

Is the impact of sustainability exploration on firm economic return so obvious? The case of internationalized Spanish firms operating in high-tech and low-tech industries

Julen Castillo-Apraiz
University of the Basque Country UPV/EHU
julen.castillo@ehu.eus

Jesús Manuel Palma-Ruiz*
Universidad Autónoma de Chihuahua
jmpalma@uach.mx

Unai Arzubiaga
University of the Basque Country UPV/EHU
unai.arzubiaga@ehu.eus

Abstract

This study aims to help to bridge the innovation and sustainability literature by assessing the impact of sustainability exploration on the economic return of internationalized Spanish firms. We apply partial least squares structural equation modeling (PLS-SEM) to data from a sample of 156 internationalized Spanish firms. The results suggest that sustainability exploration by itself does not have a positive impact on economic return, which suggests that integration between sustainability exploration and sustainability exploitation might be the key to achieve the potential of sustainable innovation fully. In this line, the impact of sustainability exploration on economic return is not more significant for firms operating in high-technology industries compared to those operating in low-technology industries, which sheds some light into the debate on trade-offs in corporate sustainability.

Keywords: sustainability exploration, corporate sustainability, economic return, performance, internationalization, innovation.

* Corresponding author

1. Introduction

Global initiatives of all kinds, both public and private, support the reduction of environmental risks and the negative impacts of resource-use through the application of innovation policies centered on sustainability. Thus, the growing interest in developing sustainable innovations highlights the relevance of studies that address this issue for both practical and academic purposes (Hernández-Vivanco, Bernardo, and Cruz-Cázar, 2018; Gianni, Gotzamani, and Tsiotras, 2017). Due to the increasing awareness and interest in sustainability, organizations are accountable for embracing core strategies to become more sustainability-oriented (Kennedy, Whiteman, and van den Ende, 2017). As such, corporate sustainability (CS) has been analyzed from different angles in the literature. More specifically, the impact of CS on firm performance has caught the attention of researchers from different sustainability related fields such as corporate social responsibility (e.g., López, García, and Rodríguez, 2007; Mohr, Webb, and Harris, 2001; Prado-Lorenzo et al., 2008; Weber, 2008), environmental performance (e.g., Koo, Chung, and Ryoo, 2014; Wagner and Schaltegger, 2004), sustainability performance (e.g., Wagner, 2010), and sustainable entrepreneurship (e.g., Schaltegger and Wagner, 2011), among others.

Sustainable entrepreneurship is the driving force of technological-niche disruptive innovations used for accelerating sustainability transitions (Kuokkanen, Uusitalo, and Koistinen, 2019). Disruptive innovations born from the ‘think-out-of-the-box’ strategy and creative thinking, open new growth paths for firms, which benefit stakeholders, especially shareholders. This is the main idea behind sustainability exploration (SER), which is concerned with challenging existing solutions with innovative concepts, whereas the other main dimension of CS, namely sustainability exploitation (SEI), is characterized by practices closely tied to improving firm efficiency (Maletič et al., 2015). Being sustainability exploration the most challenging dimension of CS, managers should be aware of SER’s capacity of leveraging firm performance and transfer this notion efficiently through different firm levels.

All in all, even if sustainability attracts managers’ attention due to its potential presence in all kind of activities and organizational systems (Lozano, 2012), researchers and managers still struggle to understand how sustainability practices can enhance firm performance. Within this framework, we try to address recent calls of analyzing the corporate sustainability-performance link (Maletič et al., 2014) by focusing on

sustainability exploration practices as essential mechanisms to explain the economic performance of internationalized firms, for which innovation constitutes an important learning mechanism (Kyläheiko et al., 2011).

The rest of this chapter is organized as follows. After the introduction, we provide the theoretical background for the sustainability exploration in the context of Spanish firms operating in high-tech and low-tech industries. Then, we explain the methodology we follow, and we report the results of the data analysis. Finally, we present our conclusions and list both some limitations and further lines of research.

2. Theoretical background

Innovation and sustainability are two concepts that separately impact the competitive position of organizations and, together, act synergistically by generating both new markets for environmentally benign products as well as a new field of academic study in sustainable innovation (Delmas and Pekovic, 2018). The term sustainable innovation (i.e., environmental innovation, ecological innovation, green innovation, or eco-innovation) has been used to identify innovations that contribute to a sustainable environment through the development of ecological improvements (Xavier, Naveiro, Aoussat, and Reyes, 2017). Sustainable innovation reduces environmental burdens and helps improve a situation under given sustainable objectives. Following this definition, the concept of sustainable innovation is intrinsically linked to green competitiveness and the ecological approach of the economy. In this sense, Faucheux and Nicolai (2011) claim that the integration of all those management elements that make up a sustainable innovation system is required, considered as management, business method, or strategy for the organization.

2.1. Corporate Sustainability

Research on corporate sustainability (CS) has significantly increased during the last decade. The most highly ranked journals and prestigious book publishers are now including CS in their research agendas (see for example the review of Meuer, Koelbel and Hoffman, 2019) since CS is becoming more critical for firms (Landrum and Ohsowski, 2018). Interest in CS develops from practical applications for firms to adopt it as a core business strategy promoting long-term growth (Bhattacharya and Polman, 2017). Generally speaking, CS has been linked to financial performance (Bodhanwala and Bodhanwala, 2018; Flammer, 2015).

Nonetheless, the authors agree that never before have the theory and practice been wider apart, mainly due to the limited understanding of the meaning of CS (Bansal and Song, 2017; Landrum, 2018). Such lack of clarity in the definition is demonstrated by the 33 definitions of CS (from 1997-2016) found in a recent literature review (Meuer et al., 2019). Thus, the several research efforts on this topic during the past two decades have offered us insights into particular aspects of CS, for example, the pursuit of sustainability (e.g., Baumgartner and Rauter, 2017) or the integration of sustainability into firms' operations (e.g., Hahn, Preuss, Pinkse, and Figge, 2014).

As a result, instead of embracing a comprehensive perspective on CS (e.g., including notions such as CSR), this study aims to develop further how specific sustainability practices can be linked to economic returns by addressing the role of sustainability exploration (SER) activities. Further, this study also offers an opportunity to reconsider the adoption of different approaches to target setting based on contextual attributes derived from low and high-technology industries.

2.2. Sustainability Exploration

Focusing on SER dimension, the literature suggests that sustainability exploration practices have a positive impact on firm performance (Maletič et al., 2016a,b). Even when organizations can sustainably develop and improve efficiency by reducing costs -closely tied to SEI-, betting on increasing innovation rate is risky (Leal-Rodríguez and Albort-Morant, 2016; Leal-Rodríguez et al., 2015) but essential (Schaltegger and Wagner, 2017).

Sustainability exploration practices can be conceived in the context of finding new solutions both in terms of products and processes (Maletič et al., 2014; Maletič et al., 2015). Transformation towards sustainability requires innovation (Edwards, 2009), which is the essence of SER. By performing (radical) sustainability innovations, firms can outperform their peers (Rosenbusch, Brinckmann, and Bausch, 2011; Sok and O'Cass, 2015).

Based on the arguments mentioned above, we believe that challenging existing sustainability solutions and focusing in the long term is a way of enhancing firm economic return. Hence, we hypothesize:

H1: Sustainability exploration has a positive impact on firm economic return.

Research on the relationships between innovation and economic returns at the national and regional levels has been broadly developed in the last two decades. The literature has primarily focused on high-tech industries (e.g., Chai, Yap, and Wang, 2011), with little attention to low-tech ones (Law, Lau, and Ip, 2019). Previous studies established that high-tech firms are different from low-tech in terms of innovation practices and investments. For example, Heidenreich (2009) uncovered that low-tech firms in European countries prioritize the acquisition of assets, such as equipment and software, while high-tech firms mostly devote their resources on R&D.

Furthermore, high-tech industries depend on R&D external knowledge than low-tech ones in their internal innovation activities (Serrano-Bedia, López-Fernández, and García-Piqueres, 2012); as a result, devoting a more significant portion of their budget to R&D expenses (Bartos, 2007). Given the nature of their industry, firms must advance strategies oriented towards innovation, as well as capabilities developed particularly for innovation (Yu, Minniti, and Nason, 2018). This is in line with Chan, Martin, and Kensinger, (1990) who found that high-tech firms compete on innovation and, thus, are unwilling to cut R&D expenses or innovation projects expressively. Hence, these firms competing in high-tech industries will have access to unique external resources which facilitate the internationalization process (Jones, 1999).

Even when firms operating in low high-tech industries also benefit from innovation (Laforet, 2009), we believe that high technology-based industries are the ones in which an innovation-related strategy would have more potential. Based on the above discussion and some works (e.g., Wagner, 2010), we believe that firms operating in high-tech industries are the ones which would most benefit from challenging existing sustainability solutions. Therefore, we hypothesize:

H2: The positive impact of sustainability exploration on firm economic return is stronger for firms operating in high-tech industries compared to one of the firms operating in low-tech industries.

3. Methodology

3.1. Sample

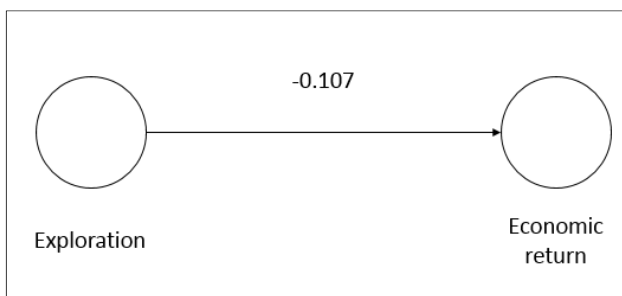
Our population comprises Spanish firms internationalized to two culturally very different countries, namely Mexico and Morocco. The sample was refined, obtaining 730

companies. Then, CEOs were asked to answer a short questionnaire via e-mail. One hundred fifty-six responses from CEOs were obtained (21%), which is a high response rate for this type of research (Brettel and Rottenberger, 2013).

3.2. Data Analysis

We tested our model (Figure 1) using partial least squares structural equation modeling (PLS-SEM) technique, which is a useful method in management (Hair et al., 2019; Hair, Ringle, and Sarstedt, 2011; Hair, Ringle, and Sarstedt, 2012; Hair, Sarstedt, Pieper, and Ringle, 2012; Hair, Sarstedt, Ringle, and Mena, 2012). Furthermore, PLS-SEM is especially suitable due to the early phase of theorizing within the innovation-sustainability interplay (Richter, Cepeda, Roldán, and Ringle, 2016; Rigdon, 2016). Concretely, we used the SmartPLS 3 (Ringle, Wende, and Becker, 2015) software.

Figure 1. Path loading and hypothesized structural model



Source: The authors

3.3. Measurement of the Model Variables

We based our research on a well-known scale to measure exploration at the international level. Precisely, we based on Cui, Walsh, and Zou (2014) to measure SER by means of multiple items on a 7-point Likert scale (1 = ‘Completely disagree’ to 7 = ‘Completely agree’). The technology was included in the analyses based on the classification of Van Beers and Zand (2014). Economic return is a single-item factor.

3.4. Results

3.4.1. The validity of the scales

First, we assessed the measurement model (Table 1). Factor loadings of sustainability exploration are 0.913 and 0.919; that is, latent variables explain a substantial part of the variance of each indicator (Henseler, Ringle, and Sinkovics, 2009). The assessment of the reliability of internal consistency showed that composite reliability (CR) value (0.912)

and Cronbach's α values are well above the threshold (Hair et al., 2019; Nunnally and Bernstein, 1994). We assessed the discriminant validity using the Heterotrait-monotrait (HTMT) ratio (Hair et al., 2019; Henseler, Ringle, and Sarstedt, 2015; Voorhees et al., 2016), which is 0.119. Hence, discriminant validity has been established. Table 1 provides an overview of the results for the measurement model.

Table 1. Evaluation results: Measurement model

Constructs/items	Loading	Composite reliability (Cronbach's α)	AVE
<i>Exploration strategy (international)</i>		0.912 (0.808)	0.839
- New approaches to developing products and processes	0.913		
- Engage in developing new products	0.919		

Note: AVE = Average variance extracted.

Table 2 provides an overview of the results for the inner model. Besides the path coefficients, it provides the coefficient of determination (R^2), the variance inflation factor (VIF), and the effect size. The R^2 value is small, which suggests that SER –at least on its own– cannot explain much of the variance of the endogenous variable, namely firm economic return.

Table 2. PLS-SEM analysis

Relationship	Path coefficient	<i>p</i> -value	VIF	f^2	<i>Bias corrected 95% CI</i>
Exploration (international) → Economic return	-0.107	0.164	1.000	0.011	[-0.220;0.095]
R^2	0.011				

Note: *** $p < 0.01$. VIF = Variance inflation factor. CI= Confidence interval

To assess H2, we conducted a multi-group analysis (MGA). The difference in the path coefficient between firms operating in high-tech industries and firms operating in low-tech industries is only 0.051 ($p=0.641$).

4. Discussion, Conclusions and Implications

First, we aim to explain to what extent sustainability exploration impacts on firm economic return. By trying to transfer the notion of sustainability to the business level, our findings reveal that sustainability exploration does not have a significant positive impact on firm economic return. Furthermore, the relationship mentioned above is absent, which suggests that further studies could build on this work by adding –at least– the other dimension of corporate sustainability, namely sustainability exploitation, in order to

capture the whole domain of corporate sustainability and assess whether the simultaneous interplay between both dimensions is relevant.

Second, we cannot demonstrate that the positive impact of sustainability exploration on performance is stronger for firms operating in high-tech industries compared to those firms operating in low-tech industries. The explanation behind might be that we have only been able to capture a part of the domain of corporate sustainability, which again reflects the need of bringing sustainability exploitation into the analysis, which would, in turn, increase the in-sample predictive power. The ability to simultaneously pursue explorative and exploitative activities might be crucial for sustainable innovations (Maletič et al., 2014). Furthermore, analyzing the interplay between both dimensions could also shed some light into the debate on trade-offs in corporate sustainability. As acknowledged by Wagner (2010), innovation activities do not *per se* improve the effect of corporate sustainability. Accordingly, by increasing the scope of sustainability objectives and by analytically reviewing targets, managers may find new and successful means of integrating corporate sustainability across the organization.

Besides the conclusions mentioned above and further lines of research, some caveats must be made. First, our results are based on cross-sectional data, which in turn opens new opportunities of research by analyzing how results change using longitudinal data. Second, we only focus on Spanish firms internationalizing to two countries: Mexico and Morocco. Hence, even if our selection offers us an excellent benchmarking due to the significant cultural difference between Mexico and Morocco, culture might play a role in this (and further) analyses. In fact, as acknowledged by Maletič et al. (2016a), organizations based in different countries hold different perspectives on the deployment of sustainability exploration practices. Third, our construct can only be considered as a proxy to measure a dimension of corporate sustainability. Future studies could use more in-depth conceptualizations framed (for example, including sustainability-oriented learning) into the full range of existing approaches to conceptualize and measure corporate sustainability, which is a multi-level and multi-faceted construct.

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