Dumb and Dumber: The Impact of Downsizing on Firm Performance as Moderated by Industry Conditions

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Workforce downsizing through employee layoffs has become commonplace in American businesses over the last 20 years. While these initiatives are typically undertaken in the quest for improved firm performance and competitiveness, empirical research to date has been equivocal in supporting the efficacy of these initiatives. In addition, extant research has not thoroughly examined factors or conditions that may influence or moderate the performance impact of workforce downsizing. In this paper, we address the question: Do industry conditions moderate the impact of workforce downsizing on firm performance? We examine this question using matched primary and secondary data on a sample of U.S. manufacturing firms. After controlling for a set of industry and firm-level variables, including firms' prior performance levels, our results indicate that downsizing is associated with decreases in subsequent firm profitability and that these negative effects are more pronounced in industries characterized by research and development (R&D) intensity, growth, and low capital intensity.

Key words: downsizing; industry; firm performance  

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Some executives are concluding that the corporations of the future...will need to be more like nomadic tribes, pitching their tents anywhere on a moment’s notice, and less like plodding agriculturalists, rooted to one place and one core competence. This may seem a reasonable response to the increasing disorder and confusion of the business world. And the picture it paints of dynamic flexibility and adventurous energy may be very attractive. But consider how little progress nomadic tribes have made compared to the great civilizations with their enduring institutions, their sciences and cities, their ability to cope with change from a stable base. (Reichheld 1996, p. 93)

Millions of American workers have been laid off or downsized over the years, a trend that shows no sign of abatement. Although often undertaken as a means of ensuring or improving future organizational performance, it is not clear that reducing headcount achieves this intended outcome. In fact, it has been argued that firms that downsize “rather than becoming lean and mean, often end up lean and lame” (Henkoff 1994, p. 58). Relative to the frequency of its occurrence, empirical research on the phenomenon of downsizing remains limited. In 1994, Cameron described downsizing as the “most pervasive yet understudied phenomenon in the business world” (1994, p. 183). This viewpoint is echoed by Budros (1999, p. 69), who comments that “although downsizing has become an integral part of organizational life in the U.S. there is little serious theoretical or empirical work on this issue.” A number of studies have been conducted in the ensuing years, yet the topic remains underresearched and extant findings somewhat equivocal. The interested reader can find studies suggesting that downsizing has positive effects (Wayhan and Werner 2000), negative effects (Cascio et al. 1997), or no effects (Cameron et al. 1991) on firm performance. In addition, with some exceptions (e.g., Chadwick et al. 2004, Nixon et al. 2004), research to date has not systematically examined organizational practices or contextual conditions that may influence the effectiveness of employee downsizing.

Using contingency theory as our overarching framework, in this paper we seek to contribute to this literature by examining whether industry conditions moderate the impact of downsizing on firm performance. Although underrepresented in strategic human resource management (SHRM) research, the strategic management and industrial organization literature (e.g., Porter 1980) considers a firm’s industry to have an important impact on both the incidence and effectiveness of organizational initiatives. In focusing on the relationships between industry characteristics, workforce downsizing, and organizational effectiveness, our work builds on and extends research on the effectiveness of downsizing and, more generally, SHRM.
The paper unfolds as follows: First, we briefly discuss the extant literature on downsizing and the implications of downsizing for firm performance. We then develop arguments and hypotheses proposing that industry conditions will moderate the downsizing-firm performance relationship. Next, we describe our methodology, including sample selection, the operationalization of variables, and the analytical methods used in our study. Finally, we discuss our results and conclude by discussing the implications of our study for practice and future research.

**Workforce Downsizing: Theory and Past Research**

Employee downsizing has been defined as the planned reduction in jobs and personnel (Cascio 1993). In his book, *The New Deal at Work*, Cappelli (1999) reviews evidence related to the issue of whether the stability of employment relationships in the United States has changed in recent years. Although some may question the magnitude of change, Cappelli makes a compelling case that change has indeed occurred. For example, 10 of the 100 best companies to work for in America, as identified in Levering and Moskowitz rankings, in 1993 had explicit "no-layoff" policies; in 1997 only two firms within this group had such a stated policy (Levering and Moskowitz 1993, 1997).

The trend toward employee reductions for reasons other than job performance (i.e., downsizing) began in earnest during the early 1980s, when many firms found themselves in the throes of a significant economic downturn. Often in the context of declining revenues, downsizing during this period was driven primarily by managers' beliefs and expectations that downsizing could preserve profitability by enhancing organizational efficiency and reducing costs (DeWitt 1998, Freeman 1994, Harrigan 1980). Because downsizing during this era was prompted by dramatic slowdowns in business, it was thought to be temporary in nature. Even after economic recovery, however, the ensuing years witnessed continued and significant job loss. In fact, permanent job displacement in the United States was higher between 1993-1995, a notable period of economic expansion, than between 1981-1983, a period of deep economic recession (Farber 1997). Downsizing in such contexts is seen as a proactive means to maintain firm performance (McKinley et al. 1998, Murray 1995). Although layoffs may be prompted by desires to restructure and "right-size," the frequency of downsizing in recent years may also be partly attributable to mimetic isomorphism (herd behavior), with organizations responding to institutional forces. In this view, downsizing became institutionalized and imparted legitimacy to organizations that practiced it, thus increasing its use (Budros 1999, McKinley et al. 2000).

In the SHRM literature, authors suggest that workforce reductions and employment instability will tend to negatively impact organizational functioning. For example, a central thesis of Frederick Reichheld's book, *The Loyalty Effect*, is that sustainable organizational success is increasingly dependent on what he terms "loyalty management." As with other authors (e.g., Pfeffer 1998), Reichheld argues that intellectual capital and human assets are becoming increasingly important in today's dynamic, hypercompetitive marketplace. He goes on to argue that long-term competitive advantage in today's environment depends fundamentally on capturing the inherent value in the tacit knowledge and relationships developed by employees over time.

One of the greatest problems with the old approach to productivity, which focused primarily on costs, is that manufacturing, at least in the nineteenth century, saw workers as easily replaceable. For the most part, experience and learning were captured in the architecture of the machine and the process design of the factory. Today, in services and in the service functions within manufacturing, the learning curve is individual, has a profound effect on both revenues and costs, and is longer and steeper by far than it was in the age of manufacturing. It grows out of the cumulative decision-making experience an employee builds over time through relationships with customers, vendors and fellow employees. (Reichheld 1996, p. 122)

In a similar vein, Pfeffer (1998) in his book, *The Human Equation*, argues that the current practice of diminished employment security is contrary to effective human resource management (HRM). He sees employment security as a quid pro quo to assure workers that their efforts to increase productivity and efficiency—especially critical in today's competitive marketplace—will not ultimately lead to employee attrition. Pfeffer views employment security as a practice that will, over time, build trust between workers and employers, ultimately yielding greater cooperation and a better esprit d'corps. This, in turn, will enhance the mutual commitment needed to effectively capitalize on the use of delegated decision-making authority, teams, information sharing, and other workplace innovations.

Not everyone agrees, however, that downsizing and unstable employment relationships will negatively affect firm performance. Indeed, as noted, firms undertake downsizing with the expectation that they will experience financial and organizational benefits (Bruton et al. 1996; Cascio 1993, 2002; Kets de Vries and Balzas 1997). The starting point for this rationale is that profits are achieved when revenues exceed costs, an outcome obtained by increasing revenues, decreasing costs, or both. As noted by Cascio (2002), because revenues are much less predictable and controllable than costs, managers seeking to increase profits will often do so by reducing headcount and labor costs. Thus, downsizing is often motivated by a desire to reduce labor expenses to stem eroding profitability and/or increase
future profitability. In increasingly competitive markets, “downsizing has turned into one of the inevitable outcomes of living in a global world where continual adjustments to products, services, and the price of labor are needed to remain competitive” (Kets de Vries and Balzas 1997, p. 12).

The relative contribution of employment security to organizational effectiveness is a central concern addressed by Cappelli (1999). In sharp contrast with Pfeffer (1998) and Reichheld (1996), Cappelli concludes that emphasizing employment security and long-term relationships is not particularly important in today’s “new economy.” He notes that the “new deal” in employment relationships is so widespread that very few employees expect a commitment toward long-term employment as part of their psychological contract with employers. In discussing Reichheld’s (1996) stance on the efficacy of loyalty-based management, Cappelli concedes that although there may be some advantages in having long-term relationships with employees, there are potentially high opportunity costs associated with maintaining the status quo in dynamic, competitive environments: “Keeping long-term employees does not necessarily mean that organizations cannot restructure and change their competencies, although it does vastly complicate the challenge of doing so” (1999, p. 223).

**Downsizing and Firm Performance: The Empirical Evidence**

As noted, firms often reduce personnel as a form of restructuring in pursuit of improved performance. The stated objective of employee downsizing is often the enhancement of competitiveness via productivity and profitability improvements brought about by eliminating people and/or jobs deemed redundant or unnecessary (DeWitt 1998, Freeman and Cameron 1993). However, as indicated by the fact that both Pfeffer (1998) and Cappelli (1999) invoke studies within this literature stream to support their contrary arguments, results to date can be characterized as somewhat equivocal. Articles have appeared in the popular business press extolling the benefits of downsizing (Bryne 1994, Fuchsberg 1993, Koretz 1997). It has been argued that downsizing reduces organizational slack and operating costs, streamlines operations, and enhances effectiveness toward making an organization more competitive. Studies that support the position that downsizing can improve aspects of organizational efficiency or effectiveness include those by Baumol et al. (2003), Esphahbodi et al. (2000), and Wayhan and Werner (2000). Esphahbodi et al. (2000) and Wayhan and Werner (2000) provide the most positive results. Baumol et al. (2003), on the other hand, find that although labor productivity (output per worker) declines following downsizing, this is offset by savings in unit labor costs, with market value being unaffected. Similarly, Cappelli (2000) finds that although labor productivity decreases following downsizing, there are also reductions in labor costs. Several studies, however, suggest neutral to negative performance effects for downsizing (e.g., Cascio et al. 1997), and this is generally more true for “event studies” examining stock market reactions to downsizing announcements (Caves and Krepps 1993, Lee 1997, Nixon et al. 2004, Palmon et al. 1997, Worrel et al. 1991). Chadwick et al. recently reviewed the existing research and concluded:

Despite the popularity of downsizing as a strategic initiative, however, the general consensus among researchers over the past two decades is that organizational performance is as likely to suffer as it is to improve after downsizing, even in the short term, and that the long-term prospects associated with downsizing are decidedly negative when compared to alternatives such as targeting growth… (2004, p. 406)

In reviewing all the relevant literature, our conclusion is that downsizing will, more often than not, tend to negatively impact firm performance. However, given the equivocal findings in previous studies, it is quite likely that the effects of downsizing on performance “depend” or “are contingent on” contextual factors. To date, however, few downsizing studies have studied moderating factors. One recent exception is Chadwick et al. (2004), who found that the performance effects of downsizing depend on the manner in which it is carried out. In this paper we consider the role of industry characteristics in understanding the performance implications of downsizing.

**Downsizing Under Different Industry Conditions: A Contingency Framework**

In the late 1960s, a number of seminal organizational theorists (Burns and Stalker 1961, Lawrence and Lorsch 1967, Thompson 1967) laid the basis for contingency theory. Initially applied to organization design issues, the basic idea is that there is no “one best way”—the effectiveness of an organizational structure depends on a firm’s set of contextual conditions. In the ensuing years, contingency theory has continued to be an important component of organization design theories but has also been applied more generally to various aspects of managerial decision and policy making (recent empirical articles invoking contingency theory include Baum and Stefan 2003, Datta et al. 2005, Datta and Rajagopalan 1998, Hambrick and Cannella 2004, Siegel and Hambrick 2005). More recently, the resource-based view of the firm (RBV) also incorporates a contingency perspective, holding that organizational resources can be a source of sustainable competitive advantage to the extent that they create value and allow a firm to excel in its particular competitive environment. Consistent with the tenets of contingency theory, we argue that
the relative effectiveness of human resource (HR) policies, such as employment stability and downsizing, will be influenced by a firm’s industry context.

In the SHRM literature, conceptual treatments have emphasized the influence of environmental conditions on HR configurations and effectiveness (e.g., Bamberger and Meshoulam 2000, Lepak and Snell 1999, Wright and Snell 1998), but empirical work has only sporadically examined the influence of industry conditions on the practice and effectiveness of HRM. Examples of studies examining industry effects in the SHRM literature include research on the impact of industry environment on staffing patterns and practices (e.g., Guthrie and Olian 1991, Guthrie et al. 1991), employment modes (Lepak et al. 2003), and HR strategy (Bamberger and Phillips 1991). Most recently, studies have begun to examine whether industry conditions moderate the impact of HRM on firm performance. Examples include studies by Batt (2002), who explored the moderating effects of market segment on the HR-firm performance relationship, and Datta et al. (2005), who examined the strength of the HRM-firm productivity link across different industry conditions.

Research on the implications of industry structure on downsizing is particularly limited. An exception is the study conducted by Filatotchev et al. (2000), who found industry decline to be a major factor in downsizing among privatized firms in Russia, Ukraine, and Belarus. Because industry conditions are widely acknowledged to have key influences on managerial actions and firm strategy, we believe that industry and market characteristics should play a more prominent role in macro-level HRM research.

The literature in industrial organization economics (Bain and Qualls 1987, Scherer 1980), competitive strategy (Porter 1980), and organizational theory (Pfeffer and Salancik 1978, Thompson 1967) suggests that the effectiveness of managerial policies and decisions can be meaningfully studied in the context of key industry structure dimensions, including product differentiability (proxied by industry R&D intensity), industry growth rate, capital intensity, and demand instability. From a contingency perspective, these (and other) industry characteristics pose different types of uncertainties and challenges (Thompson 1967), so that the effectiveness of managerial decisions is largely dependent on the nature of this environmental contingency. Thus, from a normative perspective, industry factors influence the type of competitive behavior considered appropriate in an industry. Against the general backdrop of contingency theory, we propose that the affect of employment instability and employee downsizing on firm performance depends on the characteristics of the industry.

In addition to contingency theory, the RBV of the firm also provides important insights. Building on the early work of Selznick (1957) and Penrose (1959) and further work by Wernerfelt (1984), the RBV argues that firms derive competitive advantage from unique resource endowments. Consistent with the tenets of contingency theory, recent scholarship indicates that the value of these organizational resources and associated strategic decision making is affected by environmental conditions (e.g., Aragón-Correa and Sharma 2003). Grant (2005) classifies value-adding resources as tangible, intangible, and HR. HR represents the productive services that employees offer the firm in terms of their skills, knowledge, reasoning, and decision-making abilities. In an organizational context, employees not only contribute their individual skills and knowledge, they also collaborate and integrate their separate skills toward creating firm capabilities. As such, both human and social capital—and therefore the commitment and the loyalty of employees—play an important role in dictating a firm’s capacity to create competitive advantage. Reducing headcount may lead to immediate labor cost savings, but it can also seriously erode employee commitment and loyalty, with negative consequences for firm competitiveness and performance. Consistent with the contingent notions within the RBV, we argue that industry differences will modify the performance consequences of human and social capital losses and the erosion of remaining employees’ commitment and loyalty.

These ideas are incorporated in discussions of organizational social capital. Organizational social capital “reflects the character of social relations within a firm” (Leana and Van Buren 2000, p. 221) and has two primary components: associability and trust. Associability refers to employees’ willingness to interact with organizational members and to subordinate individual goals to collective goals. Generalized resilient trust exists when values of reciprocity exist among organizational members by virtue of their being a member of the same organizational community. Invoking the notion of psychological contracts (De Meuse and Tornow 1990, Morrison and Robinson 1997, Rousseau 1995), Leana and Van Buren explicitly discuss the likely impact on social capital of a psychological contract that emphasizes job instability and employability as “part of the deal”:

...there is little room for norms of reciprocity, resilient trust, or associability in a psychological contract that emphasizes employees’ ability to maintain their skills so that they will be ready at any time to find work with another organization. (2000, p. 224)

We believe that this type of psychological contract will be particularly harmful in some industry contexts.

Research Hypotheses

Industry R&D Intensity. R&D intensity is widely used as an indicator of industry differentiation (e.g.,
Hambrick and Finkelstein 1987). Though firms in undifferentiated industries tend to have relatively similar, commodity-like products, competitive success in more differentiated industries hinges on having products that stand out from competitors’ on the basis of product features, quality, design, etc. Differentiated industries offer more avenues for competition and a wider range of feasible competitive actions, with means-end linkages being relatively ambiguous (Porter 1980). Thus, on average, firms in differentiated industries shift production and organizational processes more frequently in pursuit of innovations and to meet changing market and customer preferences. Moreover, jobs tend to be more complex and varied, requiring both deeper and broader skill and knowledge sets and the ability and willingness to succeed in more challenging and varying circumstances.

“The free-market mechanism creates remorseless pressures for innovation...” (Baumol et al. 2003, p. 11), and this is particularly true in R&D-intensive industries. Knowledge in such industries might be embedded in organizational routines and processes, yet it often resides in the form of tacit knowledge in a firm’s human and social capital. Unique HR endowments possessed by firms in R&D-intensive industries are central to achieving and sustaining competitive advantage. The disruptions to organizational social capital engendered by downsizing may, therefore, prove particularly problematic for knowledge-intensive firms. Knowledge workers tend to exhibit greater loyalty to their peers and profession than to their employers (Dess and Shaw 2001), so practices reducing organizational commitment and emphasizing employability as part of the psychological contract may lead to critical losses among this group of employees. Moreover, downsizing and the associated damage to a firm’s social capital may lead to the loss of knowledge stored in transitive (social system) memory and negatively impact the ability of firms to derive value from knowledge gained from brokered relationships (Burt 1997, Dess and Shaw 2001).

In R&D-intensive industries, employees’ creativity and innovation are relatively more central, suggesting that threat-rigidity responses resulting from downsizing may diminish the organizational resource most critical for creating and sustaining competitive advantage (Amabile and Conti 1999, Cascio 2002). Indeed, empirical evidence supports the belief that creativity declines during the downsizing process, with “survivors” exhibiting behavioral rigidity (Cameron et al. 1987) and risk aversion (Cascio 1993). Additional support comes from the work of Dougherty and Bowman (1995), who found that downsizing hinders product innovation in organizations. The process-dependent nature of workforce peer relations in technologically intensive industries also means that any disruptions triggered by downsizing will likely have a major impact on firm outcomes. In R&D-intensive industries, social dynamics are often central to the innovation process; thus, disruptions engendered by downsizing will be particularly pernicious. All of these outcomes should be particularly detrimental in R&D-intensive industries. Cascio makes this explicit argument and writes: “Which kinds of organizations are at greatest risk? Those that operate in rapidly evolving industries, such as biotechnology, pharmaceuticals, and software, in which survival depends on a firm’s ability to innovate constantly” (2002, pp. 33–34). In sum, workforce downsizing should be particularly deleterious in R&D-intensive industries. Thus:

**Hypothesis 1.** Industry R&D intensity will moderate the relationship between workforce downsizing and firm performance such that downsizing will be more detrimental for firms in industries that are characterized by high R&D intensity as opposed to firms in industries characterized by low R&D intensity.

**Industry Growth.** Similar arguments can also be made in the context of market growth, an industry characteristic that features prominently in industrial organization and strategic management literature (Porter 1980). Demand growth has been associated with greater market opportunity and competitive variation (e.g., Datta and Rajagopalan 1998), providing managers and employees with more discretionary opportunities. High-growth industries are characterized by decision making in the entrepreneurial mode, with greater opportunities for industry initiatives and decision-making freedom. Hambrick and Finkelstein (1987) suggest that industry growth results in an expanded set of options for firms, reducing the tendency for organization inertia. These industry features are associated with market and organizational variability and enhanced discretion, increasing the relative benefit derived from employee initiatives and contributions. The ability to adapt quickly to emerging market conditions in growth industries is crucial for competitive success. Organizations in high-growth environments are also likely to value innovation and change (Chatman and Jehn 1994), magnifying the negative impact of behavioral rigidity (Amabile and Conti 1999). As noted above, if downsizing erodes human and social capital, then the diminution of these critical resources will be particularly harmful in high-growth industries.

Moreover, although some firms do restructure and downsize in the face of strong market demand, the economic rationale for reducing headcount and associated labor costs is much more readily apparent in the context of slow or shrinking demand. In the interest of preserving profitability, reduced market demand in mature industries may signal a need to lower firm expenses, including labor costs, through “selective shrinking” (Harrigan 1980).

Under circumstances of a business downturn, employees may be more inclined to view layoffs as justified
(Cascio 2002, Charness and Levine 2000). In contrast, employees—both those laid off and those retained—are more likely to view layoffs in the face of market growth as violating or reneging on the psychological contract between workers and the employer (Morrison and Robinson 1997). This may magnify the negative impact of downsizing on employee morale and commitment and increase rigid, inflexible behavior, resulting in a reduced ability to capture market share and revenue. In addition, in high-growth industries there is an increased likelihood of “downsized” employees being hired by market competitors. This might give these competitors access to valuable competitive intelligence and proprietary information. Moreover, if organizations in such industries eventually elect to replace downsized employees, finding qualified individuals might prove to be challenging, time consuming, and expensive.

In sum, from both a psychological and rational economic perspective, layoffs would appear less appropriate under conditions of market growth. Thus:

**Hypothesis 2.** *Industry growth will moderate the relationship between workforce downsizing and firm performance such that downsizing will be more detrimental for firms in industries that are characterized by high growth as opposed to firms in industries characterized by low growth.*

*Industry Capital Intensity.* Another important industry characteristic is capital intensity, a measure of the relative investment in fixed assets in an industry. As discussed in the strategy literature (e.g., Datta and Rajagopalan 1998, Hambrick and Lei 1985), capital intensity often creates strategic rigidity because fixed costs are high and deviations tend to be expensive. Although directed primarily at the impact of organizational leadership on firm performance, the consistent argument in this literature is that the “rigidity” associated with higher levels of capital intensity reduces the performance effects associated with variability in a firm’s stock of human capital.

Similar arguments can be found in the SHRM literature. Terpstra and Rozell, for example, argue that in capital-intensive industries, there are “greater constraints placed upon employee performance by the degree of task structure or the degree of automation of the production technology” (1993, p. 43). As capital intensity increases, the human element becomes less integral to the production process. These arguments are consistent with arguments and results presented by Datta et al. (2005), who found that capital intensity moderated the impact of HR systems on firm productivity. Specifically, they found that high-performance HR systems were relatively more beneficial in industries characterized by lower levels of capital intensity.

Similarly, we believe that industry capital intensity will moderate the relationship between workforce downsizing and firm performance, with the loss of human and social capital being relatively more benign in industries where physical capital is more important to the production process. As the relative proportion of human vis-à-vis physical assets increases, the disruptive impact of downsizing on organizational social capital and organizational functioning should also increase. As noted, organizational social capital is the aggregate quality of social relationships within a firm. Labor capital-intensive firms are more susceptible to value loss due to social network disruptions. Thus:

**Hypothesis 3.** *Industry capital intensity will moderate the relationship between workforce downsizing and firm performance such that downsizing will be more detrimental for firms in industries that are characterized by low capital intensity as opposed to firms in industries characterized by high capital intensity.*

*Industry Dynamism.* Finally, industry dynamism has also been postulated to have an important effect on the nature of competition, defining the extent to which a firm faces an environment that is predictable and stable or changing and uncertain. A number of arguments suggest that environmental dynamism may influence the relative effectiveness of workforce downsizing.

As in industries marked by growth and reduced capital intensity, Hambrick and Finkelstein (1987) suggest that industry dynamism results in an expanded set of options for firms, reducing the tendency for organization inertia. By necessitating frequent strategic and structural adaptations, turbulent environments increase information-processing needs and complexity. In general, skill requirements in more dynamic environments are likely to be more complex and varied, increasing the need for individuals with both the capacity and willingness to deal with complexity and change.

A number of authors (e.g., Pfeffer 1998, Reichheld 1996) have argued forcefully that the challenges implied by increased market or industry volatility magnify the importance of policies that engender employee commitment. Moreover, these same authors identify employment security as a central component in obtaining employee commitment in unstable markets. Pfeffer, for example, believes that firms in dynamic markets may benefit from avoiding cyclical layoffs. In reviewing Delery and Doty’s (1996) finding that employment security in the banking industry improved profitability, Pfeffer writes:

*Why might this be? In a bank that hires and lays off loan officers quickly to match economic fluctuations, the typical loan officer will worry only about booking loans—just what they have typically been rewarded for doing. With employment security and a longer-term perspective on the job, the bank officer may be more inclined to worry as well about the repayment prospects of the loan and about building customer relationships by providing high levels of service. (1998, p. 68)*
According to Pfeffer, avoiding employment boom-and-bust cycles not only brands firms as the “employer of choice” within these dynamic industries, it also helps firms avoid the trap of “buying high and selling low” in the labor market. Emphasizing employability and unstable employment relationships as a part of the psychological contract with employees is a strategy that firms adopt in an attempt to achieve flexibility. Leana and Van Buren (2000) argue, however, that by diminishing “resilient trust,” practices such as downsizing will, paradoxically, often result in firms being less flexible and adaptable. Thus, the erosion of organizational social capital and increased tendency of employees to become more rigid under times of perceived threat or stress from downsizing (Amabile and Conti 1999) should be particularly problematic in dynamic industry environments. In sum, these arguments lead us to expect:

HYPOTHESIS 4. Industry dynamism will moderate the relationship between workforce downsizing and firm performance such that downsizing will be more detrimental for firms in industries that are characterized by high dynamism as opposed to firms in industries characterized by low dynamism.

Method

Sample and Data Collection

The firms in the sample were selected based on several criteria. First, given that the manufacturing sector has been particularly prone to downsizing (Baumol et al. 2003), we targeted publicly traded firms in this sector having a minimum of 100 employees and $50 million in sales. Second, because the influence of industry characteristics can only be meaningfully assessed in non-diversified firms, the sample was limited to relatively non-diversified firms (operationalized as deriving at least 60% of sales revenues from a single four-digit standard industrial classification (SIC) code). Third, because we wanted to examine and control for certain workforce (employment security policies, level of unionization representation) and firm (competitive strategy) characteristics, survey responses from firm representatives were required. As such, names and addresses of senior HR executives were obtained from the Directory of Corporate Affiliations, Hunt-Hanlon Select Guide to HR Executives, and the Society for Human Resource Management Membership Directory.

A total of 971 firms met the above criteria. A mail survey, conducted during late 1999 and early 2000, collected 1999 data on firms from the identified HR executives. Initial surveys were followed by a reminder letter, a second survey, and, finally, a telephone reminder. A total of 144 responses, representing a 15% response rate, were received. However, missing values on the survey data and/or firm level data from the Compustat database reduced the usable sample for analysis to 122 firms. This response rate is similar to responses to other HR-oriented surveys. Becker and Huselid (1998) found surveys used to collect firm HR data had response rates ranging from 6% to 28%, with an average of 17.4%.

Measures

Firm Performance. Return on assets (ROA), measured as operating income (before depreciation, interest, and taxes) divided by total assets, is the most widely used firm performance variable in management research, including research that has examined the performance consequences of downsizing (e.g., Cascio et al. 1997). Firms often reduce headcount to reduce costs and improve margins, so ROA seems a particularly appropriate choice as an outcome variable of interest. Accordingly, we used the mean ROA for the 3 years (2000–2002) following the base year (1999) to measure post-downsizing firm performance. The use of multiple years of performance following employee reductions provides a more robust test and is consistent with previous work (e.g., Cascio et al. 1997, Chadwick et al. 2004).

Because of skewness in this ROA measure among sample firms (as indicated by the Kolmogorov-Smirnov statistic), we used the natural logarithm of the mean ROA in our analysis. In addition, we wanted to assess the impact of workforce reductions on firm performance over and above previous firm performance. To accomplish this, we controlled for performance for a 3-year period prior to our postperformance measure. ROA data were obtained from the Compustat database, with preperformance measured as the natural logarithm of the mean of ROA from 1997 to 1999.

Workforce Downsizing. To assess workforce downsizing, we examined the change in the level of year-end employment between 1998 and 1999. Consistent with previous work (Ahmadjian and Robinson 2001, Bruton et al. 1996, Cascio et al. 1997, Wayhan and Werner 2000), we used employment-level change data to create a dichotomous variable representing firms that reduced their workforce (=1) and those that did not (=0). Ahmadjian and Robinson (2001) also point out that a dichotomous measure of downsizing is easier to interpret than a continuous measure, which would reflect decreases and increases in employment.

Researchers have typically chosen a specific numerical workforce reduction to represent downsizing. The most common cutoff is 5% (Ahmadjian and Robinson 2001, Cascio et al. 1997, Littler and Innes 2004, McKinley et al. 1998, Morris et al. 1999). Both Ahmadjian and Robinson (2001) and Cascio et al. (1997) concluded that a 5% reduction represents a significant event and likely indicates an intentional reduction in employees, a hallmark of downsizing (Freeman and Cameron 1993). Consistent with this previous research, we used workforce...
reductions greater than 5% between 1998 and 1999 as a demarcation point. Using higher percentage change thresholds as a decision rule tends to exclude firms that have, in fact, reduced headcount because of layoff decisions. Employment-level data were obtained from the Compustat database.

Industry Characteristics. Measures of industry characteristics were operationalized at the three-digit SIC level, with 61 three-digit industries represented in the sample. Following Halebian and Finkelstein (1993) and Hambrick and Finkelstein (1987), industry R&D intensity was operationalized as the 3-year (1997-1999) mean of the average ratios of R&D expenditures to total sales for all firms belonging to the firm's three-digit SIC industry. Based on data available in the U.S. Census of Manufactures, we used the average 3-year annual growth rate in the value of shipments between 1997 and 1999 as our measure of industry growth. This measure of industry growth has been widely used in the literature (e.g., Hambrick and Abrahamson 1995, Rajagopalan and Datta 1996).

Next, industry capital intensity was operationalized as the 3-year (1997-1999) average ratio of fixed assets/sales for firms in each industry (Chang and Singh 1999). Finally, following Keats and Hitt (1988), industry dynamism was assessed using a two-step procedure. First, the natural logarithm of sales for each three-digit industry for the years 1997-1999 was regressed against time. Second, the antilogarithms of the standard errors from these models were then calculated and used as an index of dynamism for each industry.

Control Variables. In addition to controlling for previous firm performance (ROA), our analyses also controlled for firm size, firm asset change, overhead costs, level of employee unionization, firms' employment security policies, and firm strategy. Firm size is included as a control because it may influence HR policies as well as firm performance (Guthrie 2001, Jackson and Schuler 1995). Size was operationalized as the natural logarithm of total assets. Moreover, we controlled for firm asset change, with asset change being the percentage change in the total value of property, plant, and equipment between 1998 and 1999. Controlling for asset change allows for an isolation of the effect of employee downsizing over and above changes in the physical scope of operations (Cascio et al. 1997).

We also control for overhead costs/employee based on the argument that high average overhead costs are indicative of organizational inefficiencies that may, in turn, trigger employee downsizing and influence organizational profitability. All data for these controls were obtained from the Compustat database.

In addition, we controlled for level of unionization (based on estimates provided by survey respondents) because unions might affect both the incidence of downsizing as well as firm performance.

Also, based on information provided by survey respondents, we controlled for the effect of having a "policy" of providing employment security. This measure, adapted from Delery and Doty (1996), was based on the composite of two items ("Our employees can expect to stay with the organization as long as they wish"; "If this organization were facing economic problems, employee downsizing would be the last option used") measured on a Likert-type five-point scale. Collection of this information also allowed for an assessment of the validity of using employment-level reductions as an indicator of employment downsizing.

Finally, because a firm's business strategy may correlate both with workforce reductions and firm profits, we used an instrument developed by Zahra and Covin (1993) to measure and control for firms' business-level strategies. This scale uses five items (e.g., level of operating efficiency; offering competitive prices) to assess the extent to which a firm pursues a cost leadership strategy (Cronbach's alpha = 0.77).

Data Analysis and Results
Whenever there are nonrespondents in a survey, there exists the threat of nonresponse bias, wherein responding and nonresponding firms differ on unmeasured variables that also correlate with both predictor and dependent variables. We initially checked for possible nonresponse bias using two tests. First, we compared "late" versus "early" respondents along key study variables (first suggested by Oppenheim 1966). The assumption behind this "time trend extrapolation test" (Armstrong and Overton 1977) is that "late" respondents (those responses received after the second round of mailing and follow-up telephone calls) are very similar to nonrespondents, given that they would have fallen into that category had not the second set of questionnaires been mailed. T-tests conducted showed no significant differences between "early" and "late" respondents along any of the key study variables (i.e., firm performance, industry R&D intensity, capital intensity, and growth). Second, t-tests were used to compare the means of the four industry characteristics in the respondent and the nonrespondent samples. No differences were detected, suggesting sample representativeness.

Despite the above, however, the possibility of nonresponse bias still exists. Thus, consistent with other recent work (e.g., Huselid 1995, Koch and McGrath 1996, Lepak et al. 2003), we use the Heckman procedure to formally and statistically correct for the possibility of sample selection bias in our multivariate (regression) models. This correction technique is appropriate if "potential observations from some population of interest are excluded from a sample on a nonrandom basis" (Berk 1983, p. 390).
The Heckman method (Heckman 1979) is a two-step procedure and is intended to correct for the possibility of systematic bias associated with the decision to respond or not respond to a survey. The first step involves the estimation of a selection equation (i.e., a model of factors predicting survey response or nonresponse for the intended population). For this purpose we created a variable response that took on the value of 1 if the completed survey was returned and 0 otherwise. The response model included the following variables: downsizing, industry growth, industry capital intensity, firm size, firm sales growth (over 3 years), and predownsize profitability (3-year average). Once the Heckman selection equation is estimated, we used the residuals from the equation to derive the hazard rate—commonly referred to in the literature as the Inverse Mills Ratio (IMR). The next step involved the insertion of the IMR variable into the OLS regression models predicting post-downsize profitability. In presenting our regression results, we report results associated with models both with and without the IMR.

Table 1 presents the means, standard deviations, and zero-order correlations among study variables. Standard deviations of industry characteristic measures display reasonably high variance in the underlying sample, indicating that the sample does not reflect idiosyncratic industry conditions. Not surprisingly, bivariate correlations indicate that “prior performance” is significantly associated with the propensity to engage in employment downsizing. As performance worsens, firms are more likely to reduce headcount. In addition, firms described by survey respondents as providing greater levels of employment security were, in fact, less likely to reduce their workforce. The correlations also indicate that higher overhead expenses are associated with a propensity to downsize. Finally, as union workforce representation increases, the probability of downsizing decreases somewhat. Freeman and Cameron (1993) indicate that downsizing is an intentional decision to reduce the number of employees with the goal of improving firm performance. The empirical relationships among firm prior performance, employment security, overhead expenses, union representation, and our measure of workforce reduction increase confidence that we have a reasonable operationalization of the downsizing construct.

Hierarchical OLS regressions were used to test Hypotheses 1–4 (see Table 2). The “main effects” model (Model 1) includes the control and industry characteristics variables along with the workforce downsizing measure. Consistent with findings suggesting negative effects for workforce downsizing (e.g., Cascio et al., 1997, Nixon et al., 2004), and contrary to positive findings (e.g., Bruton et al., 1996, Wayhan and Werner 2000), our results indicate a significant negative association between employee reductions and post-downsizing firm performance. Because our hypotheses represent the “fit as moderation” perspective in Venkatraman’s (1989) classification scheme, we use moderated regression analysis (MRA) to test our hypotheses (Models 2–5).

To address issues of multicollinearity arising from the interaction terms being highly correlated with their constituent variables (and also to ease interpretation of the regression coefficients), we adopt the procedure suggested by Aiken and West (1991) and Edwards and Parry (1993). In this approach, the direct terms used to construct the interaction terms are “centered” by subtracting the mean of each variable from observed values. This results in the interaction terms having relatively low correlation with the direct terms. Collinearity diagnostics using the variance inflation factor (VIF) indicated no multicollinearity problems in the hierarchical regression analyses. None of the VIFs approached the threshold value of 10 suggested by Neter et al. (1985) and Myers (1990).

In Table 3 we report results for the hierarchical OLS regression models with the models incorporating the IMR variable. As can be seen in Table 3, the results are

<table>
<thead>
<tr>
<th>Variables</th>
<th>Means</th>
<th>s.d.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Firm performance</td>
<td>4.616</td>
<td>0.101</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2. Workforce downsizing</td>
<td>0.626</td>
<td>0.442</td>
<td>-0.29</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3. Prior performance</td>
<td>4.641</td>
<td>0.104</td>
<td>0.38</td>
<td>-0.18</td>
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</tr>
<tr>
<td>4. Industry R&amp;D intensity</td>
<td>0.056</td>
<td>0.054</td>
<td>-0.04</td>
<td>-0.14</td>
<td>-0.06</td>
<td></td>
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</tr>
<tr>
<td>5. Industry growth</td>
<td>0.054</td>
<td>0.197</td>
<td>0.01</td>
<td>-0.18</td>
<td>-0.01</td>
<td>0.21</td>
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</tr>
<tr>
<td>6. Industry capital intensity</td>
<td>0.425</td>
<td>0.582</td>
<td>-0.01</td>
<td>0.17</td>
<td>0.01</td>
<td>-0.22</td>
<td>-0.17</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>7. Industry dynamism</td>
<td>1.020</td>
<td>0.010</td>
<td>-0.03</td>
<td>0.01</td>
<td>0.09</td>
<td>0.01</td>
<td>-0.00</td>
<td>0.26</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>8. Firm size</td>
<td>6.438</td>
<td>1.603</td>
<td>0.23</td>
<td>-0.10</td>
<td>0.16</td>
<td>-0.10</td>
<td>0.05</td>
<td>0.14</td>
<td>0.06</td>
<td></td>
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</tr>
<tr>
<td>9. Firm asset change</td>
<td>8.892</td>
<td>27.861</td>
<td>0.08</td>
<td>-0.34</td>
<td>0.27</td>
<td>0.22</td>
<td>0.16</td>
<td>0.03</td>
<td>-0.02</td>
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</tr>
<tr>
<td>10. Firm unionization</td>
<td>18.236</td>
<td>26.012</td>
<td>-0.10</td>
<td>-0.17</td>
<td>0.06</td>
<td>-0.15</td>
<td>-0.01</td>
<td>-0.01</td>
<td>0.01</td>
<td>0.10</td>
<td>0.16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Employment security</td>
<td>3.066</td>
<td>0.942</td>
<td>0.29</td>
<td>-0.22</td>
<td>0.08</td>
<td>0.14</td>
<td>0.11</td>
<td>-0.03</td>
<td>-0.01</td>
<td>-0.01</td>
<td>-0.12</td>
<td>-0.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Firm overhead</td>
<td>46.714</td>
<td>43.965</td>
<td>-0.11</td>
<td>0.29</td>
<td>-0.39</td>
<td>0.21</td>
<td>-0.03</td>
<td>0.28</td>
<td>-0.05</td>
<td>0.00</td>
<td>-0.12</td>
<td>-0.30</td>
<td>-0.03</td>
<td></td>
</tr>
<tr>
<td>13. Firm strategy</td>
<td>3.563</td>
<td>0.584</td>
<td>-0.10</td>
<td>-0.06</td>
<td>-0.06</td>
<td>-0.06</td>
<td>0.00</td>
<td>0.00</td>
<td>0.02</td>
<td>0.07</td>
<td>0.17</td>
<td>-0.00</td>
<td>0.01</td>
<td>0.16</td>
</tr>
</tbody>
</table>

Notes. N = 122. Correlations greater than 0.15 are significant at p < 0.10, greater than 0.18 are significant at p < 0.05, and greater than 0.23 significant at p < 0.01.
Table 2 Regression Results: Workforce Downsizing, Industry Characteristics, and Firm Performance

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workforce downsizing</td>
<td>-0.236*</td>
<td>-0.336***</td>
<td>-0.290**</td>
<td>-0.244**</td>
<td>-0.226**</td>
</tr>
<tr>
<td>Prior performance</td>
<td>0.347***</td>
<td>0.267***</td>
<td>0.329***</td>
<td>0.327***</td>
<td>0.356***</td>
</tr>
<tr>
<td>Industry R&amp;D intensity</td>
<td>-0.075</td>
<td>-0.158†</td>
<td>-0.051</td>
<td>-0.068</td>
<td>-0.083</td>
</tr>
<tr>
<td>Industry growth</td>
<td>-0.039</td>
<td>-0.000</td>
<td>-0.130</td>
<td>-0.046</td>
<td>-0.040</td>
</tr>
<tr>
<td>Industry capital intensity</td>
<td>0.015</td>
<td>-0.083</td>
<td>-0.044</td>
<td>-0.139</td>
<td>0.0006</td>
</tr>
<tr>
<td>Industry dynamism</td>
<td>-0.065</td>
<td>-0.071</td>
<td>-0.061</td>
<td>-0.070</td>
<td>-0.067</td>
</tr>
<tr>
<td>Firm size</td>
<td>0.164*</td>
<td>0.131†</td>
<td>0.171*</td>
<td>0.151*</td>
<td>0.184†</td>
</tr>
<tr>
<td>Firm asset change</td>
<td>-0.065</td>
<td>-0.149†</td>
<td>-0.062</td>
<td>-0.082</td>
<td>-0.043</td>
</tr>
<tr>
<td>Firm unionization</td>
<td>-0.134</td>
<td>-0.112</td>
<td>-0.117</td>
<td>-0.121</td>
<td>-0.144†</td>
</tr>
<tr>
<td>Employment security</td>
<td>0.216**</td>
<td>0.215**</td>
<td>0.218**</td>
<td>0.201**</td>
<td>0.232**</td>
</tr>
<tr>
<td>Firm overhead</td>
<td>0.071</td>
<td>0.122</td>
<td>0.086</td>
<td>0.032</td>
<td>0.071</td>
</tr>
<tr>
<td>Firm strategy</td>
<td>0.002</td>
<td>0.063</td>
<td>0.039</td>
<td>0.023</td>
<td>0.002</td>
</tr>
<tr>
<td>WD x Ind. R&amp;D intensity</td>
<td>-0.409***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WD x Ind. growth</td>
<td></td>
<td>-0.189*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WD x Ind. capital intensity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WD x Ind. dynamism</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in R²</td>
<td>0.303***</td>
<td>0.440***</td>
<td>0.328***</td>
<td>0.331***</td>
<td>0.314***</td>
</tr>
</tbody>
</table>

Notes: N = 122. Standardized regression coefficients are reported. 
†p < 0.10; *p < 0.05; **p < 0.01; ***p < 0.001 (2-tailed tests).

The interaction term comprised of workforce reductions and industry R&D intensity is significant (p < 0.001), suggesting that industry R&D intensity significantly moderates the negative relationship between workforce downsizing and subsequent firm performance. The sign of the parameter estimate suggests that the negative effects of downsizing on performance are magnified by industry R&D intensity.

The predicted relationship between downsizing and performance at different levels of industry R&D intensity is plotted in Figure 1(a), following the procedures outlined in Aiken and West (1991). In creating all plots, we constrained the variables (except downsizing and the relevant industry variable) to their mean values (Cannella and Shen 2001, Zhang and Rajagopalan 2004). Down-

Table 3 Regression Results (with the Inverse Mills Ratio): Workforce Downsizing, Industry Characteristics, and Firm Performance

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workforce downsizing</td>
<td>-0.229**</td>
<td>-0.337***</td>
<td>-0.281**</td>
<td>-0.238**</td>
<td>-0.222*</td>
</tr>
<tr>
<td>Prior performance</td>
<td>0.343***</td>
<td>0.288***</td>
<td>0.324***</td>
<td>0.324***</td>
<td>0.354**</td>
</tr>
<tr>
<td>Industry R&amp;D intensity</td>
<td>-0.078</td>
<td>-0.157†</td>
<td>-0.054</td>
<td>-0.070</td>
<td>-0.094</td>
</tr>
<tr>
<td>Industry growth</td>
<td>-0.048</td>
<td>0.002</td>
<td>-0.144</td>
<td>-0.053</td>
<td>-0.045</td>
</tr>
<tr>
<td>Industry capital intensity</td>
<td>-0.033</td>
<td>-0.080</td>
<td>-0.069</td>
<td>-0.154</td>
<td>-0.005</td>
</tr>
<tr>
<td>Industry dynamism</td>
<td>-0.063</td>
<td>-0.071</td>
<td>-0.058</td>
<td>-0.068</td>
<td>-0.066</td>
</tr>
<tr>
<td>Firm size</td>
<td>0.204</td>
<td>0.121</td>
<td>0.226</td>
<td>0.185</td>
<td>0.208</td>
</tr>
<tr>
<td>Firm asset change</td>
<td>-0.098</td>
<td>-0.142</td>
<td>-0.106</td>
<td>-0.109</td>
<td>-0.062</td>
</tr>
<tr>
<td>Firm unionization</td>
<td>-0.132</td>
<td>-0.112</td>
<td>-0.113</td>
<td>-0.118</td>
<td>-0.142*</td>
</tr>
<tr>
<td>Employment security</td>
<td>0.220**</td>
<td>0.214**</td>
<td>0.224**</td>
<td>0.204**</td>
<td>0.233**</td>
</tr>
<tr>
<td>Firm overhead</td>
<td>0.075</td>
<td>0.121</td>
<td>0.091</td>
<td>0.035</td>
<td>0.074</td>
</tr>
<tr>
<td>Firm strategy</td>
<td>0.001</td>
<td>0.064</td>
<td>0.039</td>
<td>0.023</td>
<td>0.001</td>
</tr>
<tr>
<td>Inverse Mills ratio (IMR)</td>
<td>0.062</td>
<td>-0.015</td>
<td>0.083</td>
<td>0.051</td>
<td>0.037</td>
</tr>
<tr>
<td>WD x Ind. R&amp;D intensity</td>
<td>-0.410***</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>WD x Ind. growth</td>
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<td>-0.192*</td>
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<tr>
<td>WD x Ind. capital intensity</td>
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<tr>
<td>WD x Ind. dynamism</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in R²</td>
<td>0.304***</td>
<td>0.440***</td>
<td>0.329***</td>
<td>0.331***</td>
<td>0.315***</td>
</tr>
</tbody>
</table>

Notes: N = 122. Standardized regression coefficients are reported. 
†p < 0.10; *p < 0.05; **p < 0.01; ***p < 0.001 (2-tailed tests).
sizing took on a value of 0 and 1, and the moderating industry variables took values of one standard deviation below and one standard deviation above the mean. Figure 1(a) illustrates that there is much stronger negative relationship between downsizing and performance when R&D intensity is high. As such, our data and analysis provide strong support for Hypothesis 1.

Similarly, the significance ($p < 0.05$) of the interaction term involving industry growth and workforce reductions indicates that the relationship between workforce reductions and firm performance is also moderated by industry growth. The plot of the interaction is displayed in Figure 1(b). The plot highlights that for firms in industries characterized by high growth, downsizing is associated with greater negative impact; in contrast, downsizing has very little impact on firm performance in industries characterized by low growth. Thus, the results indicate that workforce downsizing has a greater negative impact on subsequent firm performance under circumstances of higher industry growth, supporting Hypothesis 2.

MRA results also indicate support for the moderating effect of industry capital intensity (Hypothesis 3), with the negative impact increasing as capital intensity decreases ($p < 0.05$). As indicated in Figure 1(c), the significant interaction term indicates that while the effect of downsizing on firm performance is negative in both low and high capital-intensity industries, the relationship is more pronounced in lower capital-intensity industries. Finally, we find no support for the prediction that industry dynamism moderates the relationship between downsizing and firm performance. In sum, our results provide support for three of the four moderating effects, supporting the general proposition that industry characteristics influence the relationship between workforce downsizing and subsequent firm performance.

**Discussion and Conclusions**

Both a universal approach and a contingency approach have been used in the SHRM literature to model the link between HRM—the policies and practices used to manage employees—and firm effectiveness (Youndt et al. 1996). The universal approach suggests that HR policy and practice effectiveness will be similar, regardless of organizational context. In contrast, the contingency approach proposes that the extent (or even the direction) of the effect of HR practices on firm performance will depend on a firm’s context or environmental conditions.

Our study focused specifically on the practice of downsizing and provides support for both perspectives. First, our results support arguments (e.g., Pfeffer 1998, Reichheld 1996) and previous findings (e.g., Cascio et al. 1997, Worrell et al. 1991) that workforce downsizing has a deleterious effect on firm performance. Second, we illustrate the potential for industry context to moderate the relationship between downsizing and organizational performance. We observed significant contingency effects, with industry characteristics magnifying the negative effects of downsizing on firm performance. As evidenced by the significant additional variance explained by the interaction term, our results are particularly supportive of arguments that downsizing will be more harmful in R&D-intensive industries.
We attribute these results to the relatively greater contribution of HR endowments to success in such industries. The loss of critical human and social capital, coupled with the lower commitment and greater rigidity on the part of “survivors,” probably contributes to the heightened negative effects of downsizing in R&D-intensive industries. Examples of R&D-intensive industries in our sample include pharmaceuticals, biological products, and specialized electronic components (communications, computing, etc.)—industries that are very similar to those projected by Cascio (2002) as the kinds of knowledge-intensive industries in which downsizing will be particularly problematic.

We also found that the negative effects of downsizing are more pronounced in faster-growing industries. As indicated in the correlation matrix, firms in industries experiencing high growth are less likely to downsize. However, those that do downsize in the context of industry growth perform more poorly in subsequent years. As argued earlier, although organizational restructuring via downsizing may be anticipated and deemed more acceptable by employees in mature or declining industries, this would be less so in growth industries. As indicated by our results, job cuts during a time of market expansion may be particularly harmful to employee morale and commitment, thereby reducing organizational effectiveness. This interpretation is supported by previous survey research reporting that layoffs are perceived to be more “fair” if justified by reduced product demand (Charness and Levine 2000). Finally, we find that as labor intensity increases (or as capital intensity decreases), performance effects following downsizing worsen somewhat. Our interpretation of this result is fairly straightforward: In industries marked by low capital intensity, firm performance is impacted more substantially by labor inputs and, by extension, the harmful effects of downsizing on human and organizational social capital.

The objective of this study was to contribute to the growing literature on the effects of employee downsizing. From a research perspective, our examination of the role of industry characteristics in moderating the relationship between workforce reduction and firm performance fills an important void in the literature on employee downsizing. It also highlights the importance of specifically incorporating (or at least controlling for) industry conditions in future studies on employee downsizing. From a managerial standpoint, our study suggests that a firm’s industry affects the success (or lack thereof) of employee downsizing efforts. As our results indicate, downsizing can be particularly detrimental in certain kinds of industries—those characterized by higher levels of R&D, growth, and labor intensity (i.e., low capital intensity). Overall, our findings lend support to the contention that workforce reductions often have negative consequences and these consequences can be magnified by industry conditions. These results suggest that managers need to carefully consider the industry context in making decisions related to employee cutbacks.

Our results may also help explain conflicting results reported previously. If samples are drawn from single or a limited set of industries, then the particular features of these industries may have undue influence on the performance effects associated with downsizing. For example, based on study findings, one can conclude that the negative effects of downsizing are more likely to be observed if sample firms are skewed toward high-growth, knowledge-intensive, and labor-intensive industries. Alternatively, studies examining firms drawn from industries having contrasting features (i.e., low growth, low tech, etc.) are more likely to reveal neutral to positive effects of downsizing on firm performance.

It is also worth noting that downsizing study results may also be influenced by researchers’ choice of “firm performance” measures. As measures of the extent to which revenues are being efficiently generated by a committed labor force working both “smart and hard,” we believe that efficiency-based measures (e.g., ROA) reflect the organizational impact of any erosion (or improvements) in a firm’s stock of human and social capital. In contrast, market-based measures are more distant from workers and, when used in the context of event study methodology, strongly influenced by the information context surrounding announcements of workforce reductions (Palmon et al. 1997, Worrell et al. 1991).

Although our study provides interesting insights into the relationships among workforce reductions, industry conditions, and firm performance, our findings should be interpreted in the context of limitations inherent in this study. For example, one legitimate concern is the question of causality. We control for prior performance and test for performance effects in multiple years following employment level changes, but our design does not completely rule out the possibility of reverse causality. Moreover, we do not have a direct measure of downsizing, instead measuring workforce reductions across a specific timeframe. However, we do provide evidence strongly suggesting that this measure reflects organizational downsizing initiatives. Also, the fact that our study was based on firms only in the manufacturing sector limits the generalizability of our findings. Future studies should attempt to examine similar relationships in the service sector. It seems reasonable to expect that the damage to human and social capital wrought by unstable employment relationships may be particularly disruptive in contexts where employees interact more directly with customers and clients (Reichheld 1996). In addition, we examined the moderating effects of industry characteristics, but we were not in a position to specifically test for the mediating
effects of various factors (e.g., the impact of psychological contract violations, disruptions to social capital, and social dynamics) that underlie the hypothesized effects of downsizing on performance in different industry contexts. Future research that examines the role of such mediators will certainly contribute to the downsizing literature and augment the findings of our study.

Our investigation of the effects of workforce reductions on firm performance was not as refined as theoretical treatments might suggest. The work of both Lepak and Snell (1999) and Delery and Shaw (2001) suggest that the impact of HR systems and, more specifically, employee retention will vary depending on whether employees are part of a firm’s “strategic core.” Delery and Shaw (2001), for example, note that firms such as McDonalds have experienced competitive success despite very high turnover rates. They argue that such firms are not adversely impacted by high turnover rates because these particular employees are not critical to their core competencies. By extension, firm performance may be more or less impacted depending on whether “strategic” employees are “made redundant.” Thus, based on these theoretical frameworks, a more refined future study might identify the “strategic” and “non-strategic” employee groups within firms or industries and study the differential performance impacts of unstable employment relationships across these employee groups.

Another issue is the possibility of survey non-response bias. We provide a number of formal tests for this potential confound; however, we cannot ascertain with certainty whether respondents and nonrespondents differ on unmeasured variables that may also correlate with both our predictor and dependent variables. Finally, while we do control for a number of important influences on downsizing and/or firm performance, we do not capture all these influences. For example, to the extent that downsizing decisions represent a form of “management myopia,” then models controlling for other decisions representing management “short sightedness” would more effectively isolate the specific impact of downsizing decisions.

While this paper argues and tests for the industry conditions as important contingency factors, future research should also explore the moderating effects of firm-level contingency factors. For example, we argue that downsizing in the context of market growth will be more problematic because employees will perceive this as less justified and less acceptable. Similar arguments could be argued in the context of firm performance. Employees should find downsizing in the context of deteriorating or inferior performance to be relatively more acceptable, perceiving this as a legitimate attempt to “right the ship.” Employees in firms that are healthy, however, may have a very different reaction to downsizing, finding it a violation of the implicit contract suggesting that higher levels of firm performance reflect superior employee contributions, which, in turn, should be rewarded with enhanced employment opportunities.

This study adds to the body of evidence questioning the efficacy of workforce downsizing. Although management actions can mitigate negative impacts (cf. Chadwick et al. 2004), it is increasingly apparent that, more often than not, layoffs and downsizing result in firms being relatively more “lean and lame” than “lean and mean.” Moreover, our results suggest that this negative impact may be magnified, depending on a firm’s industry or market conditions. Much work remains, however, in identifying other organizational and contextual conditions that influence the impact of workforce downsizing on firm performance. We hope this study informs and stimulates further work in this regard.

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Endnotes
1 For example, recent figures indicate that during the years 2003 and 2004, more than 3 million workers lost jobs through layoffs (Bureau of Labor Statistics [BLS] 2004). However, because the BLS figures only record “mass” layoffs, defined as those involving 50 or more employees, these figures significantly underreport the actual number of employees losing jobs through layoffs. A recent example is IBM. On May 4, 2005, on the heels of sagging profits, IBM announced job cuts (“restructuring”) amounting to 13,000 employees, or about 4% of its workforce. Over the last 20 years, IBM’s “restructuring” has resulted in tens of thousands of job cuts (Forelle 2005). Even the AFL-CIO—an ardent advocate of job security—recently announced the elimination of one-quarter of its workforce (International Labor Communications Association [ILCA] Online 2005).

2 Categorizing firms into “downsizers” and “nondownsizers,” as opposed to using a continuous measure of employment level change, is consistent with almost all previous research on downsizing. It is also consistent with a research focus on the effects of workforce reductions. A continuous measure of employment level includes firms that are both declining and growing in employment. Ahmadjian and Robinson (2001, p. 632) make the explicit case for a dichotomous measure, noting: “A dichotomous measure of downsizing is also easier to interpret than a continuous measure that captures both an increase and a decrease in employment.” Moreover, the organizational effects of employee growth are not expected to be symmetrical with the effects of employee downsizing (McKinley 1992).

3 Despite this rationale, the 5% decision rule is still somewhat arbitrary. Thus, in addition to a 5% decrease in the
level of employment, we also used 3%, 7%, and 10% changes in employment levels to categorize firms as “downsizers” or “nondownsizers.” These alternative classification criteria resulted in no substantive change in study results and conclusions. Results are robust across these alternative operationalizations of downsizing.

4 Scholars have raised issues about the reliability of measures of HR practices based on a single organizational respondent (e.g., Gerhart et al. 2000, Huselid and Becker 2000). For a subset of our sample firms (n = 33) we had multiple responses on the HR variables, allowing us to compute the intraclass correlation coefficient, ICC(1), as a check on the reliability of our HR data. ICC(1) can be conceptualized as the proportion of variance in a measure explained by group membership (Bryk and Raudenbush 1992). As noted by Bliwise (2000, p. 356), “When ICC(1) is large, a single rating from an individual is likely to provide a relatively reliable rating of the group mean; When ICC(1) is small, multiple ratings are necessary to provide reliable estimates of the group mean.” For the measure of unionization, the ICC(1) value is 0.59 and for the employment security measure, the ICC(1) value is 0.40. Based on available standards (e.g., Bliwise 2000, Gerhart et al. 2000), these values would be characterized as “large” and supportive of an acceptable degree of agreement across raters.

5 The authors thank an anonymous reviewer for suggesting this point.

6 The authors thank an anonymous reviewer for making this suggestion. In fact, our data suggest that this may be the case. When we divide our sample based on the median value for pre-downsizing performance, we find that firms among the “high-performing” group that downsize perform significantly worse in subsequent years relative to firms that do not downsize. Among the “low-performing” group, downsizing has no effect on subsequent performance.

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