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Horizon problem and firm innovation: The influence of CEO career horizon, exploitation and exploration on breakthrough innovations

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ABSTRACT

Building on labor market evaluations and legacy conservation motivation perspectives, we propose a mechanism to explain the relationship between CEO career horizons and breakthrough innovations. Using 10-year panel data from 681 U.S. firms, we find that firms that have a CEO with a short career horizon tend to produce fewer breakthrough innovations. We also find that the relationship between CEO career horizon and breakthrough innovation is partially mediated by R & D spending, and also moderated by organizational learning behavior (exploration vs. exploitation). This study highlights how a CEO’s motivation to protect success in the short term affects the firm’s innovativeness.

1. Introduction

Strategy scholars view a company's chief executive officer (CEO) as the most powerful actor in a firm; as such, they have examined how CEOs affect a firm’s strategic decisions and subsequent performance (e.g., Chatterjee and Hambrick, 2011; Hayward and Hambrick, 1997; Hayward et al., 2004). Not surprisingly, studies have also explored how such decisions and performance are influenced by certain CEO-related factors, including cognition, personalities, and levels of compensation (Chatterjee and Hambrick, 2011; Hayward and Hambrick, 1997; Seo et al., 2014).

In order to examine CEO influence on firm performance, the literature has begun to shed light on the impact of a CEO's “career horizon,” a term that encompasses the time left as a CEO approaches retirement (Kang, 2015; Matta and Beamish, 2008), on a firm’s strategic decisions. Researchers have found that CEOs with a short career horizon tend to choose risk-averse strategies, resulting in a CEO ‘horizon problem’ (Hambrick and Mason, 1984). This line of research has shown that a CEO’s career horizon significantly affects such risky strategies as acquisitions (Matta and Beamish, 2008), research and development (R & D) (Barker and Mueller, 2002; Zona, 2016), capital expenditures (Cheng, 2004; Dechow and Sloan, 1991), and corporate social responsibility (CSR) (Kang, 2015).

Drawing on the literature, this study explores the impact of career horizon on breakthrough innovations. A breakthrough innovation has been defined as a subset of innovation that can change the competitive landscape and create new market opportunities (Abernathy and Utterback, 1978; Gatignon et al., 2002). While breakthrough innovations are an important factor for creating value (e.g., Ahuja et al., 2005; Hall et al., 2005; Phene et al., 2006) and are influenced by how CEOs manage innovation streams (e.g., Galasso and Simcoe, 2011; Hirshleifer et al., 2012; Smith and Tushman, 2005; Tang et al., 2012; Wu et al., 2005), the literature on CEO career horizons has paid scant attention to the influence on breakthrough innovations and the boundary conditions of this relationship. This study fills this gap by examining important research questions: How does a CEO’s career horizon affect a firm’s ability to generate breakthrough innovations? How do a firm’s organizational learning activities (exploitation and exploration) contribute to the relationship between CEO career horizon and breakthrough innovations?

Building on labor market evaluations and legacy conservation motivation perspectives that explain risk aversion by CEOs facing a short career horizon, our study seeks to unpack the mechanisms linking a CEO's career horizon to a firm's breakthrough innovations. Specifically,

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we propose that a short career horizon induces a CEO to become risk averse and thus forego investing in risky breakthrough innovations as they could harm the firm's short term performance, endangering job prospects and CEO legacies in the short term. We also suggest that the impact of a short career horizon on breakthrough innovations is partially mediated by a reduction in R & D spending. Furthermore, different performance implications associated with a firm's exploitation and exploration activities affect a CEO's willingness to commit to such breakthrough innovations. That is, when a firm leverages internal knowledge within a familiar technological domain (i.e., a focus on exploitation), this mitigates the behavioral tendencies of a CEO with a short career horizon, such as not pursuing breakthrough innovations, while such behavioral tendencies are exacerbated when a firm applies external technologies with an unfamiliar trajectory (i.e., a focus on exploration).

This study contributes to the literature on CEO decision making and firm innovation. First, as a contribution to literature on CEO decision making (Chatterjee and Hambrick, 2011; Hayward et al., 2004; Seo et al., 2014), our study explains the mechanisms of how and why a CEO's short career horizon influences firm innovations. This is consistent with prior studies that have examined the impact of myopic CEOs with a short career horizon on risky strategies (Barker and Mueller, 2002; Cheng, 2004; Dechow and Sloan, 1991; Matta and Beamish, 2008; Zona, 2016). Second, our study contributes to innovation literature by emphasizing the important role of CEOs in breakthrough innovation, which is consistent with recent studies that have explored the impact of CEOs on firm innovation (Galasso and Simcoe, 2011; Hirshleifer et al., 2012; Tang et al., 2012; Wu et al., 2005). Finally, this research provides practical implication to people in the field who desire to develop firm innovation and manage innovation process. Our study highlights the finding that a strategic alignment between a CEO's willingness to take risks and a firm's engagement in exploitation and exploration enables the firm to achieve greater firm innovations. Hence, our major contribution to the literature is how a CEO's motivational factor plays an important role in decision making for innovation strategy.

The rest of this paper consists of five sections. The next section develops a conceptual model that examines a mechanism that links a CEO's career horizon to firm innovation based on our review on the theoretical and empirical studies. Section three presents our methodology, followed by an interpretation of our findings. In section five we discuss implications for theory and practice, elucidating potential directions for future research. This paper ends with concluding remarks about the study of CEO influence on firm innovation.

2. Theory and hypotheses

2.1. CEO career horizon and breakthrough innovations

CEO career horizons represent the time it takes for a CEO to reach retirement age (Kang, 2015; Krause and Semadeni, 2014; Matta and Beamish, 2008). A shorter career horizon represents a CEO who is nearing retirement. The literature suggests that a decision maker who is facing a short career horizon tend to become risk-averse, based on a desire to protect his or her success in the short term. A short career horizon likely leads a decision maker to avoid taking risks that amplify uncertainty over short-term firm performance. Since CEOs with a shorter career horizon have a limited amount of time to recoup investments and reverse performance shortfalls, they are likely to forego making risky long-term investments which could hurt firm performance in the near term.

Prior studies on career horizons suggest that a CEO's concern over legacy conservation and labor market evaluations may influence a CEO's decision making and firm risk behavior (Kang, 2015; Matta and Beamish, 2008). Thus, the behavioral tendencies of a CEO with a short career horizon may depend on the degree to which he is willing to conserve his legacy: greater equity ownership and unexercised in-the-money options would amplify concerns over success, motivating CEOs to avoid taking risky actions (Matta and Beamish, 2008). The degree to which a CEO pays attention to the managerial labor market may also affect leaders with a short career horizon. Pressure from the labor market would likely induce CEOs to avoid making risky investments, since they would want to protect their job prospects (Kang, 2015).

Committing to breakthrough innovation is a risky strategy that may jeopardize a firm's short-term performance, due to its uncertain outcomes (e.g., Anderson and Tushman, 1990; Teece, 1986). Although breakthrough innovations can create substantial value (Hall et al., 2005), contribute to a CEO's reputation and legacy (Heider, 2013; Ross, 1977), and be considered a credible signal of a CEO's ability (Westley and Mintzberg, 1989), delivering such innovations requires a firm to combine internal and external resources and capabilities, making it difficult for the firm to generate profits quickly (Ahuja and Lampert, 2001; Hill and Rothaermel, 2003; Phene et al., 2006). Thus, the financial return on a commitment to breakthrough innovation is not immediate, with further innovations requiring substantial time and resources. Pursuing such innovations would be considered a risky move for CEOs facing retirement, since a firm commitment to breakthrough innovations may harm profits and put executive prospects and short-term success at risk. For these reasons, protecting their own success may dampen the willingness of CEOs with a short career horizon to allocate resources toward risky innovation strategies. From our research context, theoretical arguments would suggest that a CEO with a short career horizon (i.e., older CEO) is less likely to deliver breakthrough innovations. Thus, we propose the following hypothesis:

Hypothesis 1. CEOs with a short career horizon (i.e., older CEOs) have a negative effect on breakthrough innovations.

2.2. CEO career horizon, R & D spending, and breakthrough innovations

The literature on how CEOs affect a firm's strategic decisions suggests that broad discretion for choices and actions is afforded to CEOs (e.g., Hambrick and Finkelstein, 1987) and that CEO-related factors shape their attitude toward risk, which could affect their choices regarding risky strategies (e.g., Chatterjee and Hambrick, 2011; Hayward and Hambrick, 1997; Hayward et al., 2004). Drawing on this perspective, we propose a partial mediation model where CEO career horizon can affect R & D spending and in turn, how this affect the way a firm performs in terms of breakthrough innovations. R & D spending has been shown to be one of discretionary decisions monitored and controlled by CEOs (e.g., Barker and Mueller, 2002; Cheng, 2004; Dechow and Sloan, 1991; Zona, 2016), although the levels of R & D expenditure are relatively stable over time (Hambrick et al., 1983).

Some management scholars have suggested that CEOs with a short career horizon actually reduce a firm's spending on R & D. Those empirically examining the influence of CEO age on R & D spending have found that older CEOs are likely to reduce a firm's R & D spending (Barker and Mueller, 2002), which suggests that older CEOs who are approaching retirement would reduce expenditures in order to pursue their own interests (Barker and Mueller, 2002; Zona, 2016). Similarly other scholars claim that CEOs approaching retirement age are less willing to maintain their firm's commitment to R & D since the benefit of long-term expenditures are unlikely to be realized in the short term (Cheng, 2004; Dechow and Sloan, 1991). Thus, given the latitude that CEOs receive, CEOs with a short career horizon are likely to reduce discretionary R & D expenditure, due to a concern about short-term success.

CEOs can influence other managerial decisions that affect a firm's ability to generate innovation in different ways (Damanpour, 1991). CEOs influence innovation by paying attention to forthcoming events and communicating these to the rest of the firm (Yadav et al., 2007). CEOs also affect firm innovation through the establishment of an