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Breakthrough innovation in international business: The impact of tech-innovation and market-innovation on performance[☆]

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ABSTRACT

The literature suggests that the greater the perceived novelty of a firm's products and markets, the greater the potential value to the user (Lepak et al., 2007). In this study we analyze the extent to which breakthrough innovation (both tech-innovation and market-innovation) has a positive impact on both economic and strategic export performance. Tech-innovation incorporates technological developments to improve customer benefits versus existing alternatives in the market. Our findings reveal that tech-innovation has a positive impact on the economic and strategic export performance of firms. This relationship becomes stronger when more human resources are available and the exporter becomes more oriented toward the importer. In less competitive markets, the positive relationship between tech-innovation and both types of export performance becomes even stronger.

Market-innovation occurs when the product concept or benefits depart from serving existing or conventional markets. Market-innovation was found to be negatively associated with strategic export performance, as it requires major learning effort by importers. This suggests that to create value, exporters need to develop solutions jointly with importers. Overall, these findings suggest that value creation in terms of both tech-innovation and market-innovation needs to involve importers to achieve expectations, thereby leading to improvement in a firm's short-term and long-term export performance.

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1. Introduction

Schumpeter (1934) pioneered sources of value creation through innovation, such as the introduction of new technologies and the creation of new markets. However, eight decades after his seminal work, this area tends to be more conceptual rather than empirical (e.g., Ghemawat, 2007). Nonetheless, innovation is critical for

creating competitive advantage in international markets to allow firms to benefit from economies of scale (Fernández-Mesa & Alegre, 2015), overcoming the size constraint of domestic markets (Kyläheiko, Jantunen, Puumalainen, Saarenketo, & Tuppurä, 2011). Within the international business domain, the literature on exporting has advanced substantially over the past five decades (Leonidou, Katsikeas, & Coudounaris, 2010). Research on exporting continues to be vital as exporting is often the first step in a firm's internationalization process. Specifically, the relationship between innovation and export performance is a topic that requires further research (Love, Roper, & Zhou, 2016). Amit and Zott (2001, p. 497) argue that according to Schumpeter's theory, "innovation is the source of value creation". As such, an exporter's performance depends on the value created by its innovations, which in turn depends on the value recognized by importers, who are willing to

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exchange a monetary amount for the value created (Lepak, Smith, & Taylor, 2007).

There are two types of breakthrough innovation: tech-innovation, which is based on major advances in existing technology and replacement of existing alternatives, and market-innovation, which addresses new emerging markets (Benner & Tushman, 2003; O'Connor & Rice, 2013; Zhou, Yim, & Tse, 2005). Although exporting studies often find a positive relationship between innovation and performance (e.g., Hortinha, Lages, & Lages, 2011; Hughes, Martin, Morgan, & Robson, 2010; Lages, Silva, & Styles, 2009; Love et al., 2016; Pla-Barber & Alegre, 2007), there are no empirical studies that have separated and analyzed breakthrough tech-innovations and market-innovations in the export context. This is, to our knowledge, the first study to do so. Moreover, we identify how these two types of breakthrough innovations influence export performance under different contingent conditions.

In contrast to incremental innovations, breakthrough innovations have the potential to create new markets as well as shape the preferences and behaviors of consumers, thereby leading to competitive advantage and profitable positions (Hamel & Prahalad, 1994; Zhou et al., 2005). Although researchers and business leaders agree that breakthrough innovations are critical to both renewal and survival in turbulent environments and for a company's long-term growth (O'Connor & Rice, 2013; Zhou et al., 2005), companies tend to focus on incremental innovation, which is short-term and less risky (O'Connor & Rice, 2013).

This paper makes two major contributions to the literature. The first is in determining the effect of tech-innovations and market-innovations on export performance, consistent with the call from Sorescu, Chandy, and Prabhu (2003) to better understand the effect of different types of breakthrough innovations on performance. To do so, we draw on the resource-based view (RBV), which postulates that "the services rendered by the firm's unique bundle of resources and capabilities may lead to value creation" (Amit & Zott, 2001; p. 497). These resources and capabilities are inelastic in supply (Ray, Barney, & Muhanna, 2004).

The second contribution is to understand if and how breakthrough tech-innovations and market-innovations influence export performance under different contingent conditions. For an exporter's value creation activities to endure over the long term, it is critical that the monetary amount exchanged exceeds the costs of creating the value, and that the value created by the exporter is superior to the closest alternative (Lepak et al., 2007). Drawing on the RBV, we investigate how market-oriented capabilities, export-related resources, and competitive intensity enhance or decrease the impact of both tech-innovations and market-innovations on export performance.

In the following section, we present the theoretical foundations and our conceptual framework. We then discuss the empirical study and present the results. The article concludes with a discussion of the results and implications for both theory and practice.

2. Conceptual framework and hypotheses

Firms are likely to use a combination of resources and capabilities in the pursuit of a sustainable competitive advantage (Makadok, 2001). In line with dynamic capabilities theory, we separate resources from capabilities in this study. While resources are human, physical, and financial (commodities that can be traded), capabilities are related to the firm's capacity to deploy those resources. A capability is an organizationally embedded non-transferable firm-specific resource, the purpose of which is to improve the productivity of other resources of the firm (Makadok, 2001). Capabilities are thus not only valuable and rare, but also

socially complex, making them inimitable. They can generate a competitive advantage and thereby an above-normal rate of return (Wernerfelt, 1984). An extension of the concept of capability is the notion of a dynamic capability, which is "the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments" (Teece, Pisano, & Shuen, 1997; p. 516). Of theoretical interest in this study is the relationship between breakthrough innovations and export performance, and the contingencies (marketing capabilities and export-related resources) and external conditions (competitive intensity) that enhance this relationship.

Market-oriented capabilities consist of three components: customer orientation, competitor orientation, and interfunctional coordination (cf. Narver & Slater, 1990). We treat the three components of market orientation separately because earlier studies found mixed results regarding the relationship between each component of market orientation and innovation and/or performance (e.g., De Luca, Verona, & Vicari, 2010; Im & Workman, 2004; Ozkaya, Droge, Hult, Calantone, & Ozkaya, 2015; Wong & Tong, 2012). Most studies have seen market orientation as an antecedent of innovation and/or performance (e.g., De Luca et al., 2010; Kim, Im, & Slater, 2013; Zhou et al., 2005). However, other researchers argue for a focus on market orientation as a moderator variable in studies of firm performance (Deshpandé & Farley, 2004). Although more recent studies in both the domestic (Cheng & Huizingh, 2014; Wong & Tong, 2012) and foreign contexts (Navarro-García, Arenas-Gaitán, & Rondán-Cataluña, 2014) examine the moderator role of market orientation, researchers claim that there is a lack of empirical evidence on how market orientation moderates the effect of product innovation on performance (Story, Boso, & Cadogan, 2015). Regarding export-related resources, we analyze the role of experiential, scale, financial, and physical resources (cf. Morgan, Kaleka, & Katsikeas, 2004). Finally, we analyze the moderating effect of competitive intensity on the relationship between tech-innovation and market-innovation and export performance.

2.1. Breakthrough innovation and export performance

The need for innovation to achieve and sustain competitive advantage has long been recognized in the literature (Day & Wensley, 1988; Hunt & Morgan, 1995). Innovation is a mechanism by which organizations can draw upon assets and capabilities and transition these into performance outcomes (Barney, 1991; Reed & DeFillippi, 1990). The process of innovation involves generating and/or accepting new ideas, processes, products, or services (García & Calantone, 2002; Hurley & Hult, 1998).

Zhou et al. (2005) identify two types of breakthrough innovations. The first, labelled tech-innovation, is based on the extent of technological advancement, which involves incorporation of radically new technological knowledge, high-quality technical innovations, and new and advanced technologies replacing inferior alternatives, any or all of which help to increase value (Ulaga & Eggert, 2006; Zeithaml, 1988; Zhou et al., 2005). The second type, labelled market-innovation, is a departure from the existing market segment and serves new customers in new markets (Benner & Tushman, 2003). This departure from existing segments and customers explains why the product requires a major learning effort on behalf of buyers in the challenge to understand or evaluate the product's full benefits (Zhou et al., 2005).

In an export context, studies have consistently found a positive link between innovation and export performance (e.g., Fernández-Mesa & Alegre, 2015; Hughes et al., 2010; Lages, Silva, & Styles, 2009; Lages, Silva, Styles, & Pereira, 2009; Pla-Barber & Alegre, 2007). To our knowledge, no export studies have analyzed the

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