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Introduction

As social media networking has emerged and expanded rapidly in the past decade, interest in social media marketing among marketing scholars and organizations has also grown sharply worldwide. As managers become more comfortable with and active in including social networks as part of their integrated marketing communications, they have naturally turned their attention to questions regarding the return on investment of social media: Can social media marketing activities improve firm performance? (*Hoffman, Fodor, 2010*).

Literature Review and Research Framework

Theory: The RBV and Dynamic Capabilities Extensions

The RBV and the dynamic capabilities perspective serve as the theoretical foundations of the current research. Both perspectives suggest that performance is determined by a firm's resource endowment and its effectiveness at converting these resources into capabilities (Barney, 1991; Day, 1994). The RBV proposes that competitive advantages arise from developing and deploying unique, valuable, inimitable, and non-substitutable resources (Barney, 1991; Lahiri et al., 2012). Dynamic capabilities theory proposes that marketplaces are dynamic and that firms, rather than being heterogeneous in their resource endowments, exhibit differences in the capabilities by which they acquire and deploy resources. These differences explain inter-firm performance variance over time. Capabilities are also dynamic, such that they can help firms implement new strategies to reflect changing market conditions by combining and transforming available resources in new and different ways.

Traditional CRM

In a traditional CRM framework, the organization possesses substantial customer information and uses this information to manage its customer relationships define CRM as a procedure that "entails the systematic and proactive management of relationships as they move from beginning (initiation) to end (termination), with execution across the various customerfacing contact channels." Boulding et al. (2005) identify several key elements:

CRM relates to strategy, the management of the dual creation of value, the intelligent use of data and technology, the acquisition of customer knowledge and the diffusion of this knowledge to the appropriate stakeholders, the development of appropriate (long-term) relationships with specific customers and/or customer groups, and the integration of processes across the many areas of the firm and across the network of firms that collaborate to generate customer value.

CRM and Social Media

The traditional definition of CRM is still generally valid, but the rapid and widespread popularity of social media networking in both consumer and business markets indicates a need to reconsider the traditional view of CRM (*Trainor*, 2012). Customers have begun using social media networking to connect with other individuals and firms and through user-generated

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information and interactivity within the network. Consumers have become actively involved in the co-creation of their experiences with.

Social CRM

Recognizing the important role of social media in CRM systems, this study adopts the following definition of social CRM: "the integration of traditional customer-facing activities, including processes, systems, and technologies with emergent social media applications to engage customers in collaborative conversations and enhance customer relationships" (*Trainor*, 2012). Social CRM is not a replacement for traditional CRM but instead is an extension that incorporates the social functions, processes, and capabilities that address firm—customer interaction as well as customer—customer interaction (*Greenberg*, 2010).

Social CRM Capabilities

Taking these findings into account, Trainor et al. (2014) propose "social CRM capabilities" as a unique combination of emerging technological resources and customer-centric management systems that can lead to customer satisfaction, loyalty, and retention. In addition, they demonstrate that social CRM capabilities are positively associated with customer relationship performance (*Trainor et al.*, 2014).

Conceptual Model and Hypotheses

To explain how using social media technology can benefit both customer relationships and financial performance, we develop a conceptual model that integrates market adaptation strategies and market capability development. The model first establishes the relationship between social CRM capabilities and customer engagement and then considers how social CRM capabilities influence firm performance directly. Next, the model delineates relationships between customer engagement and firm performance. Finally, it identifies the moderating effects of social media usage on the relationships between social CRM capabilities and firm performance. Figure 1 depicts this conceptual model.

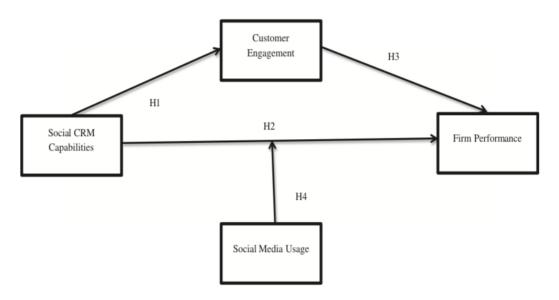


Fig. 1. Conceptual model.

Effects of Social CRM Capabilities

Social CRM capabilities emphasize a firm's ability to engage customers in collaborative conversations and enhance customer relationships (Trainor et al., 2014). Interactive marketing technologies can not only enable more intense and higher-quality interactions with stakeholders but also increase the quantity and quality of information provided to customers (Wu et al., 2003). Recent literature shows that marketing capabilities, including social CRM capabilities, lead to the development of strong customer relationships that positively influence customer satisfaction and loyalty (Hooley et al. 2005; Rapp et al., 2010; Trainor et al., 2014). From a technologybased perspective, the literature suggests that marketing technologies have enabled firms to interact more effectively and efficiently with customers (Coviello et al., 2001), to capture and use customer information developing for more effective customer responses (Jayachandran et al., 2005). The purpose of a social media brand page is to encourage consumers to react or interact (e.g., liking, commenting, sharing); therefore, when companies or brands show intention to interact and co-create value with customers, customers' engagement level should increase because they can receive better information and feel they are valued. In line with our position that social CRM capabilities emphasize the integration and accessibility of customer information to engage customers in collaborative conversations and enhance customer relationships, we argue that firms possessing such capabilities will be more effective in engaging customers and leveraging this information to better serve their customers. Thus, we propose the following:

H1: A firm's social CRM capabilities are positively associated with its level of customer engagement.

In line with the RBV and dynamic capabilities theory, previous studies suggest that developing distinctive capabilities can be a source of superior organizational performance (Day, 1994; Menguc, Auh, 2006). Firms adept at converting existing resources and capabilities into new value-adding processes and capabilities are more likely to improve performance. Many studies have proved that marketing capabilities are positively associated with firm performance for both large firms in industrialized countries and small firms (Fahy et al., 2000; Morgan et al., 2009; Shin, 2013). Social CRM capabilities increase efficiency related to customer communications and internal administration. Therefore, firms that have more social CRM capabilities should realize better organization performance overall. Thus, we propose the following:

H2: A firm's social CRM capabilities are positively associated with its business performance.

Effects of Customer Engagement

Companies report customer engagement as the most important among several specific benefits they expect from their presence on social media (Sashi, 2012). Increasing interest in customer engagement has paralleled both the continued evolution of the Internet and the emergence of new digital technologies and tools dubbed Web 2.0, especially social media networks such as wikis and blogs; microblogging sites such as Twitter; video sites such as YouTube; and social networking sites such as Facebook, MySpace, and LinkedIn (Sashi, 2012; Wirtz et al., 2010). The emergence of the customer engagement concept recognizes the opportunities offered by the interactive aspects of Web 2.0 technologies and tools to transform the relationship between customers and sellers (Tsimonis, Dimitriadis, 2014). Practitioners and researchers view the interactivity of social media, along with its ability to establish conversations among individuals and firms in communities of sellers and customers and involve customers in content generation and value creation, as providing the means to better serve customers and satisfy their needs. Practitioners thus have attempted to use social media marketing to build enduring relational exchanges with strong emotional bonds to improve business performance (Mitic, Kapoulas, 2012; Sashi, 2012; Tsimonis, Dimitriadis, 2014).

Focusing on customer involvement on social media brand/ company pages, we adopt the following definition of customer engagement from the online brand perspective as "behaviors [that] go beyond transactions, and may be specifically defined as a customer's behavioral manifestations that have a brand or firm focus, beyond purchase, resulting from motivational drivers" (Van Doorn et al., 2010). Customer engagement occurs on social media when delighted or loyal customers share their positive feelings in interactions with others in their social networks and become advocates for a product, brand, or company (Gummerus et al., 2012; Sashi, 2012). As these engaged customers develop new connections, they become advocates for the seller in interactions with other customers and even non-customers on their social media networks. Customer engagement turns customers into fans who remain wedded through ups and downs in intimate, enduring relationships and even proselytize for the product, brand, or company (Tsimonis, Dimitriadis, 2014). Consumers who become fans of these brand pages tend to be more loyal and committed to the company and are more open to receiving information about the brand (Bagozzi, Dholakia, 2006). Increasing numbers of people are spending increasing amounts of time on social media; thus, it is meaningful to analyze consumers' engagement in this context (de Chernatony et al., 2008; Kaplan, Haenlein, 2010). Research shows that customer engagement is directly and positively related to customer relationship outcomes such as satisfaction, affective commitment, and customer loyalty (Brodie et al., 2011). Social media operate like a large word-of-mouth platform that catalyzes and accelerates the distribution and exchange of information among individuals and organizations (Chan, Ngai, 2011; Dellarocas, 2003; Godes, Mayzlin, 2004; Jalilvand, Samiei, 2012).

Social media brand pages can help companies achieve three strategic goals: building brand awareness, increasing loyalty, and boosting sales (Castronovo, Huang, 2012). Research shows that customer engagement is directly and positively related to relationship outcomes such as satisfaction, trust, affective commitment, and loyalty (Brodie et al., 2013). Customer engagement expands the role of customers by including them in the value-adding process as cocreators of value. Companies may also want to encourage and reward consumers for becoming more active on the site to receive maximal relationship benefits (Gummerus et al., 2012). Previous customer engagement studies also show that engaged and satisfied customers may create and disseminate brand/firm information that other constituents can use to create reputation (Fombrun, Shanley, 1990) and positive brand image (Coulter et al., 2012). With high levels of customer engagement on social media, companies can better employ the interactive features of social media to create a better company image, better customer experiences, and more future purchase behaviors. Thus, customer engagement is also a key factor that influences customer loyalty and, ultimately, firm performance. We hypothesize the following:

H3: A firm's customer engagement level on social media is positively associated with its business performance.

Moderating Effects of Social Media Technology

Social media technologies influence an organization's social CRM capability by providing the environment to engage customers in collaborative conversations and enhance customer relationships. Social media usage can be viewed as an index of how much an organization uses social media technologies. Firms that actively use social media can increase consumers' awareness of their brand and themselves and also highlight their intentions to engage in interactive dialogue, thus augmenting the impact of social CRM capabilities. Advertising can also amplify the impact of social CRM capabilities on performance by attracting consumers' attention. The existence of an active, official social media account implies that firms are eager to build relationships with consumers, and consumers become more willing to participate in acquiring or processing information about these firms. Firms can thus leverage the positive impact of social media activities to highlight and differentiate themselves from other competitors, enhancing consumers' future purchase likelihood.

In addition, organizations adapt to rapidly changing market environments through the introduction of technical innovations, which lead to greater performance (*Han et al.*, 1998). In this sense, social CRM capability can be viewed as a form of innovation based on the definition we adopted (*Trainor et al.*, 2014). Organizations with a high level of social media usage are more likely to adapt to the social media environment and achieve an advantage by acquiring customer information and trust earlier than competitors. In line with the premise that market-related capabilities allow firms to accurately anticipate changes in markets and develop appropriate responses, we expect this relationship to be even stronger for firms that use social media technology extensively, thus having a higher impact on firm performance. We hypothesize the following:

H4: A firm's social media usage positively moderates the relationship between its social CRM capability and firm performance; that is, the positive relationship will be stronger when the level of social media usage is higher.

Methodology

Data and Sample

Social Media Data

Because we aim to examine and compare social media usage, we collected our primary social media data from one of the earliest social media websites: Facebook. Because some of the companies from which we collected data had multiple Facebook accounts acting on their behalf, we chose for analysis the accounts that appear on each company's official website, including both the company's and its main brands' Facebook accounts, to best reflect any organizational policy or practice on the use of social media. We downloaded all postings from these Facebook accounts from the day these companies began using Facebook until December 31, 2014.

COMPUSTAT

To test firm performance and control our data sets, we collected financial statement data from COMPUSTAT North America and Global Fundamentals annual databases. We initially drew the data for a 34-year period (1980–2014), but then we used the time span of the firms' social media activities. We calculated return on assets as a measure of firm performance from the data, and we collected other control variables, such as number of employees.

Because only 379 brands/companies have available an American Customer Satisfaction Index (ACSI), we used this list to identify our sample companies by combining those brands under the same company. After we matched ACSI list and COMPUSTAT data, we were left with 340 firms. We continued to match ACSI and COMPUSTAT to social media data and to exclude companies that did not have Facebook accounts. The final sample consisted of 232 companies.

Measures

Social Media Usage

As a platform for consumers to interact with and influence one other, social media has a more direct impact on brand communities, and it produces higher response rates and customer engagement levels than traditional marketing methodologies that focus only on the firm—consumer relationship (*Trusov et al., 2009*). Thus, we measured social media usage with data collected from companies' Facebook account each year: the number of posts of the sample company each year. More posts mean that the sample company used Facebook more often.

Customer Engagement

Social media has also enabled customers to interact with business organizations and has empowered them to take an active role in co-creating their experiences (*Prahalad, Ramaswamy, 2004*). When companies establish social media pages, they are expecting consumers to visit the

page, become fans, and share the content with their own friends. However, research suggests that "likes" of brand social media pages may be too weak a signal of future engagement behavior for the brand because it takes mere seconds of attention (John et al. 2016). In contrast, when consumers decide to share the company's post, they have the intention of sharing this post with their own social network. Thus, we measured customer engagement by the number of posts customers shared to help companies deliver the information in their own social network.

Social CRM Capabilities

An important goal of social CRM capabilities at the firm level is to enhance both the perceived value of the firm's products and customer relationship with the firm's current and potential customers. This goal is partly reflected in growing sales, through a better understanding of customer needs and distinctive targeting of appropriate customers. Thus, we developed the social CRM capability measure using information from corporate disclosures with an inputoutput stochastic frontier model (Battese, Coelli, 1992; Dutta et al., 1999; Xiong, Bharadwaj, 2013), an effective model for predicting efficiencies of individual firms in an industry (Battese, Coelli, 1992; Dutta et al., 1999). The RBV defines a firm's capability as its ability to deploy the resources (inputs) to achieve the desired objectives (the output). The input-output conceptualization of the firm's capabilities makes the stochastic frontier estimation (SFE) methodology well suited because SFE provides the appropriate econometric technique to empirically estimate firms' level of efficiency (Dutta et al., 2005, 1999). The input-output SFE approach models a firm's functional activities as an efficient frontier relating the productive resources/inputs a firm uses to the optimal attainment of its functional objectives/outputs, if the firm deploys these resources most efficiently (Dutta et al., 2005, 1999). The SFE involves two random components, one associated with the presence of inefficiency and a traditional random error (Battese, Coelli, 1992). The lower the functional inefficiency, the higher is the functional capability of the firm. Therefore, previous studies have used the inverse of a firm's functional inefficiency as the measure of its functional capability (Dutta et al., 2005, 1999; Narasimhan et al., 2006; Xiong, Bharadwaj, 2013).

Following Xiong and Bharadwaj (2013), we used this equation:

Sales_{it} = f (X_{it} : Resource_{it},
$$\alpha$$
) × exp(ϵ_{it} ,) × exp($-\eta_{it}$), (1)

where Sales_{it} represents the sales (the output) for the i-th firm at the t-th period of observation; $f(X_{it}: Resource_{it}, \alpha)$ is a suitable function of a vector, x_{it} , of factor inputs (and firm-specific variables), associated with the sales of the i-th firm in the t-th period of observation, and a vector, α , of unknown parameters; ε_{it} captures random errors beyond the firm's control; and η_{it} captures the firm's inefficiency of converting resources (inputs) into sales (the output). Resources include the firm's technology base; sales, general, and administrative expenses; and receivables (*Xiong, Bharadwaj, 2013*). In addition to the traditional resource inputs, we add social media resource inputs (SMR) (i.e., HasTag, HasLink, HasVideo, IsReply, and HasImage) to emphasize the social CRM capabilities using social media. Social CRM assumes that customers are actively engaging with the firm; therefore, these inputs show how they do so (*Malthouse et al., 2013*).

Table 1 summarizes all the items we employed in the SFE of social CRM capabilities.

Table 1
List of items used for SFE of social CRM capabilities.

	Item	Description				
1	Social media resource inputs (SMR):	HasTag — the number of posts that contain tags				
	HasTag, HasLink, HasVideo, IsReply HasImage	HasLink — the number of posts that contain superlinks				
		HasVideo — the number of posts that contain videos				
		IsReply — the number of posts that are replies to others				
		HasImage — the number of posts that contain images				
2	Sales, general, and administrative stock (SGAS)	Sales, general and administrative expense				
3	Receivable stock (RCS)	Account receivables				
4	industry and market conditions	Dummy variables based on the four-digit				
	(MC)	SIC code of firm i				
5	Sales output	Total sales				

Because resources from previous years can influence current revenue, we use a Koyck lag function with higher weights on more recent years to derive measures of sales, general, and administrative stock; receivable stock; and advertising expense stock (*Dutta et al., 1999*). For example, we define ADSTOCK for period t as ADSTOCK = $\sum_{k=1}^{k=t} \sum_{j=1}^{k=t} \gamma^{t-k} \times ADExpense_k$, where γ represents the weight attached to the past value of advertising expenses. Following previous literature (*Dutta et al., 2005*), we used a weight of .5; the results were robust to different weights. Using the same formula, we calculated SGASTOCK for period t as SGASTOCK = $\sum_{k=1}^{k=t} \sum_{j=1}^{k=t} \varphi^{t-k} \times SGAexpense_k$. Although sales, general, and administrative stock also includes items that are not strictly within the domain of marketing, it is a good proxy for the amount the firm spends on its market research, sales effort, trade expenses, and other related activities. Other stock variables are also calculated by the same method.

To control for industry and market conditions that might differ across the sample, we divided our sample of firms on the basis of their four-digit Standard Industrial Classification (SIC) code. For estimation purposes, we code the variables as dummy variables based on the four-digit SIC code of firm_i.

Then, we used the stock variables as inputs (Xit: Resourceit) in Eq. (2).

$$\begin{split} \ln(Sales_{it}) &= \alpha_0 + \alpha_1 \ \ln(SGAS_{it}) + \alpha_2 \ \ln(RCS_{it}) \\ &+ \alpha_3 \ \ln(SMR_{it}) + \alpha_4 \ MC_i + \epsilon_{it} - \eta_{it}. \end{split} \tag{2}$$

We derived the maximum likelihood estimate of the inefficiency term η_{it} , then rescaled the estimate η_{it} to be between 0 and 100, and used $100 - \eta_{it}$ as the marketing capability measure (*Xiong, Bharadwaj, 2013*). Appendix 1 describes the statistics of the inefficiency term η_{it} and the efficiency index $100 - \eta_{it}$.

Firm Performance

We used Tobin's q as the dependent variable in our study. We measured it by summing the market value of equity and the book value of debt, divided by the book value of the total assets for the period in which the individual firm is involved. We gathered financial data from COMPUSTAT.

Control Variables

We collected customer satisfaction data from the ACSI, a customer-based measurement system for evaluating and enhancing firm performance. The ACSI is designed to be representative of the economy as a whole and covers more than 300 firms from over 40 industries in the seven major consumer sectors of the economy, whose 1994 sales are in excess of \$2.7 trillion. An individual firm's ACSI represents its served market's (i.e., its customers') overall evaluation of total purchase and consumption experience. The ACSI contains 20 years of records beginning from its baseline year, 1994, according to firms' marketing activities. We used the indexes of the matching company each year from 2004 to 2014 as the customer satisfaction measurement

To control for firm heterogeneity and industry, we also used the control variables firm size, leverage, industries categories, and total sales every year, and year fixed effects. To do so, we used the average total number of employees as an indicator variable for firm size and nine industry categories with dummy variables.

Analysis and Results

We used STATA 14.0 to generate descriptive and inferential statistics and to conduct panel regressions to test the hypothesized relationships. Table 2 presents the correlation matrix descriptive statistics (means, standard deviations, and correlations) for all variables. The range of social media usage variable and the time length using social media is large, which means our sample companies have a wide range of strategies. The results of the correlation matrix indicate that social CRM capability is positively related to Tobin's q (r = .05) and customer engagement is positively related to Tobin's q (r = .03).

Table 2				
Correlation	matrix	and	descriptive	statistics.

No.	Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9
1	Firm performance (Tobin's q)	4.11	8.06	1.00								
2	Year	2009	3.16	.06	1.00							
3	Social CRM capability	88.04	1.90	.05	.01	1.00						
4	Social media usage	11.37	17.87	.01	.38	17	1.00					
5	Customer engagement	6.01	12.28	.08	.56	16	.85	1.00				
6	Sales	9.30	2.47	10	02	92	.11	.12	1.00			
7	Employee	3.64	1.84	18	03	65	.03	.07	.80	1.00		
8	Leverage	.22	1.37	15	01	25	02	03	.27	.15	1.00	
9	Customer satisfaction	76.55	5.71	11	.07	.06	.05	.05	04	.01	.27	1.00

Hypotheses Test

Table 3 presents fixed-effect panel regression results testing H1–H4. Model 1 represents H1, H2, and H3; the mediating effect; and full model. Model 2 represents the moderating effect of social media usage between social CRM capability and firm performance (H4). In H1, we predicted a positive relationship between social CRM capability and customer engagement. The coefficient estimate for the social CRM capability variable is significantly positive (p < .001), providing support for H1. As we predicted in H2, social CRM capability had a positive and statistically significant effect (p < .01) on firm performance. However, contrary to H3, customer engagement had negative but insignificant impact on firm performance.

Finally, the statistically significant and positive coefficient estimate of social media usage \times social CRM capability (p < .1) in H4 confirms that social media usage positively moderates the relationship between social CRM capability and firm performance.

Table 3
Results of fixed-effect (within) panel regressions

Models	1								2		
	H1	H2	НЗ	Mediating ef	fect		Full model	H2	H4 (Full model)		
Dependent variable	Customer engagement	Tobin's q	Tobin's q	Tobin's q Customer engagemen		Tobin's q	Tobin's q	Tobin's q	Tobin's q		
Constant	-1,170.318 (343.982) **	-429.921 (131.726) **	-45.427 (13.170) **	-429.921 (131.726)**	-1,170.318 (343.982)**	-45.427 (13.170) **	-436.990 (133.425) **	-429.921 (131.726) **	-526.561 (137.439) ***		
Social CRM capability	13.310 (3.506) ***	4.085 (1.380) **		4.085 (1.380)**	13.310 (3.506)***		4.164 (1.399) **	4.085 (1.380) **	5.044 (1.432) **		
Social media usage									226 (.023)		
Customer engagement			293 (.020)			293 (.020)	006 (.018)				
Social media usage × Social CRM capability									.812 (.367) *		
Sales	3.113 (6.230)	8.244 (2.023) ***	-5.316 (.937) ***	8.244 (2.023)***	3.113 (6.230)	-5.316 (.937)***	8.273 (2.027) ***	8.244 (2.023) ***	8.800 (2.024) ***		
Employee	7.441 (3.808) *	-2.954 (1.216)*	835 (.849)	-2.954 (1.216)*	7.441 (3.808)*	835 (.849)	-2.906 (1.224) *	-2.954 (1.216) *	-2.798 (1.210)*		
Leverage	-1.499 (21.967)	-8.948 (7.142)	-12.740 (5.063) *	-8.948 (7.142)	-1.499 (21.967)	-12.740 (5.063)*	-8.902 (7.155)	-8.948 (7.142)	-6.653 (7.174)		
Customer satisfaction	335 (.232)	.075	.072	.075 (.072)	335 (.232)	.072	.072	.075 (.072)	.751 (.723)		
Industry fixed	Included	Included	Included	Included	Included	Included	Included	Included	Included		
Year fixed	Included	Included	Included	Included	Included	Included	Included	Included	Included		
Observations	232	232	232	232	232	232	232	232	232		
R2	.7	.12	.12	.12	.7	.12	.12	.12	.14		

^{*} p < .10.

Mediation Effects Test

In the hypotheses, we suggested one mediation effect of customer engagement on the relationship between social CRM capability and firm performance. We tested four conditions that should be met to verify the mediating effect:

- 1. Social CRM capability is significantly related to firm performance.
- 2. Social CRM capability is significantly related to customer engagement.
- 3. Customer engagement is significantly related to firm performance.
- 4. After controlling for customer engagement, the relationship between social CRM capability and firm performance is no longer significant.

For the mediation effect of customer engagement, the first criterion is satisfied. Social CRM capability is positively and significantly related to firm performance (p < .01). The second criterion is also satisfied. The social CRM capability has a positive impact on the mediator, customer engagement (p < .001). The third and fourth criteria, however, are not satisfied. Customer engagement has negative insignificant impact on firm performance, and after controlling for customer engagement, the relationship between social CRM capability and firm performance is still significant. Thus, the results fail to show clear statistical evidence to verify that customer engagement plays a mediating role in the relationship between social CRM capability and firm performance.

Questions for your consideration

- 1. What research questions were proposed in the article?
- 2. What scientific methods were applied to investigate each of these questions?
- 3. What are the drawbacks of the research design (data, methods, analysis)?
- 4. What managerial implications of the findings do you suggest?
- 5. For what areas these research ideas may also be applicable? Illustrate with an example highlighting how the research design should be adapted.

^{**} p < .01.

^{***} p < .001.