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Staking reputation on stakeholders: How does stakeholders' Facebook engagement help or ruin a company's reputation?

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ABSTRACT

The majority of studies in public relations continue to examine organization-public relationships from only the organization's perspective, with few studies focusing on the other side of the communication loop: stakeholders. The current study takes the stakeholders' perspective to investigate the relationship between active stakeholders' online behavior and corporate reputation. Modeling 5-year longitudinal social media data, a content analysis was conducted for *Fortune 500* companies in the context of Facebook. By examining stakeholders' Facebook engagement at the two levels of shallow engagement and profound engagement, significant associations were discovered. Active stakeholders' Facebook-based interactions as leaving positive or negative comments with a company are significant predictors of the company's reputation score. The findings bring new insights to existing literature and also practical implications to public relations professionals.

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1. Introduction

The significance of corporate reputation has been recognized in the area of public relations research. Researchers assert that corporate reputation theories predate the concept of contemporary public relations. Organizational reputations together with organization-public relationships comprise the most salient conceptual values of public relations (e.g., Coombs, 2000; Grunig & Hung, 2002; Yang & Grunig, 2005). Although there is no universal agreement on how corporate reputation should be defined, a review of existing literature yielded collectivity and cognitive perceptions as the most distinct attributes of corporate reputation (Bromley, 1993; Fombrun, 1996; Fombrun & Van Riel, 2003; Grunig & Hung, 2002; Yang, 2007; Yang & Grunig, 2005). From a public relations perspective, these two attributes are closely linked to stakeholders in such a way that a company's reputation is indeed a byproduct of the organization-public relationship outcome (Kim, Huang-Baesecke, Yang, & Grunig, 2013). Swayed by relationship management strategies, a stakeholder's cognitive perceptions aggregate, accumulate, and are influenced by peers who are more active in communication behavior. This in turn becomes a shared experience and it is how people in general evaluate an organization.

The critical role that stakeholders play in assigning a favorable or unfavorable reputation to an organization has become even more important with the emergence of social media. On one hand, social media make the information dissemination process more transparent thereby creating more positive feelings such as trust and credibility. However, on the other

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hand, the formation of an online community brings unrelated people together and this interaction is not always positive. Empowered online publics challenge organizational management on a daily basis and a single negative comment on social media can grow into a severe crisis that damages organizational reputation (Li, 2016).

Up to date, public relations scholars seem to have not yet taken enough action in investigating how stakeholders are responding to the new online issues stemming from social media. In reviewing the current body of literature in Internet-mediated organization-public reputation/relationship management, the majority of studies center on analyzing organizations' online profiles, communication models, and so forth (e.g. Bortree & Seltzer, 2009; Park & Reber, 2008; Rybalko & Seltzer, 2010; Seltzer & Mitrook, 2007; Taylor & Kent, 2010). The current study is different from most prior research in this aspect: The emphasis of this study is on stakeholders' behavior and reaction to organizations' social media messages instead of what organizations do in their online communication. As one of the earliest attempts to model big data from social media in public relations research, this research intends to close the gap in online public relationship reputation management. Based on a content analysis using field data collected from Facebook posts of *Fortune 500* companies from 2009 to 2013, the study theorizes stakeholders' online activities as shallow engagement and profound engagement and investigates the relationship between different engagement levels and corporate reputation. By addressing the unique effects of stakeholders' online engagement in corporate reputation management, the current research seeks to shift the research paradigm from the organization-oriented approach to a stakeholder orientation in the context of online reputation management. Given the value of social media data in examining stakeholders' "real world" behavior, this study reinforces the substance of social media in public relations research.

2. Literature review

2.1. Corporate reputation

Corporate reputation is a construct involving multiple disciplines such as economics, marketing, management, psychology, and sociology (Ponzi, Fombrun, & Gardberg, 2011). There are two common attributes that have emerged that describe the characteristics of corporate reputation: subjective collectivity and cumulativeness of cognitive presentation.

The first aspect is subjective collectivity. Based on individual features and experiences with a company, different stakeholders may hold distinct perceptions and images of a company. However, reputation aggregates stakeholder beliefs and cognitive recognition and extracts the communality to form a collective assessment system (Bromley, 1993; Fombrun, 1996; Fombrun & Van Riel, 2003; Grunig & Hung, 2002; Yang, 2007; Yang & Grunig, 2005).

Built upon the first characteristic, the next trait of corporate reputation is cumulativeness of cognitive presentation. Murphy (2010) asserted that the evolution of reputation has a history so the concept is cumulative and time-oriented. The formation of reputation is not from a single event or a discrete experience. Instead, reputation accumulates through a variety of stakeholders' repeated behavioral and symbolic interactions with a company including personal or second-hand experiences and from the company's information dissemination (Bromley, 1993; Caruana, 1997; Fombrun & van Riel, 2003).

The significant benefits of a strong corporate reputation have not only been recognized by professionals, but also been validated by academic researchers. Hall (1992) found that among 13 intangible options, British executives ranked reputation as the most important one. In the U.S., corporate professionals from the *Fortune 500* also rated reputation management as the most important corporate communication (Hutton, Goodman, Alexander, & Genest, 2001). Researchers stated that a favorable corporate reputation stimulates sales and increases consumers' satisfaction and loyalty, generating a competitive advantage in service and product quality (Athiyaman, 1997; Fombrun & Shanley, 1990). In political communication, studies concluded that favorable country reputation resulted in stronger intentions to support the country, in both intentions to visit the country and to purchase products made in the country (Yang, Shin, Lee, & Wrigley, 2008).

2.2. Reputation management and public relations

With the expanding amount of organizational reputation research, studies have demonstrated that there are shared values in both public relations and business. Emerging as an important business function, reputation management is considered to be one of the antecedent concepts of public relations, and in the business world, is also known as "corporate communication" and "corporate relations" (Hutton et al., 2001). Public relations researchers theorized that there is a link between organization-public relationship (OPR) outcomes and organization reputation, which together, feature the most salient conceptual values of public relations (e.g., Coombs, 2000; Grunig & Hung, 2002; Yang & Grunig, 2005). To test such reasoning, Yang (2007) integrated these two key constructs into an empirical model in the context of four South Korean-based organizations and found that OPR outcomes were positively associated with favorable organizational reputation. While in the context of crisis management, Coombs (2000) argued that organizational reputation is damaged by crises, which often results from negative organization-stakeholder relationships. Furthermore, Kim (2011) examined the linkage between corporate social responsibility (CSR) strategies and consumer responses with two *Fortune 500* companies and discovered that CSR activities and corporate reputation are two mutually benefiting constructs. A company's previous positive reputation would influence consumers to be strongly associated with its CSR activities (Kim, 2011).

2.3. Reputation measurements

Although the importance of corporate reputation is widely recognized, to precisely measure it is not that easy. The most famous instrument that has been used is probably *Fortune*'s survey of America's Most Admired Corporations. This report has been released annually by the magazine since 1982 and is constructed based on surveys asking business executives, directors, and analysts to rate companies on a scale from 1 to 10 (Deephouse, 2000). However, this measure has been criticized as an empirical research instrument because significant associations exist between organizations' reputation rankings and their financial performances (e.g., McMillan & Joshi, 1997; Srivastava, McInish, Wood, & Capraro, 1997), and also because it carries several measurement limitations (Fryxell & Wang, 1994; Deephouse, 2000). First of all, *Fortune*'s ranking only reflects the opinions of industry insiders rather than consumers, employees, government agencies, and so on (Fryxwell & Wang, 1994; Fombrun, 1996). Additionally, operationalization of this rating does not take into account that reputation is a complex construct that may contain multiple dimensions. Fombrun and Shanley (1990) and Fryxell and Wang (1994) questioned that all eight items in *Fortune*'s rating system are loaded on only one single factor.

Starting from 1999, Fombrun and a marketing research firm Harris Interactive (HI) conducted a series of studies on corporate reputation in the context of the U.S. and European countries. Adopting triangulation methods with both interviews and surveys, they developed a 20-item scale known as the Reputation Quotient (RQ) (Fombrun, Gardberg, & Sever, 2000; Gardberg, 2006). The RQ instrument measures reputation indicators including emotional appeal, products and services, vision and leadership, workplace environment, social and performance, and financial performance (Fombrun et al., 2000).

To develop a measure that is applicable for corporate reputation measurement in cross-cultural settings, Ponzi et al., 2011 came up with a scale known as RepTrak TM Pulse based on the RQ instrument. This project has been conducted in 17 countries and recruited more than 12,000 participants within six studies. The study was finalized with a newly added short scale called RepTrak TM Pulse. Ponzi et al. (2011) suggested that RepTrak TM Pulse is an emotion-based measure that has the potential to be used to assess perceptions of corporate reputation by various stakeholders, and compare results across stakeholder groups and cultures. Considering that RepTrak TM Pulse shows the best validity and reliability among all existing reputation measurements, this study chose to measure organizations' reputation based on secondary data that were collected using this method.

2.4. Stakeholder engagement and corporate reputation

According to Johnston (2014), stakeholder engagement is a critical aspect for organizations in an environment that is sensitive to power relations, thus they need to value the interactions with diverse stakeholders. From a co-creational perspective, Botan and Taylor (2004) and Heath (2014) argued that the focus of engagement is communication and dialogue between an organization and its stakeholders. During this process, the two entities are jointly co-managing relationships and constructing meanings to reach mutually beneficial agreements and goals (Botan & Taylor, 2004; Heath, 2014). Several public relations studies suggested that stakeholders' active communication and involvement behavior with an organization is an antecedent of their positive evaluations of the relationship with the organization (e.g., Bruning & Ledingham, 1999; Ferguson, 1984; Grunig & Huang, 2000; Grunig & Hung, 2002; Yang & Grunig, 2005). To elaborate, Kim et al. (2013) argued that "active publics" are most likely to be the primary source to distribute organizational reputation. Their perceptions, cognition, motivation, and communicative actions with regard to an organization will determine the content, amount, and tonality of what people remember and talk about that organization. According to Gotsi and Wilson (2001), when stakeholders are evaluating an organization's reputation, criteria that they rely upon could either be their direct experiences with the company, or any communication-mediated information about the organization's actions compared to other leading companies. Yang (2007) found that stakeholders' active communication behavior together with an organization's effective relationship management is strongly associated with enhanced positive organizational reputation. With the increasing development of social media, the researchers stated that there are more possibilities for organizations to invite stakeholders for direct communication online.

However, the majority of studies in this area were conducted merely from the organization's perspective. How stakeholders react in this communication loop remains under-researched. For example, a large amount of research has investigated if organizations adopt dialogic, two-way communication to interact with their publics. A series of articles published discussed the two-way interactive and dialogical capacity of the World Wide Web and social media (e.g. Bortree & Seltzer, 2009; Dijkmans, Kerkhof, Buyukcan-Tetik, & Beukeboom, 2015; Park & Reber, 2008; Rybalko & Seltzer, 2010; Seltzer & Mitrook, 2007; Taylor & Kent, 2010). The second trend of existing studies on online communication examines whether online platforms are able to foster organizational communication's transparency and credibility depending on the degree of ease to navigate the site, encouraging stays, generating revisits, providing useful information and opportunities to ask questions and give feedback (e.g. Callison, 2003; Kent & Taylor, 1998; Zerfass & Schramm, 2014).

In this case, with little research that has addressed stakeholders' online behavior and its further impact, the real potential of social media may be underestimated. Outside the scholarship of communication, there are also debates about whether social media are valuable toward social science research and whether data collected from social media are valid indicators of social phenomena that occur offline (DiGrazia, McKelvey, Bollen, & Rojas, 2013). Although research results remain controversial, it seems that a new paradigm is shifting in social media studies. For example, in marketing research scholars used to consider Facebook "*likes*" as not meaning anything to financial outcomes (Lake, 2011), whereas more studies have pointed out that social media adoption can increase sales and even limited connections with consumers are able to generate positive brand evaluations and purchase intentions (Naylor, Lamberton, & West, 2012; Stephen & Galak, 2012). The similar pattern has occurred in political science as well. Researchers in both the U.S. and Europe have found a significant association between the number of tweets mentioning a political candidate and the final election result (DiGrazia et al., 2013; Tumasjan, Sprenger, Sandner, & Welpe, 2010).

2.5. Stakeholder engagement via social media

Recognizing that social media have sparked a revolution within the communication industry, Edelman (2008) called for a paradigm shift from public relations to public engagement. Moreover, in the marketing field, customer engagement behavior in social media has been recognized as a primary research topic of the Marketing Science Institute (Bolton, 2011). As Saxton and Waters (2014) addressed in their recent research, the increasingly wide adoption of social media offers public relations scholars an enormous opportunity to observe stakeholders' online engagement corresponding to organizational communication. Much different from traditional media controlled by organizations, social media are user-centered, allowing individual users to play the role of gatekeepers (Muntinga, Moorman, & Smit, 2011). Users not only engage with organizations through liking, commenting, and sharing, but also proactively create content for organizations within their personal social networks (Men & Tsai, 2014).

As pioneers dedicated to measure consumers' online engagement behavior with companies, Muntinga et al., 2011 proposed a theoretical typology that classifies online engagement into three levels across different social media platforms. These three levels include *content consuming, content contributing*, and *content creating* (Muntinga et al., 2011). Defining engagement from another behavioral perspective, Tsai & Men (2013) applied Muntinga et al. (2011)'s typology to the Facebook context. Based on a series of panel studies as well as empirical survey data, two categories of engagement behavior were extracted as *reactive engagement behavior* and *proactive engagement behavior*. Using these two constructs, they further discovered that deeper stakeholder engagement yielded more positive relational outcomes (Men & Tsai, 2013, 2014).

Saxton and Waters (2014) argued that survey and laboratory experiment studies ignored stakeholders' natural responses online to organizational communication effort in real time, thus researchers should embrace a more practical approach of investigating social-mediated public relations activities. It has been pinpointed that different from websites, social media platforms such as Facebook are providing measures of how the general public reacts to organizations through indicators such as *likes*, *shares*, and *comments* (Cho, Schweickart, & Haase, 2014; Saxton & Waters, 2014). These indicators offer opportunities for stakeholders to communicate with target organizations through different levels (Cho et al., 2014). For example, based on the required effort and the impact scope of liking, sharing, and commenting, Cho et al. (2014) classified stakeholders' natural Facebook engagements into three levels: low, moderate, and high, respectively.

Noticeably, comment "valence" has been somewhat left untouched in prior studies in this particular area, though researchers have realized the significance of employing natural measurements investigating Facebook-facilitated organization-stakeholder engagement. Public relations researchers have not yet considered if stakeholders express any sentiment-based opinions while they engage through liking, sharing, and commenting. These three engagement indicators are in general perceived as favorability toward an organization and its messages (Saxton & Waters, 2014). The number of *likes* and *shares* may indicate an overall positive affect but it is somewhat hard to determine the sentiment of *comments* so researchers should dig deeper into comment valence and relate it to organizational reputation, relationship outcomes, and other major public relations outcomes.

To close this gap in existing public relations literature, the current study theorizes that there are two levels of engagement behavior adopted by the general public on social media: *shallow engagement* and *profound engagement*. Furthermore, when the effects of profound engagement are examined, comment valence should be considered. Facebook is selected to be the social media platform for this examination due to its enormous popularity among both organizations and general Internet users. In fact, public relations professionals reported that Facebook has been the most frequently accessed platform for their work since 2000 (Wright & Hinson, 2013).

When stakeholders are involved in shallow engagement behavior, they are mainly consuming organizations' communication and public relations products. Two indicators, numbers of *likes* and *shares* on Facebook, can represent stakeholders' shallow engagement activities. Because such engagement connotes a positive meaning, it is expected to influence corporate reputation in a positive way. On the other hand, stakeholders' profound engagement activities can be measured through the number of *comments*. These comments may differ in valence, thus positive and negative comments can affect corporate reputation in opposite ways. In summary, this study intends to investigate how different levels of engagement and comment valence will impact corporate reputation in a naturalistic social media setting. Four hypotheses and a research question are generated accordingly. The first two hypotheses focus on the effects of shallow engagement and the last two are centered on the effects of profound engagement.

H1: The total number of likes received by a company on Facebook will be positively associated with its reputation.

H2: The total number of shares received by a company on Facebook will be positively associated with its reputation.

H3: The total number of positive comments received by a company on Facebook will be positively associated with its reputation.

H4: The total number of negative comments received by a company on Facebook will be negatively associated with its reputation.

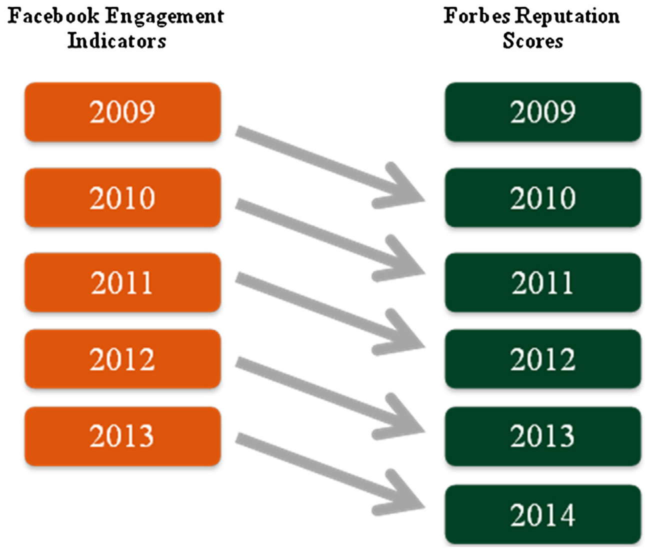

Fig. 1. A depiction of the study design.

RQ: Would positive, negative, or neutral comments affect corporation reputation to different degrees?

3. Method

3.1. Study overview

The current study is a content analysis based on 5-year longitudinal data. The construct of shallow engagement was operationalized by the number of *likes* and *shares* for each post collected from organizations' Facebook accounts from January 2009 to December 2013. The construct of profound engagement was operationalized by the number of *positive, negative*, and *neutral comments* corresponding to each of the collected organizational Facebook posts. Each organization's annual reputation scores (released by Forbes based on RepTrak™ Pulse surveys) from 2010 to 2014 were collected to comprise the construct of corporate reputation.

In this research design, the time order between stakeholders' Facebook engagement indicated by *like*, *share*, and *comment valence (positive, negative, and neutral)* and outcome reputation scores was established (see Fig. 1). This time order is based on the fact that the Forbes ranking of *America's Most Reputable Companies* is generated from RepTrak™ Pulse surveys conducted at the beginning of each year evaluating each company's performance in the past year.

3.2. Sampling procedure

To understand how general stakeholders use Facebook for their engagement, data were collected from *Fortune 500* companies' Facebook accounts. The data collection period lasted about eight months, from November 2013 to July 2014. The 2013 list of *Fortune 500* companies was selected as the company sample frame in this study, considering they are the most successful corporations in the U.S. representing multiple industries. During the company Facebook account inclusion process, it occurred a few times that some companies have multiple Facebook accounts. To determine which account should be further included in the sample, several strategies were applied. First, verified Facebook accounts with a blue check mark were included, implying a high level of credibility. Second, companies' official websites were consulted to find a hyperlink to the Facebook page. For the rest of those companies, a judgment was made by reading through the posts and company information and the one that could best represent a company was selected. Overall, out of 500 *Fortune* companies, 407 companies were identified to have their corporate account on Facebook during the data collection period. These companies' Facebook usage history (measured in the number of years being on Facebook) was recorded from their account. The total number of subscribers (people who "liked" the company's Facebook page) of each company was also recorded. These two variables were treated as control variables in the data analyses.

3.3. Social media variables

A random systematic sampling strategy was adopted for Facebook post selection among the 407 companies that had an account. Utilizing a random number generator, one post on a random day each month was selected for each company from January 2009 to December 2013 (a maximum of 60 posts for each company). If a company had multiple posts within that

Table 1
A summary of descriptive statistics.

	Shallow-level engagement		Profound-level engagement			Outcome
	Likes	Shares	Positive Comments	Negative Comments	Neutral Comments	Reputation Score
M	21975.93	1676.42	5.37	2.28	9.59	67.81
SD	95149.92	9517.76	3.59	3.05	5.32	8.62

day, another random number was generated to finalize only one among those posts. If a company did not post anything on the given day, but on other days within the same month, a post made on the nearest day was then chosen. A screenshot for each of the sampled company posts was immediately saved (including the most recent two comments if the post generated comments). This process yielded a total of 15,348 sample posts.

There are five indicators on each post elaborating general stakeholders' engagement and interactions with companies: (1) number of *likes*, (2) number of *shares*, (3) number of *positive comments*, (4) number of *negative comments*, and (5) number of *neutral comments*. The first two indicators were directly recorded from the screenshot of each sample post. The last three indicators were recorded based on coding of comment valence. Each comment was coded based on its sentiment into three categories: positive, negative, or neutral. Two graduate students from a southeastern university in the United States served as the coders. Based on a random selection, 163 posts from five companies were coded during the pretest. The inter-coder reliability was acceptable (Cohen's Kappa = 0.77). Inconsistency was resolved through further training. Afterward, each coder finished half of the remaining posts. Since the dependent variable was measured at an annual level (a company's reputation score each year), the five indicators were further computed into annual summations of *likes, shares, positive comments, negative comments, and neutral comments* for each company within the five years from 2009 to 2013. After this procedure, the total case number yielded 2035 with all 407 companies that have a Facebook account.

3.4. Reputation variable

To conceptualize organizational reputation from a longitudinal perspective, Forbes ranking of *America's Most Reputable Companies* from 2010 to 2014 was adopted. This ranking includes 150 companies each year and it is based on RepTrak™ Pulse surveys conducted by Reputation Institute (R.I.). At the beginning of each year, R.I. surveys the general public's evaluations of thousands of companies and *Forbes* Magazine releases the rankings and reputation scores of America's 150 most reputable companies accordingly.

To showcase a complete picture of how *Fortune 500* companies' reputation had been evaluated in five consecutive years and how their reputation scores varied due to stakeholders' online engagement each year, this study kept those companies that had been included on the *Forbes* ranking list for all five years from 2010 to 2014. Overall, the sample was finalized at 443 with 112 *Fortune 500* companies.

4. Results

4.1. Descriptive statistics

Among the 112 most reputable *Fortune 500* companies, for shallow engagement indicators, the mean of *likes* of each post on Facebook annually was 21,975.93 (SD = 95,149.92), the mean of *shares* was 1,676.42 (SD = 9,517.76). For profound engagement indicators, the mean of *positive comments* was 5.37 (SD = 3.59), the mean of *negative comments* was 2.28 (SD = 3.05), and the mean of *neutral comments* was 9.59 (SD = 5.32). The average reputation score for these companies was rated at 67.81 (SD = 8.62). Descriptive statistics are presented in Table 1. To have a basic understanding of relationships among independent and dependent variables, bivariate Pearson correlation analyses were performed. The results are summarized in Table 2.

4.2. Tests for hypotheses and research question

To test the proposed hypotheses and answer the research question, a hierarchical regression with three blocks was conducted. *Fortune 500* companies' Facebook usage history and total number of subscribers were entered into the first block as control variables. A summary of regression analysis results is presented in Table 3.

H1 and H2 predicted that the more *likes* and *shares* (shallow engagement) a company received annually from their Facebook posts, the more reputable this company would be rated in the ranking list published in the following year. To test the relationship between shallow engagement of liking and sharing and company reputation, *likes* and *shares* were entered into the second block. The results revealed that although model 2 remained significant ($F(4, 438) = 3.67$, $p < 0.05$), the addition of *likes* and *shares* did not lead to a statistically significant increase in the explained variance of reputation ($\Delta R^2 = 0.03$, $p = 0.63$). In addition, neither likes ($\beta = -0.06$, $t = -0.42$, $p = 0.67$) nor shares ($\beta = 0.10$, $t = 0.72$, $p = 0.47$) were a significant indicator toward reputation. This means that H1 and H2 were not supported and that numbers of *likes* and *shares* were not significant predictors of corporate reputation after controlling for companies' Facebook usage history and total number of subscribers on Facebook.

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Table 2
A summary of Pearson correlations.

Variables	Reputation score	Total number of subscribers	Facebook history	Likes	Shares	Positive comments	Negative comments
Reputation score							
Total number of subscribers	0.172***						
Facebook history	0.071	0.272***					
Likes	0.105*	0.451***	0.143**				
Shares	0.099*	0.348***	0.112**	0.932***			
Positive comments	0.179***	0.096*	0.132**	0.112**	0.085*		
Negative comments	−0.17***	0.012	0.137**	−0.003	−0.02	−0.085*	
Neutral comments	0.149**	0.298***	0.226***	0.191***	0.155**	0.129**	0.034

*$p < 0.05$.
**$p < 0.01$.
***$p < 0.001$.

Table 3
A summary of regression analysis results.

	Predictors	β	*t*
Block I			
$\Delta R^2 = 0.03$**	Total number of subscribers	0.17**	3.39
Cum $R^2 = 0.03$**	Facebook history	0.03	0.54
Block II			
	Total number of subscribers	0.16**	2.86
	Facebook history	0.03	0.53
$\Delta R^2 = 0.002$	Likes	−0.06	−0.42
Cum $R^2 = 0.032$**	Shares	0.10	0.72
Block III			
	Total number of subscribers	0.13*	2.37
	Facebook history	0.20	0.40
	Likes	−0.08	−0.58
	Shares	0.10	0.73
	Positive comments	0.14**	2.96
$\Delta R^2 = 0.06$***	Negative comments	−0.16***	−3.52
Cum $R^2 = 0.09$***	Neutral comments	0.09	1.93

*$p < 0.05$.
**$p < 0.01$.
***$p < 0.001$.

In H3, it was predicted that increasing the number of profound-level stakeholders' Facebook engagement with companies by leaving positive comments on companies' posts each year would have a positive impact on their reputation scores released in the following year. Conversely, it was hypothesized in H4 that leaving negative comments would cause a negative effect on reputation scores. To test these two hypotheses, the numbers of *positive, negative, and neutral comments* were entered into the third block. It was discovered that the regression model of regressing reputation on total number of Facebook subscribers, companies' Facebook history, shallow engagement (*likes* and *shares*), and profound engagement (positive, negative, and neutral comments) was statistically significant ($R^2 = 0.30$, $F(4, 438) = 6.26$, $p < 0.01$). The addition of *positive, negative, and neutral comments* led to a statistically significant increase in the explained variance ($\Delta R^2 = 0.06$, $p < 0.01$). Hierarchical regression analysis results also revealed that the number of positive comments was a significant positive predictor of reputation ($\beta = 0.14$, $t = 2.96$, $p < 0.01$). Moreover, the number of negative comments was a significant negative predictor of companies' reputation ($\beta = -0.16$, $t = -3.52$, $p < 0.01$). Neutral comments did not have a significant impact on reputation ($\beta = 0.09$, $t = 1.93$, $p = 0.054$). Based on these results, H3 and H4 were supported.

As seen in Table 3, the slope for negative comments ($\beta = -0.16$) was steeper than that of positive comments ($\beta = 0.14$) in predicting organizational reputation. Therefore, addressing the research question, the number of negative comments seemed to have a bigger impact than the number of positive comments on companies' reputation.

To summarize, H1 and H2 were not supported, H3 and H4 were supported, and the research question was answered that negative comments had a larger impact on corporate reputation than positive ones.

5. Discussion

5.1. General interpretations of study results

Corporations are increasingly investing in social media, hoping to improve their corporate reputation through engaging and managing relationships with various stakeholders. Nevertheless, this trend is based on an assertion that was somewhat under-tested. Previous studies about social media adoption primarily investigated the potential from an organizational perspective. Content analyses were conducted in related studies focusing on how organizations manage relationships with stakeholders through examining organization-controlled content, but with little attention given to how these communication activities would impact the public's cognitive perceptions or online behavior.

Using data collected from stakeholders' engagement with *Fortune 500* companies on Facebook in the timeframe from 2009 to 2013, this study found that among different stakeholders' online engagement activities, only positive comments and negative comments were significant indicators of organizational reputation. Between these two, negative comments exerted a negative influence on companies' reputation, while positive comments had a positive impact. Moreover, the negative effect was slightly higher than the positive effect on organizational reputation. These study results draw several important theoretical and practical implications.

In general, the findings in this research align with previous studies that stakeholders' active communication behavior with an organization significantly affects their relationships with the organization and their evaluations of the organizational reputation (e.g., Bruning & Ledingham, 1999; Ferguson, 1984; Grunig & Huang, 2000; Grunig & Hung, 2002; Yang & Grunig, 2005). Active publics are most likely to be the primary source to distribute organizational reputation which can be formed as collective cognitive knowledge shared and acknowledged by a larger group of stakeholders (e.g., Anderson & Narus, 1990; Kim et al., 2013; Yang, 2007). In this process, the positive intangible values of organizations will be mediated through active stakeholders' communicative actions that essentially determine the magnitude and direction of how the publics at large evaluate and perceive a target organization. Stakeholders who behave actively with organizations online, then, should be the strategic publics that public relations practitioners prioritize.

The participative nature of social media offers organizations an efficient and transparent platform for relationship management, but at the same time, it may also create risks and crises for a company. People may use social media to gather together and complain, causing reputation damages (Aula, 2011). That is to say, if the most active group of stakeholders initiates a conversation that is unfavorable to a company, the viral dissemination can potentially destroy the company's reputation. Thus, as it has been suggested, the most important way to establish a positive corporate reputation online for general publics at large is to identify active online behavioral relationship stakeholders and strategically incorporate their interests into management decisions, indirectly influencing the less-active stakeholders (Kim et al., 2013). This argument was empirically tested in the current study and gained support. It was shown that negative Facebook comments could ruin a company's reputation even though the company might be a well-established brand.

In addition, although not formally hypothesized, it was found that the total number of posts that a company put on Facebook during a year did not significantly influence how the company was evaluated and ranked in the following year (this was tested as an additional analysis). In other words, how actively or frequent a company posts content on its Facebook account does not seem to be a significant predictor of its corporate reputation. This finding is in support of the argument that one-way information dissemination is unable to make significant changes in stakeholders' attitudes or behavior (Dozier, Grunig, & Grunig, 1995). There is research that even showed that posting too much information on Facebook without strategic selection may lead to negative perceptions or behavior intentions from stakeholders (McCorkindale & DiStaso, 2011).

5.2. Shallow engagement and profound engagement

The most interesting contribution of this study to the literature lies in the conceptualization of two levels of stakeholder engagement online and their different effects on corporate reputation: shallow engagement and profound engagement. It was empirically demonstrated that there are notable distinctions among *likes*, *shares*, and *comments* in terms of stakeholders' engagement levels. According to Cho et al. (2014)'s operationalization, comments represent the highest level of publics' Facebook engagement as commenting requires much more effort than liking and sharing. The findings of this research push this argument further by incorporating comment valence and answering an important research question: Would positive, negative, or neutral comments affect corporate reputation in different ways and to different degrees in the long run?

In the regression models of this research, two levels of engagement variables were entered into the equation in a hierarchical fashion. Shallow engagement activities such as liking and sharing showed no significant effect on corporate reputation. From a theoretical standpoint, information produced by such behavior requires superficial information processing by the receivers. This type of information processing may affect people's attitude temporarily but in the long term it exerts no significant effect on the public's evaluations of a company's reputation. This reasoning is consistent with prior work in public relations social engagement (Men & Tsai, 2013, 2014; Tsai & Men, 2013).

More interestingly, when profound engagement variables were included in the test, they showed significant impacts. Positive comments and negative comments led to opposite effects, whereas there was no significant effect associated with neutral comments. Based on these results, we argue that leaving neutral comments under organizations' Facebook posts does take more physical effort compared to liking and sharing, but it does not make much difference in terms of organization-related content generation nor does it facilitate a dialogical communication loop. Therefore, simply taking physical effort into consideration and categorizing commenting as the highest level of engagement may be not accurate enough. The current research found that only when people display strong positive or negative emotions in their comments and explain why they have said emotions, that only then will these comments set up the agenda on social media and change the public's perceptions and evaluations toward a company. It is worth pointing out that such effects are long-lasting because they are based on a longitudinal observation in a naturalistic environment. Thus, this study suggests future research in this domain to categorize

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liking, sharing, and leaving neutral comments as *shallow engagement*, and classify making positive or negative comments as *profound engagement*. Future research could also address the limitation of the present research that the sample organizations were exclusively selected from large Fortune 500 companies. Although they are the most successful companies in the U.S. and their social media performances could serve as exemplars for other smaller for-profit entities, expanding the theoretical model to other sectors such as nonprofits and governmental organizations could help enrich theoretical implications and offer researchers and practitioners insights from different perspectives.

This research not only is one of the earliest empirical attempts to illustrate a potential association between stakeholders' online behavior and their cognitive perceptions, but also the results reinforce the critical role that social media play in strategic corporate communication management with stakeholders. Researchers argued that different online communication tools such as websites and social media provide opportunities for real-time observations to record stakeholders' behavioral interactions with organizations (Ji et al., 2016; Saxton & Waters, 2014). Results generated from the current study add to the evidence that data extracted from social media are valid information that is able to explain offline social phenomena, at least to a certain extent. With a "big data" approach by incorporating a systematic sampling strategy and a large sample size containing 5-year longitudinal data, the results of this study may be generalized.

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