

S Y M P O S I U M

TOWARD A THEORY OF PERCEIVED FIRM-SPECIFIC HUMAN CAPITAL

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Strategy research suggests that firm-specific human capital is a source of sustained competitive advantage, at least in part because it may constrain employee mobility. However, it is also typically assumed that employees are reluctant to invest in firm-specific skills because such investments may come at the cost of developing general skills, thereby reducing their attractiveness in the labor market. This creates a theoretical paradox: Employee investment in firm-specific human capital is crucial for value creation and appropriation, yet there is believed to be global underinvestment in firm-specific skills. We argue that the logic behind this theory depends on the assumption that firm-specific human capital is accurately and objectively perceived among labor market participants and that relaxing this assumption significantly limits conclusions that can be drawn about competitive advantage. The key takeaway is that perceptions of firm specificity, even if inaccurate, can be more important than objective firm-specific human capital in determining the likelihood that firm-specific human capital can be a source of sustained advantage. By relaxing the assumption of strong-form labor market efficiency, we develop propositions regarding how firms can facilitate and manage perceptions of firm specificity, thereby increasing the likelihood that a competitive advantage can be sustained. In doing so, we help reconcile some of the differing assumptions in micro and macro work on human capital and employee retention.

Research on human capital and employee retention has generated significant interest from both micro (Nyberg, 2010; Van Iddekinge et al., 2009) and macro (Campbell, Coff, & Kryscynski, 2012a; Coff, 1997) management scholars. However, despite often seeking to explain the same issue—how firms can retain valuable employees—the micro and macro perspectives reflect distinct agendas (Ployhart, 2012).

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We thank seminar participants at the University of South Carolina, the Atlanta Competitive Advantage Conference, the Midwest Strategy Meeting, and the Academy of Management Annual Meeting. The ideas in this paper greatly benefited from feedback provided by Seth Carnahan, Paul Davis, Paul Drnevich, Yasemin Kor, Michael Leiblein, Joe Mahoney, Anthony Nyberg, and Anne Parmigiani.

From a micro perspective, the industrial-organization (I-O) psychology and organizational behavior/human resource management (OB/HRM) literatures have largely sought to explain variation in individual or group performance and/or attitudinal outcomes (Ployhart, 2012). Conversely, from a macro perspective, the strategy literature seeks to understand retention because human capital may be instrumental in explaining firm-level competitive advantage (Campbell et al., 2012a). As a result, despite having clear complementarities, the micro and macro literatures have developed in isolated silos, often employ vastly different assumptions, and lack theoretical integration (Molloy, Ployhart, & Wright, 2011; Ployhart, 2012; Wright, Coff, & Moliterno, 2014).

We seek to reconcile some of these issues by explicating the assumptions embedded within the strategy literature regarding firm-specific human

capital—knowledge, skills, and abilities (KSAs) that have limited applicability outside of the focal firm (Hatch & Dyer, 2004; Kor & Leblebici, 2005). Indeed, the emphasis on sustained competitive advantage has led strategy scholars to stress firm-specific human capital, in large part because such skills may constrain employee mobility (Jovanovic, 1979). Since firm-specific human capital is hard to apply across firms, employees with such skills who switch firms will experience decreased productivity, while those with general/highly transferable skills will not (Becker, 1964/1993).

Assuming that wages are commensurate with productivity, employees with firm-specific skills will suffer a wage penalty if they move, thereby hindering mobility and possibly helping to sustain a competitive advantage (cf. Campbell et al., 2012a). This logic is perhaps best summarized by Peteraf (1993, p. 187, emphasis added): “A brilliant, Nobel Prize-winning scientist may be a unique resource, but *unless he has firm-specific ties*, his perfect mobility makes him an unlikely source of sustainable advantage.” Notably, however, it is also assumed that employees are reluctant to develop firm-specific skills given the alternative of investing in general human capital. This creates a paradox: Firm-specific human capital is crucial for firms, yet employees avoid investing in such skills (Wang & Barney, 2006; Wang, He, & Mahoney, 2009).

Interestingly, despite playing a key role in the strategy literature, firm-specific human capital is largely ignored in the more micro literature (Ployhart, 2012). Accordingly, there is also little (if any) discussion regarding the problem of motivating employees to invest in firm-specific skills. We argue that this disconnect may arise from vastly different assumptions embedded within micro and macro work. Simply put, in order for firm-specific human capital to hinder employee mobility and create an investment dilemma, as the strategy literature would suggest, several strong, and perhaps unrealistic, assumptions must be met. At the top of the list of assumptions is a relatively strong form of information efficiency: There must be accurate and unbiased perceptions that are shared among labor market participants (Campbell et al., 2012a).¹ Thus, the efficacy of firm-specific human capital as an

isolating mechanism depends on how actors in the labor market—both employees and firms—*perceive* the specificity of skills. To illustrate using Peteraf’s (1993) example, even if the star scientist’s skill portfolio is highly firm specific, such skills will not hinder his mobility if other firms perceive his skills to be largely general. Such misalignment of perceptions is commonly acknowledged among micro researchers (e.g., Maltarich, Reilly, & Nyberg, 2011), yet the strategy literature implicitly assumes tight coupling of perceptions with regard to firm-specific human capital (cf. Campbell et al., 2012a).

We argue that the assumptions made in the strategy literature regarding firm-specific human capital are problematic, especially in the wake of studies that suggest that few actors actually think in terms of firm specificity (Groysberg, 2010) and that most skills are perceived by both employees and employers as being general as opposed to firm specific (Loewenstein & Spletzer, 1999). Moreover, the assumptions regarding firm-specific human capital differ from those employed in the strategic management literature and resource-based theory, which clearly highlight the role of imperfect markets (e.g., Barney, 1986; Mahoney & Pandian, 1992; Mahoney & Qian, 2013). Thus, the extant theory on firm-specific human capital reflects assumption asymmetry with regard to both the micro literature and the broader strategic management literature. Symmetry of assumptions is critical for theoretical advancement (Foss & Hallberg, 2014).

We therefore propose a theory of firm-specific human capital that focuses on subjective evaluations. We begin by stating two boundary conditions implicit in extant theory about how firm-specific human capital hinders mobility and causes investment dilemmas. These boundary conditions highlight both limitations of conventional strategy thinking with regard to firm-specific human capital and underscore the need for theory focused on perceptions. We then develop propositions regarding how perceptions of firm-specific human capital, even if loosely coupled with objective firm specificity, may influence the link between firm-specific human capital and outcomes such as employee mobility and the likelihood of an investment dilemma. Finally, we develop new theory to identify conditions under which perceived firm specificity may foster sustained competitive advantage. In doing so, we reconcile some of the differences in assumptions inherent in the literature by developing theory that more accurately reflects the real world and behavioral assumptions in micro research (Foss & Hallberg, 2014).

¹ This is part of a larger set of assumptions on labor market efficiency (e.g., wages must be tightly coupled with productivity). We cannot explore all assumptions that underlie perfect competition in markets for human capital in this article.

PARADOX OF FIRM-SPECIFIC HUMAN CAPITAL AS A SOURCE OF SUSTAINED ADVANTAGE: A MOBILITY CONSTRAINT WITH AN INVESTMENT DILEMMA

Resource-based theory posits that resources that are valuable, rare, inimitable, and non-substitutable can lead to sustained competitive advantage (Barney, 1991). Arguing that the KSAs embedded in employees are likely to satisfy these criteria, scholars have repeatedly suggested that human capital can be a source of competitive advantage (Crook, Todd, Combs, Woehr, & Ketchen, 2011; Hall, 1993; Hatch & Dyer, 2004; Kor & Leblebici, 2005). However, sustaining human capital-based advantages poses unique challenges because employees cannot be owned or under the complete control of the firm (Coff, 1997). Thus, unlike other resources—such as a prime real estate location, a unique firm culture, or a patented technology—employees can (and often do) choose to exit the firm. When human assets are the source of the firm's advantage, employee turnover is particularly problematic because exiting employees may transfer valuable knowledge to the focal firm's rival (or create a new one). As a result, resource-based theory suggests that it is unlikely that human capital-based advantages can be sustained unless employees have little ability or desire to leave (Peteraf, 1993).

Drawing on Becker's (1964/1993) seminal work as the starting point, the strategy literature has adopted the long-held assumption in the classic human capital literature that firm-specific human capital limits employee mobility (Bartel & Borjas, 1977; Glick & Feuer, 1984; Hashimoto, 1981; Jovanovic, 1979). It is important to clarify that our focus here is on the individual employee, not on human capital aggregated to a higher level such as the unit or firm. While scholars have recently argued that aggregated human capital may be helpful in understanding firm-level outcomes, to understand how human capital emerges to an aggregate level (Ployhart & Moliterno, 2011) or how individuals with varying human capital endowments can be combined to form a firm's idiosyncratic aggregate or unit-level human capital resource (Ployhart, Nyberg, Reilly, & Maltarich, 2014), we must first explain how employees make choices regarding which skills they acquire and how such choices influence potential mobility (Coff & Kryscynski, 2011). Thus, understanding the development of human capital at the employee level of analysis (and its implications) is crucial to understanding the microfoundations of human capital aggregation (Barney & Felin, 2013; Felin & Hesterly, 2007; Foss & Lindenberg, 2013). As such, we focus on the

individual employee, as was the original emphasis in the early human capital literature (Becker, 1964/1993).

According to Becker (1964/1993), employees can develop either general skills that are easily transferable to other firms or firm-specific skills that are valuable within the focal firm but harder to apply elsewhere. In turn, as long as employees with firm-specific skills are compensated for at least a portion of the increased value associated with such skills, interfirm employee mobility will be associated with a monetary penalty (Becker, 1964/1993). Not surprisingly, therefore, employee investments in firm-specific human capital are viewed as being highly desirable from the firm's perspective for a number of reasons. First, as detailed above, the wage penalty associated with interfirm movement creates a disincentive for employee turnover. Second, to create a mobility wage penalty the focal firm needs only to compensate employees with firm-specific skills for a portion (i.e., non-zero value) of the total value associated with their increased productivity. Third, even if mobility does occur, employees with firm-specific skills are unlikely to successfully use these skills without the focal firm's complementary assets, thereby reducing the likelihood that a rival firm will successfully imitate the focal firm's advantage.² As a result, firm-specific human capital is believed to be a source of sustained competitive advantage because it holds valuable employees in place while simultaneously allowing firms to capture some of the gains from firm-specific skills (Coff, 1997; Hashimoto, 1981).

Yet a dilemma exists because the very same reasons that firms want employees to develop firm-specific skills may simultaneously make employees reluctant to do so. The logic behind this quandary is similar to the explanation for boundaries of the firm put forth by classic transaction cost economics (TCE) (Williamson, 1975). In short, TCE suggests that transactions requiring a high degree of firm-specific (transaction-specific) investment will be internalized through vertical integration because market arrangements expose contracted firms to the potential of "hold-up" (Williamson, 1975). Klein, Crawford, and Alchian

² While firm-specific skills cannot be easily applied at rival firms, if the focal firm loses employees who possess such skills then the focal firm will still be faced with the task of attracting, training, and developing suitable replacements with similar firm-specific skills. Doing so is costly, and such costs have the potential to erode potential advantages. However, if the mobile employee cannot apply his skills at rival firms it may reduce the speed and/or magnitude to which the focal firm suffers. This, ultimately, is an empirical question worthy of further inquiry.

(1978) described a classic example in which an auto parts supplier makes a large investment in steel dies to develop parts for a specific manufacturer. If the steel dies are highly firm specific (e.g., not easily applicable to rival car companies), then the auto manufacturer may use this information to appropriate additional value after suppliers make the investment. Stated differently, because contracts are inherently incomplete, the terms of the contract are likely to be subject to *ex post* bargaining, and the auto manufacturer may seek more favorable terms once the supplier has purchased the steel dies. The supplier, in turn, will be at a disadvantage because other customers will have little demand for the steel dies. As such, this threat of hold-up deters firms from making firm-specific investments and pushes firms to vertically integrate where such investments are critical (Williamson, 1975).

Switching the level of analysis from firm–firm (e.g., supplier–buyer) to employee–firm (i.e., employee–employer) relationships, scholars have applied logic from TCE to argue that employees will be reluctant to make investments in firm-specific human capital (e.g., Wang & Barney, 2006; Wang et al., 2009; Wang & Lim, 2008). Similar to the logic described above, the hesitance is rooted in the fact that firm-specific human capital has limited value outside of the focal firm. As a result, *employees* are at risk of being held up by their *employer*, who may behave opportunistically (e.g., increase of working hours, reduction of benefits, etc.) once they develop firm-specific skills given their limited use elsewhere (Wang et al., 2009). Indeed, employee reluctance to invest in firm-specific skills is assumed to be so strong that strategy scholars have argued that firms take significant and drastic steps, such as implementing economic and trust-based governance safeguards or even pursuing diversified market strategies, in an effort to alleviate such employee concerns (Wang & Barney, 2006; Wang et al., 2009).

PERCEPTIONS OF FIRM-SPECIFIC HUMAN CAPITAL

A More Realistic View of Firm-Specific Human Capital

The theoretical paradox above—that firm-specific human capital is critical for sustained competitive advantage but employees eschew such investments—rests on the assumption that labor markets are informationally efficient with respect to firm-specific human capital. It also requires the assumption that wages are tightly coupled with the employee's

actual productivity and that monetary wages are the primary factor influencing employee mobility decisions.³ We examine the assumptions of information symmetry and accurate shared perceptions below and relax the assumptions of tight coupling between pay and productivity in our discussion.

Interestingly, micro researchers do not start with the assumption of accurate perceptions, and much of the seminal work in resource-based theory highlights the importance of information asymmetry in markets (Barney, 1986). Relatedly, more recent work has highlighted the importance of subjective evaluations in determining resource value (Schmidt & Keil, 2013). It is, therefore, somewhat ironic that the notion that firm-specific human capital (which is notoriously hard to observe; Prendergast, 1993) is accurately and objectively perceived by labor market actors has thus far remained embedded within the strategy literature. Indeed, Lazear (2009) went as far as to question whether any skills are truly firm specific, noting that economists usually default to the same abstract examples, such as knowledge of how to navigate an organization's political landscape, when lecturing students on the economic concepts of firm specificity.

Evidence does suggest, however, that certain skills are more valuable within a specific firm. Indeed, a number of empirical studies have found that employee performance tends to decrease following mobility events. For instance, Groysberg and colleagues (Groysberg & Lee, 2009; Groysberg, Lee, & Nanda, 2008) demonstrated that star investment analysts experience performance declines upon moving to rival firms. Campbell et al. (2014) found a similar result in professional basketball; players who were traded to different teams during a season performed worse after the trade. Likewise, Huckman

³ It is important to note that firm-specific and general human capital are orthogonal, not zero-sum, constructs. An employee may have high levels of both types of human capital. While we highlight the assumption that pay is tightly linked to employee productivity, it is also assumed that the use value of general human capital is equal across firms (see Campbell et al., 2012a). Under this assumption, an employee with superior general human capital will earn more than an employee with low general human capital (i.e., between-individual comparison). However, employees with high and low general human capital will both face a wage penalty if they exit a firm for which they have developed firm-specific human capital. This reflects the difference between the use value of their general human capital and the use value of their general plus firm-specific human capital (i.e., within-individual comparison).

and Pisano (2006) found that the risk-adjusted mortality rate of cardiac procedures was higher when the surgeons operated at hospitals with which they were less familiar.

The theoretical explanation for the observed decline in performance in each of these studies is the limited applicability of specific skills after mobility. Stated differently, once employees move, their specific knowledge (reflected in their pre-mobility performance) is no longer useful (reflected in their post-mobility performance), leading to a performance decline. Indeed, adding support to this argument, both Groysberg et al. (2008) and Campbell et al. (2014) found that post-mobility performance declines were less pronounced when the employee moved collectively as part of a group rather than individually. Bidwell's (2011) finding that internal hires tend to outperform external hires when hired into similar positions within the same organization, even though external hires had stronger signals of general ability, has provided perhaps the strongest empirical support for the firm-specific human capital–individual performance relationship.

Yet despite this evidence, there has been a paucity of work investigating how labor market participants actually think about firm-specific human capital. While the taken-for-granted assumption is that employees and firms accurately know how much firm-specific human capital they possess, the limited work in this area suggests that employees rarely think about human capital in terms of firm specificity (Groysberg, 2010) and perceive the majority of skills (even those developed through activities such as on-the-job training) to be highly transferable (Loewenstein & Spletzer, 1999). As a result, one could question whether it is reasonable to assume that employees actually perceive objective firm-specific human capital to be firm specific or if employees and firms actually think in terms of firm specificity at all.⁴ Indeed, Groysberg (2010) concluded that investment analysts who experienced the greatest declines in performance after mobility were actually the ones most likely to voluntarily move, suggesting that these employees may perceive firm-specific skills to be more transferable than they are.

Evidence also suggests that employers may have inaccurate perceptions of firm specificity or fail to

realize its importance. For instance, Bidwell and Keller (2014) found that jobs that required more firm-specific skills were *not* more likely to be filled by internal job candidates. Similarly, Bidwell (2011) found that external hires were compensated at higher wages than internal hires despite being less productive, suggesting that hiring firms may overestimate (underestimate) the value of general (firm-specific) human capital when assessing employment candidates. Furthermore, high-performing employees are more likely to quit (Nyberg, 2010; Salamin & Hom, 2005; Trevor, Gerhart, & Boudreau, 1997)⁵ and typically have access to greater external employment opportunities (e.g., Gerhart, 1990). Indeed, if rival firms truly perceived heightened employee performance to be driven by firm-specific skills, then we would not necessarily expect to find such a strong link between performance and external employment options. In addition, one might expect high performers to take wage decreases after mobility (i.e., firm-specific wage penalty), which is generally not the case (Groysberg, 2010).

THE ROLE OF PERCEPTIONS: IMPLICATIONS FOR EMPLOYEE MOBILITY AND INVESTMENT DECISIONS

Convergent and Divergent Perceptions of Firm Specificity

In Table 1 we relax the assumption of information symmetry and shared accurate perceptions of firm specificity to examine different permutations of perceptions and the associated theoretical outcomes regarding (1) the likelihood that firm-specific human capital hinders employee mobility and (2) the potential for a firm-specific investment dilemma. We suggest that even slight violations of these assumptions may have large effects on these theoretical outcomes, even if we continue to make the strong assumption that wages are tightly coupled with productivity and that employees seek primarily to maximize monetary income. For the sake of

⁴ This is not to say that employees never think in terms of firm specificity. In certain situations, perceived firm specificity may quite salient for employee decision making. However, we argue that such scenarios are likely to be relatively rare.

⁵ In the strategy literature pay is often used as a proxy for performance on the assumption that these are strongly related (e.g., Campbell, Ganco, Franco, & Agarwal, 2012b; Carnahan, Agarwal, & Campbell, 2012). The HR literature tends to separate performance from pay, concluding that the likelihood of turnover among high performers is amplified if they perceive themselves as underpaid (e.g., Nyberg, 2010; Trevor et al., 1997). This offers another example of a micro–macro disconnect regarding underlying assumptions.

TABLE 1
Divergent and Convergent Perceptions of Firm-Specific Human Capital

	Degree of perceived firm specificity			Theoretical outcomes	
	Employee	Focal firm	Alternative firms	Effectiveness as isolating mechanism	Potential for investment dilemma
1.	Firm specific	Firm specific	Firm specific	Highest	High
2.	Firm specific	Firm specific	General	Moderate	Moderately high
3.	Firm specific	General	Firm specific	High	Highest
4.	Firm specific	General	General	Moderate	High
5.	General	Firm specific	Firm specific	Moderately high	Moderate
6.	General	Firm specific	General	Moderately low	Low
7.	General	General	Firm specific	Moderately high	Moderate
8.	General	General	General	Lowest	Lowest

simplicity, we limit our theorizing to situations in which each of the relevant actors perceives firm specificity to be either high or low. However, Table 1 can easily be extended to include combinations in which actors perceive the level of firm specificity to be moderate.

Before discussing the outcomes tied to the permutations in Table 1, it is important to note that once we diverge from the existing literature and allow perceptions to differ from objectivity (i.e., loose coupling), the objective level of firm specificity becomes less important in determining the likelihood of mobility or an investment dilemma, as perceptions are the drivers of behavior (Adams, 1965; Vroom, 1964). As such, for the sake of simplicity and clarity we will assume that the objective human capital portfolio being assessed in Table 1 is highly firm specific. Nevertheless, we stress that outcomes would remain the same if the firm specificity of the human capital portfolio were moderate or low. In terms of limiting mobility or creating the potential for an investment dilemma, it is perceptions that are most important.⁶

⁶ Firm-specific human capital is critical for competitive advantage in terms of value creation, as an isolating mechanism, and as a mechanism that prevents employees from appropriating all of the value they generate. Perceptions of firm specificity may perform the last two functions in that perceptions may hinder mobility and affect what value employees can capture. However, to the extent that firm specificity is critical for value creation, perceptions might not create value in the same way (e.g., general human capital perceived to be firm-specific may not create value). That said, if customers perceive firm-specific knowledge and skills as critical to product quality (e.g., brand), it is possible for such perceptions to create value as well. This warrants further research.

Perceptions of Firm Specificity and Employee Mobility

Row 1 represents how the strategy literature implicitly views firm-specific human capital. As indicated, all the relevant actors perceive firm specificity to be high. In such cases, firm-specific human capital may effectively hinder employee mobility because (1) employees decrease search efforts believing that their skills have limited transferability to other firms, (2) the employer compensates workers additionally for skills perceived to be firm specific, and (3) other firms offer wages that are commensurate only with what are perceived to be employees' general skills. If all these conditions hold, then firm-specific human capital may in fact hinder employee mobility.

The opposite is true in row 8. In row 8, once again all relevant actors agree on the degree of firm specificity. However, this convergence is inaccurate, as all labor market participants perceive firm specificity to be low even though it is objectively high. There is reason to believe that such scenarios may be common in organizational settings (Groysberg, 2010; Loewenstein & Spletzer, 1999; Raffiee & Coff, in press). In such cases, objective firm-specific human capital is unlikely to reduce employee mobility because the employee's skills are not perceived by labor market participants to be firm specific. Stated differently, because all participants perceive the skills to be general, it is less likely that (1) employees will reduce search efforts, (2) employers will offer higher wages than alternative firms, and (3) alternative firms will offer lower wages than the focal firm or refrain from soliciting job offers, based on the belief that the employee's skills have little transferability. As a result, objectively high firm-specific human capital is unlikely to constrain employee mobility because it is perceived to be general.

Boundary condition 1: Objective firm-specific human capital is most (least) likely to hinder employee mobility when the employee, the employer, and alternative firms all correctly (incorrectly) perceive firm specificity to be high (low).

Perceptions of Firm Specificity and the Investment Dilemma

When it comes to the classic investment dilemma articulated by Williamson (1975), the investment decision between firm-specific and general skills is an individual choice made by the employee. As mentioned above, it is unlikely that employees perceive many skills to be actually firm specific (Groysberg, 2010; Loewenstein & Spletzer, 1999; Raffiee & Coff, in press), and this may be why the micro literature rarely explores the possibility that employees consider trade-offs between firm-specific and general human capital (Ployhart, 2012). For example, it is hard to imagine employees refusing to invest in skills they perceive as firm specific once we consider the typical examples offered in the literature, such as understanding of a firm's idiosyncratic routines (Grant, 1996), use of proprietary technology (Campbell et al., 2012a; Mayer, Somaya, & Williamson, 2012), and knowledge of an organization's social and physical landscape (Lazear, 2009). Rather, we argue that it is far more plausible that the vast majority of investments are likely to be viewed as table stakes—something all employees must do if they want to be employed by a given firm. In other words, the overwhelming majority of examples of firm-specific human capital would likely fall within the employee's "zone of indifference" (Barnard, 1938), implying that employees will view the development of firm-specific knowledge/skills as an acceptable request and make the investment without hesitation, questioning, or conscious thought.

Relatedly, the literature on organizational socialization suggests that new employees often proactively seek out such information in an effort to learn how to perform the functions of their jobs (e.g., Bauer, Bodner, Erdogan, Truxillo, & Tucker, 2007; Morrison, 1993). In fact, findings from this literature imply that, as part of their socialization or organizational adaptation process, employees may actually seek out opportunities to invest in skills that the strategy literature would argue are firm specific. Such findings are in stark contrast to the notion that employees are reluctant to make firm-specific

investments (Wang et al., 2009), but are generally consistent with our argument that employees will not even think in terms of firm specificity when developing skills within a firm (e.g., Groysberg, 2010).

Moreover, the notion of a firm-specific investment dilemma becomes blurred even further when one recalls that the fundamental logic of TCE was designed to explain boundaries of the firm (e.g., market solutions versus vertical integration). As such, the application of TCE logic to explain employer–employee relationships quickly becomes muddled because employees are often considered *part of the firm* (Coff, 1999). Thus, just as TCE predicts that firms will internalize transactions that require a high degree of firm-specific investments, one could also argue that employees will readily invest in firm-specific human capital even if they perceive it to be highly firm specific, because they view themselves as part of the firm. Indeed, consistent with this logic, Kruscynski and Green (2012) found that employees who identify with an organization are more willing to make firm-specific investments even as the firm faces the prospect of failure.

Taken together, the numerous issues raised above seem to suggest that the investment dilemma as typically articulated in the literature may be more of a theoretical problem as opposed to a problem that occurs in practice. Although we have highlighted several areas of this logic that are problematic, given that the investment dilemma occurs at the employee level of analysis, if employees do not perceive skills to be firm specific *ex ante* or fail to think in terms of firm specificity at all, then the basic intuition behind the investment dilemma is unclear.

Boundary condition 2: Employee reluctance to make investments in firm-specific human capital (i.e., firm-specific investment dilemma) hinges on the employee's ability to accurately differentiate firm-specific from general human capital, ex ante investment.

Employee Mobility and the Investment Dilemma: Whose Perceptions Matter Most?

Given that information is likely to be unevenly distributed in labor markets (Spence, 1973) and that perceptions themselves, even if based on the same information, are unlikely to be consistent across actors without bias (e.g., Thaler & Sunstein, 2008), it is highly unlikely that there will be convergence

among all labor participants with regards to the degree of perceived firm specificity (high or low). In rows 2 through 7 of Table 1 we examine how such scenarios affect the likelihood of employee mobility and the likelihood of an investment dilemma.

The turnover literature suggests that individuals are not constantly engaged in search behavior on the labor market and so may not be aware of all of their alternatives at any given time (Hausknecht, Sturman, & Roberson, 2011; Lee, Mitchell, Wise, & Fireman, 1996). This means that other employers' positive perceptions of an employee's prospects can stimulate an offer that spurs the employee into considering a move (Lee, Gerhart, Weller, & Trevor, 2008). If an alternative employer does not perceive that a worker's skills are strongly applicable outside of the focal firm, it is unlikely to extend an unsolicited offer given that firms have become increasingly hesitant to invest in employee development (Cappelli, 2012).

Of course, an unsolicited offer is not the only event that can lead to turnover. For example, it is well documented that dissatisfied workers may initiate a search for better alternatives—ultimately leading to higher turnover rates (Lee & Mitchell, 1994; Mobley, Griffeth, Hand, & Meglino, 1979; Price, 1977). However, the resulting search might not yield better alternatives, and the employee might then choose not to leave the focal firm. In this way, the existence of promising alternatives is a very important determinant of turnover even in the context of dissatisfaction (Swider, Boswell, & Zimmerman, 2011). As such, if other firms perceive an employee's skills to be firm specific, such alternatives may be systematically less attractive. This, in the end, may determine if an employee's search ultimately results in turnover.

Proposition 1: Alternative firms' perceptions of firm specificity play a larger role than the perceptions of employees and employers in determining whether firm-specific human capital will hinder employee mobility. Mobility is likely to be lower (higher) when alternative firms perceive firm specificity to be high (low).

While we have outlined that workers' perceptions are critical for the existence of an investment dilemma, beyond this, the employer's perceptions will influence the severity of the potential for an investment dilemma. We expect this to be the case because it will influence the extent to which the employer chooses to compensate employees for investments in firm-specific skills. Logically, if the

employer perceives employees' skills and training to be general, there may be little perceived imperative to compensate workers for actual firm-specific investments.

The hold-up hazard, as typically expressed in the literature, presumes that the employer is aware of firm-specific investments and is choosing to exploit employees by failing to compensate them for value that is created given the investment's limited alternative applications (Chang & Wang, 1996; Glenn, McGarrity, & Weller, 2001; Wang et al., 2009). Another possibility is that the employer simply does not perceive the skills to be firm specific and thus believes no premium is warranted (Raffiee & Coff, in press).

Accordingly, the investment dilemma may be most exacerbated when workers perceive high levels of firm-specific investments but employers perceive low levels of firm-specific investments. In this context, employees may be most reluctant to make investments and employers may be especially unlikely to compensate workers because they do not perceive that there is an issue. While this may be a context where underinvestment is likely to be a problem, the employer may be unaware of this. However, such underinvestment may be evident in performance, turnover, and satisfaction.

Proposition 2: The severity of the investment dilemma depends on the employee's perceptions of firm specificity coupled with diverging employer perceptions. The dilemma is likely to be most severe when employees perceive skills to be firm specific but their employer does not.

COMPETITIVE ADVANTAGE AND PERCEPTIONS OF FIRM SPECIFICITY

As outlined above, sustained competitive advantage may be most promising when rivals perceive skills to be firm specific. This would be the best indicator of a strong isolating mechanism, as the resulting wage penalty for changing jobs may hinder employee mobility. Employees' perceptions may be a double-edged sword. If they believe their skills are firm specific, they may be discouraged from searching for other jobs. On the other hand, it may also spur concerns about a potential investment dilemma, resulting in underinvestment. Having established the importance of perceptions in existing human capital theory, we can reframe competitive advantage as arising from systematic influencing of perceptions as much as from actual investments in firm-specific skills and abilities. Accordingly, we turn our attention to explaining

how *perceptions* of firm-specific human capital can influence competitive advantage.

Emphasis on Complementary Firm-Specific Assets and Systems

While employees and firms may not naturally think in terms of firm specificity, firms can prime participants to do so by taking steps to bolster the perception that their employees are driving their competitive advantage not solely based on having superior human capital, but also because the firm possesses other unique complementary assets that enable the firm to enhance the employees' performance. In this sense, firms can work to publicize the unique resources they possess that make employee performance firm specific. This in turn will make the expected employee performance decline following mobility more salient in the eyes of rival firms.

This often occurs (albeit unintentionally) in collegiate and professional sports, where the success of individual athletes is attributed to the "system" in which they play rather than their underlying abilities. For instance, college quarterbacks who are deemed "system quarterbacks" are often drafted into professional football much lower than one would expect given their observable characteristics (Adelson, 2010). The logic is that the player's skills are tailored to fit a particular system and that to experience the same level of production, the player will need to have similar complementary assets on his new team. Indeed, as Adelson (2010) noted: "If you have the misfortune of being labeled a 'system quarterback,' then forget about convincing anybody about how good you truly are." Perhaps the best example is Green Bay quarterback Aaron Rodgers (2010 Super Bowl MVP, 2011 NFL MVP, and current all-time leader in career passer rating), who "slipped" to the 24th pick in the 2005 NFL draft, in part over concerns that his collegiate accomplishments were specific to or heavily reliant on then-head coach Jeff Tedford's offensive system (Pasquarelli, 2005).

We see a similar phenomenon in academia. The Matthew effect (Merton, 1968) refers to the common practice in academia in which the more prominent researcher is often perceived to have done most of the work for coauthored research projects even if the majority of the work was actually done by a lowly graduate student. For example, Merton (1968, p. 58, emphasis added) quoted an interview with a past Nobel laureate who described how such perceptions, even if inaccurate, can adversely affect employment options:

[I]f he has published only together with some known names—well, it detracts. It naturally makes people ask: "How much is really his own contribution, how much [the senior author's]. *How well will he work once he goes out of that laboratory?*"

Indeed, if the prominent researcher will not collaborate with the graduate student once the student leaves for another university, then it would be reasonable to expect a decrease in productivity. In other words, there is the perception that the graduate student will not be as productive in other universities (firms). The drop in productivity would not necessarily be the case if the graduate student worked with less prominent researchers, worked alone, or was able to continue to collaborate with the prominent researcher after mobility.

Proposition 3: Perceptions of firm-specific human capital will be higher when the firm has developed a reputation for the importance of their firm-specific complementary assets in enhancing employee performance.

As suggested above, reputations that increase the perceived specificity of employee skills by rival firms can act as an isolating mechanism to protect a firm's human capital because such reputations may reduce both the quantity and quality of employment offers extended by rival firms. For example, in Gardner's (2005) study examining the practice of talent raiding, HR managers reported that the majority of employees who were "poached" by rivals had skills they deemed to be relatively high in transferability. Likewise, Cappelli (2012) argued that companies have become increasingly reluctant to invest in training new employees, resulting in a prolonged search to identify employees who have transferable skills that meet all of their hiring criteria to obviate the need for further training. As a result, employees who work for firms with reputations for developing firm-specific human capital are more likely to face a thin labor market should they decide to move. Accordingly, firms that have a reputation for firm-specific complementary assets may be able to create a demand-side constraint, increasing the likelihood that they can effectively retain their employees and protect their advantage.

Proposition 4: Firms that have a reputation for the importance of their firm-specific complementary assets in enhancing employee performance will be more likely to sustain human asset-based competitive advantages.

The Importance of Safeguards and Framing Effects

While we have argued that developing reputations that emphasize the importance of firm-specific assets may be beneficial for firms, this may simultaneously reduce the initial attractiveness of the organization to potential new employees. For example, returning to our football example, an elite quarterback prospect may be reluctant to join a team that has a reputation for developing players whom alternative teams perceive as being “products of the system” on the belief that this may subsequently decrease alternative employment options. In this sense, a dilemma similar to the firm-specific investment dilemma described by Wang et al. (2009) may occur. However, this dilemma will take place *before* the employee decides to join the firm, given that firm reputations are quite visible to employees and directly affect employment decisions (e.g., Agarwal, Ganco, & Ziedonis, 2009). In other words, the dilemma can be framed as occurring *ex ante* (i.e., a dilemma of whether or not to join a particular firm) rather than *ex post* (i.e., a dilemma of whether to invest in firm-specific skills) employment. Ironically, it is in such scenarios that the safeguards argued to be useful in alleviating the firm-specific human capital investment dilemma (described by Wang et al., 2009) or other factors (such as HRM practices designed to create supply-side mobility constraints; Campbell et al., 2012a) may have increased importance.

The use of governance mechanisms or HRM systems may accomplish several things. First, they aid in convincing employees to make firm-specific investments. In other words, the presence of such mechanisms can enhance the perception that employees will be able to do better at the specific firm than elsewhere because the firm provides them with complementary assets designed to help them achieve their full potential—assets that other firms do not have. Second, the presence of such mechanisms helps create potential supply-side mobility constraints by making the firm seem as if it is a great place to work. This is consistent with observations in the turnover literature that employees who are more embedded (stronger relationships, etc.) are less likely to leave the firm (Lee, Burch, & Mitchell, 2014). For example, even if the firm has a reputation for developing employees whose skills are highly firm specific, it could also have a reputation for being a great place to work because it provides employees with a number of benefits designed to increase performance, pay, and satisfaction. Such factors create supply-side mobility

constraints once the employee is in the firm but, perhaps more important, can be instrumental in attracting employees even if they believe the labor market will perceive their performance to be inflated by the firm’s complementary assets.

Proposition 5: The greater a firm’s reputation for firm-specific knowledge and skills, the greater the role governance safeguards and HRM practices designed to engender trust and commitment will play for employee attraction.

DISCUSSION

In this article we highlighted how the ability for firm-specific human capital to (1) function as an isolating mechanism by encumbering employee mobility and (2) pose an investment dilemma for employees relies heavily on the assumption that labor market participants accurately and objectively collectively perceive firm-specific human capital. We argued that these assumptions are likely to be violated, and concluded that perceived firm-specific human capital may be more important than objective firm-specific human capital in influencing these outcomes pertaining to employee mobility and an investment dilemma. We then developed theory to explain how firms might influence perceptions of firm specificity and the potential complications that may occur. We discuss the implications for theory and future research below.

Toward Assumption Symmetry: Why Perceptions Matter

While market frictions are at the core of the strategic management literature (Mahoney & Qian, 2013), it is perhaps ironic that information asymmetries would be largely assumed away with respect to firm-specific human capital. Here, we relax that assumption and suggest that key actors (1) may not accurately observe objective levels of firm specificity and (2) may not share common perceptions. In doing so, we move toward assumption symmetry (Foss & Hallberg, 2014)—both within the strategy literature and with the micro literature on personnel.

A key takeaway is that perceptions of firm-specific human capital may generate behaviors consistent with predictions of extant theory even where such skills do not exist. However, they may also thwart a potential advantage where firm-specific skills do exist if they are not recognized as such. In this way, we hope to stimulate theory and empirical research

that addresses the gap between extant work that focuses on objective firm specificity and the reality of actual labor markets likely rife with varied and distinct perceptions of firm specificity.

Shifting the Emphasis Away From Objective Firm-Specific Human Capital

The importance of firm-specific human capital remains a central theme in the strategy literature (Campbell et al., 2012a). As such, our theory contributes to a recent string of arguments from economics, strategy, and human resource management scholars who have begun to unpack the micro-foundations of firm-specific human capital and question whether firm-specific human capital can be a source of sustained competitive advantage. For example, at the individual level, Lazear (2009) argued that most skills are far more general than firm specific, but that uniquely weighted combinations of individual general skills can be disproportionately valuable to a specific firm. Likewise, Campbell et al. (2012a) argued that general skills will not necessarily be equally valued across firms given the inherent heterogeneity among firms with regard to resources and business scope. Related to Lazear's (2009) argument, Ployhart et al. (2014) shifted the level of analysis from the individual to the unit level and argued that human capital resources—unit-level collections of individual skills—can drive competitive advantage because human capital at the unit level can be complex and difficult to imitate, regardless of the individual specificity on each unit member's skills. Our theory adds to these studies by demonstrating that the concept of firm-specific human capital, as generally articulated in the strategy literature, requires a very strong assumption regarding perfectly efficient markets for labor. This assumption is unlikely to hold in practice, and we demonstrate how even slight violations of this assumption significantly limit the conclusions that can be drawn.

Integrating Micro and Macro Perspectives: Focus on Supply-Side Mobility Constraints

As described by Wright et al. (2014) and Ployhart and Moliterno (2011) and detailed above, despite the fact that human capital is a key construct in both the strategy and HRM literatures, there has been little integration of the two. Again, while firm-specific human capital has been a central theme on the strategy side (Coff, 1997; Frank & Obloj, 2014; Hatch & Dyer, 2004; Wang et al., 2009), it has received

much less attention in the HRM literature, where the focus has been on high-performance work practices (Macduffie, 1995), pay-for-performance incentive systems (Gerhart & Rynes, 2003), employee relations efforts (Fulmer, Gerhart, & Scott, 2003), and other practices designed to increase employee–firm performance and/or reduce the likelihood of turnover (Fulmer & Ployhart, 2014). Our arguments demonstrate that firm-specific human capital as a source of sustained advantage relies heavily on the assumption that firm-specific human capital is objectively perceived by labor market participants—an assumption that the micro work on human capital and the general strategic management literature rarely employ.

Indeed, a key problem with firm-specific human capital as a construct is that, in many cases, it is unlikely to be perceived as actually being firm specific. This results in two outcomes that are likely to differ from existing theory. First, it is very unlikely that an investment dilemma actually exists, as the overwhelming majority of skills are likely to be perceived in the employees' zone of indifference (Barnard, 1938). Relatedly, employee perceptions are subject to numerous biases (Thaler & Sunstein, 2008), and they may systematically overestimate the transferability of their skills, leading them to believe that objectively firm-specific skills are actually general. As a result, if employees are biased to think their skills are widely valuable, then investment dilemmas are unlikely. Second, and perhaps more important, it is unlikely that firm-specific human capital will play a major role in encumbering employee mobility because there will often be inaccurate or divergent perceptions of firm specificity among labor market participants. Moreover, even if firms accurately perceive firm specificity, the underlying logic for firm-specific human capital in terms of limiting employee mobility is conditional on tight coupling between actual productivity and wages—an assumption we did not relax in this paper but one that is highly unlikely to hold (Campbell et al., 2012a). Indeed, if firms are unlikely to accurately assess the firm specificity of an employee's human capital, it is even more unlikely that wages reflect the true value of employee productivity, a necessary condition for a mobility wage penalty.⁷

⁷ Moreover, as highlighted above, the logic behind a mobility wage penalty for firm-specific human capital also requires the assumption that the use value of general human capital is constant across firms (Campbell et al., 2012a). It also disregards the notion that some firms may pay "above-market wages" as a strategy (Rynes & Milkovich, 1986).

Nevertheless, we have argued that firms may benefit by priming perceptions of firm specificity by building reputations for the importance of complementary firm-specific assets. However, a caveat of this approach is that such strategies will likely need to be coupled with tactics designed to attract employees—tactics such as the implementation of high-performance human resource practices or governance mechanisms that create supply-side mobility constraints (Campbell et al., 2012a). As such, we encourage strategy researchers to draw more heavily from the HRM and I-O literatures when theorizing about ways in which human capital-based advantages can be sustained. An alternative mechanism with roots in the strategy literature is firm-specific incentives— incentives that are specific to a single firm (Coff & Kryscynski, 2011). Such tangible incentives are likely more observable than firm-specific human capital (Prendergast, 1993). As a result, in cases where the firm-specific incentive is high, the loss of such incentives may be more salient than the theoretical wage penalty and thereby be more effective in reducing the likelihood of turnover. However, this requires that extant theory further relaxes the assumption that employees are driven solely by monetary incentives, as is implicit in the logic behind the wage penalty constraining mobility in existing work.

Future Empirical Testing: The Need for New Measures

The majority of research examining firm-specific human capital has focused on its relationship with performance, at either the individual (Groysberg, 2010) or the organizational level (Crook et al., 2011). Much less research has focused on the likelihood that firm-specific human capital actually hinders employee mobility or whether employees actually face an investment dilemma when deciding what skills to develop. This may be in part due to the lack of quality measures capturing firm-specific human capital. Indeed, the most common measure of firm-specific human capital has been organizational tenure (Crook et al., 2011). Yet this measure is a rather crude proxy that is likely to be correlated with a number of other factors that could influence both individual and organizational performance. Moreover, using tenure to proxy firm-specific human capital is almost tautological if firm-specific human capital is theorized to constrain employee mobility. Along these lines, the limited research that has empirically examined the investment dilemma has employed proxies of firm-specific knowledge, such

as patent self-citations (e.g., Wang et al., 2009), yet if knowledge is truly firm specific there may be little point in patenting. Indeed, the paucity of quality measures has led scholars to repeatedly argue for more nuanced measures of firm-specific human capital (Campbell et al., 2012a; Crook et al., 2011).

In line with the current essay's focus on perceptions, Raffiee and Coff (in press) found organizational tenure and organizational commitment to be *negatively* related to perceived firm specificity of employee skills. Likewise, Kryscynski and Green (2012) used a laboratory experiment to show that employees may increase their willingness to invest in firm-specific skills if they identify with an organization. These studies, along with qualitative work conducted by Groysberg (2010), provide a start for empirically understanding how perceptions of firm specificity may differ from the assumptions in extant theory. Future research should seek to build on these studies by explicitly investigating the role of perceptions, information asymmetry, and objectivity.

CONCLUSION

Within the strategy literature firm-specific human capital is assumed to be a source of sustained competitive advantage, yet employees are reluctant to invest in firm-specific skills. In this article we take on this paradox, arguing that the validity of this logic is contingent on assumptions that are inconsistent with micro research on human capital and the general strategic management literature. Departing from the extant literature, we relaxed the assumption that objective firm-specific human capital is accurately perceived among labor market participants, and demonstrated that in the presence of inaccurate or diverging perceptions the taken-for-granted conclusions drawn from existing theory are unlikely to hold. As such, the key contribution of this article is to underscore that perceptions of firm-specific human capital may play a larger role than objective firm-specific human capital in determining the likelihood that firm-specific human capital encumbers employee mobility and creates an investment dilemma. We closed by providing guidelines for managing and maintaining perceptions of firm specificity and its implications for competitive advantage.

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