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How do corporate social responsibility (CSR) and innovativeness increase financial gains? A customer perspective analysis

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ABSTRACT

Previous research on corporate social responsibility (CSR) and firm innovativeness and their impact on financial performance has focused on firms' actions (i.e., what firms do). However, how customers perceive these firm activities have not been fully explored; there is a lack of research particularly on the long-term effects of these actions. Consequently, the present study investigates the effects of customer-perceived CSR and firm innovativeness on financial earnings, both in the short and long term. Firm actions, if meaningful, should impact customer perceptions of a firm, which affect customer satisfaction and the firm's earnings consequently. Using panel data from service firms, our analysis indicates that perceived firm actions positively influence future earnings through customers' overall evaluations of a firm. Furthermore, the results reveal a carryover effect of perceived actions in the long term. The present research also indicates that customers' positive perceptions of firm actions do not directly impact financial earnings; however, they do impact earnings through customer satisfaction. This emphasizes the importance of communicating innovation, and particularly CSR activities, to customers.

1. Introduction

In management literature, corporate social responsibility (CSR) and innovativeness are typical firm actions that enhance competitiveness (Awaysheh, Heron, Perry, & Wilson, 2020; Porter & Kramer, 2006; Wang, Chen, Yu, & Hsiao, 2015). Research has indicated that both variables contribute to firm performance and should be studied in combination. For instance, it has been suggested that CSR strategies could increase innovation opportunities and, consequently, lead to greater innovativeness for a firm (e.g., Luo & Du, 2015; Porter & Kramer, 2006). From a methodological perspective, research on CSR has indicated that including innovativeness in an estimation model to predict financial performance elicits more reliable or stable effects of CSR actions (Bocquet, Le Bas, Mothe, & Poussing, 2017; Luo & Bhattacharya, 2006; McWilliams & Siegel, 2000).

Studies on the relationship between CSR activities and financial performance have yielded inconsistent results, including negative, positive, and insignificant effects (for a review, see Wang, Dou, & Jia, 2016), while firm innovativeness consistently has exerted a positive influence on financial performance (e.g., Leung & Sharma, 2021; Rubera & Kirca, 2012; Rubera & Kirca, 2017; Sood & Tellis, 2009). Research on the firm action perspective tends to build on the Kinder, Lydenberg, and Domini (KLD) measures when establishing the impact of CSR on financial performance. KLD measures firms' CSR actions in seven categories: environment, community, human rights, employee relations, diversity, product, and corporate governance (Hull & Rothenberg, 2008; Oh, Bae, & Kim, 2017; Surroca, Tribó, & Waddock, 2010; Zhao & Murrell, 2021). However, the most frequently used measure of a firm's innovation activities is research and development (R&D) expenditures (e.g., Hull & Rothenberg, 2008; Mishra, 2017; Teirlinck, 2017).

Gupta and Zeithaml (2006), however, found that financial performance is highly dependent on what customers do in their relationship with a firm, which is a consequence of what customers think and perceive. Positive perceptions lead to market advantage and, consequently, influence a firm's financial performance. Nevertheless, as can be seen in Table 1, research on customer-perceived CSR and firm innovativeness has mainly focused on using subjective measures (e.g., customer satisfaction, loyalty, and/or purchase intention) as consequences of perceptions of a firm's CSR and innovative actions. Consequently, objective measures of behavior (e.g., financial impact) have been neglected. These studies also tend to be experimental (customer-level behavior) and examine perceptions of either firm innovativeness or

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CSR separately (not including both simultaneously). Moreover, previous studies have focused on the short-term responses to perceived firm actions and have not determined the long-term consequences of customer perceptions.

Considering previous research and the importance of investigating customer-perceived measures, we identified three main gaps in the literature. First, the effects of perceived CSR (PCSR) and perceived firm innovativeness (PFI) on objective financial performance measures have not been researched. In line with this, Joo, Miller, and Fink (2019) called for research to assess the influence of customer-perceived CSR on objective financial performance measures. The lack of research on how PCSR and PFI influence financial performance limits our understanding of customers' responses to firms' efforts to differentiate themselves in the market. Second, research on customer PCSR and PFI has failed to examine consequences at the firm level, as all previous studies have focused on customer-level and experimental settings. However, firm-level data represent the real-life experiences of many customers with a company, making it more representative and, therefore, providing insights at the firm level (Saini & Jawahar, 2021). Finally, while marketing literature has indicated that customer-perceived measures can exert long-term influence on firm performance (Srinivasan, Vanhuele, & Pauwels, 2010), previous studies have neglected to investigate PCSR and PFI's long-term influence on firm performance, as this cannot be captured using cross-sectional data. Srinivasan et al. (2010) argued that customers tend to repeat past buying decisions. They indicate feedback from purchases to customer-perceived metrics, and from purchases to marketing actions, as mechanisms that lead to long-term influence of customers' perceptions on financial performance. Moreover, customers' positive perceptions of a firm may lead to higher word-of-mouth behavior, which increases financial gains for the firm (Choi & Choi, 2014). Consequently, drawing upon brand equity theory, we suggest that customers' perception of a firms/brands higher CSR and innovation performance will lead to higher customer satisfaction and financial performance (Foroudi, Jin, Gupta, Foroudi, & Kitchen, 2018). We assert that we get closer to the true impact of the variables by examining them over longer periods of time and at the firm level.

We have utilized customer-perceived CSR and firm innovativeness levels to investigate the effects of these elements on future financial earnings. We argue that customer satisfaction plays a crucial role in explaining the outlined relationship, functioning as a linking path, for two reasons. First, customer satisfaction has been identified as a consequence of PCSR (Bello, Jusoh, & Nor, 2020; He & Li, 2011; Lee, Han, Radic, & Tariq, 2020) and PFI (Kunz, Schmitt, & Meyer, 2011; Mahmoud, Hinson, & Anim, 2018). Second, customer satisfaction has been found to be a long-term antecedent of future financial performance (Fornell, Morgeson, & Hult, 2016; Gruca & Rego, 2005; Guenther &

Table 1
An Overview of Studies on the Consequences of PCSR and PFI.

Authors	PCSR	PFI	Process	Dependent Variable	Longitudinal vs. Cross-Sectional Data	Firm Level vs. Customer Level	Objective vs. Subjective Dependent Variable
This study	X	X	Customer satisfaction	Financial performance	Longitudinal: 10 years	Firm Level	Objective
Kunz et al. (2011)		X	Customer satisfaction	Loyalty	Cross-Sectional	Customer Level	Subjective
Pappu and Quester (2016)		X	Perceived quality	Brand loyalty	Cross-Sectional	Customer Level	Subjective
Yeh (2016)		X	Customer advocacy	Customer-perceived value	Cross-Sectional	Customer Level	Subjective
Hubert et al. (2017)		X		Intention to buy and willingness to pay	Cross-Sectional	Customer Level	Subjective
Mahmoud et al. (2018)		X	Customer value creation	Customer satisfaction	Cross-Sectional	Customer Level	Subjective
Leckie, Nyadzayo, and Johnson (2018)		X	Collecting brand information, interacting with others	Brand loyalty	Cross-Sectional	Customer Level	Subjective
Bairrada et al. (2018)		X	Brand prestige, uniqueness, and loyalty	Brand love, word of mouth, and willingness to pay a premium price	Cross-Sectional	Customer Level	Subjective
Sirdeshmukh, Ahmad, Khan, and Ashill (2018)		X		User Loyalty	Cross-Sectional	Customer Level	Subjective
Kim, Nicolau, and Tang (2021)		X	Perceived quality	Customer loyalty	Cross-Sectional	Customer Level	Subjective
Woo, Kim, and Wang (2021)		X		Customer loyalty	Cross-Sectional	Customer Level	Subjective
Stanaland et al. (2011)	X		Trust and perceived reputation	Customer loyalty	Cross-Sectional	Customer Level	Subjective
He and Li (2011)	X		Customer satisfaction	Service brand loyalty	Cross-Sectional	Customer Level	Subjective
Lin, Chen, Chiu, and Lee (2011)	X		Affective identification and Trust	Purchase intention	Cross-Sectional	Customer Level	Subjective
Ailawadi, Neslin, Luan, and Taylor (2014)	X		Attitudes toward the store	Behavioral loyalty	Cross-Sectional	Customer Level	Subjective
Pérez and Del Bosque (2015)	X		Customer satisfaction	Loyalty	Cross-Sectional	Customer Level	Subjective
Park et al. (2017)	X		Trust, customer satisfaction	Loyalty	Cross-Sectional	Customer Level	Subjective
Raza et al. (2020)	X		Customer-company identification, co-creation	Customer loyalty	Cross-Sectional	Customer Level	Subjective
Ahn and Kwon (2020)	X		Trust, commitment	Behavioral intention	Cross-Sectional	Customer Level	Subjective
Hur, Moon, and Kim (2020)	X		Emotional brand attachment	Customer participation behavior	Cross-Sectional	Customer Level	Subjective
Iglesias, Markovic, Bagherzadeh, and Singh (2020)	X		Trust	Customer loyalty	Cross-Sectional	Customer Level	Subjective
Swaen, Demoulin, and Pauwels-Delassus (2021)	X		Corporate reputation	Brand equity, customer trust, share of wallet	Cross-Sectional	Customer Level	Subjective

Guenther, 2020; Van Doorn, Leeflang, & Tijs, 2013). Thus, we expect customer satisfaction to link PCSR and PFI to firms' future financial earnings.

To address the mentioned gaps, we used a database from the Extended Performance Satisfaction Index (EPSI), which is rooted in the Swedish Customer Satisfaction Barometer (Fornell, 1992). The measures and methodology resemble those of the American Customer Satisfaction Index (ACSI). The variables that we used in this study are customers' perceived innovativeness, perceived CSR, and customer satisfaction on an annual basis from 2010 to 2019. We obtained objective financial performance data from two publicly available sources: Norwegian financial data through Proff Forvalt and Swedish financial data through Retriever Business databases. All in all, we obtained panel data of 1,110 firm-year observations for firms in the mentioned countries. We applied the generalized method of moments (GMM) and panel vector autoregressive (PVAR) models in our analysis.

Our study contributes to the existing literature in three ways. First, we contribute to the literature by revealing how customers' perceptions of firms' CSR and innovativeness influence firms' financial performance. Second, we replicate and extend previous findings on the effect of PCSR and PFI on customer satisfaction using a panel data set, which enables firm-level analysis over time. Performing panel data analysis helps us obtain reliable results, as it controls for time and unobserved firm heterogeneity aspects (Wagner, 2010), providing a better understanding of the influences of PCSR and PFI influence on performance over time (Bahadir, Bharadwaj, & Parzen, 2009). Finally, we contribute to customer satisfaction literature by empirically demonstrating the cumulative nature of customer satisfaction. Although customer satisfaction is believed to be a consequence of customers' previous experiences with a firm, no empirical evidence has shown this effect due to the limited existence of customer-perceived measures over time.

In the following sections, we first present an overview of the effects of CSR and firm innovativeness on customer satisfaction and financial performance. We then provide preliminary insights on our data. Next, we present an analysis using the GMM and PVAR models, followed by a discussion of the results and analysis. Finally, we conclude by presenting the implications of this study.

2. Conceptual background

A substantial amount of research has investigated the economic consequences of CSR and a firm's innovative activities. The consensus of previous research is that CSR and innovative activities positively influence financial performance (Bocquet et al., 2017). However, researchers have criticized the use of KLD and R&D expenses to analyze CSR and innovativeness measures in previous research. For instance, Hart and Sharfman (2015) found that using binary measures of KLD data may not be appropriate due to distributional issues and significant diversions from normality at the indicator level. Utilizing R&D measures also can be problematic, as R&D expenses may not fully capture a firm's innovativeness (Hall, Mairesse, & Mohnen, 2010). We argue that customers may not notice all the CSR and innovative efforts by a firm, or if they do, it may take a long time for a market to fully recognize what a company is doing. Consequently, what really counts is the market reaction to firm actions (e.g., Gupta & Zeithaml, 2006; Srinivasan et al., 2010).

We build the conceptual framework on the brand equity theory (Aaker, 2009; Liu, Wong, Tseng, Chang, & Phau, 2017). *Brand equity* is defined as the impact of brand knowledge and customers' perceptions of a brand on how customers react to the marketing of that brand (Foroudi et al., 2018). If a brand receives favorable responses, it is likely to have positive brand equity (Keller, 2002). This theory explicitly links customers' perceptions of a firm to long-term increases in customer satisfaction (Nam, Ekinci, & Whyatt, 2011) and financial performance (Phung, Ly, & Nguyen, 2019). The literature on brand equity has identified PCSR (e.g., Kim & Manoli, 2020) and PFI (e.g., Lin, 2015) as elements that contribute to increasing brand equity. Thus, drawing upon brand equity theory, we first propose that PCSR and PFI lead to higher customer satisfaction. We then propose that PCSR and PFI lead to greater financial gains in the long term based on an increase in customer satisfaction.

Two distinct perspectives exist in the CSR and innovativeness literature: firms' actions and customers' perceptions of these actions. The following section reviews the literature using the two perspectives to carve out the research gap that the present study aims to fill. The majority of the marketing and management literature has investigated the aforementioned relationship from the firms' actions perspective. Therefore, we first discuss the effects of a firm's CSR and innovation activities on customer satisfaction and financial performance. We then discuss the importance of customer perceptions in assessing marketing performance and the existing literature gaps.

2.1. Firm action perspective

The effects of CSR and innovativeness on marketing and financial performance metrics has been studied extensively. For instance, McWilliams and Siegel (2000) proposed that omitting R&D expenditures as a measure of innovativeness based on firm actions leads to a biased estimation of CSR's impact on financial performance. They found that when R&D expenses were included, CSR exerted no effect on financial performance, while innovativeness positively influenced financial performance. Furthermore, Luo and Bhattacharya (2006) argued that the reason for not observing CSR's effect on financial performance is the omission of underlying processes or contingency conditions that may explain the range of observed relationships. Thus, they introduced customer satisfaction as an underlying process that links CSR to higher Tobin's q and stock returns. Controlling for the innovation effect, they found that although CSR does not affect financial performance directly, it exerts an indirect positive influence on financial performance through customer satisfaction. They also found that innovation positively influences Tobin's q through customer satisfaction. Similarly, Surroca et al. (2010) found that CSR activities influence Tobin's q through a combination of a firm's intangible assets comprising innovation, human capital, and culture. Their results demonstrated that when intangibles were added to the model, the direct effect of CSR activities on financial performance disappeared. Moreover, the intangibles mediated the effect of CSR activities on financial performance. Building on the market-based assets theory, Rubera and Kirca (2017) found that innovation affects firm value both directly and indirectly through customer satisfaction.

These findings highlighted the need to study CSR along with firms' innovativeness and customer satisfaction to capture marketing actions' influence on financial performance in the short term. Overall, based on previous research, we know that CSR activities positively influence financial performance through intangible assets, such as customer satisfaction (see. Vishwanathan, van Oosterhout, Heugens, Duran, & Van Essen, 2020). Furthermore, innovative activities positively influence financial performance both directly and indirectly through customer satisfaction (Rubera & Kirca, 2017).

Despite substantial contributions from the firm action perspective, this literature stream neglects the influence of customers' perceptions on financial performance.

2.2. Customer perception perspective

Although several researchers have investigated the influence of CSR and firm innovativeness on financial performance from the firms' action perspective, the effects in relation to objective financial performance have not been examined from the perspective of customer perceptions of firm actions (Table 1). Whereas, having a customer perceptions perspective could provide a better understanding of the market responses to a firm's actions and their effects on financial performance (Gupta & Zeithaml, 2006; Hillman & Keim, 2001; Srinivasan et al., 2010).

The theoretical underpinning in previous research has been social identity theory (Tajfel, 1982), which has been used to explain the association between PCSR and customers' attitudinal and behavioral intentions (Maignan & Ferrell, 2004). Previous research found that PCSR increases customer loyalty (Stanaland, Lwin, & Murphy, 2011) and purchase intentions (Zhang & Ahmad, 2021) through an increase in firm reputation, image, and customers' trust. Furthermore, Pérez and Del Bosque (2015) built on social identity theory and disconfirmation theory, finding that PCSR leads to higher customer satisfaction by establishing a positive company-customer identification. They argued that established company-customer identification provides a more favorable context for customers to compare a company's performance with their previous expectations.

The innovation literature suggests that a firm's ability to continuously address consumers' needs and preferences leads to greater consumer commitment to the brand (Park, Jaworski, & MacInnis, 1986). Kunz et al. (2011) indicated that PFI positively influences customers' cognitive and emotional satisfaction, leading to an increase in customer satisfaction and loyalty. They argued that PFI, as a positive perception of a firm, contributes to customer evaluations of the company and business success over time. However, in their experimental context, they were unable to demonstrate the long-term effects. Pappu and Quester (2016) found that PFI leads to higher perceived quality by customers, consequently increasing customer loyalty. Bairrada, Coelho, and Coelho (2018) found that PFI increases brand love by delivering new experiences that elicit consumer excitement. They also found that brand love mediates the relationship between PFI and behavioral intentions such as willingness to pay.

As summarized in Table 1, the customer perception perspective on the consequences of CSR and innovativeness has neglected investigating PCSR's and PFI's combined effects. Furthermore, as these studies used attitudinal measures, they have not included objective financial measures. Due to previous studies' experimental nature and lack of access to longitudinal data, PCSR's and PFI's long-term and carryover effects have been overlooked in the literature. Considering the highlighted importance of customer-perceived metrics and the limited knowledge on the topic, we assessed PCSR's and PFI's influence on future financial earnings through customer satisfaction.

In summary, this is the first study to investigate PCSR's and PFI's long-term effects on firms' financial performance both directly and indirectly through customer satisfaction. This is also the first study to assess PCSR's and PFI's carryover effects on customer satisfaction. This is an important contribution, as we demonstrate how PCSR and PFI can contribute to the development of customer satisfaction and financial performance over time.

2.3. Hypotheses development

2.3.1. PCSR–Customer Satisfaction Relationship

CSR concerns businesses' commitment to sustainable economic development such that development improves quality of life for society, including employees, their families, and the local community (Aguilera-Caracuel, Guerrero-Villegas, Vidal-Salazar, & Delgado-Márquez, 2015). Researchers have found that PCSR can provide positive experiences for customers and increase customer satisfaction (e.g., Bello et al., 2020; He & Li, 2011). Previous research has identified several reasons why PCSR enhances customer satisfaction. First, CSR activities lead to customers perceiving firms as responsible members of society, not just economic identities (Maignan, Ferrell, & Ferrell, 2005). Building on this argument, as customers would potentially care about a company's overall standing, they are likely to be more satisfied if the company is socially responsible toward society. Second, CSR activities and communicating them to the customer base helps establish customer-company identification, which leads customers to favor the firm and develop a positive attitude (Pérez & Del Bosque, 2015; Sen & Bhattacharya, 2001). In our context, by increasing firm reputation and credibility, CSR enhances a firm's brand equity (Hur, Kim, & Woo, 2014; Martínez & Nishiyama, 2019), leading to greater customer satisfaction (Nam et al., 2011). Accordingly, considering previous findings and brand equity theory, we propose our first hypothesis:

H1: Perceived corporate social responsibility has a positive short-term effect on customer satisfaction.

2.3.2. PFI–Customer Satisfaction Relationship

Innovation is a viable factor that helps companies develop reliable solutions, address customers' needs, and properly respond to changes in customers' preferences (Mukherjee & Hoyer, 2001; Sood & Tellis, 2009; Srinivasan, Pauwels, Silva-Risso, & Hanssens, 2009). Kunz et al. (2011) found that PFI increases customers' satisfaction through positive affect and functional competence. Generally, innovative firms directly influence consumers' perceptions about these firms' ability to satisfy their needs by constantly introducing new products (Luo & Bhattacharya, 2006). Moreover, customers are likely to be more satisfied with a product that an innovative firm introduces due to higher perceived quality and value (Mithas, Krishnan, & Fornell, 2005; Mukherjee & Hoyer, 2001). Thus, similar to PCSR and following the results from previous studies on PFI's influence on customer satisfaction and brand equity theory, we propose the following hypothesis:

H2: Perceived firm innovativeness has a positive short-term effect on customer satisfaction.

2.3.3. Carryover Effects on Customer Satisfaction

Previous research has indicated that customers build positive preferences based on perceptions and memories of all previous experiences with a firm, including perceptions of firm actions (Baumgartner, Sujan, & Padgett, 1997; Hansen & Danaher, 1999; Loewenstein & Prelec, 1993). This leads to a cumulative perspective on customer satisfaction, where customer satisfaction is dependent on the customers' previous perceptions of a firm (Johnson, Anderson, & Fornell, 1995; Olsen & Johnson, 2003). We argue that customer satisfaction is likely to be affected by previous PCSR and PFI trends. Accordingly, we assess the carryover effects of PCSR and PFI on customer satisfaction. This will allow us to assess the importance of PCSR and PFI over time. Building on previous research, we formulated the following research questions to investigate PCSR's and PFI's carryover effects on customer satisfaction:

RQ1: How does the effect of perceived corporate social responsibility on customer satisfaction carry over to the future?
RQ2: How does the effect of perceived firm innovativeness on customer satisfaction carry over to the future?

2.3.4. Customer Satisfaction–Financial Performance Relationship

Generally, high customer satisfaction should indicate increased loyalty among current customers (Anderson, Fornell, & Lehmann, 1994), which means retaining more customers in the future. The strong customer loyalty of a firm should be reflected in the firm's economic returns because it ensures a steady future cash flow (Reichheld & Sasser, 1990). Satisfied customers are essential for any seller in a competitive market if customers' repurchase is a significant portion of total revenue (Fornell et al., 2016).

Customer satisfaction occupies a central place in both micro- and macro-analysis. At the micro-level, it is a leading indicator of favorable (high level/low volatility) net cash flows (Gruca & Rego, 2005). At the macro-level, it relates to economic growth through consumer spending and the efficiency of capital allocation (Fornell, Rust, & Dekimpe, 2010). High customer satisfaction, relative to the competition, is associated with repeat purchases, market share protection, lower price elasticity, and lower transaction and selling/marketing costs (Anderson et al., 1994). Therefore, satisfied customers are important for earnings, return on investments, return on assets, and cash flow (Bhattacharya, Morgan,

& Rego, 2021; Rubera & Kirca, 2017; Sorescu & Sorescu, 2016; Tuli & Bharadwaj, 2009).

In the marketing literature, customer satisfaction was found to be a long-term driver of firms' financial performance. Gruca and Rego (2005) found a positive influence of customer satisfaction on the following year's cash flow. Terpstra and Verbeeten (2014) found a positive impact of customer satisfaction on future customer revenues. However, customer satisfaction's effect on future performance becomes insignificant when the performance indicator differs. For instance, Rego, Morgan, and Fornell (2013) found an insignificant influence of customer satisfaction on the following year's market share. Furthermore, combining the PCSR-satisfaction and PFI-satisfaction links with previous findings on the satisfaction–financial performance relationship, we argue that satisfaction plays a key role in conveying PCSR's and PFI's influence on financial performance. Corresponding with previous findings, and considering the service context of the present study, we present the third and fourth hypotheses:

H3: Customer satisfaction has a positive effect on firms' future financial earnings.

H4: PCSR and PFI influence future financial performance positively through increasing customer satisfaction.

3. Data

To address our research questions, we used a unique data set provided by a market research institution in Europe known as EPSI. The data set comprises annual data on customers' PCSR, PFI, and satisfaction of service companies in Norway and Sweden from 2010 to 2019 in the business-to-business (B2B) and business-to-consumer (B2C) markets.

PCSR, PFI, and satisfaction were measured using single items (Table 2) on a 10-point scale (from 1 = "Strongly Disagree" to 10 = "Totally Agree"). Customer satisfaction questions were standard questions used in customer satisfaction indices (Fornell, 1992). Considering that the questions reflect an overall judgment of the firms' performance in CSR and innovativeness, we believe that the PCSR and PFI questions were proper measures (e.g., Gijsenberg, Van Heerde, & Verhoef, 2015). Furthermore, the PCSR question used was similar to a sub-item from a multi-item scale developed by Brown and Dacin (1997), and the PFI question resembled an item from an item set that Kunz et al. (2011) developed.

We combined data on PCSR, PFI, and customer satisfaction with firms' financial earnings data from two other sources in Norway and Sweden. Due to the unavailability of financial data for the B2B market and some of the firms in the B2C market, we use two separate data sets to conduct the outlined analysis on customer satisfaction and firm earnings.

The final data for the customer satisfaction analysis comprised 60 firms and 1,110 firm-year observations from six industries in the B2B and B2C markets. Table 3A lists the firms—divided by industry, market, and country—and Table 3B provides the descriptive statistics.

For the analysis of firm earnings, we used a data set comprising 460 firm-year observations in the B2C market. Table 3C lists the firms—divided by industry, market, and country—and Table 3D provides the descriptive statistics.

Table 2
Measured Items.

Construct	Item
Perceived CSR	[XX] is a company that takes social responsibility
Perceived Innovativeness	[XX] is an innovative company
Customer Satisfaction	Think of all the experience you have as a bank customer of [XX]. How happy are you overall?
	To what extent do you find that [XX] meets your expectations?
	Imagine a perfect bank. How close or far is [XX] from this perfect bank?

4. Research methodology and findings

4.1. Analysis of earnings

For this analysis, we combined customer-perceived metrics with firms' earnings data, resulting in 460 firm-year observations from 2010 to 2019 in B2C context. Considering that 460 firm-year observations were not sufficient to determine the optimal autoregressive level, we could not apply PVAR models to analyze the long-term and carryover effects of perceptual metrics on earnings. Therefore, we used another dynamic panel data model to investigate the impacts of PCSR, PFI, and customer satisfaction on firm earnings. As previously used in the marketing literature (e.g., McAlister, Srinivasan, Jindal, & Cannella, 2016; Rego et al., 2013; Tuli & Bharadwaj, 2009), we employed the generalized method of moments (GMM) estimator (Arellano & Bover, 1995; Blundell & Bond, 1998) to assess the indicated relationships. Considering that customer metrics, in the current context, contribute to earnings through word-of-mouth activities (Rego et al., 2013) and increasing customer base, it is expected that customers need a certain amount of time to take action and motivate others to become customers. Thus, we assessed the long-term impacts on firm earnings.

GMM is a dynamic panel data model designed for situations in which the dependent variable depends on its own past, and the panel contains small T and large N, and situations with endogeneity (i.e., regressors that are correlated with previous and possibly current-period errors), fixed-level firm effects, and heteroscedasticity and serial correlation within firms (Roodman, 2009). In the first step, as panel data models require (Hadri, 2000), we tested the stationarity of the variables of interest using the Dickey-Fuller test procedure recommended by Enders and Lee (2012) and the Phillips and Perron (1988) test using an intercept and a trend as exogenous variables. Among the tested variables, earnings were found to be non-stationary, while other variables were found to be stationary. Thus, for the earnings model, we used difference GMM as our dependent variable, as this is close to a random walk and is non-stationary (Roodman, 2009). Using difference GMM controls for heteroscedasticity and unobservable effects estimation concerns, as well as all possible sources of endogeneity, by including lagged values of the regressors as instrument variables (IVs). Thus, we assessed the effects on firm earnings through a first-difference model specification, as Eq. (1) provides, where i stands for firm and t for time (year). We used a log-transformed version of earnings in the model:

$$\Delta \log_Earnings_{i,t} = \Delta Earnings_{i,t-1}\beta_1 + \Delta CS_{i,t-1}\beta_2 + \Delta PCSR_{i,t-1}\beta_3 + \Delta PFI_{i,t-1}\beta_4 + \Delta v_{i,t} \quad (1)$$

To assess the effect of PCSR and PFI on customer satisfaction, we implemented system GMM, which was suggested by Roodman (2009) for the stationary panel data series (Eq. (2)):

$$CS_{i,t-1} = CS_{i,t-2}\beta_1 + PCSR_{i,t-1}\beta_2 + PFI_{i,t-1}\beta_3 + v_{i,t-1} \quad (2)$$

To validate the results of the GMM model, we used several tests, including the Sargan-Hansen test that tests model specification and instruments' over-identifying restrictions. A valid combination of instruments requires the test to be consistent in not rejecting the null hypothesis. Roodman (2009) suggested that a more conservative p-value should lie between 0.25 and 0.90 for the Sargan-Hansen test. Moreover, we assessed AR(1) and AR(2) statistics to test for serial correlation in the error terms. The null hypotheses (i.e., there is no k-order serial correlation) should be rejected for AR(1) but not rejected for AR(2), as dynamic panel GMM expects a first-order serial correlation in the data but not a second-order serial correlation. Finally, following Bond and Windmeijer (2005), we checked the model's robustness by estimating the model using ordinary least square and fixed effect estimators. The

Table 3
Number of Firms per Industry/Country for Satisfaction Analysis.

A: *Number of Firms per Industry/Country for Satisfaction Analysis*

	Bank	Insurance	Mobile	Broadband	TV	Energy	B2C	B2B	Total Firms
Norway	10	7	5	4	4	5	28	14	30
Sweden	9	10	6	3	5	13	33	21	39

B: *Descriptive Statistics and Correlation Matrix for Satisfaction Analysis*

	Min	Max	Average	STD	PFI	PCSR	CS
PFI	4.907	8.630	6.898	0.555	1.000		
PCSR	4.517	9.464	6.630	0.769	0.535	1.000	
CS	4.797	8.052	6.811	0.502	0.576	0.602	1.000

C: *Number of Firms per Industry/Country for Earnings Analysis*

	Bank	Insurance	Mobile	Broadband	TV	Energy	Total Firms
Norway	5	4	3	2	2	4	20
Sweden	4	7	4	0	3	8	26

D: *Descriptive Statistics and Correlation Matrix for Earnings Analysis*

	Min	Max	Average	STD	PFI	PCSR	CS	Earnings
PFI	6.084	8.175	7.414	0.553	1.000			
PCSR	5.896	8.791	7.337	0.727	0.622	1.000		
CS	6.758	8.052	7.434	0.347	0.666	0.538	1.000	
Earnings	62,098.12	4,796,242.56	1,155,673.05	1,750,552.75	−0.192	−0.158	−0.243	1.000

Note: Earnings are in thousands of euros.

lagged dependent variable's main effect on GMM should lie between OLS and fixed effect estimates.

To obtain a better understanding of the contributions of PCSR and PFI to financial earnings separately, we estimated four different models based on Eq. (1). M1 and M2, respectively, assessed the influence of PCSR and PFI on future earnings separately, while M3 combined PCSR and PFI into a single model. Finally, M4 represented the full model, comprising PCSR, PFI, and customer satisfaction as the drivers of future earnings. The obtained results from the aforementioned models are presented in Table 4A. H1 and H2 predicted that PCSR and PFI would positively influence customer satisfaction. The customer satisfaction model tested for these hypotheses, and the results were statistically significant in support of H1 and H2. The results were robust according to the aforementioned tests.

Models M1, M2, and M3 consistently demonstrated that PCSR and PFI do not affect future earnings directly. However, the inclusion of customer satisfaction in M4 indicated the positive influence of customer satisfaction on future earnings, providing support for H3 and H4. The results of the customer satisfaction model and M4 indicated that PCSR and PFI affect future earnings positively through customer satisfaction. As a further robustness check, we estimated M4 by including contemporaneous customer satisfaction, PCSR, and PFI, where the results were consistent.

In line with previous research, our results show that customer

Table 4
Summary of Results.

A: GMM Estimation Results for Earnings and Customer Satisfaction Models

	Earnings (t + 1)				Customer Satisfaction (t)
	M1	M2	M3	M4	
Log earnings$_t$	0.971***	1.005***	0.979***	0.976***	
Satisfaction$_t$				0.107*	
Satisfaction$_{t-1}$					0.514***
PCSR$_t$	−0.014		−0.024	−0.065	0.151***
PFI$_t$		0.002	0.017	0.021	0.342***
Sargan-Hansen Statistics	0.294	0.384	0.290	0.321	0.356
AR(1)	0.009	0.009	0.010	0.009	0.019
AR(2)	0.432	0.473	0.436	0.520	0.900
Wald test	179.903***	139.698***	149.838***	177.77***	79644.94***

B: GMM Estimation Results for Earnings' Effects on Customers' Perceptions

	PCSR (t)	PFI (t)	Customer Satisfaction (t)
Log earnings $_{t-1}$	-0.018	0.127*	0.012
Satisfaction $_{t-1}$			0.503***
PCSR $_t$		0.428***	0.159***
PCSR $_{t-1}$	0.304***		
PFI $_t$	0.694***		0.335***
PFI $_{t-1}$		0.460***	
Sargan–Hansen Statistics	0.328	0.378	0.325
AR (1)	0.000	0.025	0.000
AR (2)	0.355	0.357	0.923
Wald test	20827.57***	55302.09***	85260.04***

***p-value < 0.001; **p-value < 0.01; *p-value < 0.05.

satisfaction is a significant predictor of future earnings (e.g., Rubera & Kirca, 2017; Van Doorn et al., 2013). However, PCSR and PFI do not directly influence firms' future earnings but rather influence earnings indirectly through customer satisfaction. These findings indicate that although PCSR and PFI are important measures for customers in their relationships with firms, customers' behaviors are dependent on their overall evaluations of a firm (customer satisfaction). Similar to previous studies, which found that PCSR and PFI positively influence customer satisfaction, we demonstrated that these customer-perceived metrics significantly influence customer satisfaction. Moreover, PFI's contemporaneous effect on customer satisfaction is more than two-fold compared with that of PCSR.

We conducted further analyses to assess the effect of previous earnings on PCSR, PFI, and customer satisfaction. According to previous research, firms with access to more financial resources are likely to invest more in activities such as CSR and innovation and in communicating these activities to their customers (e.g., Hull & Rothenberg, 2008; Surroca et al., 2010). It is expected that firms' higher earnings in the previous period would lead to more positive customer perceptions and mindsets. For this analysis, we implemented the system GMM estimator and used PCSR and PFI as control variables in the estimated models. Table 4B demonstrates the effects of the previous period's earnings on customers' perceptions of firm activities.

The obtained results demonstrate the significant effect of earnings on future PFI. However, earnings exert no effect on future PCSR and customer satisfaction. These results indicate that firms have a tendency to invest their financial resources in innovative activities and communicate them to their customer base. However, for PCSR and customer satisfaction, higher earnings do not lead to better customer perceptions of firms' CSR activities and higher customer satisfaction levels. Therefore, higher earnings lead only to greater customer satisfaction in the next period through the PFI path, while the PCSR path is neglected by firms. However, as Table 4A demonstrates, PCSR exerts a significant effect on future earnings through customer satisfaction, and firms will benefit from investing in increasing the PCSR in their customer base.

These results highlight the role of customer satisfaction—defined as customers' overall evaluations of firms—in capturing PCSR's and PFI's impacts on firms' financial performance. We further examined the carryover effects of PCSR and PFI on customer satisfaction. To do so, we implemented PVAR models, as discussed in the next section.

4.2. Long-term influence of PCSR and PFI on customer satisfaction

To address the research questions on the long-term relationship between perceived marketing actions and customer satisfaction (RQ1 and RQ2), we implemented restricted PVAR models. Furthermore, we used generalized impulse response functions (GIRFs) to quantify the effects of unexpected changes. GIRFs do not require accounting for causal ordering (Pesaran & Shin, 1998). For this analysis, we used full data, which included 1,110 firm-year observations from six industries in the B2B and B2C markets. Our analysis comprised several steps that are explained in the following sections.

As the first step, we performed a unit root test to identify whether the panel series were stationary or evolving (e.g., Dekimpe & Hanssens, 1995). Similar to previous procedures, we performed augmented Dickey-Fuller and Phillips and Perron (1988) tests using an intercept and a trend as exogenous variables. All variables were found to be stationary, allowing the model to incorporate the variables in the normal form.

PVAR models estimate several equations to assess the influence of variables of interest on each other based on the lagged versions of dependent and independent variables. However, according to previous research, customer satisfaction—as measured in our data—is a cumulative and backward-looking measure (Fornell, Johnson, Anderson, Cha, & Bryant, 1996). Thus, in this research, we do not expect it to influence future PCSR and PFI theoretically. By applying restrictions to the PVAR models, we controlled for this issue and specified the models as follows:

$$CS_t = \beta_{0,1} + \sum_{l=1}^{L} \beta_{1,1,l} CS_{t-l} + \sum_{l=1}^{L} \beta_{2,1,l} PCSR_{t-l} + \sum_{l=1}^{L} \beta_{3,1,l} PFI_{t-l} + \varepsilon_t \quad (3)$$

$$PCSR_t = \beta_{0,2} + \sum_{l=1}^{L} \beta_{1,2,l} PCSR_{t-l} + \sum_{l=1}^{L} \beta_{2,2,l} PFI_{t-l} + \varepsilon_t \quad (4)$$

$$PFI_t = \beta_{0,3} + \sum_{l=1}^{L} \beta_{1,3,l} PFI_{t-l} + \sum_{l=1}^{L} \beta_{2,3,l} PCSR_{t-l} + \varepsilon_t \quad (5)$$

where t indexes years and l equals the number of lags included, which lag selection criteria will determine.

In the next step, as the PVAR models require, we used the Akaike information criterion (AIC), Bayesian information criterion (BIC), and Hannan-Quinn information criterion (HQC) to determine the optimal number of lags. We tested the specified models up to nine lags, in which BIC and HQC identified one lag as the optimum number of lags, and AIC suggested using six lags. Thus, we incorporated one lag as two out of three tests suggested.

To estimate the effects of PCSR and PFI on customer satisfaction using PVAR models, we also included country-, market-, and industry-related variables as exogenous factors to control for the effects and obtain a good model fit (R-square = 0.694).

To validate the model, we investigated the out-of-sample forecasting accuracy of the proposed PVAR model in Eq. (1). We forecasted the last year of the sample (2019) as the holdout sample based on the model estimation, using samples from 2010 to 2018. The forecasting accuracy assessed using RMSE (=0.525) and the Theil inequality coefficient (=0.038). The closer the value of the Theil test is to zero, the better the forecast method. A value of 1 means that the forecast is no better than a naïve guess. Our model resulted in a Theil score of 0.048, which is an indicator of satisfactory validation of the model (Theil, 1952).

Although PVAR estimation provides insights into the immediate impacts of the variables of interest, it does not illustrate the long-term effects of shocks over time. To assess the impacts of PCSR and PFI shocks on customer satisfaction over time, we derived GIRFs based on the estimated parameters by using PVAR models. GIRFs allow for identification of the wear-in time of the effects, which is the period before the peak effect (Pauwels, Silva-Risso, Srinivasan, & Hanssens, 2004). According to the GIRFs (Fig. 1), the wear-in time for all the assessed effects is immediate. We assessed the significance of the GIRFs by applying a one-standard-error band (Pesaran, Pierse, & Lee, 1993; Sims & Zha, 1999), where all the dynamic effects were found to be significant (Fig. 1).

According to the GIRFs, both PCSR and PFI indicated a substantial immediate effect on customer satisfaction, and the effects wear off over time. However, the impact of PCSR in period two remains roughly at the same level as period one. We also estimated the immediate and long-term elasticities for the influence of PCSR and PFI on customer satisfaction (Table 5). Although PCSR's immediate effect on satisfaction is slightly lower than PFI's effect, PCSR indicated a greater influence over time.

The immediate effects of PCSR and PFI on customer satisfaction are 0.129 and 0.131, respectively. However, considering that PCSR's carryover effect is stronger in the second period, PCSR's cumulative elasticity reaches to 0.541, while PFI's elasticity reaches to 0.490. Combining these results with the results of the customer satisfaction model in Table 4, we would argue that although PCSR exerts a weaker immediate effect on customer satisfaction compared with PFI, its carryover effect is stronger for the first two upcoming periods. Finally, combining results from the PVAR models and the GMM model, we would argue that PCSR and PFI influence firms' financial performance through customer satisfaction in the long term.

These results indicate the importance of PCSR on customers' evaluation of firms over time and the necessity of effective communication of

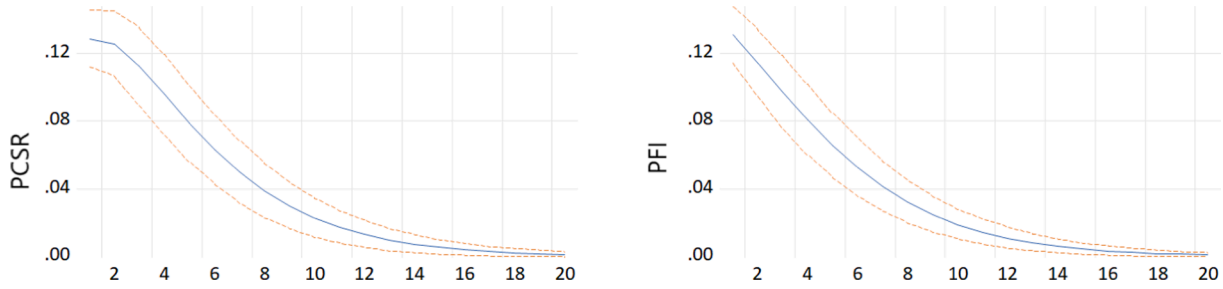

Fig. 1. Customer Satisfaction Responses to PCSR and PFI Over Time.

Table 5
Satisfaction's Response to Predictor Variables in Five Years.

	One year	Three years	Five years	Average elasticity	Median elasticity
PCSR	0.129	0.367	0.541	0.108	0.112
PFI	0.131	0.344	0.490	0.098	0.097

CSR actions to a firm's customers. Moreover, results imply the need to employ models that also can account for the long-term effects of customer satisfaction antecedents.

5. Discussion

Drawing upon brand equity theory, this study examined PCSR's and PFI's influence on firms' future financial performance. We assessed this relationship through customer satisfaction as a major consequence of PCSR and PFI (Kunz et al., 2011; Pérez & Del Bosque, 2015). Furthermore, we assessed PCSR's and PFI's long-term and carryover effects on customer satisfaction. This was done by analyzing unique panel data from over a 10-year period (2010–2019). The analytical procedure included two different dynamic panel data modeling methods. The analysis revealed that PCSR and PFI do not influence firms' future earnings directly, but instead they affect future earnings indirectly through customer satisfaction. The impacts of PCSR and PFI on customer satisfaction are not limited to the short-term but also elicit a carryover long-term effect on future periods. Finally, although firms use their obtained financial resources to increase PFI, they tend to overlook the importance of improving PCSR.

5.1. Theoretical implications

The extant literature on firms' CSR (see. Awaysheh et al., 2020; Vishwanathan et al., 2020) and innovativeness (e.g., Rubera & Droge, 2013; Rubera & Kirca, 2017; Vadakkepatt, Shankar, & Varadarajan, 2021) largely has focused on investigating the relationships between these elements and financial performance based on firms' actions. This focus neglects the customers' perceptions of these actions. The existing research on customers' PCSR and PFI has focused on assessing the influences on customers' behavioral intentions (as opposed to objective measures; see Table 1). Drawing upon brand equity theory, our study provides a better understanding of PCSR's and PFI's long- and short-term influence on firms' financial performance and contributes to the literature in several ways.

First, although previous research indicated that PCSR and PFI exert a direct positive influence on customers' subjective behavioral intentions (e.g., Bello et al., 2020; Mahmoud et al., 2018), our results indicate that PCSR and PFI do not influence customers' objective and real-life behavior directly but rather indirectly through customer satisfaction. This implies that customers' objective and real-life behaviors are driven by their overall cumulative evaluation or perception of a firm (Homburg, Koschate, & Hoyer, 2005; Olsen & Johnson, 2003; Otto, Szymanski, & Varadarajan, 2020).

Second, we contribute to the literature by replicating and extending previous findings that indicated positive effects of PCSR (e.g., He & Li, 2011; Park, Kim, & Kwon, 2017) and PFI (e.g., Kunz et al., 2011; Mahmoud et al., 2018) on customer satisfaction from the customer level to the firm level. Using longitudinal data at the firm level, we demonstrated that PCSR and PFI are antecedents to customer satisfaction. These results increase the validity of findings by providing firm-level insights that involve the experiences of many customers with a company, making the findings more generalizable (Saini & Jawahar, 2021), and by accounting for unobserved heterogeneity of firms and longitudinal patterns (Wagner, 2010).

Finally, the results from the PVAR analysis indicate that PCSR's and PFI's effects carry over to future periods and do not disappear immediately. This finding indicates that investing in increasing customers' awareness and perceptions of a firm's CSR and innovativeness at one point in time would affect the customer base positively—not only at that time but also for the following periods. Thus, we empirically confirmed customer satisfaction's cumulative nature, which is a dominant assumption (but has not been demonstrated empirically) in service literature (e.g., Ciuchita, Mahr, & Odekerken-Schröder, 2019; Lemon & Verhoef, 2016; Voorhees et al., 2017).

5.2. Managerial implications

Managers are always evaluating the trade-off between different marketing actions to create value for their stakeholders. Our findings indicate that firms can gain greater customer satisfaction by increasing PCSR and PFI in their customer base. Accordingly, PCSR and PFI can create financial value in the next period by increased customer satisfaction. From an economic perspective, our results indicate that on average, a one-point increase in customer satisfaction can increase future earnings by more than 10 percent, which is equivalent to a 110-million-euro increase in an average firm's future earnings in our data set. Consequently, a one-point increase in PCSR and PFI would lead to a 1.6% and 3.6% increase in future earnings, respectively, through customer satisfaction.

Furthermore, we demonstrated the carryover effects of PCSR and PFI on customer satisfaction in the long term. These results reveal that PCSR's effect on customer satisfaction remains at the same level for the first two periods, while PFI's effect starts to decrease immediately after the first period. There might be two explanations for this effect. First, the innovation intensity among today's businesses is high, which would increase customers' expectations of firm innovativeness and decrease the effect persistence, as new products and solutions are being rapidly introduced to different markets. Second, the customer-company identification resulting from PCSR (Pérez & Del Bosque, 2015) establishes an emotional connection with customers that looms longer. This corresponds with Haumann, Quaiser, Wieseke, and Rese (2014) findings, in which they indicated that the effects of customer-company identification are significantly persistent over time.

Based on our findings, managers should recognize the importance of increasing PFI and particularly PCSR due to the more persistent

carryover effect. Communicating positive firm actions to customers leads to higher customer satisfaction and, thus, increases future earnings (Mishra & Modi, 2016). Firms also benefit from PCSR's persistent carryover effect by integrating innovative and CSR activities and communicating innovative actions not only as innovation but also as socially responsible behavior. This helps firms maximize PCSR's and PFI's effects on financial performance through customer satisfaction in the long term (Porter & Kramer, 2006).

Although PCSR and customer satisfaction can largely contribute to future earnings, our study revealed that higher earnings in the previous period do not affect future PCSR and customer satisfaction; this is not where firms invest their resources. However, we did find that firms tend to invest their financial resources to increase PFI, meaning they invest their financial resources to be more innovative, and then they communicate this to their customers, which increases PFI. Furthermore, the insignificant effect on customer satisfaction also indicates that on average, firms overlook improvements in other antecedents of customer satisfaction as well. Considering PCSR's effect on future earnings through the short-term and carryover effects on customer satisfaction, managers should understand the benefits of investing in CSR actions and communicating them to their customers. Specifically, according to Chen, Huang, Yang, and Dube (2018), firms can gain higher PCSR and more favorable customer responses by focusing on value-creating CSR practices rather than philanthropic or promotional CSR.

5.3. Limitations and future research

Despite the substantive theoretical and managerial implications, this study has several limitations that need to be addressed by future research. The limitations are based on available databases' limitations (i.e., very few databases have measures that are unchanged over longer periods of time and also cover the exact same firms). We received data for the 2010–2019 period, in which the survey's administrators kept parts of the firms' populations and questions intact. Furthermore, the database covered only service industries, while the effects could differ for other types of industries. Previous research indicated that CSR activities exert a greater effect on financial performance for service firms (Casado-Díaz, Nicolau-Gonzálbez, Ruiz-Moreno, & Sellers-Rubio, 2014), while innovation is a less influential factor in service firms' financial performance, as it is more difficult for customers to perceive (Ettlie & Rosenthal, 2011; Prajogo, 2006). Considering these differences, future research should replicate this study in a wider range of contexts to determine whether the results are consistent with other industries, such as retailing and the goods sector. Such a study might reveal key differences (e.g., between services vs. products and B2B vs. B2C firms) as well as increase understanding of how strategies should differ accordingly.

Although this study used a long time-series to analyze the underlined effects, we still ended up with a low number of firm-year observations with financial data. This prevented us from analyzing the carryover effects of PCSR and PFI directly on firms' earnings. Having access to a data set with a larger number of observations for PVAR analysis would strengthen the analysis. Furthermore, as Luo and Bhattacharya (2006) pointed out, the effect of brand equity components could differ on different financial performance metrics. Accordingly, as brand equity components elicit long-term effects, forward-looking financial performance metrics, such as Tobin's q, could capture the effects better compared with backward-looking accounting metrics as used in this research. Future research should incorporate a richer set of accounting- and financial market-related performance metrics to assess PCSR's and PFI's effects. Researchers might consider incorporating other types of customer evaluations of firms, such as loyalty and perceived value and quality, which would help increase understanding of causal paths from perceived action—such as PCSR and PFI—to financial performance.

Moreover, our measurements of PCSR and PFI rely on single-item measures, as these were the only available measures in the database. However, using multiple-item measures of the constructs, future research may provide safer generalizations of the results (Rossiter, 2002). Finally, to better understand the effects of firms' actions and customers' perceptions of these actions, future research could incorporate both subjective and objective measures of CSR and firm innovativeness in the financial performance model. In addition, although the GMM estimator deals with omitted variable bias to a great extent (Roodman, 2009), the inclusion of CSR and innovative firm actions in the model could help create a better understanding of PCSR's and PFI's effects on performance.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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