



# Competitive pressure on the rate and scope of innovation<sup>☆</sup>

Kenneth A. Younge<sup>a</sup>, Tony W. Tong<sup>b,\*</sup>

<sup>a</sup> College of Management of Technology, École Polytechnique Fédérale de Lausanne, Switzerland

<sup>b</sup> Leeds School of Business, University of Colorado Boulder, United States

## ARTICLE INFO

### Article history:

Received 3 June 2017

Revised 31 March 2018

Accepted 31 March 2018

### Keywords:

Competitive pressure

Innovation

Merger & acquisition

Takeover

Organization

Hierarchy

Incentive

Patents

## ABSTRACT

While executives play an important role in leading firm innovation, they may economize on efforts to innovate when protected from takeover threat. Middle managers may curtail the rate and scope of innovation when executives are expected to reduce their innovation involvement. We test our prediction by exploiting a natural experiment in Delaware where court rulings increased takeover protection for Delaware firms. Difference-in-differences estimates show that increased takeover protection reduced the *rate* of innovation by firms, and that it also reduced the *scope* of innovation across several key dimensions (technological, temporal, organizational, and international). Consistent with our argument, we find that the negative effect of takeover protection on innovation was weaker for larger firms, where innovation decision making authority is more likely to be delegated to middle managers and executive involvement is lower. Finally, we examine the substitutive relationship between competitive pressures from the takeover market and the product market, and find that the negative effect of takeover protection on innovation was stronger for firms facing low competitive pressure from the product market.

© 2018 Elsevier B.V. All rights reserved.

## 1. Introduction

A prominent body of research in economics and management examines the effect of competition on innovation (Schumpeter, 1939; Hart, 1983; Porter, 1990). Theoretical work has proposed a positive relationship (e.g., Arrow, 1962), a negative relationship (e.g., Dasgupta and Stiglitz, 1980), and an inverted-U relationship (Aghion et al., 2005) between product market competition and innovation; empirical evidence, however, remains inconclusive (Cohen, 2010). Understanding how competitive pressure shapes innovation remains critical for understanding the interplay between management strategy and innovation.

This study departs from previous research in several ways: First, our primary focus is on the effect of competition in the takeover market on innovation, rather than the effect of competition in the product market. While research has long suggested that competitive pressure in the takeover market shapes managerial behavior (Jarrell et al., 1988), we study the effect on innovation of a change in Delaware takeover law that significantly increased the protection of executives from the threat of takeover (Subramanian, 2004; Low, 2009). Second, we move beyond existing research and show that increased takeover protection affects not only the rate of innovation by firms (Atanassov, 2013; Sapra et al., 2014), but also the scope of innovation. Given the growing interest in understanding the *direction* of inventive activity (Lerner and Stern, 2012), our

<sup>☆</sup> We acknowledge the National Natural Science Foundation of China (Nos. 71272131, 71672021 and 71632002) for partial support for this research.

\* Corresponding author.

E-mail addresses: [kenneth.younge@epfl.ch](mailto:kenneth.younge@epfl.ch) (K.A. Younge), [tony.tong@colorado.edu](mailto:tony.tong@colorado.edu) (T.W. Tong).

study opens an important new line of inquiry and develops several new measures of innovation scope. Third, it is long received that organizational hierarchies affect delegation of authority and resource allocation decisions (Williamson, 1975, 1981). Confirming this idea, we show that takeover protection has a lesser effect on the rate and scope of innovation for larger firms where innovation decision making authority is more likely to be delegated down the hierarchy and is thus less affected by competitive pressure in the takeover market. Finally, while early work conjectures that the effects of competition in the takeover and product markets interact (e.g., Hart, 1983), there has been little empirical study of the proposition with respect to innovation. We find a substitutive relationship between competitive pressures from the takeover market and the product market, and show that these forces interact to shape both the rate and the scope of firm innovation.

Innovation involves a continual search for new knowledge components and new means of recombination (Schumpeter, 1939; Nelson and Winter, 1982). Such search is often characterized by considerable uncertainty (Levinthal, 1997; Fleming, 2001), and as a result, researchers have maintained that the management of innovation requires “substantial human effort” (Holmstrom, 1989: 309) and keen attention by managers (Van de Ven, 1986). Despite such requirements, managers in an imperfectly competitive environment may prefer to enjoy a “quiet life” (Hicks, 1935) and, as Hart (1983) points out particularly, “other things equal, a manager may prefer not to innovate since this involves effort.” Empirical research confirms the idea and shows that top executives tend to economize on effort when the threat of hostile takeovers is reduced (Bertrand and Mullainathan, 2003), because their positions become less threatened and they might prefer to avoid undertaking cognitively difficult activities (Giroud and Mueller, 2010).

We argue that when executives expect to economize on effort because of reduced takeover pressure, their involvement in innovative activity will likely decrease. This in turn affects the types of projects that middle managers will select for review and pursuit, and therefore the firm’s subsequent innovation outcomes. Specifically, executives looking to economize on effort may rely more on existing standards and procedures in decision making and resource allocation, suggesting a preference for activities that are easier to understand and predict, and that can be directed with less investment in information collection and evaluation *ex post* (Holmstrom, 1989). Accordingly, middle managers are more likely to propose projects that can be more easily explained and justified to an inattentive boss *ex ante*. Because projects with a broader scope are more likely to involve unexpected contingencies, demanding greater attention and oversight from executives, we expect middle managers to prioritize searching for projects with a narrower scope and propose such projects to executives when their time with those executives is more constrained. For example, we argue that it may be easier for executives to communicate and understand information in projects that combine fewer technological components, build on well-established prior art, and derive from inventors already working at the firm from within the same country—all of which are proxies of the scope of innovation that we examine in this study.

The kinds of effort expended by executives on innovative activity are very difficult to measure and may be endogenous to many aspects of the firm and its environment. We address this empirical challenge by exploiting an exogenous increase in takeover protection in Delaware in 1995. A series of court rulings in Delaware legitimized the use of a poison pill in conjunction with a staggered board in 1995, giving firms incorporated in Delaware (but usually located and operated throughout the United States) a potent defense against takeover, making them virtually immune to hostile acquisition. A large literature suggests that by reducing the threat of hostile takeovers, the change in Delaware takeover law weakened executives’ incentive to expend effort (Bebchuk and Cohen, 2003; Low, 2009), though no study has examined the effect of the change on firm innovation. Using the regime change in Delaware as a natural experiment, we investigate the effect of increased takeover protection on both the rate and scope of firms’ innovation. Consistent with existing research, we predict that Delaware firms will reduce the rate of innovation after the regime change. Extending prior research, we hypothesize that Delaware firms will prioritize innovative projects with a smaller scope, thus also reducing the scope of innovation. We then examine the moderating role of organizational hierarchy and predict that increased takeover protection will have a lesser influence on the rate and scope of innovation for Delaware firms of a larger size, because in larger firms innovation decision making authority is more likely delegated to middle managers *ex ante* and the effect of executives economizing on effort is smaller. Finally, we argue that competition in product markets may interact with pressure from takeover markets, and hypothesize that takeover protection should have a stronger effect on the rate and scope of innovation for Delaware firms that also face low competition in the product market.

Our findings, based on a difference-in-differences methodology, multiple measures of innovation rate and scope, and a series of robustness tests, provide strong support for all of our hypotheses. Our research introduces the scope of innovation as a new topic of study and responds to calls for more research on the direction of inventive activity. We also contribute to an emerging literature linking management strategy and innovation by providing causal evidence that takeover protection affects both the rate as well as scope of firm innovation.

## 2. Related literature and hypotheses

A stream of economics and strategy research on innovation has focused on incentive design issues. For example, Holmstrom (1989) suggests that innovative projects are risky, uncertain, and require substantial human effort; however, such activities are difficult to measure, thus the incentives needed to induce innovation should be different from those for routine activities that are easy to measure (e.g., Manso, 2011). In contrast to this stream, a body of literature on innovation and knowledge search has given great emphasis to the idea of bounded rationality (Simon, 1955). Since Schumpeter (1939), researchers have accepted the view of innovation as an ongoing search for new knowledge components and new methods

Download English Version:

<https://daneshyari.com/en/article/7242525>

Download Persian Version:

<https://daneshyari.com/article/7242525>

[Daneshyari.com](https://daneshyari.com)