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THE BATTLE FOR SINGLES' DAY: HOW SOCIAL MEDIA MARKETING CAMPAIGNS BOOST SALES

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Abstract

Numerous studies have shown that social media marketing strategies have positive impacts on the long-term financial performance of firms. However, whether short-term marketing campaigns have any influence on firm revenue remains unknown. This paper examines data from Singles' Day, the world's largest shopping event, revealing that firms' social media efforts have a positive impact on product sales. Furthermore, we find that the two social media effort measures generally thought to have positive impacts on a firm's long-term financial performance, richness and intensity, have no significant influence on the success of a firm's short-term marketing campaign. Instead, relevance shows significant and positive impacts. Moreover, we compare the effects of social media marketing yields from company-owned accounts with those of employee-owned accounts, finding that employee-owned accounts have better marketing effects than company-owned ones.

Keywords: Social media marketing campaign; Social Media; Enterprise Microblogging; Marketing value of social media

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1 INTRODUCTION AND LITERATURE REVIEW

Never before has there been an event like Alibaba's Singles' Day¹, which generated \$9.3 billion in sales in 2014, dwarfing Cyber Monday's mere \$2.68 billion in worldwide sales (Briggs 2015). It is not surprising that sellers go all out to win customers on this day. Now, the battlefield is on social media. Social media has become widespread. According to Statista research, there were 1.96 billion users of social networking sites worldwide in 2015 (Statista 2016). Businesses have recognized the importance of these platforms as well (Aral et al. 2013). Almost nine in ten US companies use social media marketing (eMarketer 2015). Companies can create relationships with customers and enhance their engagement through social networking sites, influencing their product decisions and leading to improved value (Tsimonis 2014, Mohr et al. 2001).

Numerous studies have shown that employing social media has positive impacts on business values (Laroche et al. 2013, Huy and Shipilov 2012). For instance, Culnan et al. (2010) suggest that social media platforms allow firms to publicize their new products and services, to disseminate price information, and to convey information to the public directly and rapidly, all of which have the potential to increase business value. Similarly, Yang et al. (2012) show that companies' engagement in social media positively affects their market values. However, if firms employ bad social media strategies, they may suffer from using social media instead of benefiting from it (J.D. Power, 2013). Chung et al. (2014) suggest that companies should pay attention to the richness and responsiveness of their social media efforts.

There are two main types of marketing. Long-term marketing strategies aim to increase brand awareness and brand equity or to strengthen brand loyalty, whereas short-term marketing campaigns focus on the launch of new products or on creating promotions for events such as Black Friday (Hess 2016). Most prior studies focus on long-term marketing (Kiron et al. 2012, Aral et al. 2013). Kim and Ko (2011) find that the interactivity, trendiness and word-of-mouth reputation of luxury fashion brands can positively influence value equity, relationship equity and brand equity. Zhang (2015) discovers that financial companies can increase their influence and reach by using new media to disclose information. Short-term social media marketing campaigns are equally important to businesses. Villanueva et al. (2008) propose that firms can acquire new consumers not only through word-of-mouth processes in the long term but also through fast-acting marketing investments in the short term. Thus, this paper aims to illustrate how firms' social media marketing campaigns can affect their sales.

Singles' Day provides an excellent opportunity to examine how firms' social media efforts influence their revenues. We examine four important social media effort measurements—intensity, richness, responsiveness and relevance—and the relationship between those measurements and product sales. Based on data collected from Chinese mobile companies' microblogging accounts, we find that social media marketing campaigns have positive impacts on firms' Singles' Day sales and that both responsiveness and relevance have positive and significant influence.

¹ Singles' Day, or "Double 11" denotes to November 11, because it is entirely made up of ones "11/11".

Furthermore, we also compare the influence of company-owned and employee-owned accounts. Social media platforms are open both to organizations and to the public. Thus, both firms and their employees can create accounts and interact with consumers. It has been suggested that employees' use of social media can have a substantial influence on their companies (Scoble and Israel 2006). Employees can express their satisfaction or dissatisfaction with their companies through social media, potentially enhancing or devastating the firm's reputation (Miles et al. 2014). Agnihotri et al. (2015) suggest that a salesperson's responsiveness has a positive relationship with customer satisfaction. Aggarwal et al. (2012) discover that employees' posts can also affect company outcomes. Thus, we classify the accounts by owner, either firm employees or organizations, to examine whether these two account types have the same marketing power. Our results show that the employee-owned accounts have greater effects.

The remainder of our paper is organized as follows. Research questions are discussed in Section 2. Section 3 describes the data and empirical models. Section 4 discusses the results. Finally, Section 5 concludes the paper.

2 RESEARCH QUESTIONS

One of the main advantages of using social media platforms is that they allow firms to disseminate product and company information, advertisements, and promotional materials directly to consumers via their social media accounts. Such activities influence brand or product awareness, brand loyalty, and more importantly, purchasing decisions (Chung et al., 2014, Tsimonis 2014 and Mohr et al., 2001). Thus, it is fair to assume that firms' proactive involvement in social media impacts sales (He et al., 2013).

We identify Richness, Intensity, Responsiveness, and Relevance as criteria for measuring firm social media efforts (Chung2014). Firm social media accounts can take the initiative in disseminating information to consumers by posting messages. Conveying large amounts of company and product-related information not only creates more opportunities for the public to receive information but also increases consumer awareness and engagement (Miller and Tucker 2013, Gallagher and Ransbotham 2010). Richness, i.e., the average amount of information embedded in each message firms send to the public, was chosen as a measure of the amount of information per message. Our first research question concerns what impact richness has on product sales.

Another way for firms to convey more information to consumers is to send more messages. Thus, we introduce intensity, i.e., the number of messages posted from a firm-related account, to assess the quantity of firm social media efforts. Furthermore, intensity can also be seen as a measure of the level of interaction between a firm and consumers. Our second research question is whether intensity has a positive influence on product sales.

Another advantage of using social media is that it enables firms to interact with consumers. In addition to posting messages, firms can also respond to consumers' messages, either by replying directly or by re-posting messages from consumers. This type of interaction not only enhances the richness of the

information conveyed but also increases firms' social media presence and encourages consumer engagement, thereby increasing brand and product awareness (Chung 2014, Miranda and Saunders 2003). Thus, our third research question is whether the responsiveness of firm social media efforts affects product sales.

The last measure we selected is relevance. Relevance measures the impact of social media marketing on specific products or events. Relevance is important to firms' short-term social media campaigns because, when conducting such campaigns, firms usually have a specific aim, such as promoting a new product or an event, and they often use event-related or product-related keywords in their communications with consumers (He et al., 2013). Thus, relevance captures the influence of such specialized efforts and helps examine how their impact differs from that of general social media efforts. Thus, our fourth research question is whether relevance influences sales.

Furthermore, we will explore the difference between the social media efforts of company-owned and employee-owned accounts. In addition to maintaining an official social media account, firms can create supplementary accounts for departments or products. In addition, employees may also use social media to interact with consumers. Previous studies have found that employee social media engagement has positive impacts on the market value and financial performance of firms (Aggarwal et al. 2012, Agnihotri et al. 2015). Moncrief et al. (2015) present eight lessons on topics such as supervision and selection, designed to help managers take advantage of social media opportunities. Thus, our last research question is whether company-owned and employee-owned accounts' efforts have same influence on sales.

3 DATA & MEASUREMENT

3.1 Research Context

In this study, we selected the mobile phone industry as our research context. There were several reasons for this decision. First, due to the rapid pace of technological development, mobile phone companies frequently introduce new products. Second, mobile phone users, and especially smartphone users, are more likely to engage with social media sites (Gikas et al. 2013). Thus, firms in this industry may undertake more social media marketing efforts than firms in other industries (Sinclair and Vogus, 2011). Indeed, it is not uncommon for studies in this field to use high-technology or computer-related industries as samples. For example, Luo and Zhang (2013) examine computer hardware and software companies. Park (2012) examine the digital camera industry.

First, we downloaded a list of all mobile phone company names from the Chinese Ministry of Industry and Information Technology. After weeding out firms without valid social media and sales data, we used 33 mobile phone companies as our sample. These companies shared approximately 80 % of the phone market in China (Tech Media Telecom 2015).

To investigate the impact of social media marketing campaigns on product sales, we used the data related

to Singles' Day. Singles' Day, popularized by a subsidiary of the Alibaba Group (Tmall), surpassed Black Friday to become the world's most active shopping day in 2014 (Chen 2015). In 2013, Alibaba acquired an 18 % stake in Sina Weibo, one of the largest social media platforms in China². The collaboration between the two companies provides an excellent opportunity to explore the relationship between social media marketing and product sales. Figure. 1 clearly shows that sales during the week of Singles' Day are extremely high. The average number of products sold of all companies during the week of November 11 are nearly 10 times those of a regular week. Figure. 2 shows the number of tweets including keywords related to Singles' Day, with a steep increase after the week of October 19. Our aim is to examine how firms' social media efforts during that period influence their mobile phone sales during this large-scale shopping event.

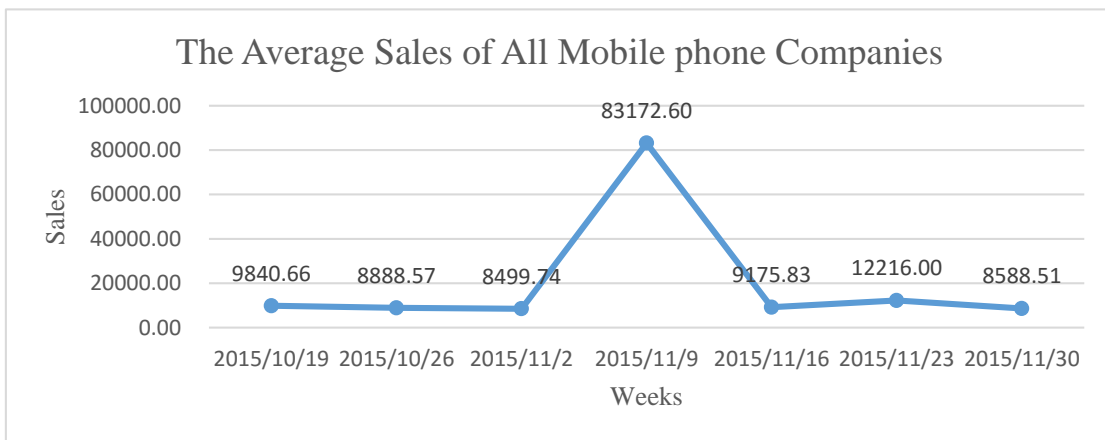


Figure 1. The weekly average sales of all mobile phone companies

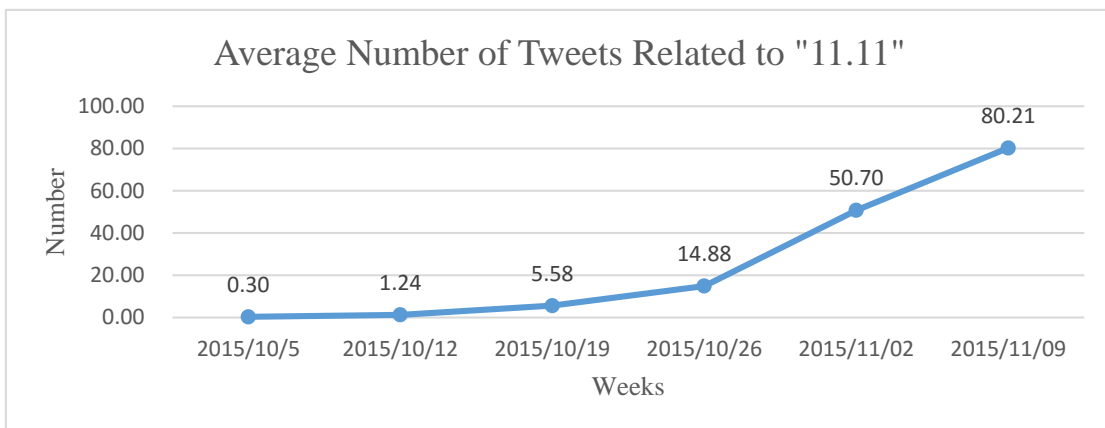


Figure 2. Average number of tweets related to "11.11"

3.2 Data and measures for Product Sales

Sales-related data, including weekly sales and average product prices from the week of 19 Oct to 11

² Sina Weibo, a Chinese version of Twitter, is a social networking platform that allows users to interact with one another or with firms. It is one of the largest social media platforms in China, with 222 million active users per month as of September 30, 2015 (Fan 2015).

Nov, are collected from Syntun, a third-party platform—DataComb³. As indicated in the previous section, the Singles' Day shopping event is driven by the Alibaba Group's Tmall platform. Because the Alibaba Group has deep corporate ties with Sina Weibo, we used Tmall sales as the measure of product sales and used Sina Weibo's efforts as the firm's social media marketing campaign data.

To overcome firm-specific differences, such as firm size and brand popularity, we used sales ratio, i.e., the ratio of sales during the week of Singles' Day to the previous weeks' average sales, as our dependent variable. Furthermore, we used discount rate, which is the ratio of the difference between the 11 Nov week and those of the previous week to the average price of the previous week, as our control variable. In other words, $Discount = (Price_{11\ Nov\ Week} - Price_{4\ Nov\ Week}) / Price_{11\ Nov\ Week}$

3.3 Data and measures for firm social media efforts

We used Sina Weibo to collect data concerning firm social media efforts. First, we used mobile phone firms' names and related keywords to identify firm-related accounts. We identified both company-owned accounts, such as product and department accounts, and employee-owned accounts, which are employees' personal accounts. Sina Weibo provides verification for both organizational and personal accounts; thus, employee-owned accounts can be easily identified.

Finally, we found 943 accounts associated with the 33 firms in the sample, among which were 301 company-owned accounts and 642 employee-owned accounts. The average number of accounts per firm was 28. Though, on average, firms had more employee-owned than company-owned accounts. However, some companies displayed a higher percentage of company-owned accounts. For example, Asus had 15 accounts, but more than 70 percent of them were company-owned.

We then used a Python-written web crawler to collect data, including the number of tweets, the content of tweets, the properties of each tweet, and other relevant variables. The data were collected daily from 5 October 2015 to 10 November 2015. As shown in Figure. 2, firms rarely launch promotions for Singles' Day until 19 October; thus, we used the data from between 19 October and 10 November.

We selected Richness, Intensity, Responsiveness, and Relevance as measurement criteria for firm social media efforts. Richness is measured by the average number of words in each tweet (AW). Intensity is captured by the number of tweets sent during the selected time period (TWS). Responsiveness is estimated by the ratio of the number re-posted tweets to the number of total tweets (RP). Relevance, especially for short-term marketing strategies, is represented by two variables: the ratio of the number of tweets containing key words related to mobile phones to the total number of posted tweets (denoted by CR) and the number of tweets related to online shopping for Singles' Day (denoted by ER). The former variable identifies the relevance of mobile phones, and the latter variable indicates the relevance of Singles' Day events.

To calculate CR, we created a mobile-phone-related corpus, which was generated from two different

³ <http://www.syntun.com.cn/>

sources: from the mobile phone industry glossary and from the mobile phone common lexicon from Sogou Input and manual selection. We then manually checked each word in the corpus to confirm its relevance to mobile phones.

3.4 Models

Based on the above analysis, we built two models to examine our research questions. Model 1 explores the impact of richness, intensity, and responsiveness.

$$Sales = \alpha_1 AW + \alpha_2 TWS + \alpha_3 RP + \alpha_4 Discount + \varepsilon \quad (1)$$

We excluded relevance from the model because we wanted to examine the general effects of social media campaigns on product sales. We added relevance measures to the model to identify the impact of relevance variables in Model 2. To solve the heteroscedasticity problem, TWS are transformed into logarithmic form.

$$Sales = \beta_1 AW + \beta_2 TWS + \beta_3 RP + \beta_4 ER + \beta_5 CR + \beta_6 Discount + \varepsilon \quad (2)$$

In addition, we sorted all data by the type of account they came from, company-owned or employee-owned. Then, we ran the two models on these two sets of data to compare impacts.

4 RESULTS

Table 1 presents the descriptive statistics and pairwise correlation for all variables. Although Sina Weibo limits each message to 140 Chinese words, the average number of words per message reached as many as 105.48, indicating that the information embedded in each message firms sent to the public was relatively rich. As shown in Table 1, the standard error of ER is extremely high at 273.89, showing a substantial difference between different firms. For example, Xiaomi, a smartphone company, released 925 tweets related to Singles' Day, whereas HTC, Koobee, Sony and other companies each sent fewer than 2 tweets related to Singles' Day.

	N	Mean	Std.	1	2	3	4	5	6
1. TWS	33	5.76	1.71	1					
2. AW	33	105.48	24.02	0.396	1				
3. RP	33	0.47	0.23	0.487	0.000	1			
4. ER	33	99.12	273.89	0.004	0.129	0.293	1		
5. CR	33	0.55	0.19	0.000	0.064	0.607	0.039	1	
6. Discount	33	-0.18	0.19	0.046	0.606	0.200	0.276	0.564	1
7. Sales	33	7.27	9.30	0.687	0.032	0.004	0.076	0.701	0.000

Table 1. Descriptive statistics and correlation matrix

Table 2 shows the results of Model 1 and Model 2. The results show that the model with intensity (TWS), richness (AW), and responsiveness (RP) has a R^2 of 0.463, $p < 0.01$, and that the model including relevance (ER and CR) has a higher R^2 of 0.553, $p < 0.01$. Furthermore, the results of Model 1 show that both TWS and AW have no significant impact on sales. TWS and AW represent the amount of information firm-related accounts disseminated to consumers, which researchers suggest can reduce information asymmetry, resulting in increased sales (Culnan et al. 2010, Yang et al. 2012). Our results revealed that such social media efforts do not influence product sales. The reason why richness and intensity have effect on long-term marketing strategies, but not on short-term marketing campaigns might be that consumers focus on the promotions relevant to the shopping event rather than the products. Our sample is based on the Singles' Day. During such event, people may have chosen the products they would like to buy, thus providing more information has no effect in reducing information asymmetry and thus, has no effect on sales. The results of Model 2 partly prove our assumption. ER has significant positive impact on sales. It shows that consumers are more concerned with information about the shopping event, which may include price discount information or other promotional information.

Variable	Model 1	Model 2
Constant	-10.269 (6.862)	-3.300 (6.924)
TWS	0.985 (0.813)	-0.350 (1.081)
AW	-0.003 (0.087)	-0.023 (0.096)
RP	15.390* (8.939)	13.018 (9.631)
ER	-	0.013** (0.005)
CR	-	4.429 (10.523)
Discount	-28.177*** (6.794)	-28.986*** (6.502)
R-square	0.463***	0.553***
Notes. Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$		

Table 2. Model 1 & Model 2

Interestingly, in Model 1, RP, the ratio of the number of re-posted tweets to the number of total tweets, has a significant positive impact on sales. RP represents the responsiveness of firm social media efforts, indicating how they interact with consumers. The result suggests that a high level of interaction indicates more sales. However, after adding the relevance variables, RP shows no significant effects, which means that relevance variables have a stronger impact than responsiveness variables.

Table 3 compares the results of company-owned accounts with those of employee-owned accounts. Social media platforms are open to both organizations and personal users. Thus, employees can create

accounts and interact with their company's consumers as well. Such actions may have an influence on firm performance as well (Miles et al. 2014).

Variable	Company-owned accounts	Employee-owned accounts
	Coefficient Model 1	Coefficient
Constant	-5.254 (6.956)	-8.650 (5.096)
TWS	0.544 (0.758)	1.057 (0.792)
AW	0.025 (0.058)	0.027 (0.079)
RP	12.273 (8.380)	4.493 (9.478)
Discount	-12.322 (7.842)	-30.100*** (7.188)
R-squared	0.151*	0.386***
	Model 2	
Constant	6.219 (7.673)	-5.340 (4.610)
TWS	-1.110 (0.972)	0.199 (0.861)
AW	-.045 (0.069)	0.041 (0.074)
RP	12.863 (7.952)	1.833 (8.678)
ER	0.031** (0.012)	0.026*** (0.088)
CR	3.378 (8.679)	-1.551 (8.170)
Discount	-17.183** (7.376)	-32.297*** (6.563)
R-squared	0.303**	0.530***
Notes. Standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01		

Table 3. Comparison of company-owned and employee-owned accounts

The results show that employee-owned accounts have a greater impact on consumer shopping decisions than company-owned accounts. The results from employee-owned accounts on both models have much higher R^2 (R^2 of Model 1 is 0.386, R^2 of Model 2 is 0.530) than company-owned accounts (R^2 of Model 1 is 0.151, R^2 of Model 2 is 0.303). These results suggest that consumers may be more interested in or place more trust in the information from employees than in information from firms. These results are not unexpected. The public may have more interest in a firm's employee than in the firm itself. For example, the founder and CEO of Xiaomi, one of the biggest mobile phone companies in China, has

13.04 million followers on Sina Weibo, more followers than the company's official account, with 10.68 million. Therefore, employee-owned accounts may attract more followers and thus have stronger effects than company-owned accounts.

5 CONCLUSION

Social media marketing is a popular topic in both academia and industry. Studies have shown that firm social media efforts have positive effects on long-term firm financial performance (Kietzmann et al. 2010, Laroche et al. 2013). However, whether firms' social media marketing campaigns have any direct impact on their product sales has not been determined. This paper aims to extend the current literature by revealing the influence of short-term social media campaigns on firm revenue.

Our research, which is based on Chinese mobile phone companies' social media marketing campaign data for Singles' Day (the world's largest online shopping event), found that firm social media efforts have a positive impact on their product sales in the context of special promotions. Moreover, we compared the impact of different social media effort measures and discovered that the intensity and richness of efforts were not significantly related to firms' Singles' Day sales. This result stands in contrast to previous research focusing on firm social media efforts' impact on long-term performance. It shows that intensity and richness do not have the same effects when firms conduct short-term social media marketing campaigns. However, responsiveness and relevance, and particularly relevance to the Singles' Day shopping event, are positively related to sales. These results extend our understanding of social media marketing strategies. They also suggest that when approaching such a large shopping event, firms should explicitly relate their promotions and activities to the event to receive better marketing results.

Furthermore, we compared social media marketing campaign yields from company-owned accounts and employee-owned accounts. To the best of our knowledge, though research has shown that both firm and employee social media activities have an impact on firm financial performance, our paper is the first to compare their influence. The results show that employee-owned accounts have a much higher impact than company-owned accounts, suggesting that firms should encourage their employees to engage with social media, using it to interact with consumers.

Our research has several limitations but also offers directions for future research. First, we focus only the impact that firms' social media efforts have on their revenue. However, studies have shown that firms' social media engagement influences users' activities (Rishika et al. 2012, He et al., 2013), which in turn affects firm performance (Hollebeek et al. 2014). Thus, future studies could explore the moderate role of the public's social media use in influencing firms' social media strategies and financial performance. In addition, our research examines the influence of firm social media marketing campaigns on firm financial performance, and it shows different results from those on the influence of campaigns on long-term marketing strategies. Thus, future studies could extend the data to compare the effect of long-term social media marketing strategies and short-term marketing campaigns.

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