Journal of Management & Organization (2023), **29**, 14–29
doi:10.1017/jmo.2019.84

RESEARCH ARTICLE

The implications of CEO power on the relationship between firm resources and innovation

Fariss-Terry Mousa[1]*, Jaideep Chowdhury[2] and Scott R. Gallagher[1]

[1]Department of Management, College of Business, MSC 0205, James Madison University, Harrisonburg, VA 22807, USA and [2]Department of Finance and Business Law, College of Business, MSC 0203, James Madison University, Harrisonburg, VA 22807, USA
*Corresponding author. Email: mousafx@jmu.edu

(Received 14 August 2018; accepted 18 November 2019; first published online 9 January 2020)

Abstract

We examine the link between firm resources and firm innovation intensity, especially the drivers of innovation and organizational slack. We extend the organizational slack and innovation literature by examining its interplay with CEO power and industry level constraints on that power. We examine the influence of human resource slack, CEO power, and industry concentration on R&D intensity. Our study examines all publicly traded US firms over a 10-year period, giving us over 13,400 firm years to look at. Our results indicate that organizations with excess human capacity do on average show higher investments in R&D. However, we also find that in concentrated industries, where CEOs are less constrained by competitive pressure, powerful CEOs do interfere in this strategic choice and weaken the slack–innovation relationship. Even though CEO's in these situations may have sufficient slack resources, they appear inclined to reallocate such resources to purposes other than innovation.

Keywords: CEO power; innovation; excess resources; human-resource slack; industry concentration

Introduction

How firms deploy their resources competitively is at the core of strategy and innovation. Studying surplus available resources, frequently termed slack, has occupied scholars for many years (Bourgeois, 1981). Initially thought by economics scholars to indicate inefficiency (Jensen & Meckling, 1976), in time some level of slack was deemed necessary for an organization to alter its strategy (March, 1981). Bourgeois (1981) theorized a curvilinear relationship between slack and organizational success which has been supported by the most current research. Therefore, slack is good for organizations but only up to a certain point (Daniel, Lohrke, Fornaciari, & Turner, 2004; Tan, 2003) and therefore the implications it effects often require a more fine-grained interpretation (Lecuona & Reitzig, 2014).

When it comes to slack and innovation Nohria and Gulati (1996) worked on extending and offering support to Bourgeois's (1981) earlier theorizing. A year later they published a paper that further highlighted the tension between too much and too little slack, suggesting that an intermediate level is optimal for innovation activities (Nohria & Gulati, 1997). More recently, Mousa and Chowdhury (2014) replicated this study and similarly found that firms with financial slack do invest more in R&D and they also found support for the inverse U-shaped relationship suggested earlier by Nohria and Gulati. Greve (2003) in his study on shipyards noticed the difference between firms that use slack resources to engage in search versus more constrained firms that engage in more focused search to solve a problem. While there is some debate if the nature of the effect is an inverted U shape or simply

diminishing returns, clearly slack has an important role to play in innovation (Herold, Jayaraman, & Narayanaswamy, 2006).

Less discussed but clearly important is the way top managers perceive organizational slack. Managers that succeed in organizing and utilizing their resources better will have a better chance of seeing their strategies reach fruition, and therefore achieving success in the marketplace. Firms will eventually reach a point of improved efficiency where previously utilized managerial resources becomes slack (Penrose, 1959). Penrose suggested that learning through experiences is what causes these managers to become more efficient. She further argued that these unused productive services, although active, become a challenge to innovation, an incentive to expand the boundaries of the firm, and also a source of competitive advantage (Penrose, 1959). She even coined a term known as the 'Penrose effect' that points to a bottleneck where the firms reach their expansion limits directly due to limits of executives' capacity.

Of all the members of the management team, the literature has established that the Chief Executive Officer (CEO) is not only the most influential member within the boundaries of a firm, but also is generally the main driver of strategic choices, organizational change, and organizational outcomes (Bigley & Wiersema, 2002; Child, 1972; Daily & Johnson, 1997; Salancik & Pfeffer, 1977). In addition, some firms have especially charismatic CEOs who drive culture (e.g., Steve Jobs and Richard Branson). When compared to other members of the top management team, the CEO by virtue of the authority in that position has a distinct advantage for influencing firm decisions and strategic direction compared to other executives in the top management team (Bigley & Wiersema, 2002). This is especially true when the CEO also serves as the chairperson of the board – that is, CEO duality (Rechner & Dalton, 1991).

Of course, CEOs and their firms do not operate in vacuums. The industry environment also matters a great deal. Not only does it impact firm performance but it impacts the level of discretion that CEOs could have. Even the strongest CEO can be constrained by the industry environment that their firm is embedded in. Therefore, it is necessary to consider how the industry environment may constrain otherwise powerful CEOs. Industry concentration, an important structural characteristic, depicts the number of firms that compete in a specific industry and their relative market presence. In concentrated industries, where powerful CEOs are less constrained by competitive pressure from multiple firms we expect different allocations of slack versus more competitive industries. Consider, for instance, an industry similar to Wireless Telecommunications Carriers where four major companies (AT&T, Verizon, Sprint Corporation, and T-Mobile USA) control about 63.8% of the market share (Hoffman, 2019) or Satellite TV providers where AT&T and Dish Network LLC control approximately 79.9% (Moses, 2019).

Therefore, this study extends the examination of human resource (HR) slack and its effects on innovation. Mindful of the need for finer-grained analysis, we focus on the power of CEO constrained by the firm's industry environment in effecting slack's effects on innovation intensity. Specifically, we examine HR slack's effects on innovation intensity moderated by CEO and industry power.

Theoretical Overview

Innovation is a frequently desired activity by firms that often gives them some period of competitive advantage over other firms (Utterback, 1994). As such, there is no shortage of models for the foundations of innovation in organizations (Afuah, 2003). We take as our core model that innovation is a function of human capital – people innovate – directed and supported by the CEO of the firm, contingent on the competitive environment in which the firm finds itself.

We focus on human slack for a couple of reasons. One of the most important ways human slack differs from other types of slack is in its degree of 'stickiness,' which is a function of resource

https://doi.org/10.1017/jmo.2019.84 Published online by Cambridge University Press

divisibility and fungibility (Penrose, 1959). Divisibility relates to how easy it is to adjust the amount of a given resource according to the demands of the situation. Fungibility pertains to whether a given resource can be applied to multiple ends interchangeably. So for example, cash is perfectly divisible and completely fungible, and therefore not sticky at all. Stickiness is important because it shows the degree to which slack resources can be quickly and opportunistically utilized to fuel expansion (Penrose, 1959).

Stickier resources are harder to manage when compared with more liquid resources because they cannot be allocated in precise unit amounts that match the demands of the situation (e.g., a machine could have a greater minimum capacity than a firm's current needs) (Mishina, Pollock, & Porac, 2004). Mishina, Pollock, and Porac (2004) observe that most of the value of human capital is context dependent, and consequently is linked more closely to the nature of present organizational routines than is the value of financial resources. Another important point is that once such resources are assigned to a specific task, their ability to adapt to changes in the task is constrained; this makes HR slack idiosyncratic (Mishina, Pollock, & Porac, 2004).

This idiosyncratic nature of human slack makes it context driven and tied more to the nature of organizational routines than is the value of financial resources. This is simply because human knowledge and skill tend to be embedded in specific task and organizational contexts (e.g., Knorr-Cetina, 1999; Nonaka, 1994). Task expertise is also limited to narrow knowledge domains (e.g., Chi, Glaser, & Farr, 1988), and thus it is more difficult to transfer across situations (e.g., Szulanski and Cappetta, 2003) than generic financial resources. As a result, HR slack creates more inertia in firms than financial slack and for innovation makes them more inclined to engage in exploitation rather than exploration (Voss, Sirdeshmukh, & Voss, 2008).

Thus, slack in human and financial resources should be differently useful to firms pursuing distinct innovation investment strategies. We, therefore, argue that for these stickier HRs, the influence of slack on the commitment to R&D is due, at least in part, on both the path-dependent and firm-specific nature (e.g., Arthur, 1989; David, 1985) of HRs. This could be extremely beneficial to firms since competitors might not be able to obtain similar resource configurations and thus it becomes very hard for them to copy the firm's strategies (Barney, 1991; Dierickx & Cool, 1989). The resource configuration of the HRs is potentially inimitable.

In addition, firms with higher commitment and better allocation of HRs to tasks related to R&D will probably be willing and able to reconfigure them as needed at a later time when needed. This pool of resources might prove to be useful when a firm needs to intensify its R&D efforts to meet a new challenge given their ability to draw on these resources and reposition them to support initiatives. Thus, firms with more HR slack should be able to apply the appropriate level of needed resources to a specific project. These firms will also be able to keep these resources involved and focused on these R&D initiatives until fruition.

This ongoing commitment to R&D, although given its open ended nature may at times not be seen as the most efficient use of resources, is possibly the reason behind some of the greatest firm inventions and successes. Take for instance 3Ms famous 15 percent time, a program that was in place in the 1970s that allowed employees to use a portion of their paid time to dream big and follow on these dreams. The Post-it Note was one of the examples of how impactful this program was for 3M, and how many of its top products were developed as part of this program (Von Hippel, Thomke, & Sonnack, 1999). This program was an inspiration for many companies from Google to Hewlett-Packard. For instance, Google managers believe that some of the best innovations came from that unstructured work time (e.g., Gmail, Google News, and ASense) (Iyer & Davenport, 2008).

The availably of excess resources, especially HRs, seem to be very important to firms, specifically in the case of innovation. Without this time to think and play, engineers and highly creative individuals will not have the extra time to investigate and pursue interesting projects. Instead, most employees are likely to spend most of their days just rushing to meet their deadlines,

https://doi.org/10.1017/jmo.2019.84 Published online by Cambridge University Press

going from task to task, and constantly fighting fires. For instance, the Mars Climate Orbiter crash in 1999 has been used as an example of the dangers of firefighting:

> The crash was traced to a simple communication problem – one engineering group used metric units of measurement, another used English units – but that explanation masks a more complex underlying problem. According to a NASA report published shortly before the crash, the subcontractor staff early in the project was smaller than planned. This led to delays, work-arounds, and poor technical decisions, all of which required catch-up work later. Engineering staff was borrowed from other projects in their early phases – thus forcing those projects into the same position. Engineers worked 70-hour weeks to meet deadlines, causing more errors in the short run and declines in effectiveness in the long run. Early warning signs were missed or ignored. According to a report after the crash, the navigation error that caused the crash could probably have been corrected by a contingency burn, but a decision on whether to perform the burn was never made because of the crush of other urgent work. This is classic fire fighting (Bohn, 2000).

As a result, in contrast to this tragic experience at NASA, innovative firms need their employees to be able to focus on interesting projects that might one day lead to high rewards.

Managerial Power, Slack Resources, and Innovation

While human slack may be relatively sticky compared to financial resources it is still subject to allocation decisions by the managers of the firm. Previous research showed that powerful CEOs can have tremendous impact on a range of issues from the firm's strategic direction to the selection of a new CEO when it comes to succession choice (Demb & Neubauer, 1992; Lorsch & Maclver, 1989). Researchers can generally agree that CEO power can be broadly defined as the asymmetric control over treasured resources (Emerson, 1962; Keltner, Gruenfeld, & Anderson, 2003; Magee & Galinsky, 2008; Pfeffer & Salancik, 1978). Many studies in fact focus on the power dynamics between CEOs and the other members of the top management team (Smith, Houghton, Hood, & Ryman, 2006; Greve & Mitsuhashi, 2007). Given the impact of human slack on innovation in firms, we therefore suggest that such a valued resource will highly interest a CEO, and will thus warrant oversight. This study extends this literature by suggesting that a powerful CEO will have an impact on large resource allocation issues, specifically when it comes to human slack.

However, just because a CEO takes interest in a resource the direction of that interest remains an open question. The vital relationship that exists between human slack and firm innovation can be negatively impacted by this powerful CEO, after all, a CEO could have other motivations than innovation such as short-term remuneration. We theorize that the impact of HR slack on firm innovation is also determined by how an organization uses its slack resources (e.g., Hu, Tam, & Tan, 2010). CEO power, therefore, could potentially moderate this relationship between excess HRs and a firm's commitment to innovation because CEO power would directly influence how these human slack resources will be deployed. Research has shown that to the extent power is concentrated it is prone to be used (Greve & Mitsuhashi, 2007).

Another important aspect of CEO behavior is their risk aversion. Since the CEO cannot diversify their job, they are less inclined to undertake risky investments that well-diversified shareholders may wish them to take, for example, high variance but high expected value investments will be shunned (Abdel-Khalik, 2007). This behavior is consistent with agency theory that agents can deviate from the goals of the principles (Jensen & Meckling, 1976).

Partially following Haynes and Hillman (2010) we focus on an important measure that could act as a proxy of CEO power. Managerial ownership is simply the portion of the firm owned by the CEO, the more of their firm they own, the more powerful they are. Therefore, due to risk

https://doi.org/10.1017/jmo.2019.84 Published online by Cambridge University Press

aversion, the more powerful the CEO is, the less the CEO is inclined to allocate valuable human slack to inherently risky innovation activities.

Hypothesis H1: Managerial power negatively moderates the relationship between human slack and firm innovation intensity.

However, there are some very real constraints on CEO discretion. Popularized by Porter (1980) industry structure constrains what firms can do and shapes their strategy. This key structural characteristic of an industry has an impact on the nature of the relationships and interactions of different competitors within that industry (Scherer & Ross, 1990; Waldman & Jensen, 2001). Highly concentrated industries are known to contain just a few major players with significant market shares. The opposite is true of industries with lower levels of concentration that have a much greater number of firms and these firms have smaller market shares. Even a CEO who is powerful internally may still see their discretion limited by external factors. CEOs in highly competitive industries have less discretion than CEOs in less competitive industries. For instance, in pharmaceuticals or biotech industries, CEOs can expect to see their initiatives fulfilled and their input matters a great deal. As a result, we expect industry concentration to greatly effect the influence CEOs have in innovation activities in their firms.

What would CEOs do with this influence? We argue that CEOs will select lower variance return options than uncertain longer-term innovation projects. This is consistent with CEO risk aversion and common compensation structures that emphasis the short-term focus on quarterly returns. Therefore, we expect industry structure to moderate the influence of CEOs on the effect of HR slack on their innovation.

Hypothesis H2: In more concentrated industries, the impact of managerial power will be more apparent, that is, managerial ownership will more strongly negatively moderate the human slack–firm innovation intensity relationship.

Methods

Sample description

Our sample consists of all publicly traded U.S. firms on the NYSE, AMEX, and Nasdaq from 1993 to 2013. We exclude financial service firms and utility firms (SIC codes 6000–6999 and 4900–4999, respectively). For all accounting variables we relied on the Compustat database while we obtained stock returns data from CRSP. We excluded firms with incomplete Compustat asset, sales, or R&D data. We specifically obtained CEO ownership and CEO duality data from the Execucomp database. We merged CRSP with Compustat using the variable *cusip*. We matched firms from this merged CRSP Compustat database with firms from the Execucomp database using the variable *gvkey*. The resultant sample, which is the basis of model 1, consists of 13,942 observations. If we include human slack, as defined below, and CEO ownership in our empirical model, the sample size reduces to 13,490 firm years. As a result, models 2 and 3 has 13,490 observations.

We also divide our sample into more concentrated (or less competitive) and less concentrated (more competitive) industry firms. *HHI* is a Herfindahl index, an industry based index given as $\sum_{i=1}^{N} s_i^2$ where s is the sales of ith firm and there are N firms in the industry. If a firm's *HHI* is above the industry median *HHI*, the firm belongs to more concentrated (or less competitive) industry. The results reported in Table 3 are based on samples of firms belonging to more concentrated industries. If a firm's *HHI* is below the industry median *HHI*, the firm belongs to less concentrated (or more competitive) industry. The results reported in Table 4 are based on firms belonging to less concentrated industries.

https://doi.org/10.1017/jmo.2019.84 Published online by Cambridge University Press

Measures

Dependent variable

Our principle dependent variable, firm innovation intensity is measured by *R&D/Asset*, which is the ratio of *xrd* to *at*, where *xrd* is R&D expenditure from Compustat and *at* is the total assets as reported in Compustat.

Independent variables

Human slack was calculated as (firm employees/firm sales – industry employees/industry sales) (Mishina, Pollock, & Porac, 2004). Firm employees is variable *emp* from Execucomp, sales is variable *sale* from Compustat. Industry is defined by the three digit SIC code, also found in Compustat. Positive *human slack* indicates that the firm has more HRs at its disposal than its industry peers which can be allocated toward innovation. Negative *human slack* implies that managers are constrained in terms of human capital and cannot afford to allocate human capital toward innovation.

Moderator variables: proxy for CEO power

One moderator was used as a measure of CEO power. *Ownership* was measured as the percentage of the company owned by the CEO, see Francis and Smith (1995).

Control variables

We controlled for *firm age* (current year – year the firm went public) and *firm size* (total firm assets, in millions of dollars). *Asset* is the variable *at* from Compustat. *Size* is the log of *asset* (variable *at* as reported in Compustat). Larger and older firms should have more resources to allocate to innovation (Cohen & Klepper, 1996; Hansen, 1992). We controlled for *leverage*, defined as the sum of long-term debt (variable *dltt* from Compustat) and short-term debt (variable *dlc* from Compustat) divided by variable *asset* (Singh & Faircloth, 2005). *Profitability* is the sum of income, before extraordinary income, and depreciation scaled by total assets (Audretsch, 1995). Tobin's *q* – growth opportunities, where Tobin's *q* is the ratio of market value of assets to book value of assets. Market value of total assets is the sum of the book value of total assets (variable *pstkl* from Compustat), market value of equity, long-term debt (variable *dltt* from Compustat) and short-term debt (variable *dlc* from Compustat) minus the sum of the book value of common equity (variable *ceq* from Compustat) and balance sheet value of deferred taxes (variable *txditc* from Compustat). Market value of equity is the product of number of shares outstanding (variable *cshpri* from Compustat) and price per share at the fiscal year end (variable *prcc_f* from Compustat) (Szewczyk, Tsetsekos, & Zantout, 1996). We also controlled for stock returns *volatility*, the variance of stock returns for the previous year using daily stock returns data (variable *ret* from CRSP) (Mazzucato & Tancioni, 2013; Core & Guay, 1999). *Leverage* is defined as the sum of long-term debt (variable *dltt* from Compustat) and short-term debt (variable *dlc* from Compustat) divided by variable *asset*. *Firm age* is defined by the number of years the firm is present in the Compustat database. *Duality* is an indicator variable which takes the value of 1 if the CEO is also the Chairman of the board and 0 otherwise.

Methods of analysis

We employed panel regression and included firm fixed effects to incorporate any omitted and unobserved firm-specific factors, year fixed effects to control for macroeconomic conditions which may affect *R&D* and differ across sample years, and industry fixed effects to account for any omitted industry specific factors which may be driving the results. We used Newey West standard errors while measuring the *t* statistics to control for the possibility of heteroskedasticity in the error terms.

https://doi.org/10.1017/jmo.2019.84 Published online by Cambridge University Press

Results

In Table 1, we report the descriptive statistics of our dependent and independent variables. The correlation coefficients between all of our variables are also reported in Table 1. None of the correlation coefficients are large enough to indicate multicollinearity.

In Table 2, we report the results of the regression analysis with all firms in our sample. Model 1 includes all the control variables. The coefficients of the control variables are as expected and reported in previous papers. In model 2, we include *ownership* as a variable of interest along with the control variables. We also include *human slack*; whose coefficient is 1.4285 and is statistically significant. In column 3, we report the results for model 3 which includes the interaction of *human slack* with *ownership*. The coefficient of *human slack* with *ownership* is negative (−.0739) and significant (*t* stat is −2.35), lending support to hypothesis 1.

We divide our sample into more concentrated (or less competitive) and less concentrated (more competitive) industry firms, as defined above. The results for the firms belonging to the more concentrated industry are reported in Table 3.

In column 1, we include only the control variables in the regression analysis. In model 2, the variables of interest, *ownership* and *human slack*, are included in the model. *Ownership* is not statistically significant. The *human slack* coefficient is positive (1.3982) and is statistically significant (*t* stat 8.18). We are interested in determining if the variable *ownership* moderates the relationship between *firm innovation intensity* and *human slack*. In model 3, the interaction of *human slack* with *ownership* is included in the model. The interaction is negative (−.0794) and highly significant (*t* stat −3.68). Not only the coefficient of the interaction term increased in magnitude (−.0794 from −.0739), compared to model 3 of Table 2, the corresponding *t* statistics also increased from −2.35 to −3.68, lending support to hypothesis 2.

In Table 4, we report the results for the sample of firms which belong to less concentrated and hence more competitive industries.

We report models 1, 2, and 3, similar to the ones reported in Tables 2 and 3. In model 1, we report the control variables. In model 2, we include *ownership* and *human slack*. In model 3, the interaction of *human slack* and *ownership* is included in the model. This interaction is less in magnitude (−.0744), compared to the more concentrated firms, (model 3 of Table 3, coefficient being −.0794). Further, this interaction term is statistically insignificant. The contrast between the more concentrated and less concentrated firms is stark. *Ownership* negatively moderates the relationship between *firm innovation intensity* and *human slack* for the firms belonging to the more concentrated industries, and not so for the less concentrated industry firms, lending support to hypothesis 2.

Discussion

The implications of our results are summarized in Figure 1. Powerful CEOs in concentrated industries (box 1) have both the firm level power and environmental flexibility to allocate slack HRs as they see fit. As a result, they allocate them away from relatively risky innovation activities toward other activities, for example, marketing. In contrast, even powerful CEOs who should be able to institute firm level change if they are confronted with many competitors (box 3) are still compelled to follow the industry norms and do not meaningfully impact the allocation of human slack toward or away from innovation activities. Weak CEOs in concentrated industries lack the firm level power to institute change (e.g., overcome inertia) and so do not meaningfully alter human slack's allocation toward innovation. Similarly, weak CEOs in competitive industries are doubly constrained by both firm and industry in altering resource allocation toward or away from innovation activities.

So, not surprisingly CEOs matter. However, sometimes they matter more than others. We hypothesized that, if allowed by the industry environment, powerful CEOs would allocate human slack, despite its stickiness, to resources other than innovation due to risk aversion.

https://doi.org/10.1017/jmo.2019.84 Published online by Cambridge University Press

Table 1. Descriptive statistics and correlation

	Mean	Std. Dev.	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
r&d	.038	.074	1.000										
profitability	.085	.129	−.244	1.000									
leverage	.224	.185	−.128	−.262	1.000								
tobin's *q*	1.658	1.478	.358	.114	−.105	1.000							
variance	.001	.001	.313	−.271	−.074	.127	1.000						
size	6,491.000	19,227.000	−.056	.037	.208	−.061	−.166	1.000					
firm age	27.922	16.385	−.174	.073	.068	−.167	−.364	.250	1.000				
human slack	.000	.003	.067	−.164	.058	.004	.039	−.095	−.074	1.000			
ownership	1.726	4.646	−.052	.022	−.034	.016	.068	−.083	−.169	.040	1.000		
duality	.611	.488	−.100	.031	.072	−.031	−.159	.109	.168	.023	.105	1.000	
Gindex	9.466	2.705	−.123	.020	.129	−.129	−.233	−.019	.352	.003	−.146	.130	1.000

Note: $p < .05$ for $r > .015$ and $p < .01$ for $r > .021$.

Table 2. Panel regression of firm innovation intensity on lag firm innovation intensity and human slack and managerial power

This table presents summary statistics of the variables used in this study. Our sample consists of all publicly traded U.S. firms on the NYSE, AMEX, and Nasdaq from 1993 to 2013. We exclude financial services firms and utility firms (SIC codes 6000–6999 and 4900–4999, respectively). We exclude firms with incomplete Compustat asset or sales data. *R&D/Asset* is the ratio of *xrd* to *at*, where *xrd* is R&D expenditure from Compustat and *at* is the total assets as reported in Compustat. *Human slack* is defined as (firm employees/firm sales – industry employees/industry sales). Firm employees is variable *emp* from Execucomp, sales is variable *sale* from Compustat. Industry is defined by the three digit SIC code, also found in Compustat. *Asset* is the variable *at* from Compustat. *Size* is the log of *asset* (variable *at* as reported in Compustat). *Leverage* is defined as the sum of long-term debt (variable *dltt* from Compustat) and short-term debt (variable *dlc* from Compustat) divided by variable *asset*. Tobin's *q* is the ratio of market value of assets to book value of assets. Market value of total assets is the sum of the book value of total assets (variable *pstkl* from Compustat), market value of equity, long-term debt (variable *dltt* from Compustat) and short-term debt (variable *dlc* from Compustat) minus the sum of the book value of common equity (variable *ceq* from Compustat) and balance sheet value of deferred taxes (variable *txditc* from Compustat). Market value of equity is the product of number of shares outstanding (variable *cshpri* from Compustat) and price per share at the fiscal year end (variable *prcc_f* from Compustat). *Volatility* is the variance of stock returns for the previous year using daily stock returns data (variable *ret* from CRSP). *Firm age* is defined by the number of years the firm is present in the Compustat database. *G-index* is the variable *gindex* from Riskmetrics. Our measure of industry is the three digit SIC code. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively.

This table presents the estimates from panel regression of firm innovation intensity on lag firm innovation intensity, human slack, managerial power and human slack*managerial power. Dependent variable is the ratio of R&D to total asset, which is a proxy for firm innovation intensity. All the models have lag value of R&D to total asset as an independent variable. Firm fixed effect, industry fixed effect and year fixed effect are included in all the models. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively

	Model 1	Model 2	Model 3
lag rd_inv	.0364***	.0311***	.0314***
	(5.0240)	(4.186)	(4.220)
profitability	−.0420***	−.0370***	−.0368***
	(−12.0463)	(−10.262)	(−10.218)
leverage	−.0002	−.002	−.002
	(−.0528)	(−.504)	(−.504)
tobinq	.0037***	.0037***	.0037***
	(10.5187)	(10.059)	(10.064)
lagprofitability	−.0051	−.003	−.003
	(−1.4513)	(−.836)	(−.830)
lagleverage	−.0108***	−.0099***	−.0099***
	(−3.3731)	(−2.984)	(−3.016)
lagtobinq	.0040***	.0038***	.0038***
	(12.3930)	(11.001)	(11.008)
lag log(variance)	−.0017*	−.002*	−.002*
	(−1.6507)	(−1.704)	(−1.673)
size	−.0042***	−.0039***	−.0039***
	(−4.7056)	(−4.263)	(−4.318)
firm_age	.0004*	.0006***	.0006***
	(1.8230)	(2.829)	(2.920)
duality	−.0003	.000	.000
	(−.2856)	(−.293)	(−.328)
ownership		.000	.000
		(.935)	(1.236)

(*Continued*)

https://doi.org/10.1017/jmo.2019.84 Published online by Cambridge University Press

Table 2. (*Continued.*)

	Model 1	Model 2	Model 3
human slack		1.4285***	1.5951***
		(6.711)	(7.111)
human slack × ownership			
			−.0739** (−2.350)
constant	.0374**	.0335**	.0338**
	(2.8501)	(2.484)	(2.507)
R^2	.050	.051	.052
N	13,942	13,490	13,490

Table 3. Panel regression of firm innovation intensity on lag firm innovation intensity and human slack and managerial power for firms belonging to more concentrated industry

This table presents summary statistics of the variables used in this study. Our sample consists of all publicly traded U.S. firms on the NYSE, AMEX, and Nasdaq from 1993 to 2013. We exclude financial services firms and utility firms (SIC codes 6000–6999 and 4900–4999, respectively). We exclude firms with incomplete Compustat asset or sales data. *R&D/Asset* is the ratio of *xrd* to *at*, where *xrd* is R&D expenditure from Compustat and *at* is the total assets as reported in Compustat. *Human slack* is defined as (firm employees/firm sales – industry employees/industry sales). Firm employees is variable *emp* from Execucomp, sales is variable *sale* from Compustat. Industry is defined by the three digit SIC code, also found in Compustat. *Asset* is the variable *at* from Compustat. *Size* is the log of *asset* (variable *at* as reported in Compustat). *Leverage* is defined as the sum of long-term debt (variable *dltt* from Compustat) and short-term debt (variable *dlc* from Compustat) divided by variable *asset*. Tobin's *q* is the ratio of market value of assets to book value of assets. Market value of total assets is the sum of the book value of total assets (variable *pstkl* from Compustat), market value of equity, long-term debt (variable *dltt* from Compustat) and short-term debt (variable *dlc* from Compustat) minus the sum of the book value of common equity (variable *ceq* from Compustat) and balance sheet value of deferred taxes (variable *txditc* from Compustat). Market value of equity is the product of number of shares outstanding (variable *cshpri* from Compustat) and price per share at the fiscal year end (variable *prcc_f* from Compustat). *Volatility* is the variance of stock returns for the previous year using daily stock returns data (variable *ret* from CRSP). *Firm age* is defined by the number of years the firm is present in the Compustat database. *G-index* is the variable *gindex* from Riskmetrics. HHI (Herfindahl index) is an industry based index given by $\sum_{i=1}^{N} s_i^2$ where *s* is the sales of *i*th firm and there are *N* firms in the industry. Our measure of industry is the three digit SIC code. If a firm's *HHI* is above the industry median *HHI*, the firm belongs to more concentrated (or less competitive) industry. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively.

This table presents the estimates from panel regression of firm innovation intensity on lag firm innovation intensity, human slack, managerial power and human slack × managerial power. Dependent variable is the ratio of R&D to total asset, which is a proxy for firm innovation intensity. All the models have lag value of R&D to total asset as an independent variable. Firm fixed effect, industry fixed effect and year fixed effect are included in all the models. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively

	Model 1	Model 2	Model 2
lag rd_inv	−.0332***	−.0358***	−.0356***
	(−3.767)	(−4.030)	(−4.016)
profitability	−.0310***	−.0260***	−.0259***
	(−11.631)	(−9.679)	(−9.622)
leverage	−.0060**	−.0008	−.0007
	(2.313)	(−.301)	(−.272)
tobinq	.0027***	.0028***	.0028***
	(8.896)	(7.969)	(7.955)

(*Continued*)

https://doi.org/10.1017/jmo.2019.84 Published online by Cambridge University Press

Table 3. (*Continued.*)

	Model 1	Model 2	Model 2
lagprofitability	.0056**	.0109***	.0111***
	(2.278)	(4.337)	(4.376)
lagleverage	−.0028	−.00037	−.00051
	(−1.321)	(−.171)	(−.236)
lagtobinq	.0038***	.0025***	.0025***
	(14.053)	(8.049)	(8.047)
lag log(variance)	.0007	.0008	.0008
	(1.032)	(1.204)	(1.257)
size	−.0001	−.0000	−.0002
	(−.195)	(−.075)	(−.278)
firm_age	−.0001	.0001	.0001
	(.737)	(.697)	(.948)
duality	−.0009	−.001	−.0009
	(−1.429)	(−1.504)	(−1.469)
ownership		−.0000	.0000
		(−.290)	(.447)
human slack		1.3982***	1.6432***
		(8.180)	(8.966)
human slack × ownership			−.0794*** (−3.680)
constant	.0268***	.0237**	.0241***
	(2.930)	(2.549)	(2.590)
R^2	.075	.080	.083
N	6,917	6,705	6,705

That hypothesis is consistent with the data. Compared to other functional activities, innovation, due to high failure rates and distant time horizons, powerful CEOs who have the opportunity, will prefer to allocate slack resources away from innovation, corporate governance protection may be able to help offset this.

Other findings of interest include general support for human slack being positively correlated with innovation (Table 2). It maybe that the stickiness of these resources helps overcome the long-term time frame innovation requires. Thus, contributing directly to the slack literature by focusing on human slack, where most previous studies focused on financial slack, and therefore increasing our understanding of its interplay with innovation and CEO Power.

We also hope our study helps us understand a bit more what Vanacker, Collewaert, and Paeleman (2013) termed the black box between slack resources and different important dependent variables by digging deeper into when, where, and how these resources influence innovation. We also hope that this study more generally enriches previous theoretical research that focuses on the relationship between slack and innovation (e.g., Nohria and Gulati, 1996; Mellahi and Wilkinson, 2010).

https://doi.org/10.1017/jmo.2019.84 Published online by Cambridge University Press

Table 4. Panel regression of firm innovation intensity on lag firm innovation intensity and human slack and managerial power for firms belonging to less concentrated industry

This table presents summary statistics of the variables used in this study. Our sample consists of all publicly traded U.S. firms on the NYSE, AMEX, and Nasdaq from 1993 to 2013. We exclude financial services firms and utility firms (SIC codes 6000–6999 and 4900–4999, respectively). We exclude firms with incomplete Compustat asset or sales data. *R&D/Asset* is the ratio of *xrd* to *at*, where *xrd* is R&D expenditure from Compustat and *at* is the total assets as reported in Compustat. *Human slack* is defined as (firm employees/firm sales – industry employees/industry sales). Firm employees is variable *emp* from Execucomp, sales is variable *sale* from Compustat. Industry is defined by the three digit SIC code, also found in Compustat. *Asset* is the variable *at* from Compustat. *Size* is the log of *asset* (variable *at* as reported in Compustat). *Leverage* is defined as the sum of long-term debt (variable *dltt* from Compustat) and short-term debt (variable *dlc* from Compustat) divided by variable *asset*. Tobin's *q* is the ratio of market value of assets to book value of assets. Market value of total assets is the sum of the book value of total assets (variable *pstkl* from Compustat), market value of equity, long-term debt (variable *dltt* from Compustat) and short-term debt (variable *dlc* from Compustat) minus the sum of the book value of common equity (variable *ceq* from Compustat) and balance sheet value of deferred taxes (variable *txditc* from Compustat). Market value of equity is the product of number of shares outstanding (variable *cshpri* from Compustat) and price per share at the fiscal year end (variable *prcc_f* from Compustat). *Volatility* is the variance of stock returns for the previous year using daily stock returns data (variable *ret* from CRSP). *Firm age* is defined by the number of years the firm is present in the Compustat database. *G-index* is the variable *gindex* from Riskmetrics. HHI (Herfindahl index) is an industry based index given by $\sum_{i=1}^{N} s_i^2$ where *s* is the sales of *i*th firm and there are *N* firms in the industry. Our measure of industry is the three digit SIC code. If a firm's *HHI* is below the industry median *HHI*, the firm belongs to less concentrated (or more competitive) industry. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively.

This table presents the estimates from panel regression of firm innovation intensity on lag firm innovation intensity, human slack, managerial power and human slack × managerial power. Dependent variable is the ratio of R&D to total asset, which is a proxy for firm innovation intensity. All the models have lag value of R&D to total asset as an independent variable. Firm fixed effect, industry fixed effect and year fixed effect are included in all the models. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Model 1	Model 1	Model 2
lag rd_inv	.0306***	.0221**	.0223**
	(2.857)	(1.995)	(2.016)
profitability	−.0490***	−.0429***	−.0429***
	(−8.071)	(−6.786)	(−6.770)
leverage	−.0017	−.0011	−.0012
	(−.238)	(−.152)	(−.167)
tobinq	.0039***	.0039***	.0039***
	(6.743)	(6.587)	(6.586)
lagprofitability	−.0194***	−.0189***	−.0190***
	(−2.94)	(−2.799)	(−2.807)
lagleverage	−.0201***	−.0196***	−.0196***
	(−3.209)	(−3.025)	(−3.032)
lagtobinq	.0049***	.0049***	.0049***
	(9.156)	(8.961)	(8.973)
lag log(variance)	−.0033*	−.0039*	−.0039*
	(−1.588)	(−1.796)	(−1.793)
size	−.0082***	−.0079***	−.0080***
	(−4.716)	(−4.430)	(−4.438)
firm_age	.0008**	.0012***	.0012***
	(1.987)	(2.625)	(2.643)
duality	.0002	.0002	.0001
	(.1252)	(.096)	(.041)

(*Continued*)

https://doi.org/10.1017/jmo.2019.84 Published online by Cambridge University Press

Table 4. (*Continued.*)

	Model 1	Model 1	Model 2
ownership		.0002	.0003
		(1.145)	(1.248)
human slack		1.5313***	1.6749***
		(4.146)	(4.345)
human slack × ownership			−.0744
			(−1.299)
constant	.0427	.0342	.0341
	(1.274)	(.627)	(.624)
R^2	.058	.058	.058
N	7,024	6,784	6,784

Another finding is that profitability has a negative correlation with innovation which suggests that firms will be more motivated by 'problemestic' search (Greve, 2003). This type of 'search that is stimulated by a problem and is directed to finding a solution to that problem' (Cyert & March, 1963/1992: 121). We suspect that profitability breeds complacency and reinforces risk aversion in firms and CEOs.

The findings of our study also contribute to the push/pull innovation debate – is innovation pulled by slack resources in firms as exemplified by 3M and Google or is it pushed by industry environment and competitiveness? Our results suggest unless they are constrained by industry forces CEOs do not invest as much in innovation activities. So, ironically firms will be pulled along to innovation by slack HRs but only when the CEO is pushed by industry forces.

R&D spending patterns certainly vary by industry (see e.g., Ganuza, Llobet, & Dominguex [2009] for a discussion of R&D spending in the pharmaceutical industry). Future work can examine specific industries and test if managerial power can moderate the relationship between R&D and human slack. For example, the pharmaceutical industry, which is an industry where both R&D spending and human slack are important components.

Our study has several limitations. Even though we used panel data, our study still suffers from the limitations associated with secondary data. For example, in measuring CEO power or slack we had to rely on proxies instead of direct measure. While these proxies have been widely used in the literature, our results are still conditional upon them. Another limitation is the focus on U.S. publicly listed firms only. The effects of private equity on innovative activities by firms are interesting and could vary from what we have discovered here. The results could also differ when considering international firms especially those from countries with a long-term orientation.

Despite its limitations for scholars our results suggest that the benefits of innovation are still not fully appreciated by top management teams. If CEOs who have the discretion to invest in innovation select not to do so in exchange for benefits perceived as more immediate and/or certain then the innovation story is not being told well enough. Our results suggest that profitable firms, despite exemplars such as 3M and Alphabet, often do not seek to invest in innovation. Some hope does come from Lecuona and Reitzig (2014) who demonstrate that tacit and firm-specific HR slack, the type more likely to be used for exploratory innovation, is correlated with higher firm performance than codified (routine knowledge) HR slack.

For managers, executives, and investors, our results are even more important. If permitted, CEOs will underinvest in innovation relative to their peers. Given the importance of innovation

https://doi.org/10.1017/jmo.2019.84 Published online by Cambridge University Press

HIGH CEO Power LOW	CEO has discretion at both firm and industry level – allocates available human slack away from innovation. (box 1)	CEO is powerful at firm level but constrained by actions of competitors, so follows the herd. (box 3)
	CEO has discretion at industry level but is weak at firm level - submits to firm inertia. (box 2)	CEO's discretion is constrained at both the firm and industry level - submits to firm inertia and industry pressure. (box 4)
	Concentration: HIGH	LOW

Figure 1. Table summary of CEO power and industry concentration

over the long term for firm survival this underinvestment should be cause for alarm (Christensen, 1997). It is not surprising though to find that managers short term might want to utilize the excess HRs into other projects that might show more immediate returns. It is still a very difficult challenge for managers to predict or estimate how much resource should R&D take. Therefore, the optimal level of resources required to maximize R&D is a very difficult question that should be considered carefully.

References

Abdel-Khalik, A. R. (2007). An empirical analysis of CEO risk aversion and the propensity to smooth earnings volatility. *Journal of Accounting, Auditing & Finance*, *22*(2), 201–235.

Afuah, A. (2003). *Innovation management: Strategies, implementation and profits*. New York, NY: Oxford University Press.

Arthur, W. B. (1989). Competing technologies, increasing returns, and lock-in by historical events. *The Economic Journal*, *99*, 116–131.

Audretsch, D. B. (1995). Innovation, growth and survival. *International Journal of Industrial Organization*, *13*(4), 441–457.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*(1), 99–120.

Bigley, G. A., & Wiersema, M. F. (2002). New CEOs and corporate strategic refocusing: How experience as heir apparent influences the use of power. *Administrative Science Quarterly*, *47*(4), 707–727.

Bohn, R. (July–Aug 2000). Stop fighting fires. *Harvard Business Review*, *78*(4), 83–91.

Bourgeois, L. J. (1981). On the measurement of organizational slack. *Academy of Management Review*, *6*(1), 29–39.

Chi, M. T. H., Glaser, R., & Farr, M. J. (Eds.). (1988). *The nature of expertise*. Mahwah, NJ: Lawrence Erlbaum Associates.

Child, J. (1972). Organizational structure, environment and performance: The role of strategic choice. *Sociology*, *6*(1), 1–22.

Christensen, C. M. (1997). *The innovator's dilemma: When new technologies cause great firms to fail*. Boston: Harvard Business School Press.

Cohen, W. M., & Klepper, S. (1996). Firm size and the nature of innovation within industries: The case of process and product R&D. *The Review of Economics and Statistics*, *78*(2), 232–243.

Core, J., & Guay, W. (1999). The use of equity grants to manage optimal equity incentive levels. *Journal of Accounting and Economics*, *28*(2), 151–184.

Cyert, R. M., & March, J. G. (1963/1992). *A behavioral theory of the firm*. Englewood Cliffs, NJ: Prentice-Hall.

Daily, C. M., & Johnson, J. L. (1997). Sources of CEO power and firm financial performance: A longitudinal assessment. *Journal of Management*, *23*(2), 97–117.

Daniel, F., Lohrke, F. T., Fornaciari, C. J., & Turner, R. A. (2004). Slack resources and firm performance: A meta-analysis. *Journal of Business Research*, *57*(6), 565–574.

David, P. A. (1985). Clio and the economics of QWERTY. *The American Economic Review*, *75*(2), 332–337.

Demb, A., & Neubauer, F. (1992). *The corporate board: Confronting the paradoxes*. Oxford: Oxford University Press.

Dierickx, I., & Cool, K. (1989). Asset stock accumulation and sustainability of competitive advantage. *Management Science*, *35*(12), 1504–1511.

Emerson, R. M. (1962). Power-dependence relations. *American Sociological Review*, *27*(1), 31–41.

Francis, J., & Smith, A. (1995). Agency costs and innovation some empirical evidence. *Journal of Accounting and Economics*, *19*(2), 383–409.

Ganuza, J., Llobet, G., & Dominguex, B. (2009). R&D in the pharmaceutical industry: A world of small innovations. *Management Science*, *55*, 539–551.

https://doi.org/10.1017/jmo.2019.84 Published online by Cambridge University Press

Greve, H. R. (2003). A behavioral theory of R&D expenditures and innovations: Evidence from Shipbuilding. *Academy of Management Journal*, *46*(6), 685–702.
Greve, H. R., & Mitsuhashi, H. (2007). Power and glory: Concentrated power in top management Teams. *Organization Studies*, *28*(8), 1197–1221.
Hansen, J. (1992). Innovation, firm size and firm age. *Small Business Economics*, *4*, 37–44.
Haynes, K. T., & Hillman, A. (2010). The effect of board capital and CEO power on strategic change. *Strategic Management Journal*, *31*(11), 1145–1163.
Herold, D. M., Jayaraman, N., & Narayanaswamy, C. R. (2006). What is the relationship between organizational slack and innovation?. *Journal of Managerial Issues*, *18*, 372–392.
Hoffman, E. (2019). IBISWorld Industry Report 51721. 'The proliferation of mobile phones has spurred demand for wireless services'. Retrieved July 25, 2019 from IBISWorld database.
Hu, H. W., Tam, O. K., & Tan, M. G. S. (2010). Internal governance mechanisms and firm performance in China. *Asia Pacific Journal of Management*, *27*(4), 727–749.
Iyer, B., & Davenport, T. H. (2008). Reverse engineering Google's innovation machine (cover story). *Harvard Business Review*, *86*(4), 58–68.
Jensen, M., & Meckling, W. (1976). Theory of the firm: Managerial behavior agency cost and ownership structure. *Journal of Financial Economics*, *3*(4), 305–360.
Keltner, D., Gruenfeld, D. H., & Anderson, C. (2003). Power, approach, and inhibition. *Psychological Review*, *110*(2), 265.
Knorr-Cetina, K. (1999). *Epistemic cultures: How scientists make sense*. Chicago: Indiana.
Lecuona, J. R., & Reitzig, M. (2014). Knowledge worth having in 'Excess': The value of tacit and firm-specific human resource slack. *Strategic Management Journal*, *35*, 954–973.
Lorsch, J. W., & Maclver, E. (1989). *Pawns or potentates: The reality of America's corporate boards*. Boston, MA: Harvard Business School Press.
Magee, J. C., & Galinsky, A. D. (2008). Social hierarchy: The self-reinforcing nature of power and status. *The Academy of Management Annals*, *2*(1), 351–398.
March, J. G. (1981). Footnotes to organizational change. *Administrative Science Quarterly*, *26*(4), 563–577.
Mazzucato, M., & Tancioni, M. (2013). R&D. Patents and stock returns volatility. *Journal of Evolutionary Economics*, *22*(4), 811–832.
Mellahi, K., & Wilkinson, A. (2010). A study of the association between level of slack reduction following downsizing and innovation output. *Journal of Management Studies*, *47*(3), 483–508.
Mishina, Y., Pollock, T. G., & Porac, J. F. (2004). Are more resources always better for growth? Resource stickiness in market and product expansion. *Strategic Management Journal*, *25*(12), 1179–1197.
Moses, J. (2019). IBISWorld Industry Report 51711b. 'Interrupted signal: the growing availability of online content will continue to threaten satellite providers'. Retrieved July 26, 2019 from IBISWorld database.
Mousa, F. T., & Chowdhury, J. (2014). The relationship between organizational slack and firm innovation: Revisited. *American Journal of Business*, *29*(1), 26–42.
Nohria, N., & Gulati, R. (1996). Is slack good or bad for innovation? *Academy of Management Journal*, *39*(5), 1245–1264.
Nohria, N., & Gulati, R. (1997). What is the optimum amount of organizational slack?: A study of the relationship between slack and innovation in multinational firms. *European Management Journal*, *15*(6), 603–611.
Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science*, *5*(1), 14–37.
Penrose, E. (1959). *The theory of the firm*. New York: John Wiley & Sons.
Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations*. New York: Harper & Row.
Porter, M. E. (1980). *Competitive strategy*. New York: Free Press.
Rechner, P. L., & Dalton, D. R. (1991). CEO duality and organizational performance: A longitudinal analysis. *Strategic Management Journal*, *12*(2), 155–160.
Salancik, G. R., & Pfeffer, J. (1977). Who gets power – and how they hold on to it: A strategic-contingency model of power. *Organizational Dynamics*, *5*(3), 3–21.
Scherer, F., & Ross, D. (1990). *Industrial market structure and economic performance*. Boston, MA: Houghton Mifflin.
Singh, M., & Faircloth, S. (2005). The impact of corporate debt on long term investment and firm Performance. *Applied Economics*, *37*(8), 875–883.
Smith, A., Houghton, S. M., Hood, J. N., & Ryman, J. A. (2006). Power relationships among top managers: Does top management team power distribution matter for organizational performance?. *Journal of Business Research*, *59*(5), 622–629.
Szewczyk, S. H., Tsetsekos, G. P., & Zantout, Z. (1996). The valuation of corporate R&D expenditures: Evidence from investment opportunities and free cash flow. *Financial Management*, *25*(1), 105–110.
Szulanski, G., & Cappetta, R. (2003). Stickiness: Conceptualizing, measuring, and predicting difficulties in the transfer of knowledge within organizations. In *The Blackwell handbook of organizational learning and knowledge management* (pp. 513–534). Malden, MA & Oxford: Blackwell.
Tan, J. (2003). Curvilinear relationship between organizational slack and firm performance: Evidence from Chinese state enterprises. *European Management Journal*, *21*(6), 740–749.

https://doi.org/10.1017/jmo.2019.84 Published online by Cambridge University Press

Utterback, J. (1994). *Mastering the dynamics of innovation: How companies can seize opportunities in the face of technological change*. University of Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship.

Vanacker, T., Collewaert, V., & Paeleman, I. (2013). The relationship between slack resources and the performance of entrepreneurial firms: The role of venture capital and angel investors. *Journal of Management Studies*, *50*(6), 1070–1096.

Von Hippel, E., Thomke, S., & Sonnack, M. (1999). Creating breakthroughs at 3M. *Harvard Business Review*, *77*, 47–57.

Voss, G. B., Sirdeshmukh, D., & Voss, D. (2008). The effects of slack resources and environmental threat on product exploration and exploitation. *Academy of Management Journal*, *51*(1), 147–164.

Waldman, D. E., & Jensen, E.J. (2001). *Industrial organization: Theory and practice*. Reading, MA: Addison-Wesley.

Cite this article: Mousa F-T, Chowdhury J, Gallagher SR (2023). The implications of CEO power on the relationship between firm resources and innovation. *Journal of Management & Organization* **29**, 14–29. https://doi.org/10.1017/jmo.2019.84