ARTICLE IN PRESS

Journal of World Business xxx (xxxx) xxx–xxx

Contents lists available at ScienceDirect

Journal of World Business

journal homepage: www.elsevier.com/locate/jwb

Research paper

# Organizational slack, national institutions and innovation effort around the world

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ARTICLE INFO

*Keywords:*
Behavioral theory of the firm
Institutional theory
Policy environment
International management
Technology and innovation management
Multi-level modeling

ABSTRACT

We develop and test a cross-level theoretical framework assuming that countries differ in national corporate governance institutions (NCGIs) protecting firm shareholders and employees, and that such NCGI protections moderate the firm-level relationship between organizational slack and innovation effort, that is, the purposeful allocation of firm resources toward the development of new products and services (as distinct from the new products and services themselves). We find support for framework predictions in two-stage estimated dependent variable analyses of organizational slack and institutional protections of shareholders and employees at more than 7000 firms from 29 countries observed from 1991 to 2005. Stronger shareholder protections diminish while stronger employee protections magnify slack effects on innovation effort. Our findings contribute to IB research investigating how country-level governance institutions influence firm-level behavior and performance.

## 1. Introduction

For more than 50 years, researchers have investigated Cyert and March's (1963) claim in the behavioral theory of the firm (BTF) that firm efforts to innovate new products and services are supported by organizational slack, that is, resources "in excess of the minimum necessary" (Nohria & Gulati, 1996, p. 1246). That research has typically explained how slack supports innovation effort through close analysis of firm-level slack characteristics—how much or what type of slack firms have (e.g., Chen & Miller, 2007; Greve, 2003). While important, that research underplays another BTF claim that may have particular relevance in cross-country research settings. Cyert and March also held that managerial decision-making is constrained by the need to secure the approval and participation of a broad range of stakeholders. The extent to which organizational slack supports innovation activities may thus be constrained by the need to incorporate the demands of more influential stakeholder groups into firm objectives (March, 1962; Narayanan & Fahey, 1982).

Slack effects on innovation effort may therefore also depend on governance factors, that is, privately-ordered and publicly-regulated arrangements determining the "rights and responsibilities among the parties with a stake in the firm" (Aoki, 2000, p. 11). Managers may set privately-ordered means for determining those rights and responsibilities, but not public regulation, which follows more often from decisions by national legislators and executives. If publicly-regulated rights and responsibilities differ substantially, then firm-level slack effects on innovation effort could also vary across countries. This conjecture fits well with international business (IB) research on national corporate governance systems holding that national institutions play a critical role in shaping stakeholder influence on strategic decisions in domestic firms (Aguilera & Jackson, 2003, 2010).

Research related to this conjecture remains sparse. Prior to Malen (2013), management researchers had not investigated on a cross-country basis how national institutions influence behavioral theory predictions regarding the influence of slack resources on firm-level outcomes. IB and related management studies have investigated how national institutions influence innovation but the focus has been on understanding how institutional factors affect national outcomes like annual country patent counts (e.g. Akkermans, Castaldi, & Los, 2009; Hall & Soskice, 2001; Lundvall, 1992; Nelson, 1993; Taylor, 2004; Whitley, 1999). Focusing on aggregate national outcomes, however, can mask important variation in how individual firms respond to features of the institutional environment. For example, Capron and Guillen (2009) document that stronger national regulations protecting employment reduce the extent of restructuring following cross-border M & A activity, but that this negative effect is weaker for acquiring firms possessing more extensive M & A experience. In short, firm-level research on the relationship between slack and innovation effort has

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http://dx.doi.org/10.1016/j.jwb.2017.07.001
Received 7 August 2016; Received in revised form 14 July 2017; Accepted 25 July 2017
1090-9516/ 

failed to account for how institutional differences in regulatory protection of stakeholders may moderate the strength of those relationships while, at the same time, research examining the influence of national institutions on innovation has failed to account for the extent to which such influences may work through firm-level processes and produce heterogeneous innovation outcomes across firms.

We address this gap by employing a cross-country "institutions view" of firm strategy that distinguishes so much of IB research from other fields (Peng, 2003). We develop a cross-level (Rousseau, 1985) theoretical framework informed by firm-level perspectives on the management of slack and country-level perspectives on regulation and corporate governance. Firm-level elements of our framework explain the direct impact of two types of slack on innovation effort. Financial slack, such as excess cash and other current assets, and human resource (HR) slack, such as excess employees, both increase innovation effort in firms, but do so based on different logics. Financial slack provides a conventional buffer against premature innovation project tapering or cancellation. The more specialized nature of HR slack makes it more difficult to redeploy than financial slack. Activities supported by HR slack thus have commitment-like (Ghemawat, 1991) characteristics that motivate managers to initiate and persist with innovation efforts as part of a broader growth strategy utilizing employee skills and training.

We then add to this framework country-level elements grounded in institutional theory (North, 1990). Institutional factors explain how positive firm-level slack effects on innovation effort may be moderated by "national corporate governance institutions" (NCGIs), that is, public regulations protecting firm stakeholder groups in domestically-domiciled firms (Capron & Guillen, 2009, p. 805). We focus on NCGIs affecting two stakeholder groups: shareholders and employees. In countries with NCGIs providing stronger shareholder protections, the positive firm-level relationship between slack and innovation effort diminishes. Stronger shareholder protections constrain firm managers to afford greater priority to near-term financial performance, thereby weakening the buffering effect and inducing stricter monitoring of and reduced commitment to innovation projects. Stronger employee protections constrain managers to afford greater priority to maintaining employment levels. These regulations strengthen the commitment effect, magnifying the positive effect of HR slack on innovation effort.

We find empirical support for hypotheses derived from this cross-level theoretical framework in analyses of slack and innovation effort in 7083 firms from 29 countries observed from 1991 to 2005. NCGI protections moderate the positive, firm-level effects financial and HR slack on R & D intensity. In countries with stronger NCGI shareholder protections, measured as the number and strength of publicly-regulated shareholder voting and inspection rights (Djankov, La Porta, Lopez-de-Silanes, & Shleifer, 2008; La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1998), positive financial and HR slack effects on firm R & D intensity are diminished. In countries where NCGIs provide stronger protections to employees, measured as the number and strength of regulated employee job security protections and contract requirements (Botero, Djankov, LaPorta, Lopez-de-Silanes, & Shleifer, 2004), positive HR slack effects on firm R & D intensity are magnified. These core results prove robust to reasonable variation in model specification, sampling and estimation strategies.

Our study makes at least three contributions to IB and related research fields. The first is a novel cross-level theoretical framework that explains the slack-innovation effort relationship as a function of both lower firm- and higher country-level institutional factors. This framework contributes to IB research investigating what Aguilera and Jackson (2010, p. 491) call "micro-questions" about the impact of country-level governance on firm behavior and performance. As Aguilera, Florackis, and Kim (2016) note, research in this stream remains underdeveloped. At the same time, by articulating the cross-level influence of NCGIs on tenets developed in the BTF tradition, we also address the recent call to internationalize BTF theory by developing models that account for cross-country institutional differences affecting firm-level behavior and performance (Gavetti, Greve, Levinthal, & Ocasio, 2012). Our framework also contributes to political economy research analyzing cross-country differences in government agencies and policies influencing domestic economic activity (e.g., Ornston, 2012). We advance such research by highlighting the primary importance of firms as sources of slack and innovation, and then by gauging the secondary impact of country-level agencies and policies that can magnify or diminish the innovative impact of firms critical to sustained economic development.

Our second contribution is empirical. We contribute new methods to IB researchers investigating how static institutional characteristics influence relationships and processes at the firm-level. We bring from political economy research a novel two-stage estimated dependent variable (EDV) estimation strategy permitting researchers broad latitude to model and estimate lower-level firm and higher-level country effects jointly determining the impact of firm behavior (Jusko & Shively, 2005; Lewis & Linzer, 2005). Our EDV-based methods advance cross-country, cross-level empirical research by giving researchers more choice in modeling with precision the moderating impact of country-level variables like law and culture that typically evolve only slowly, if at all.

Our third contribution is practice and public policy-oriented. Cross-country evidence that NCGIs change the marginal effect of slack on firm innovation effort represents a substantial advance on past evidence generated from single-country studies (Chen & Miller, 2007; Greve, 2003; Kim, Kim, & Lee, 2008; Lecuona & Reitzig, 2014). That advance matters for managers deciding and politicians often courting those decision-makers on where to locate new R & D facilities and projects around the world. Politicians might strengthen shareholder protections to attract R & D facilities and projects from firms wanting to signal caution and vigilance when seeking to innovate. But politicians might also strengthen employee protections to attract R & D from firms wanting to signal commitment to completing such facilities and projects. In this way, we advance thoughtful debate in national legislatures and multinational boardrooms about how public regulation matters for innovation strategy and public policy.

## 2. Theory and hypotheses

### 2.1. Firm-level framework elements

Brief elaboration on key firm-level concepts lays a foundation for our theoretical framework and related hypotheses for empirical testing. The central concept is slack, which is the stock "of resources in an organization that is in excess of the minimum necessary to produce a given level of organizational output" (Nohria & Gulati, 1996, p. 1246). Prior research has highlighted useful distinctions between absorbed and unabsorbed slack by focusing on human resource and financial types of slack, respectively (e.g., Mishina, Pollock, & Porac, 2004). This distinction is particularly germane to our context as both slack types are influenced by the NCGIs (described in detail below) that comprise the central focus of the study. Singh's (1986) slack categorizations suggest that financial slack is "unabsorbed slack" because of its generic, liquid nature. It is easy to reallocate to various alternative firm activities. HR slack falls under an alternative "absorbed slack" category. People are matched to tasks like projects, assets like plant, property and equipment, and ideas embodied in patents and brands. In transaction cost terms (Teece, 1986), employees are "co-specialized" to projects with dedicated training and education that may lose substantial value when re-deployed to alternative uses.

Both types of slack support "innovation effort," that is, the purposeful allocation of firm resources toward the development of new products and services (innovation inputs) as distinct from the new products and services themselves (realized innovations). Many innovation projects are ultimately unsuccessful in achieving their intended objectives (Van de Ven, Polley, Garud, & Venkataraman, 1999). Numerous