

Journal of Applied Psychology

Taking Peers Into Account: Adoption and Effects of High-Investment Human Resource Systems

Kaifeng Jiang, Riki Takeuchi, and Yingya Jia

Online First Publication, October 5, 2020. <http://dx.doi.org/10.1037/apl0000836>

CITATION

Jiang, K., Takeuchi, R., & Jia, Y. (2020, October 5). Taking Peers Into Account: Adoption and Effects of High-Investment Human Resource Systems . *Journal of Applied Psychology*. Advance online publication. <http://dx.doi.org/10.1037/apl0000836>

Taking Peers Into Account: Adoption and Effects of High-Investment Human Resource Systems

Kaifeng Jiang
The Ohio State University

Riki Takeuchi
University of Texas at Dallas and Hong Kong University of
Science & Technology

Yingya Jia
Shanghai University

Strategic human resource management (HRM) research considers HRM systems a potential source of competitive advantage due to their positive effects on performance outcomes. However, previous research has not paid enough attention to how peer companies' use of HRM systems is associated with the adoption and the effects of HRM systems of a focal company. Specifically, drawing upon the institutional theory, we propose that a focal company's adoption of high-investment human resource systems (HIHRS) will be positively related to the level of HIHRS used in its peer companies. We also argue that the extent to which a focal company's HIHRS use is associated with organizational outcomes is contingent on the adoption of HIHRS in peer companies. Using a sample of 912 publicly traded companies in the U.S. stock market from 2002 to 2015, we found a positive relationship between the average HIHRS use of peer companies in the previous year and the change in focal company's HIHRS use. We also found that a focal company's HIHRS use is more likely to enhance financial performance (e.g., sales growth and profit growth) when the adoption of HIHRS is low in peer companies. However, HIHRS use is more positively related to employer certifications received by a focal company when the adoption of HIHRS is high in peer companies. These findings suggest that peer companies play an important role in understanding the adoption and the effects of HIHRS use of a focal company.

Keywords: human resource management, institutional theory, organizational performance, peer companies

In the past three decades, strategic human resource management (HRM) has generated considerable interest among both practitioners and academics and become an important topic to management literature (Jackson, Schuler, & Jiang, 2014). A fundamental premise of this stream of research is that HRM systems are driven by business strategies and if they are designed and implemented appropriately they can help firms achieve strategic objectives by eliciting and sustaining particular employee behaviors (e.g.,

Becker & Huselid, 1998; Guest, 1997; Lepak, Liao, Chung, & Harden, 2006). Guided by this general assumption, scholars have explored the fit between HRM systems and business strategy and demonstrated the effects of HRM systems on firm performance. For example, Arthur (1992) found that firms pursuing a differentiation strategy tend to use HRM systems emphasizing employee commitment, whereas those following a cost leadership strategy tend to adopt HRM systems emphasizing cost reduction. Researchers have also examined how HRM systems are related to performance outcomes (e.g., Combs, Liu, Hall, & Ketchen, 2006; Jiang, Lepak, Hu, & Baer, 2012) and help achieve better performance under different situations (e.g., Chadwick, Way, Kerr, & Thacker, 2013; Collins & Kehoe, 2017; Youndt, Snell, Dean, & Lepak, 1996).

Despite the efforts to understand why companies use certain types of HRM systems and how HRM systems are associated with performance outcomes, what has yet to be considered is the role of peer companies in the adoption and the effects of HRM systems of a focal company. This research is needed because companies do not exist in isolation and peer companies constitute an important context for a focal company to make business decisions (Lieberman & Asaba, 2006). For instance, previous research has shown that peer companies can influence a variety of management decisions, such as organizational form (Lee & Pennings, 2002), cor-

 Kaifeng Jiang, Department of Management and Human Resources, Fisher College of Business, The Ohio State University; Riki Takeuchi, Area of Organizations, Strategy and International Management, Naveen Jindal School of Management, University of Texas at Dallas, and Department of Management, School of Business and Management, Hong Kong University of Science & Technology; Yingya Jia, Department of Business Administration, School of Management, Shanghai University.

The authors acknowledge helpful comments from the faculty members of the Department of Management at the University of Nebraska-Lincoln when Kaifeng Jiang presented a draft of this article there.

Correspondence concerning this article should be addressed to Yingya Jia, Department of Business Administration, School of Management, Shanghai University, 333 Nanchen Road, Boshan District, Shanghai 200444, China. E-mail: amanda_jia@shu.edu.cn

porate financial policy (Leary & Roberts, 2014), CEO compensation (Bizjak, Lemmon, & Nguyen, 2011), corporate social responsibility (Gupta, Briscoe, & Hambrick, 2017), and corporate strategic actions (Gupta & Misangyi, 2018). Peer companies can also affect the utility of adopting certain policies or practices in a focal company (Bursztyn, Ederer, Ferman, & Yuchtman, 2014). For example, prior research has found that organizations are more or less likely to obtain return from their investment in innovative practices depending on how the same practices are adopted in peer organizations (e.g., Jacobs, Swink, & Linderman, 2015; Westphal, Gulati, & Shortell, 1997).

To address this important research need, we focus on high-investment human resource systems (HIHRS), referring to a set of HRM practices intended to enhance employee skills and motivation (Chadwick et al., 2013; Lepak, Taylor, Tekleab, Marrone, & Cohen, 2007), and examine how the use of HIHRS in peer companies in the same industry is associated with the adoption and the effects of focal company's HIHRS use. We aim to advance the strategic HRM literature in at least two aspects. First, we draw upon the institutional theory (DiMaggio & Powell, 1983; Meyer & Rowan, 1977; Scott, 1987; Zucker, 1977, 1987) to argue that peer companies' use of HIHRS in the previous year is related to a focal company's use of HIHRS. By doing so, we provide an alternative explanation for why companies adopt HRM systems beyond the strategic considerations suggested in the literature (e.g., Arthur, 1992; Bae & Lawler, 2000; Chadwick, Super, & Kwon, 2015).

Second, both the institutional theory (e.g., DiMaggio & Powell, 1983; Meyer & Rowan, 1977) and the resource-based view of the firm (Barney, 1991; Wernerfelt, 1984; Wright, Dunford, & Snell, 2001) suggest that the effects of a resource (e.g., HRM systems) owned by one company may depend on how the same resource is possessed by others. We integrate the two theoretical perspectives to propose how peer companies' HIHRS moderates the effects of a focal company's HIHRS use on firm outcomes. More specifically, we argue that a focal company's HIHRS use is more positively related to financial performance (e.g., sales growth and profit growth) when peer companies' HIHRS use is low than when it is high. In contrast, we expect that a focal company using HIHRS is more likely to seek legitimacy outcomes (in terms of obtaining employment accreditations) when peer companies HIHRS use is high than when it is low. We thus contribute to the understanding of when HRM systems are related to different types of outcomes by considering peer companies' roles. We examine our hypotheses by using a sample of 912 publicly traded companies in the U.S. stock market from 2002 to 2015. In the following, we first define the HRM systems of interest for this study. Next, we develop hypotheses about the role of peer companies' HRM systems use based on the institutional theory. We then explain how we test the hypotheses and discuss the implications for future research and managerial practices.

Theoretical Background and Hypotheses

High-Investment Human Resource Systems

Strategic HRM research has traditionally adopted a systems perspective to examine the relationship between HRM systems and performance outcomes (Lepak et al., 2006; Wright & Boswell, 2002). This perspective suggests that it is more appropriate to

examine a set of HRM practices organizations adopt to manage their employees rather than focusing on the role of individual HRM practices (Lepak et al., 2006). Previous research has examined a variety of HRM systems, including high-performance (e.g., Huselid, 1995), high-involvement (e.g., Guthrie, 2001), and high-commitment (e.g., Arthur, 1992) work systems. Although the names themselves suggest that HRM systems should be oriented toward distinct strategic objectives, researchers have found considerable overlap in practices included in those systems (Boon, Den Hartog, & Lepak, 2019; Posthuma, Campion, Masimova, & Campion, 2013) and used them interchangeably in the literature (e.g., Evans & Davis, 2005). However, strategic HRM scholars have increasingly suggested that the construct of HRM systems should be clearly defined around a specific target (e.g., Boon et al., 2019; Lepak et al., 2006). By following this suggestion, we conceptualize HIHRS as a set of HRM practices that companies use to invest in its employees (Chadwick et al., 2013; Lepak et al., 2007). More specifically, the practices included in our archival data involve skills training, career development, internal promotion, competitive compensation and benefits, fair collective rewards, work-life balance, health and safety, diversity and equal opportunities, and employment security.

We label the HRM systems examined in this study as high-investment rather than the commonly used high-performance work systems for two primary reasons. First, naming an HRM system as high-performance assumes that the HRM system help achieve high performance of employees and firms. However, the inferred relationship between HRM systems and performance outcomes cannot be ensured before testing the relationships empirically. Second, the data we used did not report how work is designed (e.g., broad task responsibilities) and how employee performance is managed (e.g., appraisals based on objective results). These two functions are considered the key components of a high-performance work system and often reflect companies' effects to enhance employee performance (Boon et al., 2019; Posthuma et al., 2013). Without including these two HRM functions, our HIHRS measure is similar to HRM inducements and investments (e.g., Shaw, Dineen, Fang, & Vellella, 2009) or maintenance-oriented HRM systems (e.g., Gong, Law, Chang, & Xin, 2009) based on the employee-organization relationship framework (Tsui, Pearce, Porter, & Hite, 1995; Tsui, Pearce, Porter, & Tripoli, 1997). Even though HIHRS can still help develop and motivate employees to achieve performance goals, those practices are intended to offer inducements to and investments in employees rather than placing high expectations on employees.

Our focus on HIHRS is also consistent with the employee-centered philosophy of HRM (Kochan, Katz, & McKersie, 1986; Kochan & Osterman, 1994). As noted by Lepak and colleagues (2007), this philosophy reflects a company's "overall concern for the welfare and treatment of its employees" (p. 233). A high level of HIHRS indicates that the company places a high value on its employees regardless of whether the investment in employees can lead to performance gains. By examining HIHRS, we also echo the recent call for more research on employee-oriented HRM systems (Guest, 2017; Van de Voorde et al., 2012). Guest (2017) argued that strategic HRM research has focused largely on performance-oriented HRM systems even though the mutual gains perspective suggests that HRM should benefit both employees and organizations. HIHRS is in line with the employee-oriented HRM systems

in terms of facilitating the development of human capacities (e.g., skills training, career development, and internal promotion) and creating a positive social and physical environment (e.g., competitive compensation and benefits, fair collective rewards, work–life balance, health and safety, diversity and equal opportunities, and employment security). Next, we theorize how peer companies' HIHRS use is associated with the adoption and the effects of a focal company's HIHRS use.

Peer Companies' Role on the Adoption of HIHRS of a Focal Company

Peer companies have been found to play a critical role of providing useful information for a focal company to make decisions (e.g., Bizjak et al., 2011; Gupta & Misangyi, 2018; Gupta et al., 2017; Leary & Roberts, 2014). In this study, we define *peer companies* as the companies that operate in the same industry as a focal company. Compared to those in other industries, a focal company is more likely to compete with its peers in the same industry in the product and labor markets. Therefore, a focal company is more likely to observe how peer companies adopt HRM systems and adjust its own HRM systems accordingly. According to the institutional theory (e.g., DiMaggio & Powell, 1983; Meyer & Rowan, 1977), we predict that the use of HIHRS in a focal company will be related to its peer companies for three primary reasons.

First, the institutional theory suggests that companies often imitate their peers' actions when they operate in the similar environment. This effect is referred to as "mimetic isomorphism" in the institutional theory (e.g., DiMaggio & Powell, 1983) and often occurs when companies face uncertainty and ambiguity. HIHRS represents companies' high investment in their employees (e.g., competitive compensation and benefits, fair collective rewards, and employment security) and is an innovative way to treat employees (e.g., work–life balance and diversity and equal opportunities). A natural concern that shareholders and executives may have is whether it is worth the effort for companies to use those HRM practices. When many peer companies adopt HIHRS, the focal company may receive informational cues about the economic and social merits of this action, and then follow peer companies by adopting the same type of HRM systems (Lieberman & Asaba, 2006).

Second, the adoption of HIHRS in peer companies may create normative pressures for the focal company to gain legitimacy by adopting HIHRS (Campbell, 2007; Oliver, 1991). Peer companies' investment in HRM systems may indicate that employees are valued and respected in those peer companies. A focal company that fails to adopt this type of HRM systems may be considered irresponsible and thus experience difficulties in attracting, motivating, and retaining employees. Therefore, the focal company may adopt HIHRS to show others that it is a high-quality employer caring about employees. As an empirical evidence for this argument, Ingram and Simons (1995) found that companies are more likely to respond to work–family issues when other companies within the same industry adopt work–family policies and programs. Bhimani and colleagues (2016) also found that companies frequently adopt corporate social responsibility practices due to the normative pressure felt from peer companies that have already done so.

Third, peer companies' impact on a focal company's HIHRS adoption may occur in a more unconscious manner. Zucker (1977) and March (1981) argued that when enough organizations adopt a certain practice, the practice becomes institutionalized and others will adopt the same practice "without thinking" (Paauwe & Boselie, 2003, p. 60). This is often referred to as a taken-for-granted status of a practice (Meyer & Rowan, 1977). Haunschild and Miner (1997) considered it the purest form of social influence because it is the large number of other organizations adopting a practice itself that enhances legitimacy of the practice and encourages more adoption. For example, previous research has found that the likelihood of adoption of a certain organizational structure is related to the number of other firms that had used it (Fligstein, 1985; Palmer, Jennings, & Zhou, 1993). Applying this argument to HRM, Jackson and Schuler (1995) mentioned that, "HRM activities may be adopted by an organization simply because other organizations have done so" (p. 240). When HIHRS becomes increasingly prevalent in peer companies, it will become legitimate and gain the taken-for-granted status and thus more likely to be used by a focal company. For example, as the major high-tech companies (e.g., Apple, Facebook, Google, and LinkedIn) offer great perks and benefits to their employees, it has become a norm for other companies in the high-tech industry to provide similar benefits (Finkle, 2012; Gillett, 2018). For all the reasons mentioned above, we expect a positive relationship between the adoption of HIHRS in its peer companies and a focal company's use of HIHRS.

Hypothesis 1: There is a positive relationship between peer companies' adoption of HIHRS and a focal company's HIHRS use.

Peer Companies' Role on the Effects of a Focal Company's HIHRS Use

HIHRS represents companies' investment in their human resources. As noted by Guest (2017), companies are unlikely to invest in employees on ethical grounds alone. It is reasonable to expect that those practices can also contribute to outcomes desired by companies. The institutional theory suggests that companies not only pursue financial success but also need legitimacy to survive (DiMaggio & Powell, 1983; Scott & Meyer, 1994). The traditional strategic HRM research has focused primarily on financial outcomes of HRM systems (e.g., Combs et al., 2006; Jiang et al., 2012). However, some researchers have suggested that more attention should also be paid to legitimacy goals (e.g., Boon, Paauwe, Boselie, & Den Hartog, 2009; Farndale & Paauwe, 2007). Therefore, in this study we examine both financial performance and legitimacy outcomes and investigate how peer companies' HIHRS use moderates the relationships between a focal company's HIHRS use and the two types of outcomes. More specifically, we use sales growth and profit growth to represent financial performance by following the previous strategic HRM research (e.g., Collins & Kehoe, 2017; Jiang, Chuang, & Chiao, 2015; Patel, Messersmith, & Lepak, 2013). We examine best employer certifications (e.g., Best Company to Work For) received by a company as a social legitimacy outcome because previous research has suggested that those employer certifications can signal the legitimacy of its human resources investments (e.g., Dineen &

Allen, 2016; George, Dahlander, Graffin, & Sim, 2016; Wright & McMahan, 1992). As we discuss below, peer companies' HIHRS use is expected to moderate the relationships between a focal company's HIHRS use and the two types of organizational outcomes differentially.

We first focus on the peer companies' role in the relationship between focal company's HIHRS use and financial performance. As we mentioned in the introduction, strategic HRM scholars have expended considerable effort to examine the HRM systems and performance relationship. A well-established argument is that HRM systems can contribute to financial performance by affecting employees. For example, the social exchange theory (Blau, 1964) suggests that when employees perceive that companies value their contribution and care about their well-being by investing in HRM practices, employees are likely to reciprocate by exhibiting positive work attitudes and behaviors. When employees have a positive relationship with their companies and engage in high-level in-role and extra-role work behaviors, they are likely to help companies achieve financial success (e.g., Gong et al., 2009; Messersmith, Patel, Lepak, & Gould-Williams, 2011). Moreover, HRM systems can contribute to financial performance by enhancing collective human capital (e.g., Takeuchi, Lepak, Wang, & Takeuchi, 2007). By investing in employees with HRM practices, companies can make jobs attractive to potential candidates and increase their chance of hiring top talent in the labor market. HRM systems can further help employees develop their knowledge, skills, and abilities (KSAs; e.g., through training and career development) and enhance their health and energy (e.g., through work-life balance and health and safety programs) at work. The energetic employees with high KSAs can help companies achieve and sustain financial excellence (e.g., Kehoe & Collins, 2017; Takeuchi et al., 2007).

However, the positive relationship between focal company's HIHRS use and financial performance may not be held when the use of HIHRS in peer companies is high. According to the institutional theory, when HIHRS is commonly adopted in many companies, it tends to be considered a taken-for-granted organizational element (DiMaggio & Powell, 1983; Meyer & Rowan, 1977). In this situation, employees may attribute the use of focal company's HIHRS to management's intention to maintain consistency with peer companies rather than to management's concern and caring for employees (Nishii, Lepak, & Schneider, 2008). Consequently, a focal company's HIHRS use will be less likely to motivate employees to contribute to financial performance. Moreover, the institutional theory argues that when an organizational action becomes institutionalized, a focal company may experience more isomorphic pressures to adopt this action even though the action may not be needed for financial purposes. For example, both Tolbert and Zucker (1983) and Westphal et al. (1997) found that adopting an innovative practice may not benefit the adopter when it conforms to the normative pattern of this practice used by other adopters.

Our expectation is also consistent with the resource-based view of the firm (Barney, 1991), which suggests that companies can gain sustainable competitive advantage when they possess valuable, rare, inimitable, and nonsubstitutable resource. When HIHRS use is prevalent in peer companies, adopting this system is not unique for the focal company. The focal company may find it more difficult to rely on HIHRS to attract and motivate talent employees because its peers can exploit HIHRS in the same way. Under this

situation, adopting HIHRS would be less likely to give the focal company a competitive advantage. In contrast, when the use of HIHRS is rare in peer companies, high investment in human resources can distinguish the focal company from its peers to develop skillful and motivated employees and achieve supreme financial performance. Based on both theoretical perspectives, we argue that:

Hypothesis 2: The adoption of HIHRS in peer companies will moderate the relationship between a focal company's HIHRS use and financial performance, such that the relationship will be more positive when peer companies' use of HIHRS is low than when it is high.

We now shift our attention to peer companies' influence on the relationship between HIHRS use and legitimacy outcomes of a focal company. Legitimacy is an important concept in the institutional theory and refers to the situation in which a company is accepted or considered appropriate by its environment (DiMaggio & Powell, 1983; Meyer & Scott, 1992). According to the institutional perspective, companies are motivated to gain legitimacy for the long-term survival in addition to achieving financial success and are more likely to achieve legitimacy goals when they conform their practices to the norms and expectations of institutional environments (Meyer & Rowan, 1977; Scott & Meyer, 1994). In particular, Deephouse (1996) found *strategic isomorphism*, defined as "the extent to which an organization's strategies resembled the conventional, normal strategies in an industry" (p. 1029), increases organizational legitimacy in terms of regulatory and public endorsement. Drawing upon this perspective, we argue that peer companies' use of HIHRS represents the external norms of adopting HRM systems and thus moderates the relationship between a focal company's HIHRS use and legitimacy outcomes received by the focal company.

In this study, we examine employer certifications as a legitimacy outcome which is highly relevant to the use of HRM systems. First of all, many practices included in HIHRS are used as criteria for those employer certifications. For example, Fortune's Great Place to Work Survey emphasizes whether companies respect their employees by offering training and development, caring about their personal lives, providing fair rewards and benefits, and ensuring justice and equal opportunities (Fulmer, Gerhart, & Scott, 2003). Moreover, the employer certifications represent an employer branding tactic used by companies to enhance their employer image or reputation (Lievens & Slaughter, 2016). Receiving these certifications indicates that companies want to be and, eventually, are recognized for their efforts to become employee-oriented employers. It helps companies communicate the legitimacy of their human capital investments and practices to relevant stakeholders (Dineen & Allen, 2016), which means that the company is meeting social norms of providing desirable practices toward employees (Zorn, Roper, & Richardson, 2014).

We expect that there is a positive relationship between a focal company's HIHRS use and the employer certifications received by the company and propose that this positive relationship is stronger when peer companies' HIHRS use is high than when it is low. First, the high level of HIHRS use in peer companies indicates that there is a strong industry norm of investing in employees. The strong norm may create normative pressures for a focal company

using high HIHRS to apply for employer certifications because receiving those certifications gives external validation that confirms the legitimacy of the focal company. Second, when the use of HIHRS in peer companies is high, it becomes challenging for a focal company to compete with peers for talented employees. The focal company may find it more necessary to develop a recognizable identity by seeking employer certifications and thus show that it is a desirable and legitimate employer (Love & Singh, 2011). Third, a focal company's investment in employees is more likely to be considered appropriate and accepted by external stakeholders when its peer companies also have high levels of investment in employees. Therefore, the third-party research agencies (e.g., The Great Place to Work Institute) are more likely to certify a focal company when its adoption of HIHRS is consistent with what is typical in its peer companies.

In contrast, when HIHRS is not prevalent in peer companies, high investment in HIHRS may be viewed as a departure from industry norms of managing employees. The incongruence between a focal company's HIHRS use and industry norms may reduce the focal company's desire to seek external recognitions (Kennedy & Fiss, 2009). In fact, getting a company considered for one of the certified best employers takes a high level of commitment of the company. For example, to be considered for Fortune 100 Best Companies to Work For, a company needs to provide over 200 data points describing its HRM programs and practices and work with Great Place to Work Institute to conduct employee surveys over a 2-week period.¹ Similarly, the online application for the Working Mother Best Companies includes more than 450 questions.² Given the low desire to seek external recognitions and high commitment required by the applications, the focal company may be less likely to apply for those employer certifications. In addition, when peer companies' use of HIHRS is low, a focal company's high investment in HRM system may easily distinguish itself from peer companies in the talent competition. Therefore, the focal company may find it less necessary to receive external recognitions. Moreover, the third-party employment branding agencies may pay less attention to an industry with a generally low level of investment in human resources. In this case, a company using HIHRS may not receive enough attention and thus be less likely to be considered for employer certifications. Taken together, we propose that peer companies' HIHRS use will strengthen the positive relationship between HIHRS and receiving employer certifications.

Hypothesis 3: The use of HIHRS in peer companies will moderate the relationship between HIHRS use and receiving employer certifications of a focal company, such that the relationship will be more positive when peer companies' use of HIHRS is high than when it is low.

Method

Sample and Data

To examine the set of hypotheses we advanced in this study, we created a longitudinal dataset by combining the information from the Thomson Reuter Asset4 database and the Compustat—Capital IQ database. First, we searched for firms publicly listed in U.S. markets included in the Asset4 database. This database contains information on over 400 metrics capturing environmental, social, economic, and

governance dimensions of over 7,000 global companies. The social category of this database includes several items about the use of HIHRS policies in the companies. The initial search was conducted in early 2017 and resulted in 1,729 firms from 2001 to 2016. Second, because we examined HRM systems as the key variable, we deleted the observations with missing values on the measures of HRM policies considered in this study. Out of the initial sample, 912 firms reported the information on HRM policies between 2002 and 2015. In total, we had a sample of 9,531 firm-year observations. Third, we coded firm characteristics (e.g., total number of employees and industry category) and financial performance from the Compustat database and merged the data from both data sets.

Measures

HIHRS use. The social category of the Asset4 database measures a company's capacity to generate trust and loyalty with its workforce, customers, and society through its use of management practices (Thomson Reuters, 2019). We compared the items with those commonly included in a measure of HRM systems (e.g., Posthuma et al., 2013) and identified 13 items that are described in Table 1. Those items covered the essential components of an employee-oriented HRM system as suggested by previous research (e.g., Lepak et al., 2006) and were consistent with our definition of HIHRS. In the Asset4 database, those HRM questions were measured at the policy level based on a dichotomous response (0 = no; 1 = yes). The scores were based on company reported data in the public domain (e.g., corporate website, annual reports, environmental, social, and governance reports, bylaws, code of conduct). If the database cannot find the usage of an HRM policy (e.g., work-life balance) in a company from multiple sources, it is prudent to conclude that the company has not adopted that particular policy.

To demonstrate the validity of this measure, we first conducted a factor analysis for binary items by using the "polycor" package in *R* program. This package can calculate polychoric correlations for dichotomous items and use the correlation matrix as the input for the factor analysis (Basto & Pereira, 2012). The factor analysis based on varimax rotation method showed that all items loaded onto a single factor. Factor loadings ranged from .44 to .90 (see Table 1). In total, the single factor accounted for 49.1% of the observed variance. The Cronbach's alpha for the 13 items was .84.

We then examined the criterion-related validity of this measure by estimating the relationship between HIHRS scores and company review ratings on Glassdoor. Glassdoor is an online platform allowing current and former employees' anonymous review on their companies. The overall ratings are based on a 5-point Likert scale and consider employees' satisfaction with culture and value, work-life balance, senior management, compensation and benefit, and career opportunities. It has been increasingly used in management and applied psychology research as an indicator of employees' overall satisfaction with their companies (McFarland & Ployhart, 2015). We used the HIHRS scores in 2015, the most recent year in our data collection, because Glassdoor places heavier weight toward the over-

¹ Derived from <https://www.greatplacetowork.com/best-workplaces/100-best/2019> in February 2020.

² Derived from <https://www.workingmother.com/best-companies/2014-working-mother-100-best-companies> in February 2020.

Table 1
Human Resource Management Practices Included in the High-Investment Human Resource Systems Measure

No. and item	Factor loading
1. Does the company have a policy to support the career development of its employees?	.90
2. Does the company have a policy to support the skills training of its employees?	.86
3. Does the company claim to favor promotion from within?	.63
4. The employees' compensation is based on personal or company-wide targets.	.57
5. Does the company have an extra-financial performance-oriented compensation policy?	.44
6. Does the company claim to provide a bonus plan to most employees?	.62
7. Does the company have a competitive employee benefits policy?	.81
8. Does the company claim to provide its employees with a pension fund, health care or other insurances?	.66
9. Does the company have a work-life balance policy?	.71
10. Does the company have a diversity and equal opportunity policy?	.74
11. Does the company promote positive discrimination?	.73
12. Does the company have a policy to improve employee health & safety?	.60
13. Does the company have a policy for maintaining a loyal and productive employee base?	.72

all ratings.³ In total, we found the rating information for 867 firms included in our dataset. After removing those with fewer than 20 reviews, we obtained a sample of 831 firms with an average of 2,452 review comments for each firm. We found a significant relationship between HIHRS score and Glassdoor company ratings, $r = .21$, $p < .01$. This relationship was similar to the relationship between high-performance work systems and operational outcomes (corrected $r = .18$) meta-analyzed in Combs et al. (2006) and the relationship (corrected $r = .14$) estimated in Subramony (2009).

To further validate this measure of HIHRS, we recruited a sample of 200 full-time employees via Amazon Mechanical Turk (MTurk).⁴ Among participants, 42% were women, and 34% worked for large firms with more than 500 employees. Their average age was 35 years old and their average tenure with current organizations was 7.59 years. They came from a diverse range of industries including banking and financial service, education, food and beverage, health care, manufacturing, media and entertainment, retail, and software and IT service. We asked the participants to report the usage of the 13 HR policies by indicating "Yes" (1 = Yes) or "No" (0 = No). We also obtained their responses to a 28-item scale HRM systems measured on a five-point Likert scale. 21 items were from Lepak and Snell's (2002) commitment-based HRM systems which reflect organizations' investment in job design, selective staffing, extensive training, developmental performance management, competitive compensation and benefits, and performance-based incentive. We included five items from Chuang and Liao (2010) to capture organizations' caring about employees' work-life balance, safety and health, and mental well-being. In addition, we included two items from Zacharatos and colleagues (2005) to reflect equal opportunities and treatments offered to employees. Taken together, the 28 items correspond to the 13 binary HRM policies available in ASSET4 database. We found that the 13-item HIHRS was positively related to the 28-item HRM systems, $r = .64$, $p < .01$. Moreover, we included three commonly studied attitudinal outcomes of HRM systems in the MTurk survey—job satisfaction (three-item scale from Cammann, Fichman, Jenkins, & Klesh, 1983), affective commitment (six-item scale from Meyer, Allen, & Smith, 1993), and turnover intention (three-item scale from O'Reilly, Chatman, & Caldwell, 1991). We found that the 13-item HIHRS was significantly related to job satisfaction, $r = .20$, $p < .01$; affective commitment, $r = .28$, $p < .01$; and turnover intention, $r = -.14$, $p < .05$. Combined, these results showed acceptable criterion-related validity of the 13-item HIHRS measure, suggesting

that we can use this measure to reflect firms' investment in human resources. We used the sum of the 13 items to calculate a composite index of HIHRS. When examining Hypothesis 1, we used the change in HIHRS,⁵ which was measured as the difference between year t 's HIHRS use and year $t - 1$'s HIHRS use, as the dependent variable by controlling for year $t - 1$'s HIHRS use in the analysis.

Peer HIHRS use. We used the following steps to measure the use of HIHRS in peer companies. First, we used the first two digits of the Standard Industrial Classification (SIC) codes to group all identified companies into 64 subindustries. Second, we averaged the yearly scores of HIHRS of all companies included in the same subindustry by excluding the focal company's score. Thus, for each focal company, there was a corresponding average peer HIHRS score in a specific year. Our approach of operationalizing peer HRM systems is consistent with previous research examining the actions of peer companies (e.g., Finkelstein & Hambrick, 1990; Fremeth & Shaver, 2014; Gupta & Misangyi, 2018).⁶ To examine the influence of prior peer companies' HIHRS use on the use of HIHRS of a focal company in year t , we used the peer HIHRS scores in year $t - 1$. To examine the moderating effect of peer HIHRS use on the effects of HIHRS on financial performance and legitimacy outcome of a focal company, we used the peer companies' HIHRS use scores in the same year with the focal company's HIHRS score.

Financial performance. In the literature of strategic HRM, firm performance includes a variety of variables ranging from employee outcomes to operational and financial outcomes (Dyer & Reeves, 1995). In this study, we considered two performance

³ Information was derived from https://help.glassdoor.com/article/Ratings-on-Glassdoor/en_US/ in February 2020.

⁴ The data collection was approved by the institutional review board (IRB# 2020B0053: Employee Perceptions of Human Resource Management Practices) at The Ohio State University.

⁵ The results remained unchanged when we used year t 's HIHRS as the dependent variable.

⁶ Companies may view a smaller group of companies with similar characteristics rather than all other companies in the same industry as peers (Fiegenbaum & Thomas, 1995). Therefore, we followed previous research (e.g., Kuusela, Keil, & Maula, 2017) to identify three closest matches in the same industry for each company based on the total number of employees and total revenue. We recalculated the peer companies' HIHRS using this approach and got the consistent results. The supplementary analysis results are available from the authors upon request.

variables that were available from the Compustat database—sales growth and operating profit growth. *Sales* represent the amount of actual billings to customers for regular sales completed during the period reduced by cash discounts, trade discounts, and returned sales and allowances. *Operating profit* refers to net profit from the operating activities of a company. It is measured as the difference between operating revenue and operating expense. Both variables were measured in millions of dollars. We measured the growth in the two variables as the difference between year $t + 1$'s performance and year t 's performance. We used the performance growths rather than the original performance values as the dependent variables because of the reciprocal relationships between HRM systems and original performance values (Shin & Konrad, 2017; Wright, Gardner, Moynihan, & Allen, 2005). To better reflect the performance effects of HRM systems, we controlled for the year $t - 1$'s original performance outcome when predicting the change in the outcome in the year $t + 1$. This approach is consistent with prior research on strategic HRM (e.g., Collins & Smith, 2006; Jiang et al., 2015) and strategic human capital (e.g., Bentley & Kehoe, 2020).

Employer certifications. There are four items in the Asset4 database related to employer certifications, including whether a company has won any prize or award related to diversity or opportunity, a family friendly prize like a “Working Mother Award,” a “Most Admired Knowledge Enterprises” award, and a general employment quality award such as “Best Company to Work For.” We calculated the sum of the four items and used the sum score as a dependent variable in the analysis.

Control variables. We controlled for several variables that may influence our research results. First, prior research has suggested that large firms and old firms are more likely to adopt formal HRM policies (Jackson & Schuler, 1995). Therefore, we controlled for firm size and firm age in the analyses. Firm size was measured as the total number of employees and the total asset in each year. We obtained the information for both variables from the Compustat database. Firm age was measured as the difference between 2015 and the founding year of a company. Second, research has shown that business strategy may influence the adoption of HRM systems (e.g., Arthur, 1992) and the effects of HRM systems (e.g., Chadwick et al., 2013). The Asset4 database included an item to indicate whether a company has a policy for maintaining an overarching vision and strategy that integrates the economic, social, and environmental aspects of its business. It is likely that a company with an integrated strategy tends to invest more in HRM systems in order to show its commitment to its employees and the society. Therefore, we controlled for it in the analysis (0 = no; 1 = yes). Third, the Asset4 database reported an item of whether a company has a trade union relationship policy (0 = no; 1 = yes). We included this variable to control for the potential influence of unionization on HRM systems (Liu, Guthrie, Flood, & MacCurtain, 2009) and firm performance (Doucouliagos & Laroche, 2003). Fourth, we controlled for the previous year's sales and operating profit because firm performance may influence the use of HRM systems (Shin & Konrad, 2017) and their effects on future performance (Wright et al., 2005). Fifth, we controlled for industry growth, industry dynamism, and industry concentration at the subindustry level because research has found the moderating effects of the industry characteristics on the adoption of HRM practices (Kim & Ployhart, 2018) and the relationships

between HRM systems and performance outcomes (Datta, Guthrie, & Wright, 2005). We first identified all firms listed in the U.S. markets from 2002 to 2015 in the Compustat database and grouped all the companies into the 64 subindustries based on the first two digits of the SIC codes. Industry growth was specified as the rate of growth in the total sales of the industry (regression coefficient) divided by the mean value of the industry sales during the study period (Dess & Beard, 1984). Industry dynamism was measured as the antilogarithm of the standard errors from the regression models in which the natural logarithm of sales for the years 2002–2015 was regressed against time (Datta et al., 2005). Industry concentration was assessed as the average proportion of the total sales accounted for by the four largest companies in an industry for the years 2002–2015 (Dess & Beard, 1984). Finally, we followed Bliese, Schepker, Essman, and Ployhart (2020) suggestion to model time as a predictor to ensure unobserved time heterogeneity is controlled in our analysis. Following Bliese and Ployhart (2002), this variable was coded as 0 in the year of 2002 (the first year in our observations) and increased with each subsequent year. For instance, the value of time variable was 4 for the year 2006 and was 10 for the year 2012. This approach has been used to examine the growth rate of performance outcomes in strategic HRM research before (e.g., Kim & Ployhart, 2014).

Analytic Strategy

Because of the nested nature of our longitudinal data, we used linear mixed-effects model fit by maximum likelihood conducted in *R* program (www.r-project.org) to test our hypotheses. To examine Hypothesis 1, we included number of employees, total asset, unionization, integrated strategy, prior performance outcomes, previous year's peer HIHRS use, and the time variable at the yearly observation level (Level 1), firm age at the firm level (Level 2), and the three industry characteristics at the industry level (Level 3). To examine Hypotheses 2 and 3, we included a focal company's HIHRS use and peer companies' HIHRS use as well as their interaction in the current year at the Level 1 while controlling for all other variables mentioned above. We reported pseudo R^2 to indicate the proportion of variance explained for the dependent variables. However, researchers have suggested treating pseudo R^2 with caution because the values are partially dependent upon how one specifies the models (Aguinis, Gottfredson, & Culpepper, 2013). Therefore, we also relied on log-likelihood ratio tests to evaluate whether adding predictors to a model can significantly increase model fit and reported Akaike information criterion (AIC) values to assess the overall model fit (Ployhart, Holtz, & Bliese, 2002).

Results

Table 2 presents the descriptive statistics of the study variables. Before we examined our hypotheses, we checked the ICC(1) of the use of HIHRS and found that the subindustry group accounted for 9.15%, $F(63, 9,467) = 16.00, p < .01$, of the variance and the firms accounted for 46.42%, $F(911, 8,619) = 10.05, p < .01$, of the variance. The results indicate the significant between-industry and between-firm differences and thus provide support for the use of the three-level mixed effects model.

Table 2
Descriptive Statistics and Correlations for Study Variables

Variables	M	SD	n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1. Focal company's HIHRS use	6.28	3.43	9,531																			
2. Previous focal company's HIHRS use	6.16	3.45	8,619	.94**																		
3. Peer HIHRS use	6.29	2.10	9,438	.50**	.48**																	
4. Previous peer HIHRS use	6.17	2.14	8,532	.45**	.51**	.94**																
5. Focal company's HIHRS change	43	1.23	8,619	.11**	-.25**	-.08**	-.18**															
6. Sales growth	536.85	5,709.59	8,535	-.02*	-.02*	-.05**	-.05**	.00														
7. Operating profit growth	210.54	2,619.93	8,536	-.01	-.01	-.05**	-.03*	-.02	.65**													
8. Employer certifications	.41	.79	9,531	.45**	.43**	.12**	.09**	.02	.03**	.03**												
9. Previous sales	12,573.31	25,681.24	8,544	.28**	.28**	.08**	.07**	-.01	.02	.03**	.43**											
10. Previous operating profit	4,256.35	9,278.97	8,544	.29**	.28**	.05**	.04**	.00	.03*	.02	.33**	.79**										
11. Firm age	68.75	47.62	9,531	.15**	.15**	.04**	.04**	-.02	.00	.00	.10**	.10**	.09**									
12. Numbers of employees	33.46	59.29	9,531	.25**	.24**	.03*	.02	.01	.08**	.08**	.34**	.34**	.56**	.08**								
13. Total assets	3,612.29	147,691.32	9,452	.15**	.14**	.03*	.02	.01	.06**	.06**	.30**	.46**	.61**	.06**	.34**							
14. Unionization	.08	.27	9,531	.22**	.21**	.10**	.10**	.02	-.02	-.01	.16**	.16**	.15**	.12**	.16**	.01						
15. Integrated strategy	.39	.49	9,531	.55**	.52**	.30**	.28**	.01	-.01	.00	.34**	.34**	.24**	.16**	.23**	.12**	.22**					
16. Industry growth	.00	.00	9,531	-.02*	-.02*	-.04**	-.04**	-.01	-.03*	.00	-.03**	-.03*	-.03**	-.11**	-.01	-.01	-.01	.00				
17. Industry dynamism	1.01	.00	9,531	.02	.01	.03*	.02*	.01	-.03*	-.03*	-.04**	-.04**	-.04**	-.04**	-.04**	-.04**	-.04**	-.03**	-.03**	-.04**	-.03**	-.25**
18. Industry concentration	.37	.16	9,531	.03**	.03**	.05**	.05**	-.01	.02	-.02	-.02	-.02	-.02	-.02	-.02	-.02	-.02	-.02	-.03**	-.04**	-.01	.24**
19. Time	7.75	3.69	9,531	.43**	.45**	.70**	.72**	-.25**	-.08**	-.06**	.06**	-.02	-.01	-.08**	-.06**	-.01	.03*	.23**	.03**	.00	-.01	

Note. HIHRS = high-investment human resource systems.
* $p < .05$. ** $p < .01$.

Table 3
Peer Companies' Role on the Change in Focal Company's High-Investment Human Resource Systems Use

Predictors	Model 1	Model 2
Industry level		
Industry growth	2.53 (7.72)	2.63 (7.17)
Industry dynamism	4.78 (3.64)	5.68 (3.18)
Industry concentration	-.05 (.10)	-.05 (.09)
Firm level		
Firm age	.00 (.00)	.00 (.00)
Within-firm level		
Time	-.05** (.00)	-.06** (.01)
Number of employees	.00 (.00)	.00 (.00)
Total assets	.00 (.00)	.00 (.00)
Unionization	.19** (.05)	.18** (.05)
Integrated strategy	.43** (.03)	.42** (.03)
Previous sales	-.00 (.00)	-.00 (.00)
Previous operating profit	.00 (.00)	.00 (.00)
Previous focal company's HIHRS use	-.11** (.01)	-.11** (.01)
Previous peer HIHRS use		.03** (.01)
Intercept	-3.51 (3.66)	-4.47 (3.20)
Pseudo R^2	.12	.12
AIC	26,524.02	26,519.89
BIC	26,636.70	26,639.60
Log likelihood	-13,246.01	-13,242.95
Likelihood ratio (df)		6.13* (1)
Sample size (Level 1/2/3)		(8,453/902/59)

Note. Unstandardized coefficients are shown in the table. Values in the parentheses are standard errors of the regression coefficients. HIHRS = high-investment human resource systems; AIC = Akaike information criterion; BIC = Bayesian information criterion.

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

Hypothesis Tests

Table 3 presents the results for Hypothesis 1. Model 1 in Table 3 included only the control variables at the three levels. The results showed that the three industry characteristics were not significantly related to the change in HIHRS use. However, unionization ($b = .19$, $SE = .05$, $p < .01$) and integrative strategy ($b = .43$, $SE = .03$, $p < .01$) were positively related to the change in focal company's HIHRS use. In addition, we found a negative relationship between time and the change in focal company's HIHRS use ($b = -.05$, $SE = .00$, $p < .01$), suggesting that the increase in focal company's HIHRS use becomes slower over time. Also, we found that previous year's HIHRS use was negatively related to the change in focal company's HIHRS use ($b = -.11$, $SE = .01$, $p < .01$). We proposed that the change in HIHRS use of a focal company is related to peer companies' use of HIHRS in the previous year (Hypothesis 1). Model 2 in Table 3 showed that previous year peer companies' HIHRS use had a significant and positive relationship with the change in HIHRS use of a focal company ($b = .03$, $SE = .01$, $p < .01$). Therefore, these results provide support for Hypothesis 1.

Hypothesis 2 predicted the moderating effects of peer companies' HIHRS use on the relationship between a focal company's HIHRS use and financial performance. As shown in Table 4, we tested the moderating effect of peer companies' HIHRS use for each of the two financial outcomes. As shown in Model 2, we found the significant moderating effects of peer companies' HIHRS use ($b = -48.93$, $SE = 10.55$, $p < .01$) on the relationship

Table 4
Peer Companies' Role on the Relationships Between Focal Company's High-Investment Human Resource Systems Use and Outcomes

Predictors	Sales growth			Profit growth			Employer certifications		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6			
Industry level									
Industry growth	70,232.18 (38,548.87)	66,604.55 (37,267.54)	-4,940.11 (17,727.26)	-6,213.05 (17,797.67)	6.23 (10.89)	8.82 (10.57)			
Industry dynamism	-11,509.49 (17,054.55)	-11,817.09 (15,841.64)	-11,495.41 (7,871.13)	-11,348.60 (7,892.65)	1.64 (5.47)	.60 (5.40)			
Industry concentration	-27.39 (501.98)	-116.98 (481.87)	-665.93** (230.88)	-692.76** (231.98)	-0.19 (.15)	-0.23 (.15)			
Firm level									
Firm age	-1.32 (1.51)	-1.05 (1.50)	-.84 (.69)	-.76 (.70)	.00** (.00)	.00* (.00)			
Within-firm level									
Time									
Number of employees	-143.44** (22.20)	-160.92** (30.47)	-47.11** (10.17)	-44.28** (14.32)	.02** (.00)	-.02** (.00)			
Total assets	8.81** (1.57)	8.79** (1.56)	4.51** (.72)	4.53** (.72)	.00** (.00)	.00** (.00)			
Unionization	.00 (.00)	.00 (.00)	.00** (.00)	.00** (.00)	.00** (.00)	.00** (.00)			
Integrated strategy	-699.69** (263.34)	-618.00* (264.25)	-124.75 (120.78)	-93.26 (121.69)	.14** (.03)	.06 (.03)			
Previous sales	-7.58 (153.94)	67.42 (169.11)	-26.57 (70.61)	.54 (77.98)	.26** (.02)	.12** (.02)			
Previous operating profit	-.01 (.00)	.00 (.00)	.00 (.00)	.00 (.00)	-.00 (.00)	-.00 (.00)			
Focal company's HIHRS use	.00 (.01)	.00 (.01)	-.03** (.01)	-.03** (.01)	.00** (.00)	.00** (.00)			
Peer HIHRS use	298.95** (71.73)	287.00** (76.36)	106.13** (33.10)	75.01** (35.60)	.03** (.01)	-.01 (.01)			
Focal Company's HIHRS Use × Peer HIHRS Use	-48.93** (10.55)	-48.93** (10.55)	-16.81** (4.87)	-16.81** (4.87)	.01** (.00)	.01** (.00)			
Intercept	12,957.44 (17,155.35)	11,784.24 (15,938.30)	12,357.09 (7,917.84)	11,764.87 (7,943.11)	-1.69 (5.51)	-.62 (5.44)			
Pseudo R ²	.02	.02	.02	.02	.60	.62			
AIC	152,951.00	152,935.50	141,189.30	141,182.80	13,966.95	13,518.42			
BIC	153,055.00	153,060.20	141,293.30	141,307.61	14,072.61	13,645.22			
Log likelihood	-76,460.50	-76,449.74	-70,579.65	-70,573.39	-6,968.47	-6,741.21			
Likelihood ratio (df)	21.52** (3)	21.52** (3)	12.51** (3)	12.51** (3)	454.53** (3)	454.53** (3)			
Sample size (Level 1/2/3)	(7,565/895/59)	(7,565/895/59)	(7,567/895/59)	(7,567/895/59)	(8,471/902/59)	(8,471/902/59)			

Note. Unstandardized coefficients are shown in the table. Values in the parentheses are standard errors of the regression coefficients. HIHRS = high-investment human resource systems; AIC = Akaike information criterion; BIC = Bayesian information criterion.
* p < .05. ** p < .01.

between a focal company's HIHRS use and sales growth. To help interpret the moderating effect, we drew a plot to show how the effect of a focal company's HIHRS use on sales growth changes as the peer companies' HIHRS use increases by using the online tool created by Preacher, Curran, and Bauer (2006). As presented in Figure 1, the effect of a focal company's HIHRS use on sales growth, indicated by the solid line, was significant and positive when peer companies' HIHRS use is low and the effect becomes less positive as peer HIHRS use increases. In fact, when peer HIHRS use is higher than 7 out of 13, HIHRS use in a focal company may have a significant and negative relationship with sales growth as shown by the dashed lines of 95% confidence intervals (CIs).

We found similar results for operating profit growth (see Model 4 in Table 4). There was a negative interaction between a focal company's HIHRS use and peer companies' HIHRS use on profit growth ($b = -16.81, SE = 4.87, p < .01$) beyond all other variables. Figure 2 shows that the relationship between a focal company's HIHRS use and profit growth is significantly positive when peer companies' HIHRS use is low and this positive relationship is weakened as peer companies' HIHRS use increases. The effect of a focal company's HIHRS use becomes significantly negative when peer HIHRS use is higher than 7 out of 13. These findings are consistent with those for sales growth, thus providing consistent support for our Hypothesis 2.

Hypothesis 3 was concerned with peer companies' role on the relationship between a focal company's HIHRS use and receiving employer certifications. Model 6 in Table 4 shows that peer companies' HIHRS use positively moderated the relationship between a focal company's HIHRS use and employer certifications ($b = .01, SE = .00, p < .01$), suggesting that the relationship tends to be more positive when peer companies' HIHRS use is high than when it is low. Figure 3 confirms this moderation pattern by showing that the positive effect of a focal company's HIHRS use on employer certifications is significant and becomes larger as peer companies' HIHRS increases. Therefore, the results also provide support for our Hypothesis 3.

Supplementary Analyses

To verify the findings we obtained by using linear mixed-effects model, we conducted a series of analyses by using the econometric

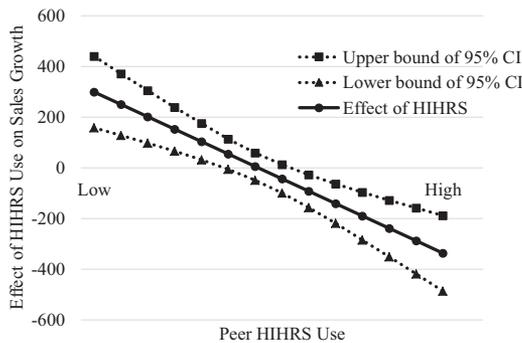


Figure 1. Peer companies' role on the relationship between a focal company's high-investment human resource systems (HIHRS) use and sales growth.

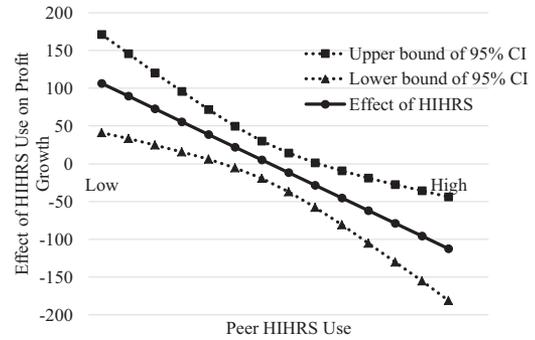


Figure 2. Peer companies' role on the relationship between a focal company's high-investment human resource systems (HIHRS) use and profit growth.

approach in *Stata 15*. As our data were a set of unbalanced panel data, we estimated the models using a panel linear regression with firm fixed effects to control for unobservable heterogeneity and calculated the robust standard errors in the analyses. The results (presented in Table 5) were generally consistent with our findings in the primary analyses. For example, we found that previous year's peer HIHRS use was positively related to the change in focal company's HIHRS use ($b = .06, SE = .03, p < .05$). Similarly, we found that peer companies' HIHRS use weakened the positive relationships between a focal company's HIHRS use and sales growth ($b = -51.03, SE = 17.69, p < .01$) and profit growth ($b = -16.41, SE = 6.37, p < .05$) but strengthened the positive relationship between a focal company's HIHRS use and employer certification ($b = .01, SE = .00, p < .01$). Taken together, the supplementary analyses demonstrated the robustness of our primary findings.

To further explore the causal influence of peer companies' HIHRS use on the adoption of HIHRS of a focal company, we assessed the dynamic relationships between a focal company's and peer companies' HIHRS use by using a hierarchical continuous time structural equation modeling (referred to as *ctsem* by Driver, Oud, & Voelkle, 2017), using the "ctsem" package in *R* program. The *ctsem* package can estimate relationships over time for multiple latent processes (e.g., peer HIHRS use's impact on a focal company's HIHRS use and a focal company's HIHRS use's impact on peer HIHRS use). Compared with other

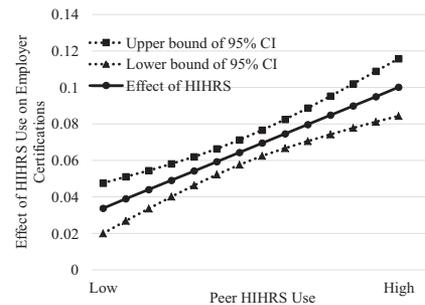


Figure 3. Peer companies' role on the relationship between a focal company's high-investment human resource systems (HIHRS) use and employer certifications.

Table 5
Supplementary Analyses by Using Fixed-Effect Panel Regressions

Variable	Model 1	Model 2	Model 3	Model 4
	HIHRS change	Sales growth	Profit growth	Employer certifications
Number of employees	0.00 (0.00)	40.85** (14.90)	18.30** (6.27)	0.00 (0.00)
Total asset	0.00 (0.00)	-0.01* (0.01)	0.00 (0.01)	0.00 (0.00)
Unionization	0.45** (0.11)	-654.15 (885.14)	102.67 (239.49)	0.06 (0.07)
Integrated strategy	0.50** (0.06)	168.69 (260.72)	-41.83 (131.66)	0.10** (0.03)
Previous sales	-0.00** (0.00)	-0.21** (0.07)	0.02 (0.02)	-0.00* (0.00)
Previous operating profit	0.00 (0.00)	0.07 (0.09)	-0.28** (0.05)	0.00* (0.00)
Previous focal company's HIHRS use	-0.40** (0.01)			
Previous peer HIHRS use	0.06* (0.03)			
Focal company's HIHRS use		-14.06 (36.76)	-38.51 (26.14)	0.05** (0.01)
Peer HIHRS use		116.47 (122.38)	-40.66 (62.11)	0.00 (0.02)
Focal Company's HIHRS Use × Peer HIHRS Use		-51.03** (17.69)	-16.41* (6.37)	0.01** (0.00)
Intercept	0.93** (0.11)	1,907.50** (517.50)	830.70** (283.58)	-0.18* (0.07)
Year dummies	Yes	Yes	Yes	Yes
Number of observations	8,453	7,565	7,567	8,471
R ²	.40	.09	.10	.13
Number of firms	902	895	895	902

Note. Unstandardized coefficients are shown in the table. Robust standard errors are in parentheses. HIHRS = high-investment human resource systems. * $p < .05$. ** $p < .01$.

dynamic models (e.g., cross lagged panel models), ctsem can assess processes operating continuously over time and does not assume time intervals between measurement occasions are equal (Driver et al., 2017). An essential strength of ctsem is that it can assess how change in one process may predict later change in a different process (i.e., cross-lagged effects) while accounting for other time dependent (e.g., total number of employees in this study) and time independent (e.g., firm age in this study) variables.

Table 6 presents the ctsem results in the analyses. The drift parameters of a focal company's HIHRS use on a focal company's HIHRS use and peer HIHRS use on peer HIHRS use denote the autoregression effects of the processes. To examine mutual effects of a focal company's HIHRS use and peer HIHRS use, we evaluated the drift matrix parameters representing the cross-lagged temporal effects. We found a positive impact of peer HIHRS use on a focal company's HIHRS use (mean effect = .21, $SD = .02$, 95% CI [.17, .25]), suggesting that peer HIHRS use had a positive impact on a focal company's HIHRS use over time. We also found

a positive impact of a focal company's HIHRS use on peer HIHRS use (mean effect = .02, $SD = .01$, 95% CI [.01, .03]). These findings suggest that a focal company's HIHRS use and peer HIHRS use have mutual impact with each other with peer HIHRS use having significantly stronger impact on a focal company's HIHRS use (as shown in Figure 4). To further understand the temporal relationships between a focal company's HIHRS use and peer HIHRS use, we also evaluated the diffusion matrix correlation parameters, which represent the extent to which the within-firm correlations in the random changes of a focal company's HIHRS use and peer HIHRS use may share common causes. The results supported that the random changes in the two variables over time may share some common causes (mean effect = .31, $SD = .01$, 95% CI [.29, .33]). Taken together, these findings provided support for our initial Hypothesis 1 about the relationship between a focal company's HIHRS use and peer companies' HIHRS use while suggesting mutual influence between a focal company and its peer companies in using HIHRS.

Table 6
Continuous Time Structural Equation Modeling Results of the Mutual Effects of a Focal Company's and Peer Companies' High-Investment Human Resource Systems Use

Parameter	Dependent process					
	Focal company's HIHRS use			Peer HIHRS use		
	Mean effect	SD	95% CI	Mean effect	SD	95% CI
Drift parameters						
Focal company's HIHRS use	-.32**	.01	[-.34, -.29]	.02**	.01	[.01, .03]
Peer HIHRS use	.21**	.02	[.17, .25]	-.20**	.01	[-.21, -.18]
Diffusion parameters						
Focal company's HIHRS use	1.25**	.01	[1.23, 1.27]			
Peer HIHRS use	.31**	.01	[.29, .33]	.70**	.01	[.69, .71]

Note. Unstandardized coefficients, standard errors, and 95% confidence intervals (CI) are shown in the table. HIHRS = high-investment human resource systems. ** $p < .01$.

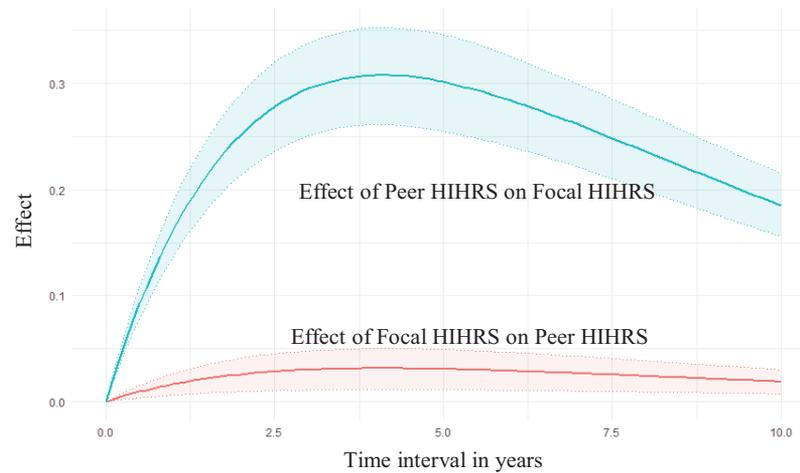


Figure 4. Mutual effects of a focal company's use and peer companies' use of high-investment human resource systems (HIHRS) over time. See the online article for the color version of this figure.

Discussion

This research draws upon the institutional theory to examine how peer companies are related to the adoption and the effects of HIHRS use of a focal company. Based on a sample of 912 publicly traded companies in U.S. stock market from 2002 to 2015, we found that companies adopt more HIHRS when the use of HIHRS is high in peer companies. In addition, we found that HIHRS use is more positively related to financial performance when the same type of HRM systems are rarely used in peer companies. In contrast, HIHRS use is more likely to make companies seek social recognitions when the adoption of HIHRS is prevalent in peer companies. With these findings in mind, we discuss theoretical contributions and managerial implications for the field of strategic HRM.

Theoretical Contributions

This study makes several contributions to strategic HRM research. First of all, our findings offer insights into the adoption of HRM systems in organizations. Previous research has primarily held the strategic-choice perspective to argue that the use of HRM systems is determined by business strategy and other characteristics of organizations (e.g., Arthur, 1992; Bae & Lawler, 2000; Chadwick et al., 2015). We complement this strategic-choice perspective by revealing that companies may invest in HRM systems as a response to institutional pressures. More specifically, we identify the use of HRM systems in peer companies as an important institutional factor of the use of HIHRS in a focal company after controlling for strategy, other organizational (e.g., size, age, and unionization) and industrial characteristics (e.g., growth, dynamism, and concentration), as well as the previous year's HIHRS of the focal company. This finding directly indicates that peer companies should be taken into account when a focal company adopts its HRM system, which has been suggested but not fully examined in the literature (e.g., Jackson & Schuler, 1995; Paauwe & Boselie, 2003; Wright & McMahan, 1992). These results suggest that taking the institutional environments into consideration

allows us to better understand why companies use certain types of HRM systems, which provides new insights into the adoption of HRM system.

The supplementary analyses further indicated that a focal company's HIHRS use and peer HIHRS use may be mutually related to one another with a stronger role played by peer HIHRS use on the focal company's HIHRS use. These findings suggest that the institutional influence is not just a one-way process but a two-way dynamic process in which companies in the same industry may affect and react to one another in terms of how they invest in human resources. Literature on adoption of innovative practices provides guidance on potential influence mechanisms (e.g., Terlaak & Gong, 2008). For instance, Young and colleagues (2001) found that public hospital adopted Total Quality Management (TQM), considered an innovative practice at the time, when the director had prior exposure to TQM at another hospital and when cumulative number of other hospitals in their network adopted TQM. Damanpour (1991) also found external communications such as environmental scanning and extraorganizational professional activities of members are the determinants of organizational innovation. Extending and adapting these ideas specifically to strategic HRM, Wright et al. (2011) argued that chief human resources officers (CHROs) play an active role in identifying and defining key competitors and ensure that their companies' use of HRM practices are consistent with the targeted competitors. CHROs may network to seek feedbacks and learn from each other. They may also serve on the board of directors of other companies to facilitate the diffusion of HRM practices (Shropshire, 2010). In addition, Paauwe and Boselie (2003) proposed that consulting firms may help translate the HRM practices used by early adopters to other competitors in the same industry. Moreover, Wright and Ulrich (2017) noted that several academic centers of HRM could help disseminate evidence-based knowledge to help firms perform more effectively. All of these provide possible explanations for how a focal company's HIHRS and peer HIHRS influence one another.

We also found that the changes of a focal company's HIHRS and peer HIHRS might share common causes, which could be attributed to institutional factors experienced by all companies in the same industry. For example, the institutional perspective suggests that companies face increasing coercive pressures to increase their investment in employees as a response to employment laws and regulations (Farndale & Paauwe, 2007; Paauwe & Boselie, 2003). Moreover, the increasing attention drawn by the best employer evaluations may strengthen the norms and values in terms of caring about employees, which may further encourage more companies to adopt HIHRS (Dineen & Allen, 2016; Fulmer et al., 2003). In addition, the professionalization of employee groups can also influence the use of HRM systems. According to the Society for Human Resource Management (SHRM), there has been an increase in the number of U.S. universities offering Bachelor's and Master's degrees in human resource management with more than 300 bachelor's degree programs and over 100 Master's degree programs by 2018. As the largest association for HR professional, SHRM has also grown rapidly in the past two decades. The number of SHRM members has increased from 90,000 in 1998 to more than 300,000 in 2019.⁷ Those educational programs and professional membership associations may emphasize the importance of human capital to HR professionals through formal education and training. HR professionals may in turn embed values of caring about employees into their companies by using HIHRS.

To explore specific mechanisms through which a focal company's HIHRS use is related to its peer companies' HIHRS use, we conducted qualitative interviews with six HR managers working in large firms in different industries (e.g., manufacturing, biological technology, logistics transportation, real estate, high-tech, and e-commerce).⁸ We asked them how peer companies can influence the use of HRM systems in their companies. The results of this interview are summarized in Table 7. The interviews affirmed and expanded the reasons mentioned in the literature. For example, the role of consulting firms was mentioned: "globally we changed to a new HR system three years ago with the help of an international consulting firm. The consulting firm has served multiple clients in the same industry and recommended several best practices used in our peer companies." In addition, professional network was also emphasized in the interviews: "I have joined several HR groups on LinkedIn. Those groups help me connect and exchange information about the key HR issues with HR leaders across industries and functions." Moreover, interviewees also mentioned other mechanisms such as professional development, industry associations, talent mobility, employer accreditation, and online resources. Even though our research based on archival data was not able to examine them directly, we encourage future research to build on our findings to examine the specific mechanisms through which a focal company's HRM system is related to its peer companies.

Moreover, our study is among the first to examine how the use of HRM systems in peer companies moderates the HRM-performance relationship. Specifically, the findings suggest that HIHRS use may not necessarily lead to enhanced financial performance and the effects depend on how the same type of HRM systems is adopted in peer companies. HIHRS use is more likely to reflect a company's true value on employees and align with its efficiency goals when peer companies have not adopted this type of HRM systems. As more peer companies adopt the same type of HRM systems, the use of this system may be taken for granted and

its positive effects on financial performance will be weakened (Paauwe & Boselie, 2003). Our findings are also consistent with the resource-based view of the firm (Barney, 1991), which suggests that valuable, rare, inimitable, and nonsubstitutable resources can provide sources of sustainable competitive advantages. Although strategic HRM research has largely drawn upon the resource-based view to understand the effects of HRM systems on performance outcomes, our results provide empirical support for this theoretical perspective by showing that HIHRS is more likely to serve as a competitive advantage and contribute to financial growth when it is rare in peer companies.

We also extend the strategic HRM literature by examining peer companies' moderating effect on the relationship between HRM systems and legitimacy outcomes. Although prior research has primarily examined the HRM-financial performance relationship, the relationship between HRM systems and legitimacy outcomes remains largely unexplored (Boon et al., 2009; Farndale & Paauwe, 2007). Different from its moderating effect on the HRM-financial performance relationship, peer companies' adoption of HIHRS makes it more legitimate for a focal company to invest in this employee-centered HRM system and gain social recognition for its investment. The results are consistent with the institutional perspective that illustrates companies are motivated to gain social legitimacy defined by strong external norms (e.g., DiMaggio & Powell, 1983; Westphal et al., 1997). The different moderating effects of peer companies' HIHRS use also suggest that companies may not achieve financial goals and social legitimacy simultaneously and the effects of HIHRS use on the two types of organizational outcomes are dependent on the institutional context created by peer companies' investment in HIHRS. Overall, these results contribute to the contingency perspective of strategic HRM research and identify peer companies' HRM systems as an important boundary condition for the relationships between HRM systems and organizational outcomes.

Managerial Implications

Findings of this study have important practical implications. First, our results help managers understand companies' decision on investing HRM systems. Prior research has suggested that companies design HRM systems based on their business strategies or CEOs values. We examined the influence of peer companies and argued that companies may experience institutional pressures from their peers to invest in their HRM systems. The results remind the managers that the adoption of HRM systems may not only result from rational strategic decision-making processes. Companies need also consider HRM systems used in their peer companies when using their own HRM systems.

Second, our findings offer implications of when companies can gain more return from their investment in HRM systems by considering peer companies' situations. The results indicate that companies cannot assume more investment in human resources can necessarily enhance financial performance. In fact, companies

⁷ Derived from <https://www.shrm.org/about-shrm/pages/membership.aspx> in February 2020.

⁸ The data collection was approved by the institutional review board (IRB# 2020E0459: Exploring the Peer Effects on the Adoption of Human Resource Management Systems) at The Ohio State University.

Table 7
Interview Data From HR Managers

Mechanisms	Sample interview notes
Consulting firms	<p>“Globally we changed to a new HR system three years ago with the help of an international consulting firm. The consulting firm has served multiple clients in the same industry and recommended several best practices used in our peer companies.”</p> <p>“We regularly invite management consultants to provide training on new HRM practices used in peer companies. And I know that they will also share our case with other companies”</p>
Professional network	<p>“I have joined several HR groups on LinkedIn. Those groups help me connect and exchange information about the key HR issues with HR leaders across industries and functions.”</p> <p>“My company sponsors me to attend up to two HR conferences each year. I can not only build professional connections, but also learn the bold and bright ideas and best practices in the HR field.”</p>
Professional education and development	<p>“We encourage HR employees to develop their professional competencies by pursuing professional degrees or certifications. We believe this investment can help our HRM systems stay ahead of the curve.”</p> <p>“Our firm formed a partnership with a local university to offer line managers weekend classes about HRM. The lecturers shared many examples of how peer companies or companies in other industries use HRM systems to manage employees.”</p>
Industry associations	<p>“Our firm is a member of an industry association, which is dedicated to help real estate organizations to solve business challenges and achieve financial growth. The association publishes annual industry report to provide insights into the best practices based on real-world results. It provides a great source to know the use of HRM systems and other management practices in peer companies.”</p>
Talent mobility	<p>“Last year we hired a compensation and benefit manager who used to work in another firm in the same industry. He has recently convinced our top management team to implement employee stock ownership plan, which had been proven to be successful in his previous firm.”</p>
Employer accreditation	<p>“Our firm has been certified as one of the most popular companies for recent graduates in the past few years. I feel that applying for those best employer certifications not only enhances firm reputation but also provides opportunities to learn from peer companies.”</p>
Online resources	<p>“We can easily find online resources about how HRM practices or systems are used in other companies. For example, I am a subscriber of Flipboard and receive daily stories and trends about the topic of HRM. I have also watched several free webinars about people management during a crisis in the past few weeks. I believe that more online resources will be available, which will influence my HR decisions in the future.”</p> <p>“I take a quick view of several management magazines, such as Harvard Business Review, Human Capital Magazine, and Fast Company. Even though they will not directly tell you how your competitors are doing in terms of HRM, they often share studies or cases about popular practices that are used in successful companies.”</p>

Note. HR = human resources; HRM = human resource management.

need to consider their peer companies' use of HIHRS when making decisions on the adoption of HRM systems. Companies are more likely to gain financial benefit from their investment in HRM systems when the use of the HRM systems is low among the peer companies. For example, at a low level of peer HIHRS (i.e., 1 *SD* below the mean), the simple slope of sales growth on the adoption of HIHRS in a focal company is 93.93, suggesting that adopting one more high-investment human resource practice is associated with 93.93 million dollars increase in sales growth while holding all other variables constant. However, as the use of HIHRS in peer companies increases and reach a saturation point, the positive relationship between HIHRS and financial performance growth of a focal company will become nonsignificant or even negative. In this scenario, managers need to be cautious about continuing to invest in HIHRS because these practices may be viewed as “business as usual” (Pauwue & Boselie, 2003, p. 62) and less likely to serve as a competitive advantage of companies. Companies can reevaluate the utility of using current HRM systems. They can consider whether they should reinvent their HRM systems to fit their business strategies and employee needs rather than using HRM systems that have already been adopted by their peers.

In addition, we found that companies investing in HIHRS tend to receive social recognition as best employers and this relationship is more significant when the use of HIHRS becomes prevalent in the industry. These findings suggest that companies may carefully consider whether they seek social recognitions depending on

their investment and their peer companies' investment in HIHRS. When the use of HIHRS is high in peer companies, a focal company's investment in HIHRS would be consistent with the industry norm and thus be considered desirable and appropriate. A focal company with low HIHRS may be labeled outdated or irresponsible, which may significantly reduce its chance of being recognized. In contrast, when the use of HIHRS is low in peer companies, a focal company's investment in this type of HRM systems may be less necessary or less valued because there is low expectation of using HIHRS from the external environment.

We also want to note that companies may not achieve their financial and legitimacy outcomes at the same time through HIHRS, especially when the use of HIHRS in peer companies is high. It is possible that receiving recognitions as best employers can help retain employees and attract applicants (Dineen & Allen, 2016). However, companies need to evaluate the performance effects of legitimacy outcomes and consider how to balance their performance and legitimacy goals by using their peer companies as a reference to design their own HRM systems.

Limitations and Future Directions

Despite the theoretical contributions and practical implications of this study, a few limitations should be noted when interpreting our findings. First, we used a sample of publicly listed companies in U.S. stock market, which may limit the generalizability of our

findings. Previous research has suggested that small firms may face different pressures and barriers in adopting HRM systems (e.g., Williamson, Cable, & Aldrich, 2002) and HRM systems may also play a different role in affecting performance of small business (e.g., Chadwick et al., 2013). Therefore, future research needs to examine whether our findings can be generalized to small and medium-sized enterprises.

Second, the present study focused on HIHRS use, which are related to but could be different from the widely studied high-performance work systems. HIHRS reflects companies' responsibility to their employees and may have more ethical consequences for companies (Guest, 2017). As a result, companies may face more institutional pressures to adopt HIHRS to deal with ethical concerns than to achieve other goals. Even though scholars have suggested that the institutional theory can be applied to explain the adoption and effects of HRM systems in general (e.g., Jackson & Schuler, 1995; Paauwe & Boselie, 2003; Wright & McMahan, 1992), we encourage more empirical work on other types of HRM systems in the future.

Third, our measure of HIHRS use included 13 binary items. Even though we attempted to demonstrate the validity of this measure by relating it to Glassdoor company review ratings and to well-established scales, this measure could not reflect how well specific HRM practices and programs are implemented at the organizational level. We would expect more variation in the use of HIHRS if future research can measure it on a continuous scale.

Fourth, when proposing the relationship between HIHRS and financial performance, we argued that this relationship can be mediated by employee outcomes. However, our archival data cannot directly test the mediating mechanisms. We encourage future research to combine the different research designs to better understand how peer companies moderate the relationships between HRM systems and financial performance through employee outcomes.

Fifth, we examined the number of employer certifications received by a company as a legitimacy outcome. This measure is limited in two aspects. First, our data set only reported whether or not a company received several major employer certifications in a given year. This measure could not reflect the variance within the various certification rankings. Second, organizational legitimacy can also be reflected in other ways, such as organizational compliance with regulations and coverage in media outlets (Vergne, 2011). We encourage future research to use more valid measures to verify the findings of this study.

Finally, our sample involved the time period from 2002 to 2015. It is likely that the adoption and the effects of HIHRS may exhibit different patterns after 2015. We expect future research to verify our findings when more data become available.

Conclusion

Although HRM systems have been considered a strategic means to help companies achieve competitive advantages, our knowledge of how peer companies' role in the adoption and the effects of HRM systems is limited. Our findings represent an important step toward advancing our understanding of these questions. We found support for the positive influence of peer companies' HIHRS use on a focal company's adoption of HIHRS. We also examined how peer companies' HRM systems use serve as a boundary condition

for the relationships between a focal company's HRM systems use and both financial performance and legitimacy outcomes. Our findings extend the strategic HRM literature by emphasizing the role of peer companies and provide useful implications for practitioners to achieve different organizational goals by responding to peer companies' HRM systems use.

References

- Aguinis, H., Gottfredson, R. K., & Culpepper, S. A. (2013). Best-practice recommendations for estimating cross-level interaction effects using multilevel modeling. *Journal of Management*, *39*, 1490–1528. <http://dx.doi.org/10.1177/0149206313478188>
- Arthur, J. B. (1992). The link between business strategy and industrial relations systems in American steel minimills. *Industrial & Labor Relations Review*, *45*, 488–506. <http://dx.doi.org/10.1177/001979399204500306>
- Bae, J., & Lawler, J. J. (2000). Organizational and HRM strategies in Korea: Impact on firm performance in an emerging economy. *Academy of Management Journal*, *43*, 502–517.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*, 99–120. <http://dx.doi.org/10.1177/014920639101700108>
- Basto, M., & Pereira, J. M. (2012). An SPSS R-menu for ordinal factor analysis. *Journal of Statistical Software*, *46*, 1–29. <http://dx.doi.org/10.18637/jss.v046.i04>
- Becker, B., & Huselid, M. (1998). High performance work systems and firm performance: A synthesis of research and managerial implications. In G. R. Ferris (Ed.), *Research in personnel and human resources management* (Vol. 16, pp. 53–101). Stamford, CT: JAI Press.
- Bentley, F. S., & Kehoe, R. R. (2020). Give them some slack—they're trying to change! The benefits of excess cash, excess employees, and increased human capital in the strategic change context. *Academy of Management Journal*, *63*, 181–204. <http://dx.doi.org/10.5465/amj.2018.0272>
- Bhimani, A., Silvola, H., & Sivabalan, P. (2016). Voluntary corporate social responsibility reporting: A study of early and late reporter motivations and outcomes. *Journal of Management Accounting Research*, *28*, 77–101. <http://dx.doi.org/10.2308/jmar-51440>
- Bizjak, J., Lemmon, M., & Nguyen, T. (2011). Are all CEOs above average? An empirical analysis of compensation peer groups and pay design. *Journal of Financial Economics*, *100*, 538–555. <http://dx.doi.org/10.1016/j.jfineco.2011.02.007>
- Blau, P. (1964). *Exchange and power in social life*. New York, NY: Wiley.
- Bliese, P. D., & Ployhart, R. E. (2002). Growth modeling using random coefficient models: Model building, testing, and illustrations. *Organizational Research Methods*, *5*, 362–387. <http://dx.doi.org/10.1177/109442802237116>
- Bliese, P. D., Schepker, D. J., Essman, S. M., & Ployhart, R. E. (2020). Bridging methodological divides between macro-and microresearch: Endogeneity and methods for panel data. *Journal of Management*, *46*, 70–99. <http://dx.doi.org/10.1177/0149206319868016>
- Boon, C., Den Hartog, D. N., & Lepak, D. P. (2019). A systematic review of human resource management systems and their measurement. *Journal of Management*, *45*, 2498–2537. <http://dx.doi.org/10.1177/0149206318818718>
- Boon, C., Paauwe, J., Boselie, P., & Den Hartog, D. (2009). Institutional pressures and HRM: Developing institutional fit. *Personnel Review*, *38*, 492–508. <http://dx.doi.org/10.1108/00483480910978018>
- Bursztyn, L., Ederer, F., Ferman, B., & Yuchtman, N. (2014). Understanding mechanisms underlying peer effects: Evidence from a field experiment on financial decisions. *Econometrica*, *82*, 1273–1301. <http://dx.doi.org/10.3982/ECTA11991>
- Cammann, C., Fichman, M., Jenkins, G. D., & Klesh, J. (1983). Michigan

- Organizational Assessment Questionnaire. In S. E. Seashore, E. E. Lawler, P. H. Mirvis, & C. Cammann (Eds.), *Assessing organizational change: A guide to methods, measures, and practices* (pp. 71–138). New York, NY: John Wiley & Sons Inc.
- Campbell, J. L. (2007). Why would corporations behave in socially responsible ways? An institutional theory of corporate social responsibility. *The Academy of Management Review*, *32*, 946–967. <http://dx.doi.org/10.5465/amr.2007.25275684>
- Chadwick, C., Super, J. F., & Kwon, K. (2015). Resource orchestration in practice: CEO emphasis on SHRM, commitment-based HR systems, and firm performance. *Strategic Management Journal*, *36*, 360–376. <http://dx.doi.org/10.1002/smj.2217>
- Chadwick, C., Way, S. A., Kerr, G., & Thacker, J. W. (2013). Boundary conditions of the high-investment human resource systems-small-firm labor productivity relationship. *Personnel Psychology*, *66*, 311–343. <http://dx.doi.org/10.1111/peps.12015>
- Chuang, C. H., & Liao, H. (2010). Strategic human resource management in service context: Taking care of business by taking care of employees and customers. *Personnel Psychology*, *63*, 153–196. <http://dx.doi.org/10.1111/j.1744-6570.2009.01165.x>
- Collins, C. J., & Kehoe, R. (2017). Examining strategic fit and misfit in the management of knowledge workers. *Industrial & Labor Relations Review*, *70*, 308–335. <http://dx.doi.org/10.1177/0019793916654481>
- Collins, C. J., & Smith, K. G. (2006). Knowledge exchange and combination: The role of human resource practices in the performance of high-technology firms. *Academy of Management Journal*, *49*, 544–560. <http://dx.doi.org/10.5465/amj.2006.21794671>
- Combs, J., Liu, Y., Hall, A., & Ketchen, D. (2006). How much do high-performance work practices matter? A meta-analysis of their effects on organizational performance. *Personnel Psychology*, *59*, 501–528. <http://dx.doi.org/10.1111/j.1744-6570.2006.00045.x>
- Damanpour, F. (1991). Organizational innovation: A meta-analysis of effects of determinants and moderators. *Academy of Management Journal*, *34*, 555–590. <http://dx.doi.org/10.5465/256406>
- Datta, D. K., Guthrie, J. P., & Wright, P. M. (2005). Human resource management and labor productivity: Does industry matter? *Academy of Management Journal*, *48*, 135–145. <http://dx.doi.org/10.5465/amj.2005.15993158>
- Deephouse, D. L. (1996). Does isomorphism legitimate? *Academy of Management Journal*, *39*, 1024–1039. <http://dx.doi.org/10.5465/256722>
- Dess, G. G., & Beard, D. W. (1984). Dimensions of organizational task environments. *Administrative Science Quarterly*, *29*, 52–73. <http://dx.doi.org/10.2307/2393080>
- DiMaggio, P., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, *48*, 147–160. <http://dx.doi.org/10.2307/2095101>
- Dineen, B. R., & Allen, D. G. (2016). Third party employment branding: Human capital inflows and outflows following “Best Places to Work” certifications. *Academy of Management Journal*, *59*, 90–112. <http://dx.doi.org/10.5465/amj.2013.1091>
- Doucoulagos, C., & Laroche, P. (2003). What do unions do to productivity? A meta-analysis. *Industrial Relations*, *42*, 650–691. <http://dx.doi.org/10.1111/1468-232X.00310>
- Driver, C. C., Oud, J. H., & Voelkle, M. C. (2017). Continuous time structural equation modeling with R package ctsem. *Journal of Statistical Software*, *77*, 1–35. <http://dx.doi.org/10.18637/jss.v077.i05>
- Dyer, L., & Reeves, T. (1995). Human resource strategies and firm performance: What do we know and where do we need to go? *International Journal of Human Resource Management*, *6*, 656–670. <http://dx.doi.org/10.1080/09585199500000041>
- Evans, W. R., & Davis, W. D. (2005). High-performance work systems and organizational performance: The mediating role of internal social structure. *Journal of Management*, *31*, 758–775. <http://dx.doi.org/10.1177/0149206305279370>
- Farndale, E., & Paauwe, J. (2007). Uncovering competitive and institutional drivers of HRM practices in multinational corporations. *Human Resource Management Journal*, *17*, 355–375. <http://dx.doi.org/10.1111/j.1748-8583.2007.00050.x>
- Fiengenbaum, A., & Thomas, H. (1995). Strategic groups as reference groups: Theory, modeling and empirical examination of industry and competitive strategy. *Strategic Management Journal*, *16*, 461–476. <http://dx.doi.org/10.1002/smj.4250160605>
- Finkelstein, S., & Hambrick, D. C. (1990). Top-management-team tenure and organizational outcomes: The moderating role of managerial discretion. *Administrative Science Quarterly*, *35*, 484–503. <http://dx.doi.org/10.2307/2393314>
- Finkle, T. A. (2012). Note to instructors for corporate entrepreneurship and innovation in Silicon valley: The case of Google, Inc. *Entrepreneurship Theory and Practice*, *36*, 885–887.
- Fligstein, N. (1985). The spread of the multidivisional form among large firms, 1919–1979. *American Sociological Review*, *50*, 377–391. <http://dx.doi.org/10.2307/2095547>
- Fremeth, A. R., & Shaver, J. M. (2014). Strategic rationale for responding to extra-jurisdictional regulation: Evidence from firm adoption of renewable power in the U.S. *Strategic Management Journal*, *35*, 629–651. <http://dx.doi.org/10.1002/smj.2118>
- Fulmer, I. S., Gerhart, B., & Scott, K. S. (2003). Are the 100 best better? An empirical investigation of the relationship between being a “great place to work” and firm performance. *Personnel Psychology*, *56*, 965–993. <http://dx.doi.org/10.1111/j.1744-6570.2003.tb00246.x>
- George, G., Dahlander, L., Graffin, S. D., & Sim, S. (2016). Reputation and status: Expanding the role of social evaluations in management research. *Academy of Management Journal*, *59*, 1–13. <http://dx.doi.org/10.5465/amj.2016.4001>
- Gillett, R. (2018). *Free food may become a thing of the past in Silicon Valley—but there are plenty of other incredible perks companies like Facebook and Google offer their employees*. Retrieved from <https://www.businessinsider.com/incredible-perks-companies-like-airbnb-facebook-and-google-offer-their-employees-2016-2>
- Gong, Y., Law, K. S., Chang, S., & Xin, K. R. (2009). Human resources management and firm performance: The differential role of managerial affective and continuance commitment. *Journal of Applied Psychology*, *94*, 263–275. <http://dx.doi.org/10.1037/a0013116>
- Guest, D. E. (1997). Human resource management and performance: A review and research agenda. *International Journal of Human Resource Management*, *8*, 263–276. <http://dx.doi.org/10.1080/095851997341630>
- Guest, D. E. (2017). Human resource management and employee well-being: Towards a new analytic framework. *Human Resource Management Journal*, *27*, 22–38. <http://dx.doi.org/10.1111/1748-8583.12139>
- Gupta, A., Briscoe, F., & Hambrick, D. C. (2017). Red, blue, and purple firms: Organizational political ideology and corporate social responsibility. *Strategic Management Journal*, *38*, 1018–1040. <http://dx.doi.org/10.1002/smj.2550>
- Gupta, A., & Misangyi, V. F. (2018). Follow the leader (or not): The influence of peer CEOs’ characteristics on interorganizational imitation. *Strategic Management Journal*, *39*, 1437–1472. <http://dx.doi.org/10.1002/smj.2765>
- Guthrie, J. P. (2001). High-involvement work practices, turnover, and productivity: Evidence from New Zealand. *Academy of Management Journal*, *44*, 180–190. <http://dx.doi.org/10.5465/3069345>
- Haunschild, P. R., & Miner, A. S. (1997). Modes of interorganizational imitation: The effects of outcome salience and uncertainty. *Administrative Science Quarterly*, *42*, 472–500. <http://dx.doi.org/10.2307/2393735>
- Huselid, M. A. (1995). The impact of human resource management practices on turnover, productivity, and corporate financial performance.

- Academy of Management Journal*, 38, 635–672. <http://dx.doi.org/10.5465/256741>
- Ingram, P., & Simons, T. (1995). Institutional and resource dependence determinants of responsiveness to work-family issues. *Academy of Management Journal*, 38, 1466–1482. <http://dx.doi.org/10.5465/256866>
- Jackson, S. E., & Schuler, R. S. (1995). Understanding human resource management in the context of organizations and their environments. *Annual Review of Psychology*, 46, 237–264. <http://dx.doi.org/10.1146/annurev.ps.46.020195.001321>
- Jackson, S. E., Schuler, R. S., & Jiang, K. (2014). An aspirational framework for strategic human resource management. *The Academy of Management Annals*, 8, 1–56. <http://dx.doi.org/10.5465/19416520.2014.872335>
- Jacobs, B. W., Swink, M., & Linderman, K. (2015). Performance effects of early and late six sigma adoptions. *Journal of Operations Management*, 36, 244–257. <http://dx.doi.org/10.1016/j.jom.2015.01.002>
- Jiang, K., Chuang, C. H., & Chiao, Y. C. (2015). Developing collective customer knowledge and service climate: The interaction between service-oriented high-performance work systems and service leadership. *Journal of Applied Psychology*, 100, 1089–1106. <http://dx.doi.org/10.1037/apl0000005>
- Jiang, K., Lepak, D. P., Hu, J., & Baer, J. C. (2012). How does human resource management influence organizational outcomes? A meta-analytic investigation of mediating mechanisms. *Academy of Management Journal*, 55, 1264–1294. <http://dx.doi.org/10.5465/amj.2011.0088>
- Kehoe, R. R., & Collins, C. J. (2017). Human resource management and unit performance in knowledge-intensive work. *Journal of Applied Psychology*, 102, 1222–1236. <http://dx.doi.org/10.1037/apl0000216>
- Kennedy, M. T., & Fiss, P. C. (2009). Institutionalization, framing, and diffusion: The logic of TQM adoption and implementation decisions among U.S. hospitals. *Academy of Management Journal*, 52, 897–918. <http://dx.doi.org/10.5465/amj.2009.44633062>
- Kim, Y., & Ployhart, R. E. (2014). The effects of staffing and training on firm productivity and profit growth before, during, and after the Great Recession. *Journal of Applied Psychology*, 99, 361–389. <http://dx.doi.org/10.1037/a0035408>
- Kim, Y., & Ployhart, R. E. (2018). The strategic value of selection practices: Antecedents and consequences of firm-level selection practice usage. *Academy of Management Journal*, 61, 46–66. <http://dx.doi.org/10.5465/amj.2015.0811>
- Kochan, T., Katz, H., & McKersie, R. (1986). *The transformation of American industrial relations*. New York, NY: Basic Books.
- Kochan, T. A., & Osterman, P. (1994). *The mutual gains enterprise: Setting the agenda for workplace innovation*. Cambridge, MA: Harvard Business School Press.
- Kuusela, P., Keil, T., & Maula, M. (2017). Driven by aspirations, but in what direction? Performance shortfalls, slack resources, and resource-consuming vs. resource-freeing organizational change. *Strategic Management Journal*, 38, 1101–1120. <http://dx.doi.org/10.1002/smj.2544>
- Leary, M. T., & Roberts, M. R. (2014). Do peer firms affect corporate financial policy? *The Journal of Finance*, 69, 139–178. <http://dx.doi.org/10.1111/jofi.12094>
- Lee, K., & Pennings, J. M. (2002). Mimicry and the market: Adoption of a new organizational form. *Academy of Management Journal*, 45, 144–162. <http://dx.doi.org/10.5465/3069289>
- Lepak, D. P., Liao, H., Chung, Y., & Harden, E. E. (2006). A conceptual review of human resource management systems in strategic human resource management research. In J. J. Martocchio (Ed.), *Research in personnel and human resources management* (Vol. 25, pp. 217–271). West Yorkshire, UK: Emerald Group Publishing Limited. [http://dx.doi.org/10.1016/S0742-7301\(06\)25006-0](http://dx.doi.org/10.1016/S0742-7301(06)25006-0)
- Lepak, D. P., & Snell, S. A. (2002). Examining the human resource architecture: The relationships among human capital, employment, and human resource configurations. *Journal of Management*, 28, 517–543. <http://dx.doi.org/10.1177/014920630202800403>
- Lepak, D. P., Taylor, M. S., Tekleab, A. G., Marrone, J. A., & Cohen, D. J. (2007). An examination of the use of high-investment human resource systems for core and support employees. *Human Resource Management*, 46, 223–246. <http://dx.doi.org/10.1002/hrm.20158>
- Lieberman, M. B., & Asaba, S. (2006). Why do firms imitate each other? *The Academy of Management Review*, 31, 366–385. <http://dx.doi.org/10.5465/amr.2006.20208686>
- Lievens, F., & Slaughter, J. E. (2016). Employer image and employer branding: What we know and what we need to know. *Annual Review of Organizational Psychology and Organizational Behavior*, 3, 407–440. <http://dx.doi.org/10.1146/annurev-orgpsych-041015-062501>
- Liu, W., Guthrie, J. P., Flood, P. C., & MacCurtain, S. (2009). Unions and the adoption of high performance work systems: Does employment security play a role? *Industrial & Labor Relations Review*, 63, 109–127. <http://dx.doi.org/10.1177/001979390906300106>
- Love, L. F., & Singh, P. (2011). Workplace branding: Leveraging human resources management practices for competitive advantage through “best employer” surveys. *Journal of Business and Psychology*, 26, 175–181. <http://dx.doi.org/10.1007/s10869-011-9226-5>
- March, J. G. (1981). Footnotes to organizational change. *Administrative Science Quarterly*, 26, 563–577. <http://dx.doi.org/10.2307/2392340>
- McFarland, L. A., & Ployhart, R. E. (2015). Social media: A contextual framework to guide research and practice. *Journal of Applied Psychology*, 100, 1653–1677. <http://dx.doi.org/10.1037/a0039244>
- Messersmith, J. G., Patel, P. C., Lepak, D. P., & Gould-Williams, J. (2011). Unlocking the black box: Exploring the link between high-performance work systems and performance. *Journal of Applied Psychology*, 96, 1105–1118. <http://dx.doi.org/10.1037/a0024710>
- Meyer, J. P., Allen, N. J., & Smith, C. A. (1993). Commitment to organizations and occupations: Extension and test of a three-component conceptualization. *Journal of Applied Psychology*, 78, 538–551. <http://dx.doi.org/10.1037/0021-9010.78.4.538>
- Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, 83, 340–363. <http://dx.doi.org/10.1086/226550>
- Meyer, J. W., & Scott, W. R. (1992). *Organizational environments: Ritual and rationality*. Atlanta, GA: Sage.
- Nishii, L. H., Lepak, D. P., & Schneider, B. (2008). Employee attributions of the “why” of HR practices: Their effects on employee attitudes and behaviors, and customer satisfaction. *Personnel Psychology*, 61, 503–545. <http://dx.doi.org/10.1111/j.1744-6570.2008.00121.x>
- Oliver, C. (1991). Strategic responses to institutional processes. *Academy of Management Review*, 16, 145–179. <http://dx.doi.org/10.5465/amr.1991.4279002>
- O’Reilly, C. A., III, Chatman, J., & Caldwell, D. F. (1991). People and organizational culture: A profile comparison approach to assessing person-organization fit. *Academy of Management Journal*, 34, 487–516.
- Paaue, J., & Boselie, P. (2003). Challenging ‘strategic HRM’ and the relevance of the institutional setting. *Human Resource Management Journal*, 13, 56–70. <http://dx.doi.org/10.1111/j.1748-8583.2003.tb00098.x>
- Palmer, D. A., Jennings, P. D., & Zhou, X. (1993). Late adoption of the multidivisional form by large U.S. corporations: Institutional, political, and economic accounts. *Administrative Science Quarterly*, 38, 100–131. <http://dx.doi.org/10.2307/2393256>
- Patel, P. C., Messersmith, J. G., & Lepak, D. P. (2013). Walking the tightrope: An assessment of the relationship between high-performance work systems and organizational ambidexterity. *Academy of Management Journal*, 56, 1420–1442. <http://dx.doi.org/10.5465/amj.2011.0255>
- Ployhart, R. E., Holtz, B. C., & Bliese, P. D. (2002). Longitudinal data analysis: Applications of random coefficient modeling to leadership

- research. *The Leadership Quarterly*, 13, 455–486. [http://dx.doi.org/10.1016/S1048-9843\(02\)00122-4](http://dx.doi.org/10.1016/S1048-9843(02)00122-4)
- Posthuma, R. A., Campion, M. C., Masimova, M., & Campion, M. A. (2013). A high performance work practices taxonomy: Integrating the literature and directing future research. *Journal of Management*, 39, 1184–1220. <http://dx.doi.org/10.1177/0149206313478184>
- Preacher, K. J., Curran, P. J., & Bauer, D. J. (2006). Computational tools for probing interactions in multiple linear regression, multilevel modeling, and latent curve analysis. *Journal of Educational and Behavioral Statistics*, 31, 437–448. <http://dx.doi.org/10.3102/10769986031004437>
- Scott, W. R. (1987). The adolescence of institutional theory. *Administrative Science Quarterly*, 32, 493–511. <http://dx.doi.org/10.2307/2392880>
- Scott, W. R., & Meyer, J. W. (1994). *Institutional environments and organizations: Structural complexity and individualism*. Atlanta, GA: Sage.
- Shaw, J. D., Dineen, B. R., Fang, R., & Vellella, R. F. (2009). Employee-organization exchange relationships, HRM practices, and quit rates of good and poor performers. *Academy of Management Journal*, 52, 1016–1033. <http://dx.doi.org/10.5465/amj.2009.44635525>
- Shin, D., & Konrad, A. M. (2017). Causality between high-performance work systems and organizational performance. *Journal of Management*, 43, 973–997. <http://dx.doi.org/10.1177/0149206314544746>
- Shropshire, C. (2010). The role of the interlocking director and board receptivity in the diffusion of practices. *The Academy of Management Review*, 35, 246–264. <http://dx.doi.org/10.5465/amr.35.2.zok246>
- Subramony, M. (2009). A meta-analytic investigation of the relationship between HRM bundles and firm performance. *Human Resource Management*, 48, 745–768. <http://dx.doi.org/10.1002/hrm.20315>
- Takeuchi, R., Lepak, D. P., Wang, H., & Takeuchi, K. (2007). An empirical examination of the mechanisms mediating between high-performance work systems and the performance of Japanese organizations. *Journal of Applied Psychology*, 92, 1069–1083. <http://dx.doi.org/10.1037/0021-9010.92.4.1069>
- Terlaak, A., & Gong, Y. (2008). Vicarious learning and inferential accuracy in adoption processes. *The Academy of Management Review*, 33, 846–868. <http://dx.doi.org/10.5465/amr.2008.34421979>
- Thomson Reuters. (2019). *Thomson Reuters ESG scores*. Retrieved from <https://www.refinitiv.com/content/dam/gl/en/documents/methodology/esg-scores-methodology.pdf>
- Tolbert, P. S., & Zucker, L. G. (1983). Institutional sources of change in the formal structure of organizations: The diffusion of civil service reform, 1880–1935. *Administrative Science Quarterly*, 28, 22–39. <http://dx.doi.org/10.2307/2392383>
- Tsui, A. S., Pearce, J. L., Porter, L. W., & Hite, J. P. (1995). Choice of employee-organization relationship: Influence of external and internal organizational factors. In G. R. Ferris (Ed.), *Research in personnel and human resource management* (Vol. 13, pp. 117–151). Stamford, CT: JAI Press.
- Tsui, A. S., Pearce, J. L., Porter, L. W., & Tripoli, A. M. (1997). Alternative approaches to the employee-organization relationship: Does investment in employees pay off? *Academy of Management Journal*, 40, 1089–1121. <http://dx.doi.org/10.5465/256928>
- Van De Voorde, K., Paauwe, J., & Van Veldhoven, M. (2012). Employee well-being and the HRM–organizational performance relationship: A review of quantitative studies. *International Journal of Management Reviews*, 14, 391–407. <http://dx.doi.org/10.1111/j.1468-2370.2011.00322.x>
- Vergne, J. P. (2011). Toward a new measure of organizational legitimacy: Method, validation, and illustration. *Organizational Research Methods*, 14, 484–502. <http://dx.doi.org/10.1177/1094428109359811>
- Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, 5, 171–180. <http://dx.doi.org/10.1002/smj.4250050207>
- Westphal, J. D., Gulati, R., & Shortell, S. M. (1997). Customization or conformity? An institutional and network perspective on the content and consequences of TQM adoption. *Administrative Science Quarterly*, 42, 366–394. <http://dx.doi.org/10.2307/2393924>
- Williamson, I. O., Cable, D. M., & Aldrich, H. E. (2002). Smaller but not necessarily weaker: How small businesses can overcome barriers to recruitment. In J. A. Katz & T. M. Welbourne (Eds.), *Managing people in entrepreneurial organizations* (pp. 83–106). West Yorkshire, UK: Emerald Group Publishing Limited. [http://dx.doi.org/10.1016/S1074-7540\(02\)05005-5](http://dx.doi.org/10.1016/S1074-7540(02)05005-5)
- Wright, P. M., & Boswell, W. R. (2002). Desegregating HRM: A review and synthesis of micro and macro human resource management research. *Journal of Management*, 28, 247–276. <http://dx.doi.org/10.1177/014920630202800302>
- Wright, P. M., Boudreau, J. W., Pace, D., Sartain, L., McKinnon, P., & Antoine, R. (2011). *The chief HR officer: Defining the new role of human resource leaders*. New York, NY: Wiley.
- Wright, P. M., Dunford, B. B., & Snell, S. A. (2001). Human resources and the resource based view of the firm. *Journal of Management*, 27, 701–721. <http://dx.doi.org/10.1177/014920630102700607>
- Wright, P. M., Gardner, T. M., Moynihan, L. M., & Allen, M. R. (2005). The relationship between HR practices and firm performance: Examining causal order. *Personnel Psychology*, 58, 409–446. <http://dx.doi.org/10.1111/j.1744-6570.2005.00487.x>
- Wright, P. M., & McMahan, G. C. (1992). Theoretical perspectives for strategic human resource management. *Journal of Management*, 18, 295–320. <http://dx.doi.org/10.1177/014920639201800205>
- Wright, P. M., & Ulrich, M. D. (2017). A road well traveled: The past, present, and future journey of strategic human resource management. *Annual Review of Organizational Psychology and Organizational Behavior*, 4, 45–65. <http://dx.doi.org/10.1146/annurev-orgpsych-032516-113052>
- Youndt, M. A., Snell, S. A., Dean, J. W., Jr., & Lepak, D. P. (1996). Human resource management, manufacturing strategy, and firm performance. *Academy of Management Journal*, 39, 836–866. <http://dx.doi.org/10.5465/256714>
- Young, G. J., Charns, M. P., & Shortell, S. M. (2001). Top manager and network effects on the adoption of innovative management practices: A study of TQM in a public hospital system. *Strategic Management Journal*, 22, 935–951. <http://dx.doi.org/10.1002/smj.194>
- Zacharatos, A., Barling, J., & Iverson, R. D. (2005). High-performance work systems and occupational safety. *Journal of Applied Psychology*, 90, 77–93. <http://dx.doi.org/10.1037/0021-9010.90.1.77>
- Zorn, T. E., Roper, J., & Richardson, M. (2014). Positive employment practices or reputational capital? Tensions inherent in third-party legitimation processes. *Management Communication Quarterly*, 28, 347–374. <http://dx.doi.org/10.1177/0893318914530921>
- Zucker, L. G. (1977). The role of institutionalization in cultural persistence. *American Sociological Review*, 42, 726–743. <http://dx.doi.org/10.2307/2094862>
- Zucker, L. G. (1987). Institutional theories of organization. *Annual Review of Sociology*, 13, 443–464. <http://dx.doi.org/10.1146/annurev.so.13.080187.002303>

Received September 6, 2019

Revision received May 28, 2020

Accepted August 15, 2020 ■