	9
1.Tobin's Q	1.00								
2.Percent Price Premium	.23	1.00							
3.Survival	-.10	-.24	1.00						
4.HR Value	.05	.05	.19	1.00					
5.Rewards	-.18	-.20	.32	.21	1.00				
6.Risk Level	-.04	.21	-.02	-.12	-.02	1.00			
7.Ln.# employees	-.11	-.09	.06	.33	.27	-.31	1.00		
8.Service Industry	.14	.06	-.12	.04	-.18	-.07	.01	1.00	
9.Net Profit per Share	.07	-.11	.20	.19	.20	-.37	.46	-.11	1.00

All correlations above .18 are significant at the .05 level; above .25 are significant at the .01 level, and above .27 are significant at .001 level

Percent Price Premium

Table 5 shows the regression results for percent price premium. The RZ for the full model is .15, which is significant at the .07 level. HR value has no effect on price premium, however, the rewards variable has a negative and significant (at the. 01 level) impact on price premium. This model suggests that investors ignore information related to the degree to which firms value their employees, however, they react negatively if firms use compensation to link

pay to the performance of the organization. The geographic area codes had a significant effect on price premium. In addition, the risk factor had a positive impact on price premium.

Table 5: Results of Regression Analysis for Percent Price Premium						
	Without Controls		Without HR		Full Model	
Variables	b	s.e.	b	s.e.	b	s.e.
Intercept	71.66***	5.68	67.93***	11.18	72.31***	12.14
HR Value	2.03	1.90			1.57	2.08
Rewards	-4.53**	1.86			-4.96**	1.99
Risk	----	----	3.21**	1.38	3.49**	1.36
Ln.# Emps.	----	----	-.32	.98	-.05	.99
Industry	----	----	2.93	4.50	1.16	4.48
Net Profit (per share)	----	----	-.34	1.13	-.07	1.13
R^2	.05		.10		.15	
F	3.13**		1.29		1.66*	

*** $p < .01$
** $p < .05$
* $p < .10$
Notes:
- Unstandardized regression coefficients are reported.
- Full model also includes dummy codes for geographic areas, which were significant.
- The analysis was run with an expanded list of SIC codes (those reported in Small Business Administration publications). None of the SIC codes were significant, and the pattern of results did not change. The overall R^2 for that equation was .16 (not significant). The coefficient for HR value was 1.75 and for rewards -5.01 (significant at the .02 level). The risk variable was still significant at the .05 level, and the coefficient was 3.11.
- A second analysis was run adding company age as an additional control. The age variable was not significant, and the rewards variable continued to be significant.

Tobin's Q

Tables 6 shows the analysis with Tobin's Q as the dependent variable. The results are similar to those run with price premium in that human resource value had no impact on performance, but the rewards variable had a significant (at the .03 level) and negative impact. This should not be surprising as the two measures are definitionally related; both take stock price and book value into consideration, however, they arrange the terms differently. The geographic variables continued to affect performance, however, in this analysis risk had no significant effect, and net profit per share had a positive impact. In addition, size had a negative effect[2].

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[2] We ran the same regression equation using Tobin's Q calculated with 7-day stock price rather than initial stock price, and the results are noted in Table 6.

Table 6: Results of Regression Analysis for Tobin's Q (Market/Book)

Variables	Without Controls b	s.e.	Without HR b	s.e.	Full Model b	s.e.
Intercept	5.80***	2.20	15.39***	4.22	17.09***	4.60
HR Value	.71	.74			.46	.79
Rewards	-1.62**	.72			-1.72**	.75
Risk	----	----	-.25	.52	-.15	.51
Ln.# Emps.	----	----	-.82**	.34	-.71*	.38
Industry	----	----	2.59	1.70	1.99	1.70
Net Profit (per share)	----	----	.74	.43	.84**	.43
R^2	.04		.14		.18	
F	2.64*		1.91**		2.08**	

*** $p < .01$ ** $p < .05$ * $p < .10$

Notes:
- Unstandardized coefficients are reported.
- Full model also includes dummy codes for geographic areas, which were significant.
- The analysis was run with an expanded list of SIC codes (those reported in the Small Business Administration publications). None of the SIC codes were significant, and the pattern of results did not change. The overall R^2 for that equation was .19 (significant at the .10 level). The coefficient for HR value was .51 and for rewards -.71 (significant at the .05 level). Profit per share was significant at the .08 level, and the coefficient was .75.
- A second analysis was run including company age as a control. Age was not significant, and the rewards variable continued to be significant.
- The regression with Tobin's Q calculated with 7-day stock price was conducted with data from 82 firms because 7-day price was not available for the entire sample. The R^2 for the equation is .19, F=1.32. The regression coefficient for HR value is -.15 with a standard error of .52 (not significant), and the coefficient for rewards is -.49 with a standard error of .52 (not significant).

Survival

The hypotheses state that companies with higher inertia are more likely to survive, and this research examines the degree to which human resource value and organizationally-based rewards, as indicators of inertia, contribute to a firm's survival. The hypotheses were tested by determining whether there were differences in HR value and rewards between the two groups, survivors and non-survivors. To do this, a MANOVA analysis was conducted. The results are presented in Table 7.

Table 7: Results of Manova Analysis for Survival (N=136)

	Wilks' Lambda	F
Effect of Survival	.88	8.70***

Univariate Results		Means: $F_{(1,134)}$
Variables	Survivor	Non-Survivor
HR Value	2.74	2.30*
Rewards	2.10	1.34***

*** $p < .01$ ** $p < .05$ * $p < .10$

The results indicate that there is a significant difference between the survivors and non-survivors on the two variables of interest, and the subsequent univariate analyses show that the largest difference (at the .001 significance level) lies in the rewards variable. The mean for the survivors was 2.10, and the mean for the non-survivors was 1.34. The mean for the human resource value variable for survivors was 2.74, while the mean for the non-survivors was 2.30.

Table 8 presents the results of a logistic regression. Logistic regression was used due to the nature of the dependent variable, which consists of only two values (Allison, 1984; Yamaguchi, 1991). The overall model is significant at the .01 level, and the classification table indicates that the model predicts survival at an 71% accuracy level. The only variables significant at the .05 or less significance level are human resource value and rewards. And both variables predict survival in a positive direction. Net profit per share has a positive and significant impact on survival (at the .10 level).

Table 8: Results of Regression Analysis for Survival

Variables	Without Controls		Without HR		Full Model	
	b	s.e.	b	s.e.	b	s.e.
Intercept	-1.34**	.54	-.14	.95	-1.81	1.19
HR Value	.28	.18			.40**	.21
Rewards	.61**	.19			.69***	.21
Risk	----	----	.11	.12	.04	.13
Ln.# Emps.	----	----	-.05	.09	-.18	.12
Industry	----	----	-.40	.39	-.35	.42
Net Profit (millions)	----	----	.28**	.13	.24*	.13
Chi^2	17.37***		14.08		30.23***	

*** p < .01   ** p < .05   * p < .10

Notes:
- Unstandardized coefficients are reported.
- Full model also includes dummy codes for geographic areas, which were significant.
- The analysis was run with an expanded list of SIC codes (those reported in the Small Business Administration publications). None of the SIC codes were significant, and the pattern of results did not change. The Chi-Square for that equation was 31.52 (significant at the .01 level). The coefficient for HR value was .42 (significant at the .05 level) and for rewards .72 (significant at the .001 level). Profit per share was significant at the .10 level, and the coefficient was .23.
- A second analysis was run including company age as a control. The Chi-Square was 36.22 (significant at the .004 level), and age was not significant (coefficient was .04). The rewards and human resource value variables were still significant; the coefficient for rewards was .57 (significant at the .000 level), and the coefficient for human resource value was .38 (significant at the .08 level).

In order to understand the degree to which these two variables are important for survival, we next assessed the practical implications of the two variables on the probability of the firm surviving until 1993. As the logistic regression model is non-linear, the magnitude of the effect of human resource variables on survival differs conditionally across levels of values and rewards. Still, the probability of survival may be estimated at several critical values in order to gain a general understanding of these effects. The transformation from the logistic estimator into the probability of survival is as follows:

$$P(survival)_l = \frac{exp(\Sigma\beta_k X_{lj})}{1+exp(\Sigma\beta_k X_{ki})}$$

where β is a parameter for the set of k+1 parameters estimated in the logistic regression model for the k predictors $X_1 \ldots X_k$ plus a constant term (Demaris, 1992).

Holding all variables at the mean, the conditional probability of surviving until 1993 is .70. For a firm with a high level of human resource value (one standard deviation above the mean), the probability of firm survival increases to .79. For a firm whose human resource value is low (one standard deviation below the mean), the probability of survival drops to .60.

The effect of rewards on the chance of survival is even more dramatic. Holding all other variables at the mean, a firm with a high level of employee rewards (one standard deviation above the mean) increases its chance of survival from the average of .70 to .87. A firm with a low level of employee rewards (one standard deviation below the mean) decreases its chance of survival from .70 to .45.

Holding everything else constant, a firm that has a high level of human resource value and a high level of employee rewards boosts its chances of survival to .92. This represents a gain of .22 over the average firm. When both human resource value and employee rewards are at a low level, the chance of firm survival decreases to .34, which is a .36 lower chance of surviving than a firm with average scores on the human resource indicators. Overall, both the level of human resource value and the level of employee rewards have the potential to greatly increase firm survival, although the effect of employee rewards is the stronger of the two variables.

Contingency Models

Although not included in the hypotheses, an internal contingency approach to firm survival was tested. Contingency theory might lead to the hypothesis that a "match" between HR value (which represent a company's overall human resource strategy) and firm rewards should positively affect performance and survival. The implication is that companies placing low

value on employees (this can be an intended or unintended strategy) should not use company resources to retain or reward these employees. In contrast, population ecology claims that it is not the match that is important but the increased levels of value and the greater presence of organizational-based rewards that affect performance. The interaction between value and rewards was tested by computing the models in Tables 5, 6, and 8 with interaction terms, and those terms, in all cases, were non-significant.

In addition, contingency theory and prior strategic human resource management research might lead to the following interactions, which were tested in the survival analysis: (1) risk and employee value; (2) risk and rewards; (3) size and employee value; (4) size and rewards; (5) profitability and employee value; (6) profitability and rewards. All of the possible interaction effects were included in six separate regression analyses, and none were significant. However, the employee value and rewards variables continued to have main effects on survival when the interaction terms were included.

DISCUSSION

The results provide initial support for extending population ecology to the study of human resource management. The survival analysis indicates that firms using organizational based compensation programs and valuing their employees are more likely to survive. However, while valuing employees is a neutral signal to investors, compensation programs that link employee wages to the success of the organization have a strong and negative effect. The market seems to react negatively to firms using their capital for employee rewards programs.[3] It may be that human resource practices that transfer money from the company to employees are perceived negatively by investors; this has been evidenced in other studies of compensation (Abowd et al., 1990; Kruse, 1993).

To supplement the findings of the study, we contacted a number of survivors and conducted structured telephone interviews. The telephone interviews were done with the most senior member (CEO's and Vice presidents) of the management team who had been with the company since the IPO. A total of 40 individuals participated. Respondents were asked to rate a number of factors according to the degree to which these items were important to the company's performance since the IPO. These items were obtained from a review of the organizational survival literature. A summary of these items and the associated reliability coefficients are included in Table 9.

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[3] The rewards variable was divided into two components (management rewards and employee rewards) to see if one variable was dominant in predicting performance. The results indicate that both variables had a negative relationship with initial performance, and both positively predicted survival.

Table 9: Factors Important for Firm Survival and Success

EMPLOYEES	ALPHA	=	.84
Commitment to employees			
Company's approach to employees			
Way employees worked together			
Family atmosphere			
PRODUCT	ALPHA	=	.77
Company's ability to be innovative			
Product differentiation			
Company's technology			
Product superiority			
Characteristics of the product			
IPO RELATED VARIABLES	ALPHA	=	.77
Timing of the IPO			
IPO market			
Underwriters			
INPUT	ALPHA	=	.80
Technical expertise of employees			
Firm's manufacturing process			
Business expertise of employees			
Working long hours			
TOP MANAGEMENT	ALPHA	=	.64
Leadership skills of top management			
The board of directors			
Top management team			
EMPLOYEE REWARDS	ALPHA	=	.75
Compensation policy			
Way employees were rewarded			

A 1 to 5 Likert-type scale was used with 1=not at all important and 5=very important.

Table 10: Descriptive Statistics and Correlations (Factors Important for Firm Survival and Success)

Item	Mean	Standard deviation	Correlation matrix					
			1.	2.	3.	4.	5.	6.
1. Rewards	3.26	.69	1.00					
2. Input	3.28	.88	.30	1.00				
3. IPO vars.	3.37	.76	.32	.33	1.00			
4. Product	3.73	.68	.02	.35	.13	1.00		
5. Employees	3.70	.65	.53	.39	.18	.28	1.00	
6. Top mgt.	3.89	.61	.03	.02	.70	.11	.02	1.00

Correlations above .30 are significant at the .05 level
Correlations above .38 are significant at the .01 level

It is interesting to note that of the six categories that were rated by these executives, the most important (in their opinions) was the top management team, and the least important was employee rewards (See table 10). At the same time, when we asked these executives if there was anything about the way that they handled their employees that particularly helped or hurt them, we received the following types of responses:

- "Employee stock option plan helped a lot"

- "ESOP for all employees"

- "Bonus program based on pretax profitability; it gave employees the incentive to cooperate and do the right thing for the company"

- "Important to have all employees as stockholders when they join through the incentive stock option plan"

- "ESOP at time of offering, so employees were able to participate in success of offering; this was a strong help in boosting morale"

- "ESOP and broad based profit sharing from top to bottom"

- "ESOP helped to create feeling that IPO was a culmination of all employees' efforts -employees were motivated to join a common cause for the common good - not management intimidation but rather making them feel like they wanted to be part of the IPO"

Although executives ranked employee rewards as less important than other factors, they did acknowledge the importance of stock participation programs. Their comments suggest that stock ownership might contribute toward development of a cohesive workforce that can work together through the turbulence of the public offering. The overall results of this study imply that the significance of organizational-based compensation programs might be underrated by both investors and management. In fact, investors seem to respond negatively to a factor that actually has a positive impact on survival chances.

The population ecology model is particularly useful for the study of smaller, growing firms, however, the question remains unanswered as to how it can be applied to larger, established corporations. The definition of inertia indicates that organizations with high inertia can be either at rest or in uniform motion, but they will move when acted upon by an external force. We know that the initial public offering firms are not at rest (the IPO process itself is a significant change) and, therefore, high inertia IPO firms would appear to be "in uniform motion." We cannot make the same assumption for other populations, in particular for larger businesses. In fact, research could be designed to establish the point at which inertia becomes harmful, rather than helpful, to organizations.

However, a larger firm, either at rest or in motion, is still less likely to respond to external forces (simply due to size). When it does respond, the change process will be more difficult to complete due to the firm's size. Larger masses, either at rest or in motion, are more difficult to move. How does a large firm retain its ability to respond to change? A more comprehensive view of the role of inertia in organizations might conclude that larger organizations should not attempt to sustain inertia at the corporate level because it reduces their ability to transform when change is necessary. However, these larger firms might still benefit from inertia within their business units (vs. at the corporate level). Therefore, the theoretical argument might not be whether inertia is good or bad for larger firms, but where inertia should be enhanced (corporate vs. business unit). Human resources policies might be best when supporting high inertia at the division or business unit level.

If population ecology is a viable perspective for evaluating the ability of human resources management systems to affect corporate performance, it might also suggest a less complex process than that posed by the strategic management literature. According to the work in SHRM, all of the components of human resource management (e.g. training, benefits, compensation, selection, etc.) must be aligned to support one coherent human resource strategy, and this overall strategy should be designed to enhance a corporation's business strategy (Gerhart, Trevor & Graham, 1995; Jackson, Schuler & Rivero, 1989; Schuler, 1987). The process of aligning all of the various human resource functional areas is extremely complex. In addition, the human resource department is responsible for design and administration, but management carries out the policies and procedures. This leaves considerable room for variance in how human resource programs are actually implemented. Given the unreasonableness of coordinating this type of strategic human resource agenda, population ecology might offer a more concise, realistic method for diagnosing the impact of HR programs on organizational performance.

LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

There are several limitations of this research study that should be taken into consideration when interpreting the findings. First, the sample of IPO companies might not be representative of all firms at this stage. In fact, it could be argued that this particular sample is made up of companies with greater chances of survival as the 1988 public offering firms were somewhat affected by the stock market crash of 1987 (investors were more cautious). As mentioned earlier, there is also a possibility of positive bias in the reporting of data in the prospectuses. In addition, the coding process, which has been referred to as "cruel and unusual

punishment" (Marino et al., 1989), could also be prone to errors in interpretation even though measures were taken to minimize these problems.

Additional work on the measurement of human resource value needs to be conducted. The prospectus provided a useful data source, however, its primary audience is the investment community, and it is the document that signals information to investors. Therefore, it is possible that the some of the human resource information (such as how important employees are to the firm's overall strategy) communicates a message that might not be based on actual events. It would be useful to study the degree to which the signal correlates with the actual behavior and the way in which both affect firm performance (e.g. profit, productivity, stock price, sales, etc.).

Research should continue within two domains. The first involves more extensive work in smaller firms such as the initial public offering sample, and the second requires testing these hypotheses in larger, more established businesses. Additional research should also consider changes in human resources programs after the initial public offering. This type of research would allow a further test of the population ecology model because certain changes in human resource practices should result in decreased inertia and thus lead to negative impacts on organizational performance. This view is in contrast with the contingency theory perspective that suggests changes to meet environmental demands and business strategy should improve performance. It would also be useful to track the performance of these companies in order to understand the key success factors and those events that led to organizational death. In addition, research that investigates the impact of human resource issues prior to the IPO would provide additional evidence of its role during early development stages. If the IPO sample is biased in that it consists of companies that are more likely to succeed than other firms, then the impact of the two human resource variables might actually be understated in this research.

Future studies should ideally contrast the two organizational perspectives (population ecology and contingency theory) in both large and small firms to determine whether early human resource programs and subsequent changes in human resource practices support or deter organizational performance and survival. The population ecology perspective was supported in this study, however, it is unclear whether this support is only applicable to smaller, newer organizations such as IPOs. Kruse (1993), who conducted a study of profit sharing and firm performance, found that profit sharing had a stronger effect on performance in smaller firms (less than 775 employees), however, he also found a strong effect in a subgroup of organizations that consisted of the largest organizations (17,000 and over). Additional research is needed to determine if size and type of firm are important in explaining whether the

population ecology or the contingency theory model is more useful for understanding firm performance.

It is possible that inertia inducing human resource management practices are only important for long-term measures of performance, such as survival. Therefore, additional SHRM research needs to include not only immediate and short-term outcomes, but also long-term measures of performance.

SUMMARY

This research has expanded the field of SHRM by providing an analysis based on population ecology and by studying a sample and a dependent variable that have been neglected in the past. It has also augmented the population ecology literature by contributing toward a more developed understanding of the role of human capital in the long-term survival of organizations. The findings should be of interest to investors who might want to reconsider their methods of evaluating IPOs and to owners of smaller businesses who want to expand and grow their operations. In addition, the results have some implications for larger organizations.

In today's environment, middle management jobs are being eliminated and employees are being told that there is no job security. A new employee contract that features tangential relationships with employers and willingness to leave an organization at a moment's notice is being promoted in the academic and business literatures. If corporations (both large and small) adhere to this advice, it seems that they might be creating a structure with low inertia that could ultimately contribute to poor performance and perhaps their own demise. The role of inertia or structural cohesion within organizations deserves considerable research. In addition, the impact that human resources can have on strengthening and sustaining cohesion should receive more attention.

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Appendix A

1988 SAMPLE INDUSTRY DISTRIBUTION BY 2 DIGIT SIC CODES

Code	Frequency	Industry Definition
01	1	Agricultural production, crops
02	1	Agricultural production, livestock
20	3	Food and kindred products
22	2	Textile mill products
23	1	Apparel and other finished textile products
26	1	Paper and allied products
27	2	Printing, publishing, and applied industries
28	7	Chemicals and allied products
30	1	Rubber and miscellaneous plastics products
33	2	Metal industries
34	1	Misc. fabricated metal, fabricated structural metal products
35	8	Machinery, except electrical
36	7	Electrical machinery, equipment, and supplies
37	3	Transportation equipment
38	7	Professional and photographic equipment, and watches
39	16	Toys, Misc. manufacturing industries
44	1	Water transportation
45	1	Air transportation
38	3	Communications
49	3	Utilities and sanitary services
50	4	Wholesale trade; durable goods
51	3	Wholesale trade; nondurable goods
54	1	Retail trade; grocery stores
56	1	Retail trade; apparel and accessory stores
57	1	Retail trade; household appliances, TV, radio stores
58	1	Eating and drinking places
59	3	Retail trade; misc. stores, drug stores
60	1	Banking
61	1	Savings and loans; credit agencies
64	1	Insurance
65	1	Real estate
66	1	Security, commodity, and investment companies
71	1	Unknown
73	7	Business services and repair (not automotive)
75	2	Automotive services and repair
78	1	Theatres and motion pictures
80	3	Physicians offices, health services
83	1	Child day care
86	1	Membership organizations
87	4	Other social services
89	2	Engineering, architectural, surveying, misc. services

Appendix A. cont.

SMALL BUSINESS ADMINISTRATION INDUSTRY GROUPINGS. DISTRIBUTION OF 1988 SAMPLE

Agriculture	2
Manufacturing	62
Transportation	9
Wholesale Trade	7
Retail Trade	11
Services*	43
Missing	2

* Because we excluded financial companies, we collapsed the financial category with the services category.

Geographic Distribution of 1988 IPO Firms

Foreign country	5
Northeast	12
Mid-Atlantic	24
North Central	15
South Atlantic	22
South Central	16
Mountain** & Pacific	42

** Nine firms are located in the Mountain states.